Air Force Materiel Command

Development Planning (DP) Guide

Air Force Materiel Command Directorate of Intelligence and Requirements

(AFMC A2/5)

Notice and Signature Page

Copies may be obtained at the Development Planning Community of Practice Homepage:
https://afkm.wpafb.af.mil/ASPs/CoP/ClosedCoP.asp?Filter=OO-XP-MC-94

This guide is approved for Publication

DWYER L. DENNIS, Brig Gen, USAF
Director, Intelligence and Requirements
HQ AFMC/A2/5

17 Jun 2010
Date

This publication is intended for use by DP practitioners and customers.
This document is in the public domain and may be copied.

Table of Contents

Table of Figures

Introduction

Facing declining budgets, rapidly evolving threats, and the growing complexity of acquired systems, the Air Force (AF) is increasingly challenged in a resource constrained environment. Scoping and requirements decisions made prior to program initiation have tremendous impact on subsequent development and production costs, and the opportunity to influence these factors rapidly diminishes as the acquisition process progresses. Many decisions are made with insufficient technical analysis and planning to sufficiently identify, assess, and inform senior AF leaders of the technical risks associated with acquiring a given materiel solution. The absence of early technical information results in solution strategies that have not adequately considered the full scope of technical and joint mission area opportunities and implications. Programs therefore get initiated with poorly scoped and understood requirements, inaccurate cost and schedule estimates, unknown and costly technical risks, and deficient engineering and analysis to mitigate the program risks.

Recent changes to DoDI 5000.02 emphasize the early stages of pre-systems acquisition prior to Milestone A (MS A) and Milestone B (MS B) in order to reduce risk and provide decision-quality information to the Milestone Decision Authority (MDA). Further, the Weapon Systems Acquisition Reform Act of 2009 (WSARA) requires DoD to develop policies and guidance for the acquisition workforce responsible for Systems Engineering (SE), Development Planning (DP), and lifecycle management and sustainability functions. WSARA further requires DP to support key requirements, acquisition, and budget decisions prior to MS A and MS B approval through a rigorous systems analysis and SE process.

The objective of DP is to ensure the launch of high confidence programs that will deliver warfighting systems with appropriate capabilities on time and on cost. DP is not a separate phase of acquisition, but rather a suite of best practices and processes to ensure successful early acquisition planning. DP provides integrated assessments of performance, cost, and risk to inform investment decisions about concepts (prospective materiel solutions) to meet identified operational capability needs.

The Secretary of the Air Force and the Chief of Staff of the Air Force wholly support these efforts to improve acquisition. The AF's comprehensive Acquisition Improvement Program (AIP) addresses five initiatives for acquisition improvement. DP is a key part of the second initiative to improve the requirements generation process.

In support of this AIP initiative, the Materiel Commands (Air Force Materiel Command (AFMC) and Air Force Space Command (AFSPC)) established the DP Governance Structure for management vetting and integration of Air Force DP efforts. The primary purpose is to inform the Service Acquisition Executive (SAE), Major Commands (MAJCOMs), Air Force Integrated Life Cycle Management (ILCM) Enterprise, Air Force strategic planners, and industry of DP products/outcomes relative to investment of scarce resources.

At the time of publishing, Air Force Instructions are in transition with a new version of AFI 10-601, *Capabilities-Based Requirements Development*, to be published very soon which will discuss the new need for enhanced early acquisition planning. Additionally draft Guidance

Memorandums for revisions to AFI 63-101, *Acquisition and Sustainment Life Cycle Management,* and AFI 63-1201, *Life Cycle Systems Engineering,* are in coordination which address DP specifically. An AFMC supplement addressing DP will follow.

This guide is intended to aid DP stakeholders in understanding the purpose and scope of DP, as well as to provide new DP practitioners with insight into the processes that are employed to help ensure the launch of high confidence acquisition programs. The guide is not intended to be directive. It is intended to present best practices and processes as well as a familiarization with early acquisition planning. It explains the Air Force DP construct, the DP decentralized execution, the DP organizing construct, the appropriate roles and responsibilities for DP, and the centralized management structure and processes. As such, this guide is intended to assist the acquirer and the warfighter in conducting efficient and timely planning to meet the new acquisition requirements while being as responsive as possible to warfighter needs. Additionally, this guide discusses the inputs into the DP process and how related acquisition processes are used to perform DP in early acquisition planning. In this sense it is complementary with other guides, policies, and instructions such as the Early Systems Engineering (SE) Guide, the Concept Characterization and Technical Description (CCTD) Guide, DoDI 5000.02, and the Defense Acquisition Guidebook. The results of the DP centralized management process are captured in the Development Planning Strategic Plan maintained by HQ AFMC/A5C.

Key Definitions

Development Planning. DP is the materiel contribution to Air Force or Air Force-led capability planning and as such must span the entire product/system life cycle from pre-concept to disposal. It is a collaborative process bridging warfighter-identified capability needs to planning for acquisition of materiel solutions. DP supports the tradespace evaluation of emerging capability needs, includes system-of-systems assessments, identifies and assesses technology maturity and risk drivers, and incorporates comprehensive life-cycle planning contributing to a high-confidence acquisition program launch. DP brings its greatest leverage prior to the Materiel Development Decision (MDD) and MS A.

DP includes analytically-based, decision-quality assessments, studies, strategies, and options in pursuit of new capabilities. Key aspects of DP include analytic support for identification of needs and development of requirements for potential materiel solutions; initiation of high-confidence acquisition programs via early systems engineering; early test and evaluation strategy development; technology and manufacturing maturity; assessments of life-cycle analyses, life-cycle cost estimates, and early acquisition intelligence engagement. DP is accomplished in collaboration with other AF and DoD processes (e.g., requirements generation, Science and Technology (S&T), SE, acquisition security, Human Systems Integration (HSI), Intelligence Supportability, and Planning, Programming, Budgeting, and Execution (PPBE)).

Capability Materiel Team (CMT). The CMT is the multi-disciplined team of subject matter experts (SME) tasked to execute a DP effort. The CMT works directly with operational MAJCOM representatives to ensure a thorough understanding of operational requirements and Concepts of Operations (CONOPS). The CMT exists until the DP effort is transitioned to a program office or is terminated. Whenever possible, High Performance Team (HPT) core and

support members will be drawn from the CMT. The CMT informs/provides feedback to capability planning and analysis activities and the Acquisition Strategy Panel.

Capability Planning & Analysis (CP&A). CP&A is a DP process that is ongoing, iterative, and creative supporting the overarching Air Force processes of capabilities-based requirements development and the Air Force capability planning process. Product Center Capabilities Integration organizations (XRs) execute this process as the "honest broker" within the ILCM Enterprise to collaborate with the warfighter in assessing capability needs versus the "art of the possible" regarding existing and potential materiel and CONOPS solution sets.

Capabilities-Based Planning (CBP). Air Force CBP is the planning, under uncertainty, to provide capabilities suitable for a wide range of challenges and circumstances, all designed to achieve desired battlespace effects. Air Force CBP employs an analytically sound, repeatable, and traceable process to identify, assess, and prioritize Air Force capability needs and potential tradespace study areas across the Doctrine, Organization, Training, Materiel, Leadership & Education, Personnel, and Facilities (DOTMLPF) spectrum. CBP is conducted from a capability perspective, not a systems or mission perspective. Effects and the capabilities required to achieve the effects are described in AF CONOPS documents. *(Ref AFI 10-604, Capabilities-Based Planning)*

Concept Development. This DP process develops concepts during early planning and matures the concept using Early Systems Engineering.

DP Effort. A DP effort is the "package" of DP activity formally submitted to the Single Point of Entry (SPE) by a requesting organization for ILCM Enterprise resources for support with capability planning and analysis or a potential future acquisition program. DP efforts are scoped by a DP Effort Proposal that identifies agreed upon DP products, an estimated schedule, and required execution resources.

DP Governance Structure. The DP Governance Structure consists of an O-6 Working Group, 1- and 2-Star Board, and 3-Star Council, all of which are is co-chaired by AFMC and AFSPC. The DP Governance Structure ensures timely feedback to all DP stakeholders and comprises the forums for validation and approval of the DP Strategic Plan. The DP Governance Charter identifies the membership, procedures, and timing of the Working Group, Board, and Council forums.

ILCM Enterprise: DP is a critical part of the Integrated Life Cycle Management (ILCM) Enterprise. ILCM is the seamless governance, transparency, and integration of all aspects of infrastructure, resource management, and business systems necessary for successful development, acquisition, fielding, and sustainment of systems, subsystems, end-items, and services to satisfy validated warfighter capability needs.

Scope of Application of This Guide

This guide outlines processes used by the Air Force ILCM Enterprise. DP requires close collaboration between AFMC and AFSPC to ensure non-space and space capabilities, needs, and potential materiel solutions are fully coordinated. This guide applies specifically to non-space

(AFMC) DP efforts under the DP Governance Structure. However, it is available for use by all DP organizations within the ILCM Enterprise.

Centralized Management and Decentralized Execution. A centralized management and decentralized execution construct ensures adequate oversight of Materiel Enterprise resources while allowing for efficient and effective execution of DP efforts. With regard to Centralized Management, a DP Governance Structure provides oversight of DP efforts for which there is no established acquisition program in order to provide policy, standardized processes, and best practices.

DP Governance Structure Scope. The scope of the DP Governance Structure is limited to DP effort requests for which there is no established acquisition program. These DP efforts are predominantly executed by the Center XRs or XP for those Centers without an XR. The DP Governance Structure focuses the materiel community on the scope of significant efforts to support warfighter DP requests. Governance, management, and execution of DP efforts beyond MDD fall under the authority of the MDA. However, DP Governance maintains insight into the other efforts beyond MDD. The DP Governance structure does not normally support sustainment efforts that retain or restore existing capabilities; efforts supporting an established program a follow-on upgrade to an existing program; fast-track requirements (e.g., Urgent Operational Needs, Urgent Need Requests, etc.); technology demonstrations prioritized via the Applied Technology Council or other processes (e.g., Advanced Technology Demonstrations (ATD), Joint Capability Technology Demonstrations (JCTD), etc.); day-to-day collaboration between Product Centers, AFRL, MAJCOMs, and Air Staff; or discrete efforts directed by higher headquarters, Congressional marks, etc.

For DP efforts outside of the scope of the DP Governance Structure, the processes outlined in the Chapter 2: DP Decentralized Execution should be a valuable tool for all organizations performing DP.

DP Stakeholders

In addition to the Air Force ILCM Enterprise, customers who identify a military capability need and request materiel DP support are DP stakeholders. They consist primarily of the operational MAJCOMs, Field Operating Agencies (FOAs), Capability Portfolio Managers (CPMs), Intelligence Community, and indirectly, other Services and government agencies (e.g., Air Force Weather Agency, Department of Homeland Security). Stakeholders from industry and academia may assist as SMEs for DP activities and efforts, and often receive information relating to technology needs for current and future DP efforts.

Chapter 1: AF Development Planning Construct

This chapter explains how DP supports the DoD and AF acquisition processes.

Figure 1.1 displays how DP relates to Systems Acquisition. It describes the major relationships of DP with Joint Capabilities Integration & Development System (JCIDS), the DoDI 5000.02 acquisition process, the various organizations that perform DP, and the budget and acquisition products that capture the results of DP.

A closer examination of Figure 1.1 reveals pertinent interrelationships of the DP process to the larger Systems Acquisition construct. The top half of Figure 1.1 depicts the Defense Acquisition Management System; overlaid on the phases are markers which show key documents that support major milestone decisions. Also indicated, is that CBP assesses the AF's ability to deliver capable weapon systems throughout the acquisition life cycle and that DP governance covers activities through MDD and supports activities leading up to MS A. However, DP can occur anywhere throughout the acquisition lifecycle with existing acquisition programs system upgrades or modifications. The DP dependence on PPBE is shown as non-direct input to the Defense Acquisition Management System.

The upper part of Figure 1.1 also has left-to-right arrows originating at MDD showing that information derived to support the MDD is used in subsequent milestones. There are also right-to-left arrows showing that information and lessons learned from later phases of existing programs informs new pre-MDD efforts to increase the likelihood of launching high confidence programs.

The mid portion of Figure 1.1 has a color gradient timeline depicting the acquisition lifecycle broken into the three general categories of Pre-Systems Acquisition, Systems Acquisition and Sustainment gradually transitioning from one to the next. Listed in this section are DP related products such CCTDs and Analysis of Alternatives (AoA) support. For a more exhaustive list refer to Attachment 3 – DP Related Products.

The bottom portion of Figure 1.1 shows the various entities which can lead DP efforts and the interrelationship of Science & Technology (S&T) with the different DP organizations throughout the acquisition lifecycle. The DP organizations and the CMT participate in a larger capability team approach which drives an enterprise focus on comprehensive ILCM, from CBP (to include insight and informing the development of capability roadmaps and flight plans) through technology development, acquisition, test and sustainment. The teams are focused on capabilities–striving to define the System of Systems (SoS) environment associated with a given capability need resulting in a comprehensive set of system requirements addressing operational requirements to be identified and developed. The teams identify and bring together people with the right skills, expertise, and tools to achieve efficiencies while increasing the effectiveness of delivered systems and capabilities. The teams operate within the existing rules and policy regarding JCIDS document creation and Air Force policy for CBP, DP, as well as system acquisition and program management.

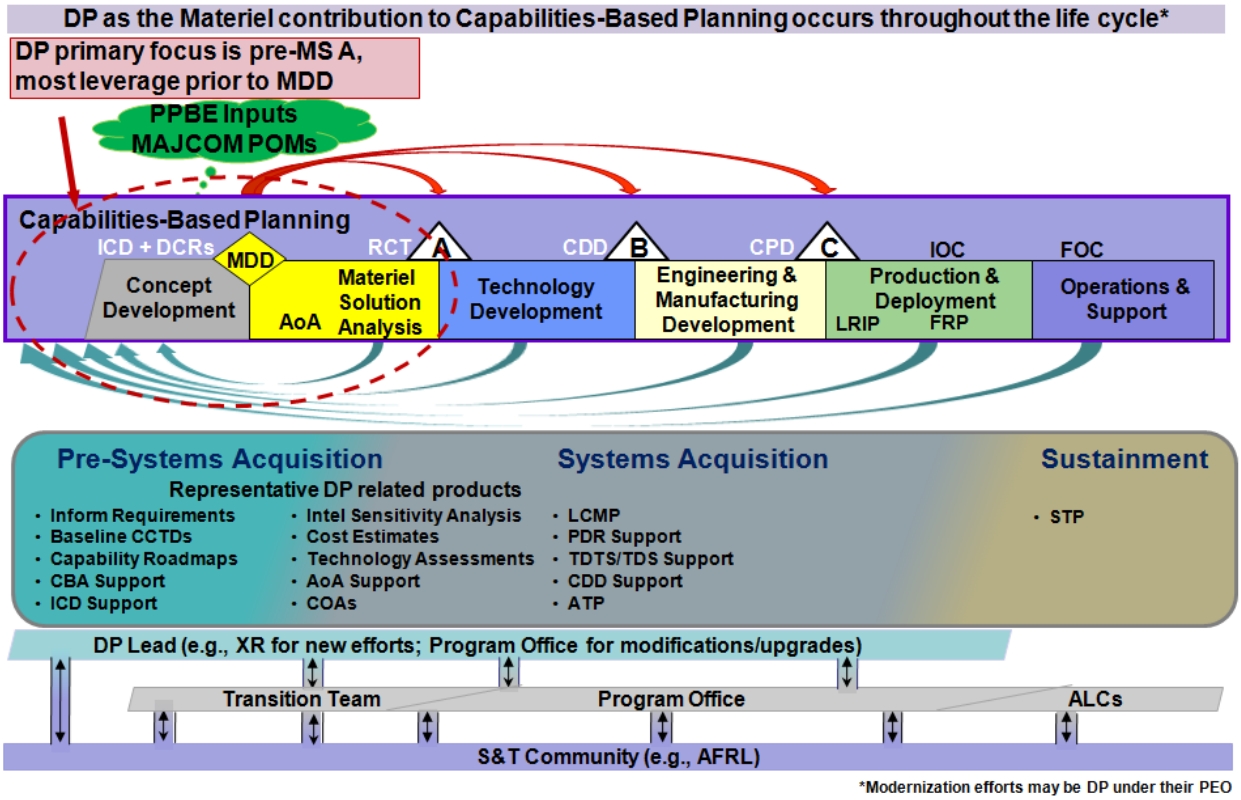

Figure 1.1 Development Planning and Systems Acquisition

Figure 1.2 displays various processes within the construct of Integrated Defense Acquisition, Technology, and Logistics Life Cycle Management System. CBP is an ongoing process ensuring approved capability needs are met through delivery and integration of warfighting systems. DP informs CBP and emphasizes pre-MS A application of best practices of programmatics and Early SE to meet a materiel need. DP executes the Early SE process to define the technical elements of DP (more information on Early SE is available in the *Early Systems Engineering Guide*; the Early SE "V" diagram appears in Figure A5.1). The CCTDs, products of the Early SE work, are living documents that capture the analytical basis of the concepts (prospective materiel solutions) and associated technologies as well as the programmatic decisions addressing a stated materiel need. At a successful MDD, the DP governance structure ceases to oversee the DP effort, but continues to support the organizations executing the DP effort. Under the oversight of the MDA, the DP effort proceeds through the Materiel Solution Analysis phase to MS A. As a result of, and concurrent with concept development, MAJCOMs create POMs to support the transition of the DP effort to an acquisition program office potentially at MS A or during the early Technology Development Phase.

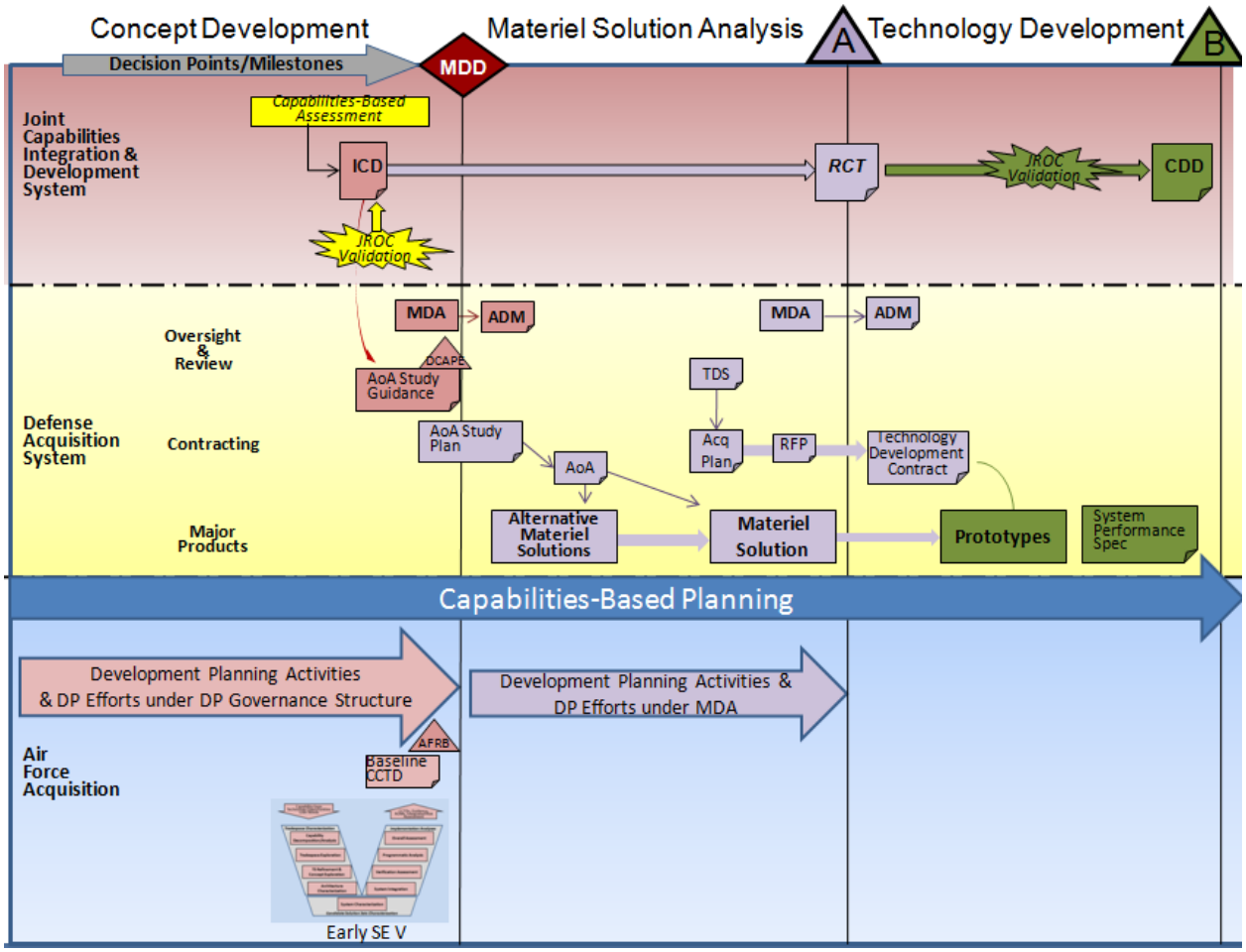

Figure 1.2 DP and Other Overarching Acquisition Processes

Figure 1.3 is a top level view of DP with its emphasis on pre-MDD DP activities. It shows the primary decentralized execution processes of CP&A and Concept Development. Note that CP&A is an ongoing process not necessarily related to a DP request and can span several phases of the acquisition timeline. This figure also depicts the centralized management DP governance processes. A DP effort request is the result of a user need and potentially a materiel request out of the Capabilities-Based Assessment (CBA). A DP proposal is built around the DP request. Assuming that the user decides to proceed with the DP effort, it is prioritized for possible funding. If funded, the DP effort then enters the Concept Development process where programmatic best practices and early SE are applied to produce CCTDs for the various concepts. This collection of CCTDs, also referred to as the 'baseline CCTDs' at this stage, inform the sponsor in support of discussions on AoA Study Guidance, and AF acquisition leadership in support of the pre-MDD Air Force Review Board (ref AFI 63-101, 3.35.2.3.2). The following list identifies principal elements of CCTDs; details of content appear in the forthcoming CCTD Guide.

- Mission / Capability Need Statement / CONOPS
- Concept Overview
- Trade Space Characterization

- Evaluations (Studies, Analyses, Experiments)
- Concept Characterization / Design
- Implementation Analyses
- Risk Assessment and Decision-Certain Consequences
- DOT_LPF Implications
- Conclusions (Capability Description; Traceability to Need Statement)

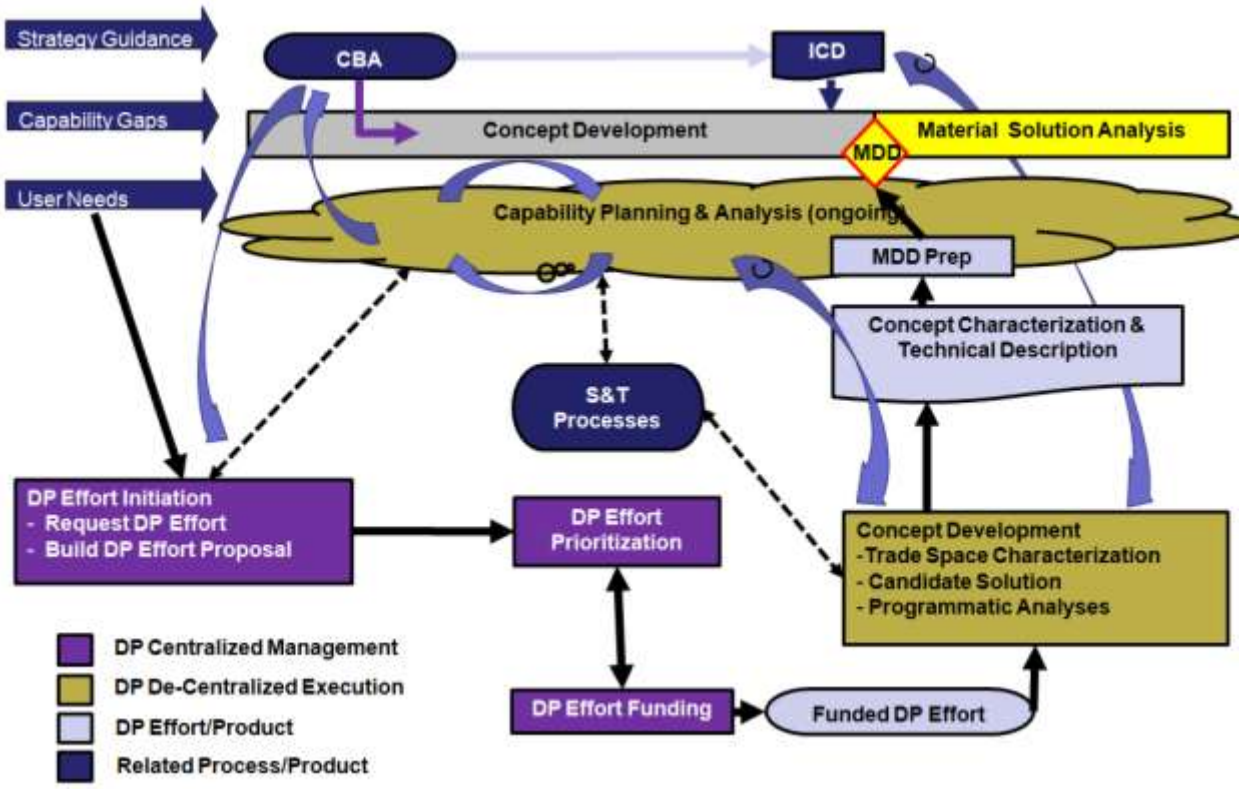

Figure 1.3 Top Level DP Flow Chart

Chapter 2: DP Decentralized Execution

DP decentralized execution incorporates two principal processes: CP&A, and Concept Development. Figure 1.2 shows where these ongoing, iterative, proactive, and reactive processes fit into the top level DP processes. Product Center XRs are the Air Force's primary DP organizations for DP efforts. These DP organizations have principal responsibility for leading the materiel provider's early systems engineering and concept development activities prior to MDD and MS A. In this role, they serve as the bridge between the warfighter, acquisition program offices, and the S&T community. As a core responsibility, these organizations collaborate on a daily basis with DoD agencies, MAJCOMs, Air Staff, industry, academia, and research laboratories in various forums, short-term studies, and capability planning activities to mature roadmaps and investment strategies designed to address capability gaps.

Capability Planning and Analysis

AFI 10-601, *Capabilities-Based Requirements Development* and AFI 10-604, *Capabilities-Based Planning*, provide overarching policy descriptions and depictions of capabilities-based requirements development and the capability planning process. Figure 2.1 depicts the DP CP&A process; portraying the relationships between the sponsor, DP organizations, and S&T community to support these overarching Air Force processes. As capability gaps are identified, defined, and refined, the interaction between the sponsor, DP and S&T provider organizations is continual in addressing capability and individual capability gaps. DP during this process is iterative and creative. The process may be entered/initiated with various activities and at several points in the process flow. Sponsor, DP organization, and S&T community roles are further described below.

Sponsor Role. The sponsor (typically the operational MAJCOM) leads and is responsible for capability planning. The sponsor identifies capability gaps and shortfalls and conducts DOTMLPF analyses to determine the need for and characterize the functional nature of gaps/needs. The sponsor collaborates with the materiel providers to assess capability needs against the "art of the possible" regarding potential materiel and CONOPS solution sets. Through this collaboration, the sponsor defines capability needs and determines how to integrate S&T, long-term studies, future concepts, and existing and planned weapon systems into Air Force and DoD investment strategies. The sponsor may choose to further develop these concepts and needs through MAJCOM sponsored studies and analyses; formal JCIDS documents; a formal DP request to AFMC/A5 and/or AFSPC/A5; and/or the Applied Technology Council.

DP Organization Role. DP organizations work to stay abreast of warfighter capability gaps, current market assessments (including the industrial bases), and current infrastructure and S&T capabilities. They also continually support roadmaps for capability areas associated with their Center's product domain (air, Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR), armament, nuclear, space), modeling & simulation (M&S) tools for concept evaluation, and weapon system concept databases.

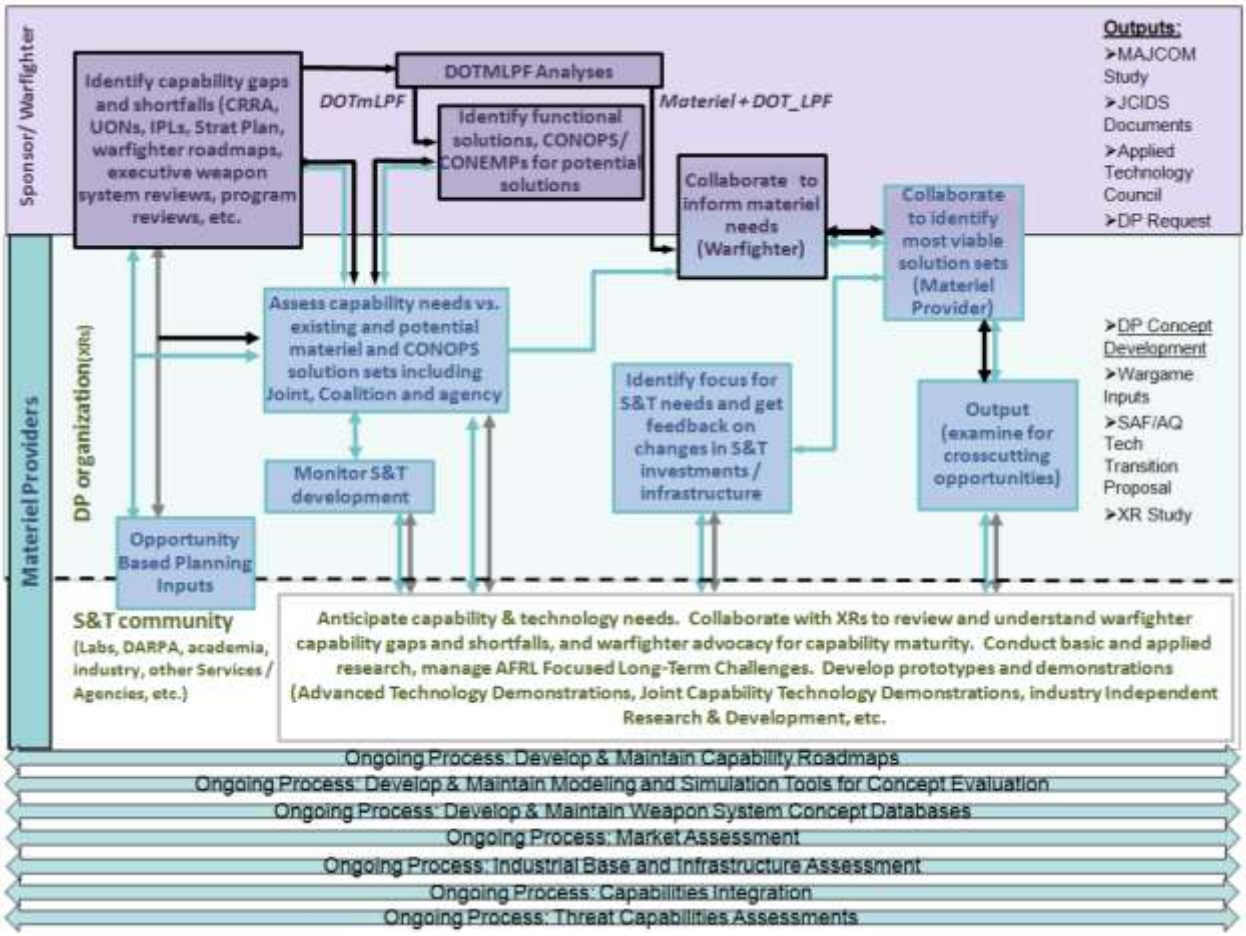

Figure 2.1 Capability Planning & Analysis

DP Organization Collaboration with the Sponsor. DP organizations collaborate with the sponsors on an ongoing basis to inform capability needs assessments versus existing and potential materiel and CONOPS solution sets. Through this collaboration, they support the sponsor's efforts, nominate core and support members for the HPTs, and identify the most viable solution sets for further exploration. As a result they are better positioned to recognize emerging capability gaps and are postured to respond. The materiel provider serves as the "honest broker" to help the sponsor integrate S&T, long-term studies, future concepts, and existing and planned weapon systems into prioritized investment strategies.

S&T Community Role. On an ongoing basis, the S&T community (industry, academia, AFRL, and other DoD, Department of Energy, and Service Research and Development (R&D) agencies) collaborates with DP organizations to stay abreast of warfighter capability gaps and warfighter advocacy for capability maturity. They anticipate operational capability and technology needs, and develop and maintain their own S&T roadmaps to chart a course to help meet these needs. They conduct basic and applied research and develop prototypes and technology demonstrations to prove the feasibility of potential technologies. In collaboration with the DP organizations, they identify opportunity based capabilities and provide feedback on changes in S&T investments to support the warfighter's prioritized capability gaps.

DP Organization Collaboration with the S&T Community. DP organizations proactively collaborate with the S&T community to develop "opportunity-based capabilities" to support capability needs, as well as to respond to discrete warfighter requests for DP support. Based on this collaboration, the DP organization provides a focus to the S&T community for prioritized S&T needs and also identifies paths/roadmaps to achieve capability maturity. These paths may include prompting the sponsor to issue a formal DP Effort Request; conducting Product Center XR concept development efforts; providing characteristics of future concepts to play in wargames; and performing other XR-sponsored studies and analyses.

Capabilities Integration. While DP activities may be focused on one principal domain (Air, Armament, Space, Cyber, or Nuclear), more often than not they require interfaces across domains and contributions across Product Centers. Product Center and AFRL leadership collaborate with each other and sponsors/warfighters at multiple levels to ensure integration of DP activities. This includes interfaces with and contributions from various domains and organizational expertise within individual concepts/efforts, across concepts / efforts, and within and across capability areas/service core functions.

Capability Roadmaps. DP organizations inform roadmap development showing the "art of the possible" linking capability needs, S&T, long-term studies, existing systems and planned systems to support higher level roadmaps and prioritized Air Force and DoD investment strategies. Typical roadmap architecture is listed below:

Air Force Level Roadmaps. These roadmaps provide the Air Force's overarching approach to develop capabilities within various capability areas.

MAJCOM Capability Roadmaps. These roadmaps provide the MAJCOMs approach to development of capabilities within various capability areas.

Product Center Capability Roadmaps. These roadmaps provide the art of the possible in Product Center efforts to develop capabilities proactively and discretely in response to specific Warfighter requests within capability areas supported by their domain (Air, Armament, Space, Cyber, or Nuclear). The ability to meet warfighter requirements in a timely manner is facilitated by good planning and reflected in capability roadmaps. The roadmaps reflect a time-phased approach to matching customer capability needs with potential materiel solutions.

Concept Development Roadmaps. These roadmaps identify the activities required to mature a concept to support an AoA and MS A decision. JCIDS activities, acquisition strategy development activities, DP activities, and S&T needs should be identified in the Concept Development Roadmap.

S&T Roadmaps. These roadmaps provide the specific S&T program efforts required to provide a technology solution to the S&T needs identified in the Concept Development Roadmap.

Concept Development

Figure 2.2 outlines the concept development process. Once a specific DP request is received and approved, the lead XR forms a CMT to explore, develop, and refine concepts to address the stated capability need. The CMT develops a study / advocacy plan / acquisition approach and

matures the concept through three overarching phases of activity: tradespace characterization, candidate solution sets analysis, and implementation analysis. The end goal of this process is a timely and successful MDD. (For greater detail on these sub-processes, refer to the *Early Systems Engineering Guide*.)

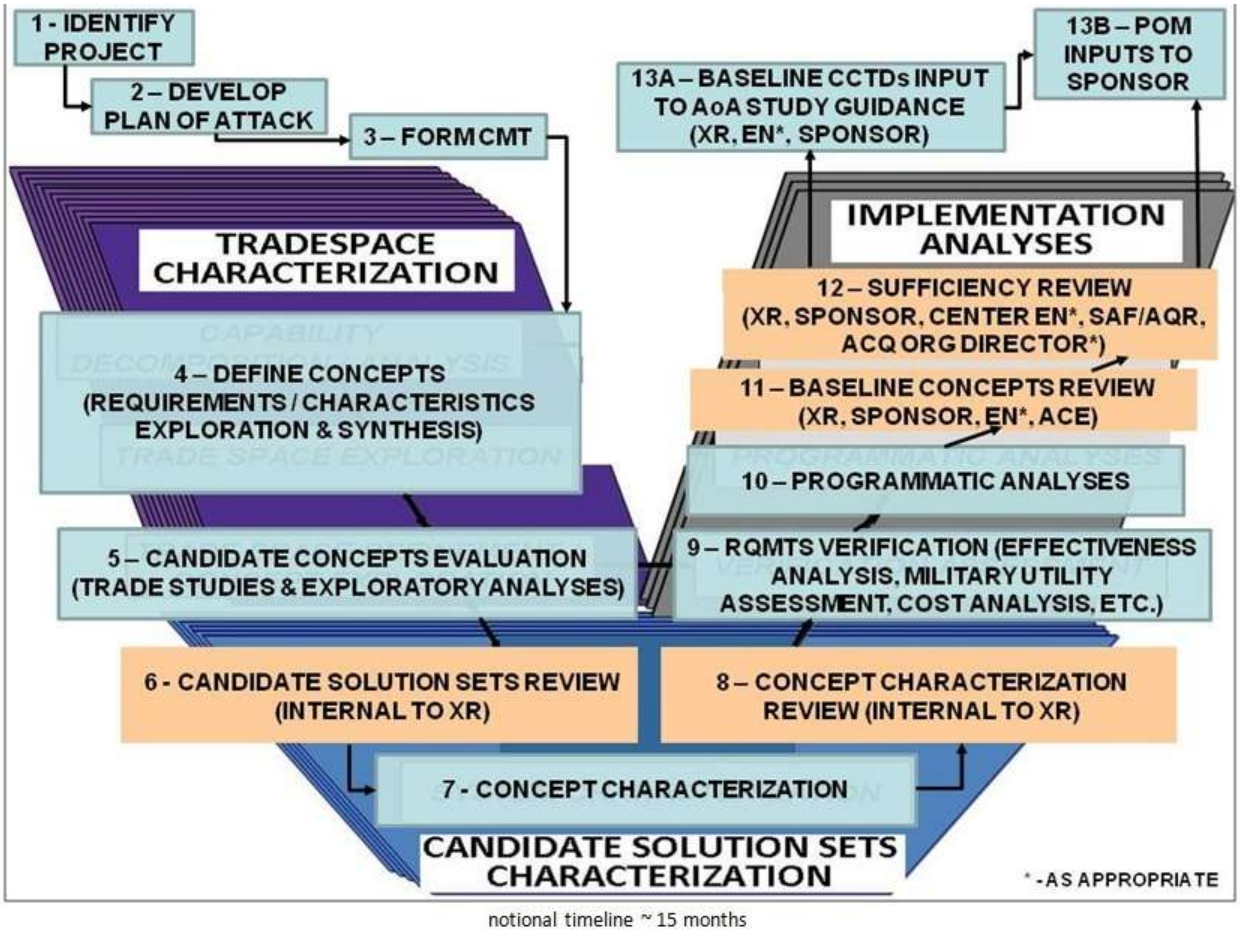

Figure 2.2 Concept Development

To ensure the protection of any critical program information and consideration of information assurance and anti-tamper system engineering countermeasure requirement as these concepts are developed, CMTs collaborate through their S&T, Acquisition Security, and Acquisition Intelligence SMEs with the S&T community to determine any Technology Protection Plans that need to be transferred from AFRL to the development planning organizations for inclusion in Program Protection Plans (PPPs). The S&T work should be accomplished using the Acquisition Technology Process (ATP). All technology needs associated with a DP topic should be inserted into the ATP. The ATP will accomplish the prioritization of the technology needs (see AFMCI 61-103, *Management of Science and Technology (S&T))* and thereby influence S&T investment.

Early SE Tradespace Characterization Phase. Work accomplished during this phase is captured in the CCTDs. The phase is broken down into two elements: Defining the concept and candidate concept evaluation.

Define Concepts. The CMT begins the tradespace characterization by decomposing the capability need to determine the requirements and associated ground rules and assumptions. The team develops an initial Work Breakdown Structure (WBS); researches applicable technologies; and makes initial assessments of critical technology elements, technology readiness, manufacturing readiness, user considerations, risk, cost estimates, intelligence support, and logistics support.

Candidate Concept Evaluation. Having defined the concept, the CMT then determines their methodology to evaluate concepts; scores and ranks candidate concepts; develops an OV-1 and Level 2 WBS; and adds considerations for infrastructure, enablers, systems of systems, etc., to the CCTDs.

Early SE Candidate Solution Sets Characterization Phase. Following the initial tradespace characterization, CMTs review the status of their candidate solution sets with DP organization senior leadership. CMTs further characterize promising concepts with more detail and refined estimates as described in the following paragraphs. Guidance from this review is incorporated in further concept characterization efforts by the CMT.

Concept Characterization. This includes re-examining the ground rules and assumptions, updating the cost estimate, developing additional architecture views (OV-2/3/4/5, SV-1/3/4/7/9), and Level 3 WBS to the extent possible, conducting preliminary trade studies between concepts, and employing Modeling & Simulation (M&S) to characterize concept capabilities. It is important the humans that operate, maintain and support these systems be included in the various architectures to ensure accurate cost and performance trades. The CMT captures relevant data in the CCTDs and reviews the results of this extended analysis with development planning organization senior leadership and the senior engineering functional from the lead Product Center (as appropriate).

Early SE Implementation Analyses Phase. The steps of this phase ensure realistic acquisition resources, schedules, and costs are defined for each candidate solution and mature concepts receive an initial military utility assessment (MUA) (the AoA includes a comprehensive MUA, see CJCSI 3170.01E). The lead Product Center performs programmatic analyses in preparation for reviews with senior functional leadership to ensure the sufficiency of the programmatics associated with each concept. It is recommended the Product Center Senior financial management functional should review the sufficiency of life cycle cost estimates. Manpower and Personnel costs are projected based on anticipated fielded maintenance, support and operational capabilities. Similarly, the Product Center Technical Authority and the senior leader of the acquisition organization expected to implement the concept should co-chair a sufficiency review of the overall programmatic assessments (cost, schedule, estimated performance, technology readiness, manufacturing readiness, integration readiness, risk, etc) captured in the CCTDs. This review of the concepts is conducted prior to release of the baseline CCTDs and overall Program Objective Memorandum (POM) input to the sponsor.

Integration / Identify Crosscutting Opportunities

Integration is paramount to ensure collaboration of air, space, C4ISR, weapons, and nuclear capabilities, needs, and potential materiel solutions. For both established and non-established programs, integration of DP occurs on multiple levels: within and across DP efforts; within and across capability areas. Each level includes integration with other Services and agencies as appropriate.

Critical aspects of the DP integration should be accomplished within the ILCM enterprise through integration forums which are cognizant of relationships to be addressed within and across DP efforts and capability areas. Integration forums serve to ensure all aspects of the ILCM enterprise are appropriately integrated, will map cross-enterprise DP efforts to a common lexicon of affected capability areas / Service Core Functions (SCF) / Joint Capability Areas (JCA) to support DP integration, and ensure the appropriate options are being consistently assessed.

The integration forums provide feedback to DP Working Group and Board as appropriate. AF Product Center XR Directors work cross-center integration issues that cannot be resolved at action officer level and determine the need for an annual cross-center integration meeting with center Vice Commander / Executive Director participation. These meetings would be held prior to DP Board to ensure current status is available to review.

Enabling Processes

As DP is the early application of best practices and processes used in acquisition, DP practitioners should be familiar with the standard supporting processes and business practices used in most acquisition programs and listed below. These allow the ILCM Enterprise to consistently: enter a program with a defined level of risk, develop early cost estimates refined throughout the life cycle, manage their programs, and provide consistent advice and recommendations to decision makers based upon information generated through application of these processes.

Tailoring of these processes, along with compliance mechanisms and approaches, will be addressed as the process work is matured. The information generated from these standard supporting processes is critical to effective decision making. The ability to reuse knowledge, work from the same starting point, and develop consistent materiel options will not only allow for effective decision making, but will provide a mechanism for increased efficiencies as well. For greater detail please refer to Attachment 5.

- Acquisition Intelligence
- Cost Estimating
- Early Systems Engineering
- Human Systems Integration (HSI)
- Integration and Systems Engineering
- International Armaments Cooperation (IAC)
- Modeling, Simulation, and Analysis
- Life Cycle Risk Management (LCRM)

- Product Support
- Program Protection
- Scheduling
- Stakeholder Development
- Test and Evaluation (T&E)

DP Tools

Development Planning Community of Practice (DP CoP). The DP CoP is the primary communications tool used to distribute information regarding DP policy, reference material, DP documents, and DP effort activity. It can be accessed at: https://afkm.wpafb.af.mil/ASPs/CoP/ClosedCoP.asp?Filter=OO-XP-MC-94 or through the AF Portal at: https://www.my.af.mil/afknprod/community/views/home.aspx?Filter=OO-XP-MC-94.

Development Planning Homepage on Enterprise Information Management (EIM). A similar tool for use inside AFMC is the DP homepage on the AFMC EIM. This is a more expansive information management site than the DP CoP. The link is: https://cs.eis.afmc.af.mil/sites/AFMCDP/default.aspx.

Intelligence Health Assessment (IHA). The focus of the IHA is to ensure intelligence information and infrastructures are available to future systems at the levels required for full operational capability. Emerging systems have become increasingly dependent on intelligence data to function, and the development of this data often requires a strategic plan with AF- and national-level intelligence community members. The IHA is built around the Intelligence categories set forth in CJCSI 3312.01G, *Joint Military Intelligence Requirements Certification*. The IHA provides information on risks to cost, schedule, and/or performance based on the intelligence needs of the system. *The Intelligence Health Assessment Guide* can be found on SIPRNet at the following link: http://www.intelink.sgov.gov/sites/afmc-a2-master/default.aspx

Logistics Health Assessment (LHA). The Air Force's ability to maximize warfighting effectiveness hinges on establishing and maintaining a logistics support foundation throughout the system life cycle. Designed to complement the Air Force's Acquisition Sustainment (AS) Toolkit and Independent Logistics Assessment (ILA) tools, the LHA provides the acquisition and sustainment communities a standard, tailorable, user friendly tool to report on and ensure long-term sustainment and availability considerations that can be identified and integrated into early program decisions. Ultimately, LHA enhances the potential for systems to be fielded with a support structure in place and optimizes the warfighter's ability to meet mission performance requirements. The LHA is built around the 12 Product Support elements outlined in Air Force Instruction 63-101, *Acquisition & Sustainment Life Cycle Management*. LHA is a tool which provides the Air Force a capability to assess the logistics health of Defense Programs from concept to disposal. LHA is a stand-alone Decision Support Module accessible in the Air Force's System Metric and Reporting Tool (SMART). *The Logistics Health Assessment Guide* can be found at the following link: https://acc.dau.mil/CommunityBrowser.aspx?id=336951&lang=en-US

Chapter 3: DP Organizing Construct

The intent of this chapter is to address the primary players in development planning and their roles. One of the primary organizing structures within the DP organizing construct is the DP Governance Structure which, along with the centralized management processes used to support its DP efforts, comprises DP governance.

DP Governance

The DP Governance Role, as shown in Figure 3.1, is to use the centralized management and decentralized execution model to ensure adequate oversight of DP resources while allowing for efficient, flexible, and effective execution of DP efforts.

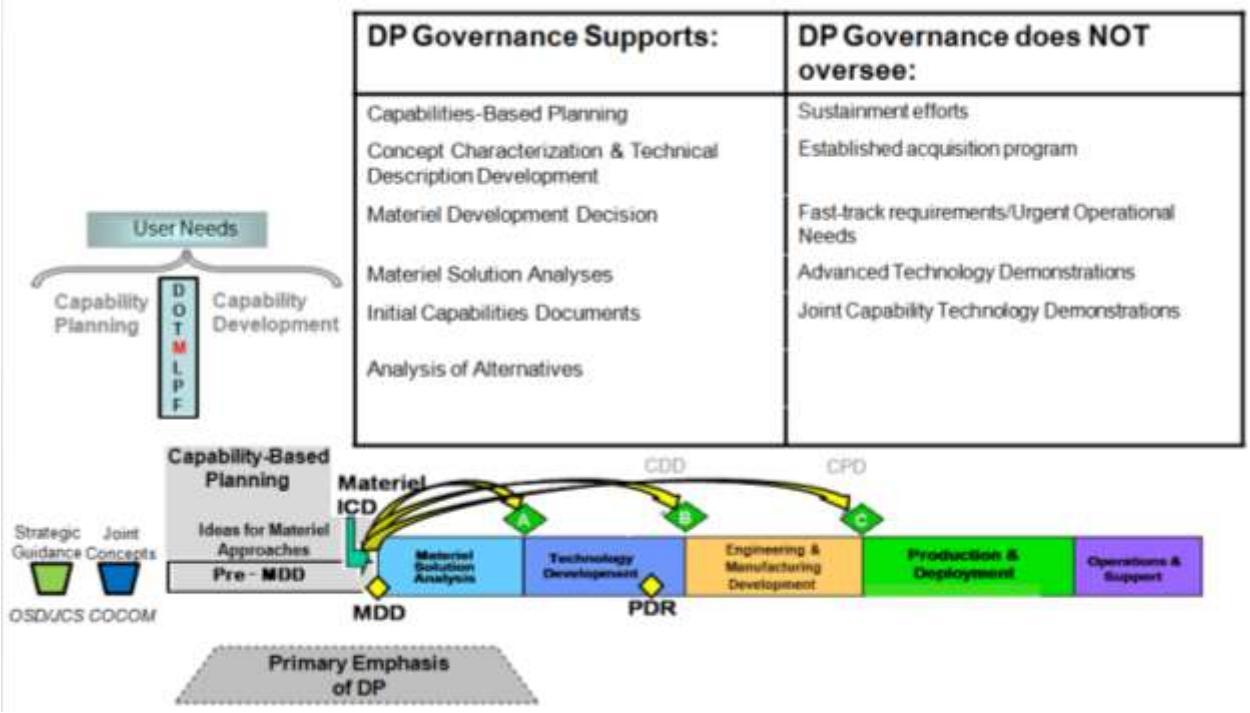

Figure 3.1 DP Governance Role in DP

The DP Governance Structure (see Figure 3.2) supports the DP efforts not residing under the oversight of a MDA, PEO, and program office. The DP Governance Charter signed by AFSPC/CV and AFMC/CV can be found on the DP CoP at: https://afkm.wpafb.af.mil/ASPs/CoP/ClosedCoP.asp?Filter=OO-XP-MC-94. The DP Governance Structure allows Air Force ILCM Enterprise decision makers to have insight into warfighter materiel DP effort requests, the priority of those requests in relation to current workload, and awareness of AFSPC and AFMC DP capacity and resource availability. With this knowledge, Air Force ILCM Enterprise decision makers can conduct a collaborative, coordinated, prioritized DP response to meet current and future warfighter materiel needs. The primary purpose is to inform the Service Acquisition Executive, MAJCOMs, Air Force ILCM Enterprise, Air Force strategic planners, and industry of DP products/outcomes relative to investment of scarce resources. The DP Strategic Plan captures the Air Force ILCM Enterprise

response for all materiel need requests requiring DP support within the scope of the DP governance process.

In support of MDD, the sponsor and acquirer present an agreed-to funding strategy for the prospective future program. This includes sponsor commitments for both near-term (covering as a minimum the current and next execution years, and including, but not limited to, the AoA) and mid-term (through anticipated formal program initiation) DP and Technology Development (TD) activities associated with preparation for the next milestone decision. Resource allocation, both at the beginning of a prioritized DP effort and in support of transition from a DP organization to a program office structure, should be consistent with Air Force priorities and the implementing command Mission Assignment Process.

The DP Governance Structure does not normally oversee sustainment efforts that retain or restore existing capabilities, efforts supporting an established program, fast-track needs (e.g., Urgent Operational Needs, Urgent Need Requests, etc.), or technology demonstrations prioritized via the Applied Technology Council or other processes (e.g., Advanced Technology Demonstrations, Joint Capability Technology Demonstrations, etc.). Additionally, the DP Governance Structure ceases to oversee specific DP efforts at MDD which, afterwards, will fall under the MDA.

Figure 3.2 DP Governance Structure

DP Working Group (DPWG). The mission of the DPWG is to recommend prioritization of Air Force DP efforts to the DP Board and conduct quarterly vetting, integrating, and reporting on the status of the DP activities executed by AFMC and AFSPC Materiel Centers. It ensures DP issues are addressed and staffed to successful resolution. The DPWG ensures responsiveness of DP to overall AF strategic objectives and is also responsible for ensuring integration across the DP effort portfolio. The DPWG is co-chaired by HQ AFMC/A5C and HQ AFSPC/A5X.

DP Board. The DP Board resolves issues elevated from the DPWG, approves DPWG prioritization plans, validates the DP Strategic Plan, and advocates for MAJCOM resources as

necessary. It also ensures responsiveness of DP to overall AF strategic objectives. The DP Board provides oversight of Air Force DP via operational-level semi-annual reviews. Finally, the DP Board is responsible to the DP Council to ensure DP issues are resolved, DP efforts are appropriately prioritized and integrated, the DP Strategic Plan is validated, and MAJCOM resources are used effectively. The DP Board is co-chaired by AFMC/A2/5 and AFSPC/A5.

DP Council. The DP Council ensures responsiveness of DP to overall AF strategic objectives, approves the DP Strategic Plan, and advocates DP to the AF corporate structure. It provides oversight of AF DP via a strategic-level annual review. The DP Council is co-chaired by AFMC/CV and AFSPC/CV.

The DP Governance Structure Secretariat. HQ AFMC/A5CC is the Secretariat and has responsibility to:

- Develop DP Governance Structure administrative procedures
- Support the DP Governance Structure co-chairs as necessary
- Maintain all enterprise-wide DP information/documentation approved by the DP Group/Board/Council
- Coordinate the actions of the DP Governance Structure co-chairs and membership
- Operate and maintain a CoP
- Ensure DP efforts being executed within the ILCM Enterprise have been properly staffed through the Materiel Commands' SPE (HQ AFMC/A2/5 for non-space, HQ AFSPC/A5 for space) to allow proper assignment (e.g., team composition and cross-cutting integration)
- Monitor initiated DP efforts and review completed DP efforts
- Lead development of the DP Strategic Plan in coordination with HQ AFSPC/A5X

Product Centers (CC, PEOs, XRs)

The Product and Specialized Centers provide members to support the DP Governance Structure to ensure acquisition and sustainment life cycle management expertise to DP. Upon notification of a DP effort request by HQ AFMC/A5C or HQ AFSPC/A5X, they identify CMT members and a recommended CMT lead Center to develop the DP effort proposal. The Center Commanders (and the PEOs that are not Center Commanders) are responsible for the decentralized execution of DP within their portfolio and ensuring integration of the efforts within their Product Center and efforts to integrate with other centers. The Center CCs provide for the enabling process support required to accomplish DP.

The XRs ensure the CMT executes the DP effort effectively and efficiently. The XRs also develop and maintain:

- Capability and concept development roadmaps associated with their domains
- M&S tools to support concept evaluations
- Awareness of existing and future weapon system concept capabilities
- Awareness of the market and industrial capability
- Awareness of threat, geospatial, and intelligence infrastructure considerations

DP can be accomplished within the Center XR and/or the individual program offices (modifications adding capability). Collaboration between the Center XR and the individual program office is critical. The need for collaboration is evidenced by the Center XRs understanding potential program solutions/contributions to a need; program improvements can be leveraged for other XR lead DP efforts; timely and effective handoff of materiel solutions from XR to a program office; SoS assessment of the ability to achieve warfighter needs; potential to address gaps from a cross-cutting, synergistic approach, and consistency in process execution. In all cases, DP needs to be accomplished using sound business practices – developed and owned by the functional organizations, using skilled individuals. The business practices used by DP, while the same in name as those used by executing programs, are often unique practices given the nature of this upfront planning activity. Practices which must be addressed for DP include: contracting, financial management, cost estimating, scheduling, risk assessment and management, requirements generation and management, analysis, acquisition intelligence, acquisition security, SE, human considerations, and numerous others.

AFMC Logistics Centers, T&E Community, S&T Community, Office of Aerospace Studies

AFMC Logistics Centers provide members to support the DP Governance Structure to ensure acquisition and sustainment life cycle management expertise to DP. They also provide CMT members as appropriate for each DP effort to ensure supportability and sustainment requirements and strategies are considered.

The T&E community provides members to support the DP Governance Structure to ensure test and evaluation expertise to DP. They also provide CMT members as appropriate for each DP effort to ensure measurable and testable requirements, test and evaluation strategies are considered, and test infrastructure requirements are assessed.

The S&T Community (primarily but not exclusively AFRL) provides members to support the DP Governance Structure to ensure S&T expertise to DP. They also provide CMT members as appropriate for each DP effort to ensure S&T considerations are taken into account and to assist with the identification of technology needs. Additionally, working with the XRs, they:

- Provide Technology Protection Plans to Center XR organizations as technology is transitioned from S&T development to materiel concept development
- Anticipate near-, mid-, and long-term capability and technology needs
- Develop and maintain S&T roadmaps and investment strategies to support Concept Development, Center XR, MAJCOM, and Air Force roadmaps
- Identify opportunity-based capabilities

The Office of Aerospace Studies facilitates the AoA. In preparation for the AoA, OAS will provide CMT members as appropriate for each DP effort and will assist with the identification of new analytical methods / tools / data needed to adequately assess the DP produced options in the CBA or AoA.

Operational MAJCOMs and other Sponsor Organizations

The operational MAJCOM is one of the primary customers of DP and their collaboration throughout the entire process is essential. MAJCOMs have membership on each level of the DP Governance Structure as defined in the DP Governance Charter to ensure visibility into all AF DP efforts across all MAJCOMs. IAW AFI 10-604, AFI 10-601, and AFI 63-101, MAJCOMs will submit all DP effort requests within the scope of the DP Governance Structure to the Air Force ILCM Enterprise SPE (HQ AFMC/A5C for non-space, HQ AFSPC/A5X for space). Sponsoring MAJCOM representatives participate with each CMT to ensure a thorough understanding of operational requirements and CONOPS.

The MAJCOMs carry primary responsibility for performing CBP and producing the various JCIDS documents such as ICDs, Capability Development Documents (CDD), and developing the capability roadmaps. The MAJCOMs are also responsible to provide POM inputs for the DP efforts their Capability Roadmaps indicate will need to begin during a POM cycle. As a DP effort approaches MDD, the CMT and MAJCOM in coordination prepare a funding profile to meet the requirements of acquisition directives. It is recognized the MAJCOMs may be under significant fiscal constraints. In these cases, close collaboration between the MAJCOM, AFMC, and Product Center(s) should produce a viable plan for funding the DP / acquisition effort post-MDD with MDA acceptance of the associated program risk.

Other organizations may submit DP requests through the SPE. HQ AF Directorates and Capability Portfolio Managers are already active in the DP process. Since these sponsors typically have little inherent funding capability, they generally will need to team up with a MAJCOM to carry the DP effort to the MDD.

Requirements Process Organizations

The DP community interacts on a regular basis with the organizations that execute and shepherd the requirements process: Air Force Requirements Oversight Council (AFROC), Joint Requirements Oversight Council (JROC), HPT, etc. In their planning capability, the Center XRs should forecast and prepare for the various requirements reviews that their DP efforts must support. The Center XRs should coordinate with the USAF process owner, AF/A5RP, to ensure compliance with the latest guidance. Attachment 4 is a notional DP capability Microsoft Project and Microsoft PowerPoint graphic that represents the preparations necessary to meet DoDI 5000.02 and JCIDS requirements to support the MDD.

Chapter 4: DP Centralized Management

The processes within this section of the guide pertain only to the ILCM Enterprise organizations falling under the DP Governance Structure. In general, this section applies to DP effort requests for which there is no established acquisition program and which have not yet reached MDD. These DP efforts are predominantly executed by XR organizations.

Single Point of Entry

DP Single Point of Entry. Per AFI 10-601, all sponsor requests for acquisition command DP resources, in support of pre-MDD planning for which there is no established acquisition program will be submitted through the Air Force ILCM Enterprise SPE (HQ AFMC/A5C for non-space, HQ AFSPC/A5X for space). The SPE provides ILCM Enterprise decision makers visibility and thorough consideration of warfighter materiel DP effort requests. The DP effort Request Template in Attachment 2 should be used to assist requesting organizations in providing the information necessary to scope the requested DP effort. For Special Access Programs (SAPs), SAF/AQL conducts a comprehensive parallel AF corporate level process for SAP efforts.

As indicated below (Figure 4.1), when a MAJCOM / sponsor submits a DP Effort Request to HQ AFMC or HQ AFSPC, through the SPE, an acknowledgment of the DP Effort Request is forwarded to the requesting MAJCOM / executive agency. The DP Effort Request is validated and if accepted lead acquisition and sustainment Centers are designated consistent with the HQ mission assignment process. The lead acquisition center is the team lead of the CMT. In addition, AFMC/A5CC includes AFMC/A5J for situational awareness. Each CMT is represented by a SME from appropriate organizations across the ILCM, to include those from the requesting MAJCOM / executive agency. After the CMT is formed, a letter is sent to the requesting MAJCOM / sponsor indentifying the Center lead and CMT members. From that point forward the CMT will engage as necessary to refine and clarify any needs directly with the requesting MAJCOM / executive agency to ensure needs are well understood and unabridged. This process is expected to culminate in a responsively scoped DP Effort Proposal to satisfy the request no later than 70 calendar days from the date of the initial DP Materiel request letter. This includes obtaining both an O-6 level requesting MAJCOM signature, as well as the Center XR O-6 level signature on the proposal prior to submittal to HQ AFMC or HQ AFSPC for approval. However, faster submittal timelines are desired to maintain customer responsiveness. The appropriate Materiel Command A5 will also sign and forward the staffed DP effort proposal to the requesting MAJCOM / sponsor. HQ AFMC/A5C monitors this process to ensure timely proposal responses for less complex DP requests, but may grant waivers to the 70 calendar day proposal due date if such efforts are so complex / justified.

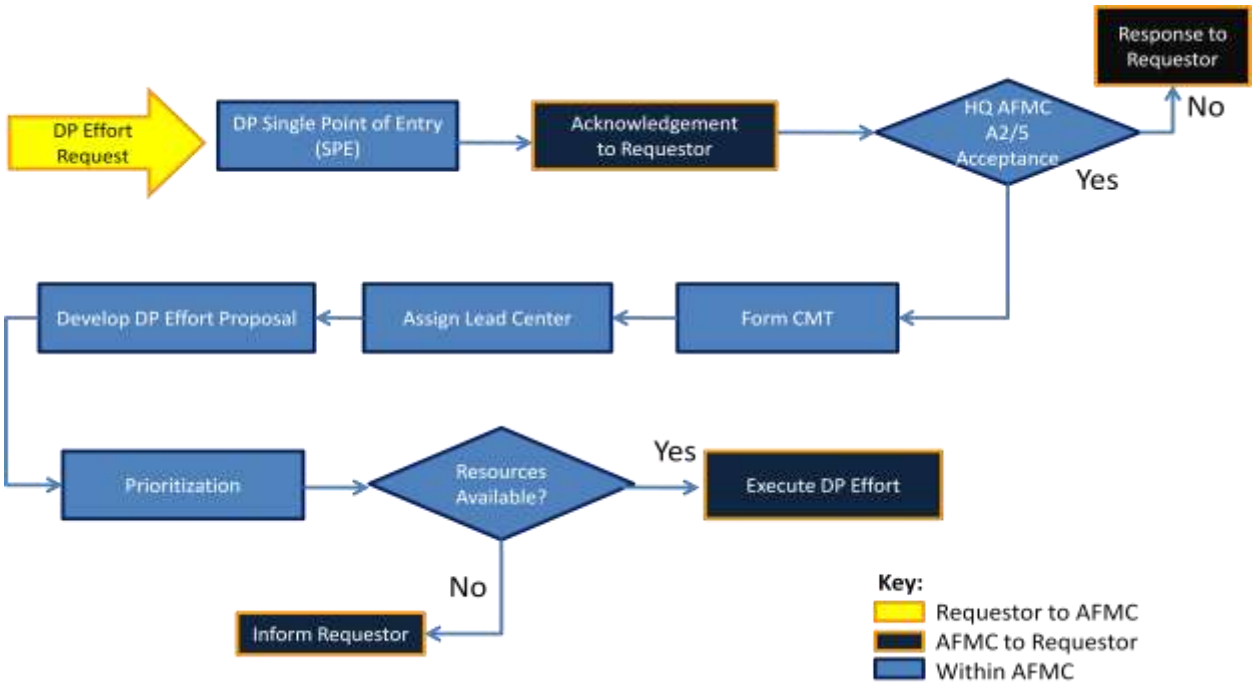

Figure 4.1 DP Single Point of Entry Process

Prioritization

Prioritization Overview. Requirements for DP typically exceed the capacity of the ILCM Enterprise. Figure 4.2 depicts the prioritization process that has been established to maximize the value to the AF within the limited resources. Resource allocation, both at the beginning of a prioritized DP effort and in support of transition from a DP organization to a program office structure, should be consistent with Air Force priorities and the implementing command Mission Assignment Process. The prioritization process has three basic steps. The first step is determining the value to the AF for each proposed effort using a Value Focused Thinking (VFT) model. The second step uses a linear analysis model to maximize the AF value of efforts that can be accomplished within the current resources. The third step is for the DPWG to apply professional military judgment to the listing the linear analysis model recommended. Once the DPWG agrees to the list they present it to the Board for validation and the Council for approval. Once the Council approves the list it is included in the DP Strategic Plan.

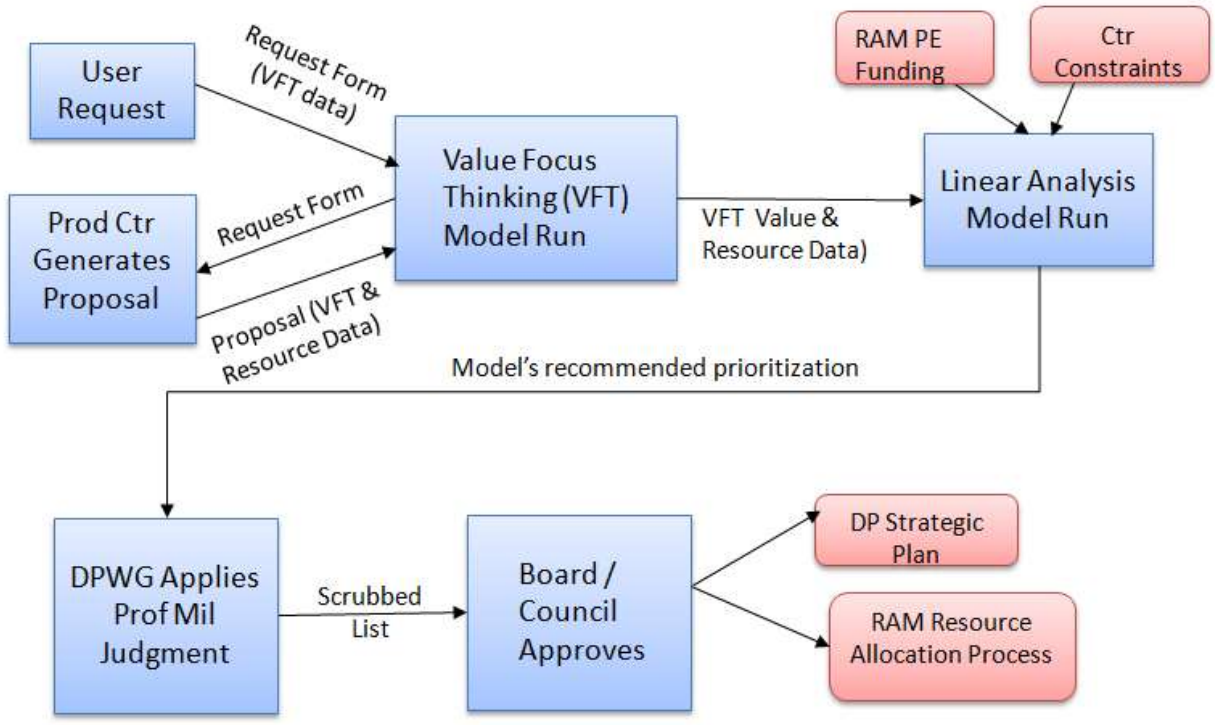

Figure 4.2 DP Prioritization Process

Step 1: Determine the Value of the DP efforts. The AF value of each DP effort is determined using a VFT model that was developed by the DPWG. The DPWG established a set of questions to be asked of both the effort sponsor and the Product Centers. In addition, the DPWG established functions to assign a value to the answers of the questions. HQ AFMC/A5C and /A9 will maintain the model for the DPWG. The DPWG will periodically review the model and make changes to improve the model as necessary. This should be done prior to the start of any collection of data for the model.

The annual prioritization process begins in the fall (usually in October). HQ AFMC/A5C sends out a data request to DPWG members requesting new DP efforts, as well as what existing DP efforts they want AFMC to work on in the next fiscal year. For each new DP effort, the effort sponsor submits a completed DP Effort Request form to the SPE. The VFT questions from the form will be used to help determine the AF value of the DP effort. For continuing DP efforts, the sponsor will review their previous submittal of the questions and update them accordingly. The Sponsor's VFT questions are only half of the VFT questions needed to be answered to completely understand the value of the effort. The Product Centers provide the other half. Once the SPE receives the request for a DP effort, they will request the Product Centers to develop a DP Effort Proposal to meet the requested needs. This is normally done in the Nov - Dec timeframe. Two pieces of data from the proposal are used by the prioritization process. One is the resources required to do the effort. This is used in the linear analysis model which is described later in this section. The other is the Centers' VFT questions / answers attached to the proposal. With both Sponsors and Centers' inputs, AFMC/A9 runs the VFT model to determine

the AF value for each effort. The model calculates a value between 0.0 and 1.0 based upon the answers to the questions.

Step 2: Linear Analysis Model. The VFT model determined the AF value of the DP effort; however, the AF normally does not have sufficient resources to do all the efforts requested. The linear analysis model helps determine the DP efforts to which we should allocate limited DP resources to obtain the maximum AF value. The model requires data from three sources.

The first source is the capacity of each Product Center. HQ AFMC/A5C and HQ AFMC/A8/9 will work with the Product Centers to help determine the DP resources needed to accomplish their DP efforts and the total resource capacity of the Center. Each Center will have different constraints and capacities, but generally they are manpower (e.g. program manager, engineers), funding (to accomplish studies and for temporary duty (TDY)) and miscellaneous (lab time, test ranges, launch windows).

The second source is the VFT results and the required resources that were generated in Step 1. The VFT values of each DP effort are put directly into the linear analysis model. For efforts starting in the next fiscal year, the resources required are taken from the resource required worksheets that are attached to the proposal developed in Step 1. For efforts already started in the current year, the Product Centers will update the required resources to reflect the remaining resources required for the next fiscal year. To allow for easy input, HQ AFMC/A5C will establish Center specific spreadsheets on the DP EIM site to allow the Centers to enter their Centers' capacities and the resources required for each effort. HQ AFMC/A5C will notify the Centers the exact location of the spreadsheet. This will normally happen in the early Nov timeframe so the Centers have November through December to compile the data and enter it.

The third source is the non-space Requirements Analysis and Maturation (RAM) Program Element (PE) amount for the next fiscal year. HQ AFMC/A5C will inform HQ AFMC/A8/9 of this value.

HQ AFMC/A8/9 will run the linear analysis model after all three inputs are complete. The model will try to maximize the AF value within the limited resources. For example, it may recommend not doing a higher VFT effort requiring considerable resources because three slightly lower VFT efforts could all be accomplished with the same amount of resources. There are several rules of engagement for the model which are important to understand.

1. Any funding provided by the Sponsor stays with their effort.
2. Personnel cannot be swapped between Centers (e.g. an Aeronautical Systems Center engineer cannot be used as an Electronic Systems Center engineer).
3. All resources are required to be available (or to be purchased) in order for an effort to be suggested as being executed. For efforts that involve multiple Center resources, each Center must have the resources available for the model to recommend it to be executed.
4. Unless specifically identified by the Product Center, government personnel can be supplemented by contractors if funding is provided to the Product Center.

The output of the model run will suggest the list of DP efforts to do and the amount of RAM funding that needs to be provided to the Center. Before HQ AFMC/A5C presents the list to the

DPWG, the Product Centers review it for reasonableness. HQ AFMC/A5C will provide the Product Centers their list of efforts recommended for execution and the amount of funding they will receive. The funding is to be used to buy manpower in addition to the funding for studies/TDY that the Center previously identified in their proposal. Each Center will determine if they can execute all the DP efforts suggested and how to allocate their organic and contracted personnel among DP efforts. They will update the spreadsheet on EIM to reflect the DP efforts that will be purchasing contractor support. This input will allow HQ AFMC/A5C to put an integrated prioritization list together which shows the resources and cost of doing each DP effort.

Step 3: Apply Professional Military Judgment (PMJ). The last step of the process is to apply PMJ to the model results and establish a prioritized list that will be validated by the DP Board and approved at the DP Council. In order to keep the modeling level of effort to a reasonable level, the model cannot take all factors into account. It is expected to provide the 90% solution and PMJ will take other factors into account such as political reality. The DPWG will meet either in person or by VTC to establish the final recommended list to present to the DP Board. HQ AFMC/A5C will provide the model's recommended list to the DPWG at least two weeks prior to the scheduled meeting. This will allow the DPWG members to review the list and ask questions they may have to HQ AFMC/A5C and HQ AFMC/A8/9. At the actual DPWG, HQ AFMC/A8/9 will have the model available to provide instant feedback on proposed moving of efforts above and below the cut line. After the DPWG agrees on the list, the DP Board validates it, the DP Council approves it, and the list is then provided to the RAM Resource Allocation Process and inserted into the DP Strategic Plan appendices.

Out-of-Cycle DP Effort Requests. Although the list of DP efforts is approved yearly by the DP Council, new DP Effort Requests can come in throughout the year. Some DP efforts can wait to start the next fiscal year, but certain high priority DP efforts need to be started immediately. An out-of-cycle DP prioritization process has been established.

As shown below there are three basic steps: (1) receiving an out-of-cycle DP Effort Request, (2) determining the resources required, and (3) determining if the DP effort can be performed and its impact.

Step 1: SPE receives DP Effort Request from sponsor organization which requires out-of-cycle processing

Step 2: Product Centers/Labs/etc determine resources required to perform the effort

Step 3: Determine if the effort can be done

1. If sufficient resources are available then perform the effort, else
2. Work with the requesting organization to determine if they can reduce scope/trade an existing effort in their portfolio to do the new effort
3. If neither a) or b) is successful, then elevate the effort to the DPWG to see if it should bump another requesting organization's DP effort. Appeals can be taken to the DP Board if necessary

Figure 4.3 depicts the process graphically.

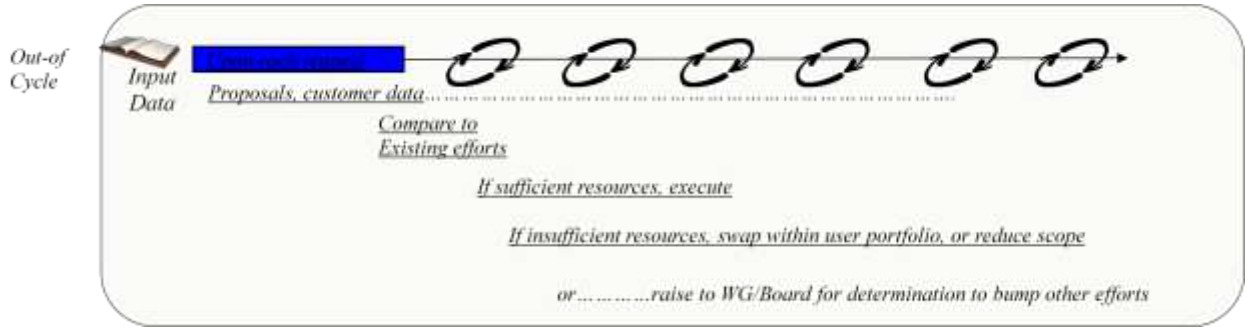

Figure 4.3 Out-of-Cycle DP Effort Request

The out-of-cycle process begins (Step 1) when a DP Effort Request is submitted to the SPE and the submitter requests the effort to be started prior to the next fiscal year. Just like any other request, the request will be sent out (Step 2) to the Centers, labs, etc so they can determine the scope of work and the resources required to execute the work within the desired schedule. Once the scope and resources have been determined then the out-of-cycle request starts deviating from the normal prioritization process.

As depicted in step 3, the SPE looks at the request and the required resources to determine if there are sufficient resources (manpower, funding, etc) within the ILCM Enterprise to execute the effort. If there are sufficient resources then the SPE will have the ILCM Enterprise execute the effort (step 3.a).

In today's resource-constrained environment, the ILCM Enterprise may not have sufficient resources to execute the DP effort without impacting one or more existing prioritized efforts. The SPE along with the materiel centers / labs will work with the requesting organization to determine options starting with an examination of all the efforts the requesting organization currently has to see if any can be delayed, de-scoped or cancelled in order to include the new effort in the current year's group of executed efforts (step 3.b). If the requesting organization agrees the modified efforts will have their proposals updated to reflect the change, the new effort will be executed, and the modified efforts will execute to the updated proposal. While determining trade-offs will involve considerable professional military judgment, HQ AFMC/A5C and HQ AFMC/A8/9 will run the prioritization model to help the decision makers look at options. The model will show how the new effort ranks against existing efforts. It will also show the best candidate(s) to be descoped to maximize AF value and still execute the new effort.

If the requesting organization does not have any DP efforts to trade or they believe they need to keep all their existing DP efforts, then the requesting organization can bring the effort to the DPWG to see if another requesting organization's effort can be delayed or de-scoped (step 3.c). The DPWG will consider the request and determine the best course of action for the AF as a whole. If appropriate, they will ask AFMC to cancel or modify an existing DP effort and start work on the new DP effort. If the organization requesting the new effort or the impacted organization of a cancelled/modified effort disagrees with the DPWG, they can appeal to the DP Board.

DP Effort Reporting

CMT leads will provide periodic updates as determined by the DP Governance Structure on DP effort cost, schedule, and performance.

DP Effort Close-Out

Upon completion of a DP effort, CMT leads will provide a final review to HQ AFMC/A5C to verify the agreements in the DP Effort Proposal have been satisfactorily met and to ensure the delivery of quality DP products.

DP Effort Transition

Transition planning (transition cadre and program office estimate) as well as planning for project funding and the resulting PPBE inputs and MAJCOM POM requests should be considered early in the life of a DP effort. Recent experience has shown that transition planning needs to occur earlier in the process due to recent changes in legislation and instructions guiding acquisition. Following MDD, upon appointment of a PEO and standup of a program office, the Center CC, and by delegation, the XR chief for the Product Center working the DP effort, is responsible for ensuring a smooth transition of the DP effort into an established program. With the new changes brought about in the most recent DoDI 5000.02 and WSARA, program offices will probably be established much earlier in the acquisition process. Figure 4.4 shows a notional transition; however, this will vary from effort to effort and will be worked with the lead product center.

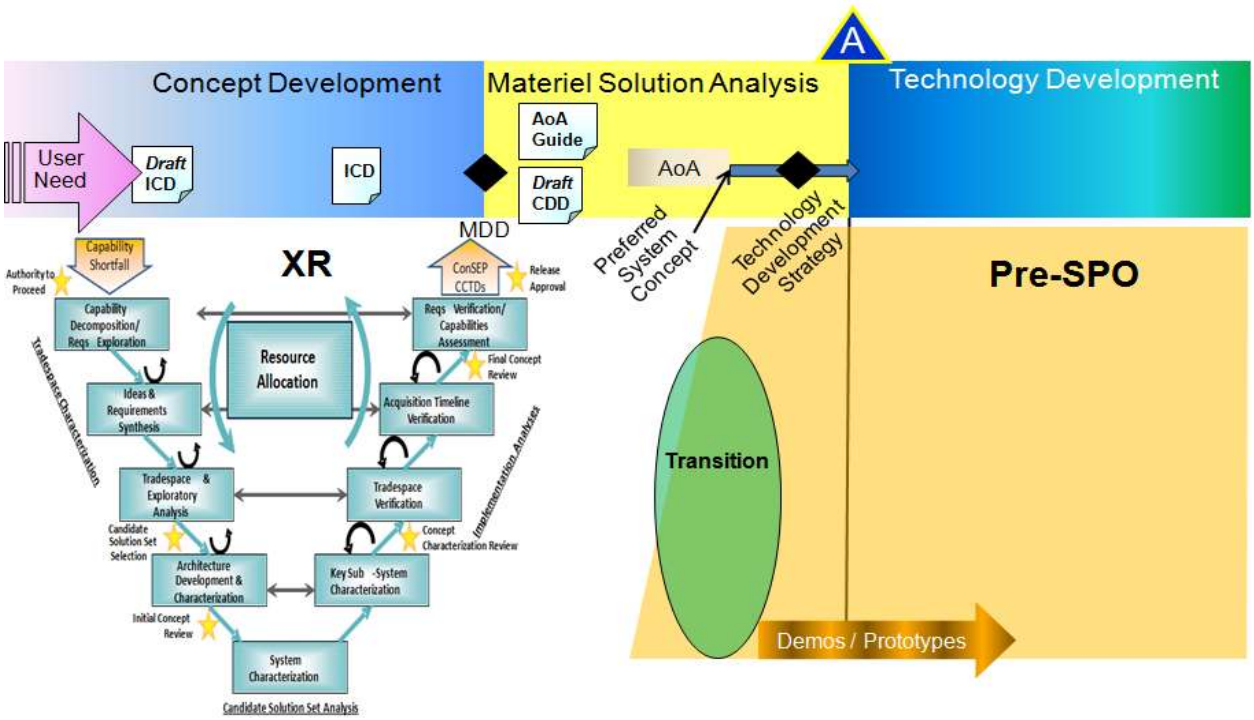

Figure 4.4 Capabilities Integration (XR) Organizations Role In Acquisition

Attachments

Attachment 1: Glossary of References and Supporting Information

Note: The purpose of this glossary is to help the reader understand the terms used in, or related to this publication. It is not intended to encompass all pertinent terms. Joint Publication 1-02, *Department of Defense Dictionary of Military and Associated Terms*, and the *Air Force Glossary* (**https://www.doctrine.af.mil/Library/AirForceGlossary.asp**) contain standardized terms and definitions for Department of Defense and US Air Force use. DoD and AF documents are located at http://www.e-publishing.af.mil/.

References

CJCSI 3170.01, *Joint Capabilities Integration and Development System*
DoDD 5000.01, *The Defense Acquisition System*
DoDI 5000.02, *Operation of the Defense Acquisition System*
DoDI 5250.01, *Management of Signature Support within the Department of Defense.*
DoDI 2010.06, *Materiel Interoperability and Standardization with Allies and Coalition Partners*
Directive-Type Memorandum (DTM) 09-027, *Implementation of the Weapon Systems Acquisition Reform Act of 2009*, 04 Dec 09
Preparation for Defense Acquisition Board (DAB) Meetings, DAB Readiness Meetings (DRM), and DAB Planning Meetings (DPM), 23 Apr 10
AFPD 10-6, *Capabilities-Based Planning and Requirements Development*
AFPD 63-1; AFPD 20-1, *Acquisition and Sustainment Life Cycle Management*
AFPD 99-1, *Test and Evaluation Process*
AFI 10-601, *Capabilities-Based Requirements Development*
AFI 10-604, *Capabilities-Based Planning*
AFI 14-111, *Acquisition Intelligence*
AFI 61-103, *Management of Science and Technology*, Draft
AFI 63-101, *Acquisition and Sustainment Life Cycle Management*
AFI 63-1201, *Life Cycle Systems Engineering*
AFI 65-503, *US Air Force Cost and Planning Factors*
AFI 65-508, *Cost Analysis Guidance and Procedures*
AFI 99-103, *Capabilities-Based Test & Evaluation*
Early Systems Engineering (SE) Guide, 31 Mar 09
Concept Characterization and Technical Description Guide
Development Planning Proposal Preparation Guide
Air Force Development Planning Strategic Plan
Technology Development and Transition Strategy (TDTS) Guidebook, August 2009
The Logistics Health Assessment Guide
The Risk Management Guide for DOD Acquisitions

Abbreviations and Acronyms

ACE - Acquisition Center of Excellence
AFIT - Air Force Institute of Technology
AFM - Automated Funds Management
AFMC - Air Force Materiel Command
AFOTEC - Air Force Operational Test and Evaluation Center
AFRB - Air Force Review Board
AFROC - Air Force Requirements Oversight Council
AFSPC - Air Force Space Command
AFRL - Air Force Research Laboratory
AIP - Acquisition Improvement Program
AO - Action Officer
AoA - Analysis of Alternatives
ATD - Advanced Technology Demonstration
ATP - Acquisition Technology Process
BA - Budget Authority
BAA - Broad Area Announcement
BPAC - Budget Program Activity Code
CARD - Cost Analysis Requirements Description
CBA - Capabilities Based Analysis
CBP - Capabilities Based Planning
CDD - Capability Development Document
CMT - Capability Materiel Team
CCTD - Concept Characterization and Technical Description
COA - Course of Action
COCOM - Combatant Command
CONOPS - Concepts of Operations
CPD - Capabilty Production Document
CPM - Capability Portfolio Manager
CP&A - Capability Planning & Analysis
CSAF - Chief of Staff Air Force
C4ISR - Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance
DAB - Defense Acquisition Board
DAG - Defense Acquisition Guidebook
DARPA - Defense Advanced Research Projects Agency
DCR - DOTMLPF Change Recommendation
DoD - Department of Defense
DOTMLPF - Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel, and Facilities
DP - Development Planning
DPWG - Development Planning Working Group
DPSP - Development Planning Strategic Plan
EMD - Engineering & Manufacturing Development
FOA - Field Operating Agency
FOC - Full Operational Capability

HAF - Headquarters Air Force
HPT - High Performance Team
HSI - Human Systems Integration
IAC - International Armaments Cooperation
ICD - Initial Capabilities Document
IHA - Intelligence Health Assessment
ILA - Independent Logistics Assessment
ILCM - Integrated Life Cycle Management
IOC - Initial Operational Capability
JCA - Joint Capability Area
JCIDS - Joint Capabilities Integration & Development System
JCTD - Joint Capabilities Technology Demonstration
JPD - Joint Potential Designator
JROC - Joint Requirements Oversight Council
LCMP - Life Cycle Management Plan
LCRM - Life Cycle Risk Management
LHA - Logistics Health Assessment
LRIP - Low Rate Initial Production
M&S - Modeling and Simulation
MAJCOM - Major Command
MDA - Milestone Decision Authority
MDD - Materiel Development Decision
MRA - Mission Risk Assessment
MS - Milestone
MSA - Materiel Solution Analysis
MUA - Military Utility Assessment
OAS - Office of Aerospace Studies
OIPT - Overarching Integrated Product Team
OPR - Office of Primary Responsibility
OSD - Office of Secretary of Defense
OV - Operational View
PDR - Preliminary Design Review
PEO - Program Executive Officer
PE - Program Element
PEC - Program Element Code
PMJ - Professional Military Judgment
POE - Program Office Estimate
POM - Program Objective Memorandum
PPBE - Planning, Programming, Budgeting, and Execution
PPP - Program Protection Plan
R&D - Research and Development
RAM - Requirements Analysis and Maturation
RAM-C - Reliability, Availability, Maintainability, and Cost
RCCC - Responsibility Center/Cost Code
RCT - Requirements Correlation Table
RFP - Request for Proposal
ROM - Rough Order of Merit

RSR - Requirements Strategy Review
S&T - Science and Technology
SAF - Secretary of the Air Force
SCF - Service Core Function
SE - Systems Engineering
SEP - Systems Engineering Plan
SME - Subject Matter Expert
SoS - System of Systems
SPO - System Program Office
SPE - Single Point of Entry
SRD - System Requirements Document
STP - Sustainment Technology Plan
T&E - Test and Evaluation
TD - Technology Development
TDS - Technology Development Strategy
TDTS - Technology Development and Transition Strategy
TEMP - Test and Evaluation Master Plan
TES - Test and Evaluation Strategy
TRA - Technology Readiness Assessment
TPP - Technology and Program Protection
UON - Urgent Operational Need
VFT - Value Focused Thinking
VTC - Video Telecon
WBS - Work Breakdown Structure
WIPT - Working-Level Integrated Product Team
WSARA - Weapon Systems Acquisition Reform Act

Select Definitions

Capability Maturity: The realization of a capability to meet a gap/need.

Concept Characterization and Technical Description: A CCTD contains factual descriptions of the technical aspects and top-level risks of a concept (or family of related concepts), and reflects the analytical basis and decision history of its evolution to that point. At any point in time, the CCTD should be at a level of fidelity (completeness) commensurate with concept maturity (i.e., the amount of technical analysis accomplished and documented).

Early Systems Engineering: Early SE focuses on SE efforts prior to the AoA. Early SE enables the technical elements of development planning.

High Performance Teams: This is the preferred method for developing operational capability documents and is used unless waived by HQ AF/A5R at the Requirement Strategy Review (RSR). The core team membership ideally consists of no more than 8-10 SMEs from Air Force MAJCOMs, HQ USAF, other Services, and agencies as required. Support team membership provides "reachback" expertise in areas not represented by the core team. The overarching objective of the HPT is to capture, articulate, and document the operator's operational capability requirements in minimum time, while achieving stakeholder buy-in.

Integrated Life Cycle Management: The seamless governance, transparency, and integration of all aspects of infrastructure, resource management, and business systems necessary for successful development, acquisition, fielding, and sustainment of systems, subsystems, end items, and services to satisfy validated warfighter capability needs.

Opportunity-Based Capability: Capability perceived through the development of new technologies and new integration potential of mature technologies. A proposed capability out-growth of "technology push."

Program Protection Plans: A comprehensive protection and technology control management plan established to identify and protect classified and other sensitive information from foreign intelligence collection or unauthorized disclosure.

Requirements Correlation Table (RCT): A three-part table, specific to Air Force-generated CDDs and CPDs, which provides an audit trail of the performance attributes and desired capabilities identified in the text of these documents. The RCT lists operator-identified performance attributes and capabilities with accompanying thresholds and objectives; identifies operator recommended Key Performance Parameters; provides supporting rationale justifying each threshold obtained from the AoA or concept studies; and provides a concise summary to ensure decision makers have the necessary data to make informed decisions.

Attachment 2: DP Effort Request Template

This template will be completed by the requesting MAJCOM or executive agency to formally request development activities to address a materiel solution need. This letter is to be submitted either HQ AFSPC or HQ AFMC (AFMC.A5C.Workflow@wpafb.af.mil, or A5X.wf@peterson.af.mil) prior to Center activities being performed.

MEMORANDUM FOR HQ AFMC/A2/5

FROM: (MAJCOM 2-LETTER ORG)

SUBJECT: Request for USAF Materiel Command's Materiel Needs Analysis Support for (INSERT PROGRAM NAME HERE)

1. HQ XXXXXX intends to develop XXX for the (PROGRAM NAME). This effort is (PROVIDE SHORT BACKGROUND AS NEEDED)

2. Request HQ AFMC/A2/5 identify a team of functional experts to provide assistance in the development/support of (DESCRIBE EFFORT). Specific information on the (PROGRAM NAME HERE) follows:

a. Title: (INSERT PROGRAM NAME HERE)

b. Classification: UNCLASSIFIED

c. Joint Potential Designator (JPD) (if applicable):

d. Acquisition Category:

e. Total estimated costs for the DP initiative/early systems engineering requested effort (Excludes any subsequent acquisition development milestone program costs):

f. Background:

g. Requirements Strategy:

h. Key technologies:

i. Anticipated AFMC personnel augmentation (skill desired):

j. Timeline for major events (notional):

k. Previous analytical studies and validated JCIDS documents:

l. Known issues:

m. MAJCOM POCs for (INSERT PROGRAM NAME HERE) are

//SIGNED//
World B. Free, Colonel, USAF
Chief, XXXXXXXX Division,
Directorate of Requirements

Attachment 3: DP Related Products

0	*Long Range Capability Analyses*
0.1	*Capability Roadmaps/Development Plans*
0.2	*Advanced Concepts Studies/Analysis*
0.3	*Technology Needs Guidance*
0.4	*Materiel Options to Support MAJCOM/CPM*
1	*CBA Support*
1.1	*SME Support to CBA*
1.2	*Requirements Strategy Development*
1.3	*ICD*
1.4	*ICD Support/Analysis*
2	*MDD Support*
2.1	*Initial CCTDs*
2.1.1	*Concept Definitions/Trades*
2.1.2	*Budget Estimates*
2.1.3	*Materiel Options to Support MAJCOM/CPM*
2.1.4	*Early Technology Evaluations*
2.2	*AoA Study Guidance Support*
2.3	*Market Research*
2.4	*DP Proposals & Resource Estimates*
3	*MS-A Support*
3.1	*AoA Study Plan*
3.2	*AoA*
3.3	*Cost Estimate*
3.4	*RCT*
3.5	*TDS (Acq Strategy Framework)*
3.6	*TES*
3.7	*SEP*
3.8	*LCMP*
3.9	*RFP(s) for MS A support*
3.10	*Baseline CCTDs*
3.11	*Courses of Action*
3.12	*Acquisition Security Documentation*
3.13	*Management Transition Plan*
3.14	*Time-Phased Acq Resource Estimate*
3.15	*RAM-C (Reliability, Maintainability, Availability and Cost) Rationale Report*
3.16	*Other Milestone Documentation*

4	*Tech Risk Reduction*
4.1	*Requirements Strategy Development*
4.2	*CDD*
4.3	*SRD*
4.4	*Updated Cost Estimate*
4.5	*TRA*
4.6	*Acq Strategy*
4.7	*RFP for PDR*
4.8	*Contract Specification Baseline*
5	*MS-B Support*
5.1	*PDR*
5.2	*TEMP*
5.3	*CARD & POE*
5.4	*LCMP*
5.5	*SEP*
5.6	*Other Milestone Documentation*

Attachment 4: Notional DP Project Timelines with Appropriate Requirements Forums

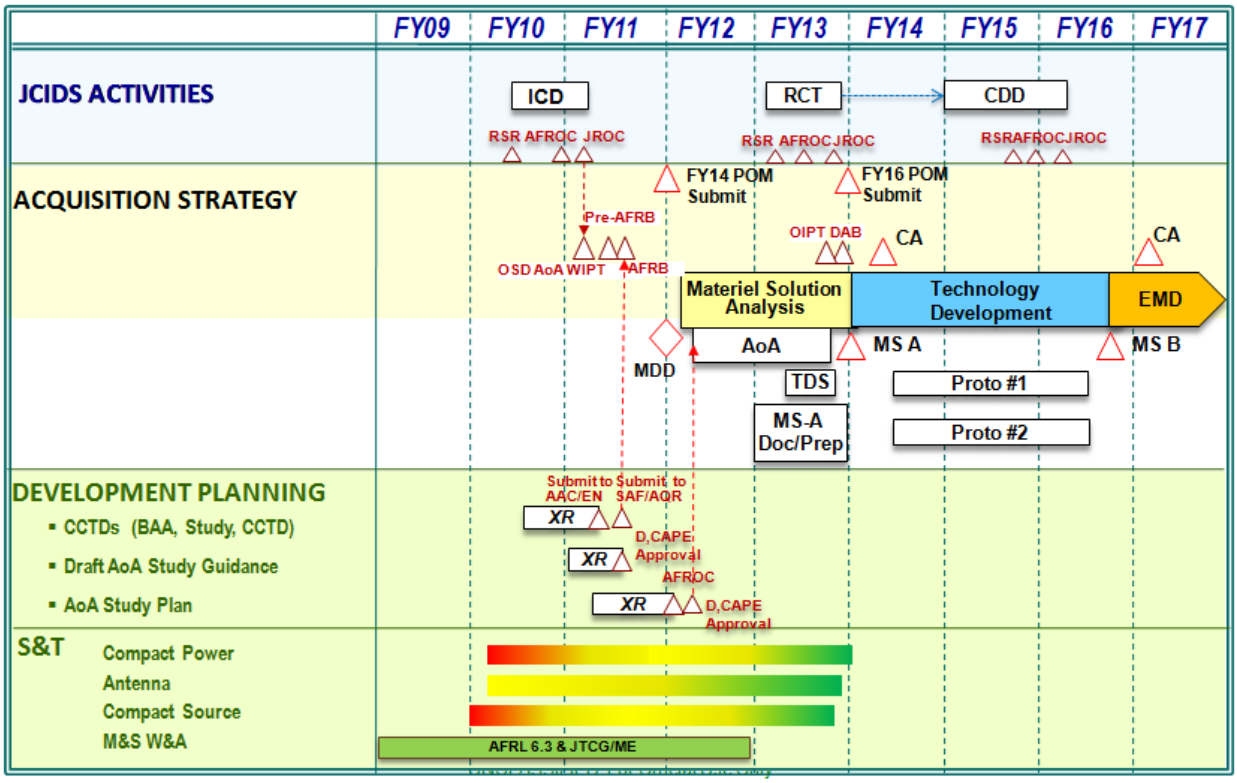

Figure A4.1 DP Example with Cross-functional Timelines

ID	Task Name	Duration	Start
65	**MDD**	**182.6 wks**	**Mon 4/7/08**
66	**Scope Magnitude of Effort**	**20.6 wks**	**Mon 4/7/08**
70	**Assess Industry IRAD (Industry Resources)**	**16.4 wks**	**Thu 5/1/08**
74	First Draft of MOEs	10 wks	Mon 7/28/08
75	Define Target Defeat	8 wks	Mon 10/6/08
76	Define Analysis Methodolgy	8 wks	Mon 12/1/08
77	Define Reasonable Range of Alternatives	4 wks	Mon 1/26/09
78	Define Available M&S Tools	16 wks	Fri 12/12/08
79	**Target Model Development**	**72 wks**	**Mon 6/1/09**
86	**M&S Tool Development/Integration**	**100.6 wks**	**Mon 9/28/09**
94	**ICD Development**	**37 wks**	**Thu 4/1/10**
95	RSR Briefing Prep	3 wks	Thu 4/1/10
96	Establish HPT	0 wks	Wed 4/21/10
97	Complete HPT	4 wks	Thu 4/22/10
98	**ICD Coordination**	**28 wks**	**Thu 5/20/10**
99	Internal Coordination & Cleanup	4 wks	Thu 5/20/10
100	O-6 Review	3 wks	Thu 6/17/10
101	Comment Resolution	6 wks	Thu 7/8/10
102	Submit CRM/Brief for AFROC	2 wks	Thu 8/19/10
103	AFROC	2 wks	Thu 9/2/10
104	Flag Level Review (if required)	3 wks	Thu 9/16/10
105	Comment Resolution (if required)	2 wks	Thu 10/7/10
106	FCB	3 wks	Thu 10/21/10
107	JCB	2 wks	Thu 11/11/10
108	JROC	1 wk	Thu 11/25/10
109	Document Signed	2 wks	Thu 12/2/10
110	**CCTD Development**	**57 wks**	**Thu 4/22/10**
111	Prepare BAA Announcement	1 wk	Thu 4/22/10
112	Announce BAA	1 wk	Thu 5/20/10
113	Respondant WP Development	4 wks	Thu 5/27/10
114	WP Evaluations	2 wks	Thu 6/24/10
115	Award BAA Tasks	1 wk	Thu 7/15/10
116	BAA CCTD Study	24 wks	Thu 7/22/10
117	**CCTD Consolidation/coordination**	**20 wks**	**Thu 1/6/11**
118	Review & Consolidate CCTDs	4 wks	Thu 1/6/11
119	CCTDs to AAC/EN	16 wks	Thu 2/3/11
120	CCTDs to SAF/AQR	4 wks	Thu 3/3/11
121	**AOA Study Guidance Approval**	**20 wks**	**Thu 12/2/10**
122	OSD AOA Guidance IPT	4 wks	Thu 12/2/10
123	Develop AoA Study Guidance	8 wks	Thu 12/30/10
124	Submit CRM/Brief for AFROC	2 wks	Thu 2/24/11
125	AFROC validation	2 wks	Thu 3/10/11
126	OSD D-CAPE Review	4 wks	Thu 3/24/11
127	Brief PEO	1 wk	Thu 5/26/11
128	Pre AFRB	1 wk	Thu 6/30/11
129	AFRB	1 wk	Thu 8/4/11
130	MDD Brief	1 wk	Thu 9/8/11
131	ADM Release	1 wk	Thu 9/29/11

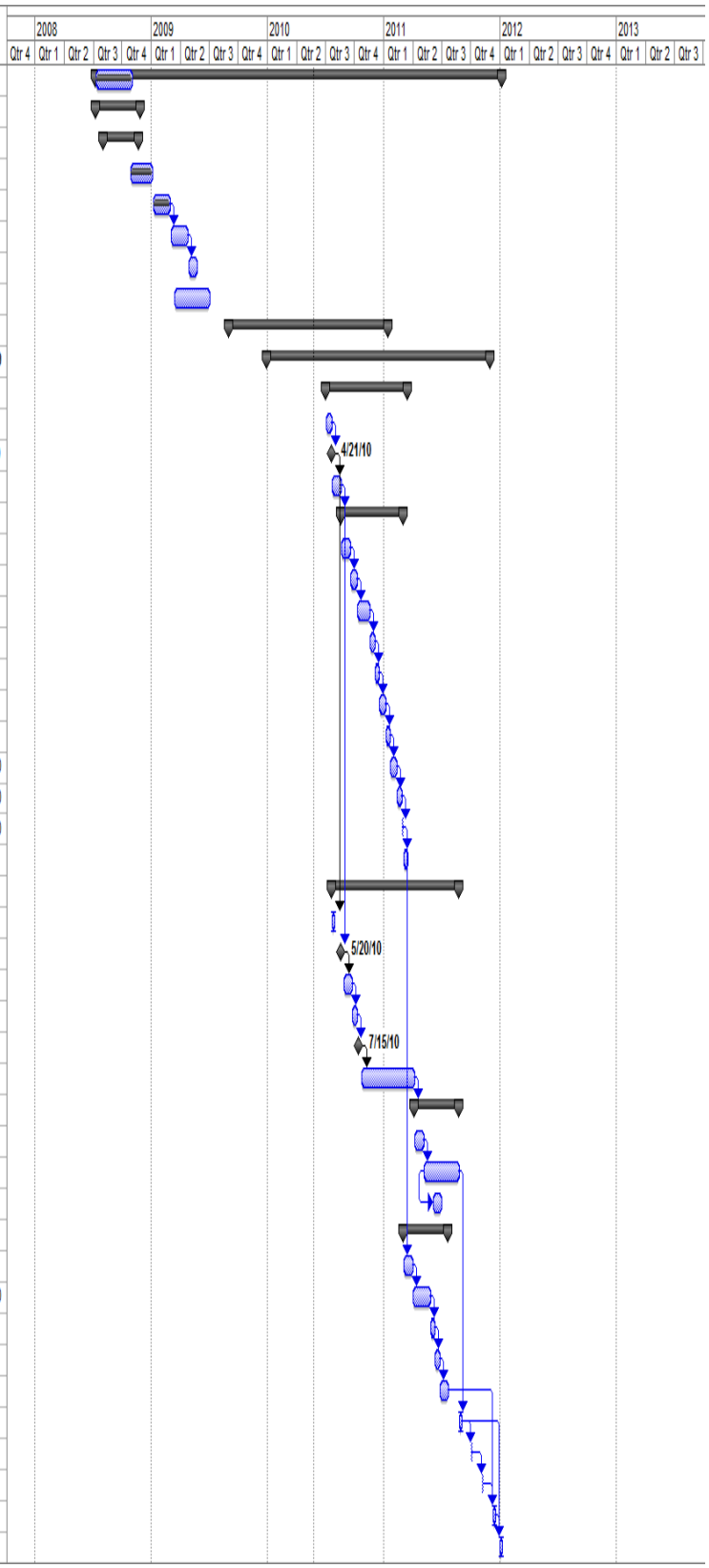

Figure A4.2 MS Project DP Example - MDD Phase

ID	Task Name	Duration	Start
133	**Material Solution Analysis Phase**	**110 wks**	**Thu 4/21/11**
134	**AOA Study Plan Approval**	**29 wks**	**Thu 4/21/11**
135	Draft AoA Study Plan	20 wks	Thu 4/21/11
136	AFROC validation	1 wk	Thu 10/6/11
137	OSD D-CAPE Approval	2 wks	Thu 10/27/11
138	**AOA**	**81 wks**	**Thu 11/10/11**
139	**Development/Analysis**	**81 wks**	**Thu 11/10/11**
140	Cost Estimation	49 wks	Thu 11/10/11
141	Concept Refinement	2 wks	Thu 11/10/11
142	**Physics Level Effectivnness**	**7 wks**	**Thu 11/24/11**
144	Screen Outliers	2 wks	Thu 1/12/12
145	**Engagement Level Effectivnness**	**8 wks**	**Thu 1/26/12**
147	Screen Outliers	2 wks	Thu 3/22/12
148	Mission Level Effectivnness (EADSIM, SUPPRESSOR)	12 wks	Thu 4/5/12
149	Screen Outliers	2 wks	Thu 6/28/12
150	Campaign Mission Level (STORM, CFAM)	15 wks	Thu 7/12/12
151	Screen Outliers	2 wks	Thu 10/25/12
152	Sensistivity Analysis	4 wks	Thu 11/8/12
153	Brief AAC	1 wk	Thu 1/17/13
154	Brief Operational MAJCOM Staffs	1 wk	Thu 2/21/13
155	RSR	2 wks	Thu 2/28/13
156	Submit CRM/Brief for AFROC	2 wks	Thu 3/14/13
157	AFROC	2 wks	Thu 3/14/13
158	FCB	3 wks	Thu 3/28/13
159	JCB	2 wks	Thu 4/18/13
160	JROC	1 wk	Thu 5/2/13
161	Prepare Final Report	3 wks	Thu 5/9/13

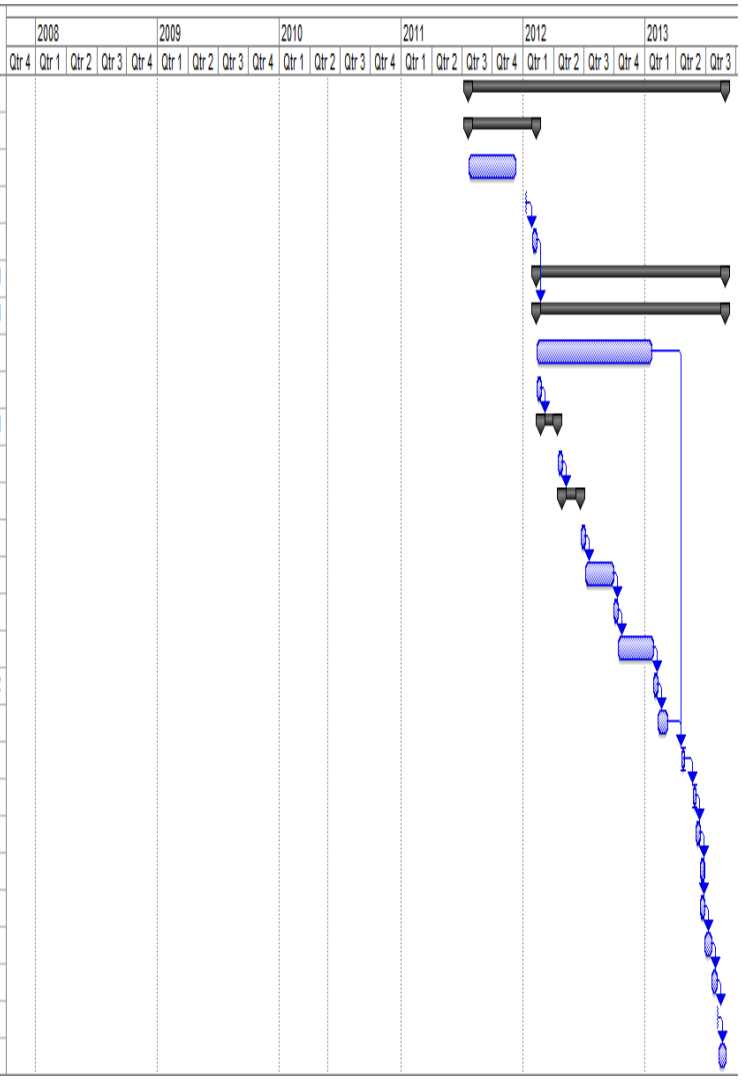

Figure A4.3 MS Project DP Example - MSA Phase

Attachment 5: Enabling Processes

Acquisition Intelligence. AFI 14-111, *Acquisition Intelligence,* and DoDD 5250.01, *Management of Signature Support within the Department of Defense,* describe acquisition intelligence. This effort seeks to provide a standard means to address intelligence as a component of risk and planning for supportability, interoperability and sustainability. Costing for intelligence along with technical analysis of threat, infrastructure and other supportability-related items across the capability/systems' life cycle is essential to delivery of required capabilities. Processes executed in this area support acquisition requirements for signature support planning as directed by DoDD 5250.01.

Cost Estimating. AFI 65-503, *US Air Force Cost and Planning Factors,* and AFI 65-508, *Cost Analysis Guidance and Procedures,* provide guidance for cost estimating. However, these AFIs do not address specific techniques associated with upfront cost estimating and will require modification. An integrated cost/risk estimating methodology for early planning has been developed and will be the focus of a future standard supporting process improvement initiative.

Early Systems Engineering. SAF/AQR is the AF champion for early systems engineering. Figure A5.1 depicts Early SE processes enabling the technical aspects of the DP processes. Refer to the SAF/AQR *Early Systems Engineering Guide* for additional information.

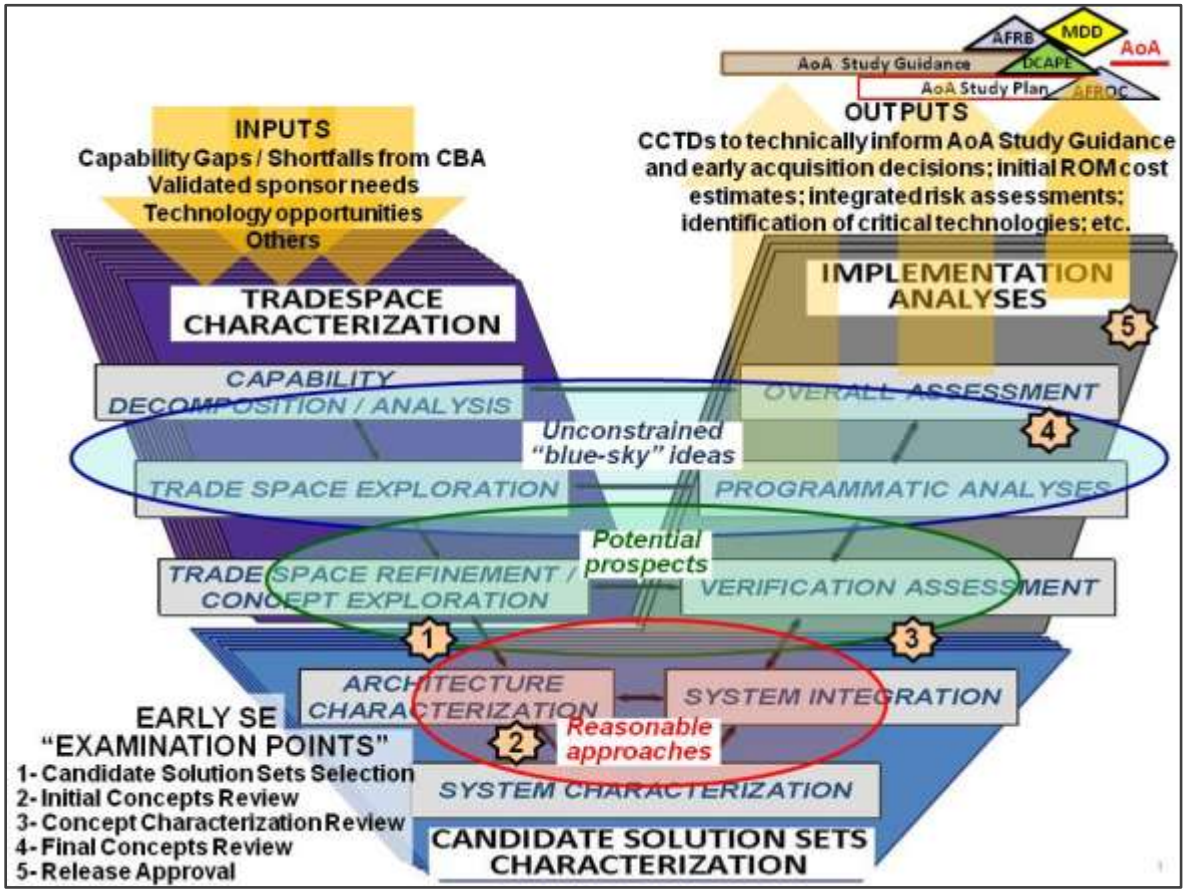

Figure A5.1 Early Systems Engineering and DP

Human Systems Integration (HSI). By including HSI, XRs are able to more effectively account for human considerations and how to translate them into design and development attributes. Through early involvement in SE and consideration by both the acquisition and operational communities, HSI implementation enhances warfighter performance and reduces life cycle costs. HSI is performed at the operational and implementing commands. As a part of the DP process, HSI strengthens the continuity between operational capability requirements and acquisition requirements by providing an integrated approach to including the human element. Further guidance and information on HSI can be found on the HSI CoP at: https://www.my.af.mil/afknprod/community/views/home.aspx?Filter=HP-HS-01 and in: DODI 5000.02, Enclosure 8, AFI 63-101, paragraph 3.79, and AFI 63-1201, Attachment 5.

Integration and Systems Engineering. AFI 63-1201, *Life Cycle Systems Engineering*, the SAF/AQR *Early Systems Engineering Guide* and the *Defense Acquisition Guide*, Chapter 4, specifically address SoS techniques and reinforce the need for early SE involvement.

International Armaments Cooperation. SAF/IA is the AF champion for international cooperative efforts and is included in every DP request telecon. SAF/IA ensures the CMTs are aware of tools to increase awareness of appropriate Coalition Partner Cooperative R&D and assist the CMT in identifying integration and co-production opportunities early in the DP process. Potential benefits are a reduction in duplicative R&D costs, harmonization of Coalition Partner weapons needs, and complementary schedules for new weapons development and production. As a DP effort approaches MDD, the sponsor leads are responsible with the advice of the CMTs to ensure IAC opportunities are thoroughly assessed and documented via the Technology Development Strategies and Acquisition Strategies per DoDI 2010.06, DoDD 5000.01 and DoDI 5000.02 and the *Defense Acquisition Guidebook*.

Tools to enhance early consideration of IAC in DP efforts are:

- OSD/AT&L Foreign Comparative Test Projects/Assessments, Coalition Warfare Projects, AFRL technical assessments, SAF/IAPQ International Cooperative R&D Projects, and Office of Defense Cooperation's Monthly Reports (Coalition Requirements Harmonization)
- Analysis documents on SAF IA Knowledge base
- *Defense Acquisition Guidebook* (DAG): Cooperative Opportunity Documents submission criteria specified in the DAG
- DAU International Affairs Curriculum (PMT 304, *Advanced International Management Workshop*, PMT 203, *International Security and Technology Transfer/Control*, PMT 202, *Multinational Program Management*) to train/educate Acquisition Professionals to conduct International Cooperative R&D assessments
- DAU faculty responsible for training on International Cooperative Armaments and placing the appropriate information into the Defense Acquisition Portal, ACQuipedia, PM Toolkit, Acquire, Acquisition Community Connection and Best Practices Clearinghouse

Life Cycle Risk Management (LCRM). The LCRM Initiative was established to institute a standard means to identify, assess, report, track, and communicate programmatic cost, schedule, and performance risks with consistent definitions and risk assessment criteria. *The Risk*

Management Guide for DOD Acquisitions is the basic guidance for executing risk management. Programs must track risks and risk handling/mitigation in a database that archives risk management across each system's life cycle. This is especially important to support the seamless transition of risk management between life-cycle phases, responsible organizations, and prime contractors.

Modeling, Simulation and Analysis. A team co-led by HQ AFMC/EN and the Office of Aerospace Studies (OAS) (AFMC/A9A) is working to define an AF-wide analytic environment that supports operational and system requirements development and, in turn, supports evaluation of proposals.

Product Support. The process and associated policy references for product support and acquisition logistics considerations reside in the Acquisition Sustainment Tool Kit available at https://afkm.wpafb.af.mil/ASPs/CoP/OpenCoP.asp?Filter=MC-LG-01-82. Existing Acquisition Strategy Development policies remain in effect.

Program Protection. DoDI 5000.02, *Operation of the Defense Acquisition System*, DoDI 5200.39, *Critical Program Information (CPI) Protection within the Department of Defense*, AFPD 63-1/20-1, *Acquisition and Sustainment Life Cycle Management*, AFPD 63-17, *Technology and Acquisition Systems Security Program Protection*, AFI 63-101, *Acquisition and Sustainment Life Cycle Management*, and AFPAM 63-1701, *Program Protection Planning*, (will convert to AFMAN 63-113, *Program Protection Planning for Life Cycle Management*) and DoD 5200.1-M, *Acquisition Systems Protection Program (*to be replaced by DoD 5200.39-M, *Procedures for Critical Program Information (CPI) Protection Within the Department of Defense)*, describe technology and program protection requirements and processes. Capability Material Teams should include counter-intelligence and security personnel who have technology development and acquisition program experience in identifying Critical Program Information (CPI) and selecting appropriate protection countermeasures during development planning and system development process to ensure CPI are protected to prevent loss, theft, or compromise. Protection planning applies to all phases of the system's life cycle including capability planning activities, technology research, development and acquisition program efforts, test and modification efforts, and continues through sustainment and disposal. Program protection planning must involve all stakeholders including the operating and other participating commands.

Scheduling. A key aspect of program management, scheduling is integral to a program's acquisition strategy, as well as to risk management, financial management, and technical management plans that span the acquisition life cycle. Scheduling will be the focus of a future standard supporting process improvement initiative.

Stakeholder Development. Development and maintenance of an appropriate group of stakeholders for a given DP effort are critical for success. The following considerations should be given to stakeholder development:

- Establish CMT
- Identify Sponsor(s): MAJCOM, AF (agencies), etc.
- Identify Commander(s): AFMC, AFSPC, Product Center, Directorate

- Identify Integrator(s)/Tester(s): MAJCOMs, Directorates, Program Offices, DISA, Centers, Other Services, Federal Agencies, Lead System Integrators, etc.
- Identify Policy Maker(s): AFMC, DoD, HAF, 2-Ltr, etc.
- Identify potential Contractor(s)/Industry Partner(s)/Academic Partner(s)
- Identify affiliated COCOM(s)/Agencies
- Identify Collaborator(s): Other Center XRs, Directorate XRs, Academia, Labs, and International
- Identify Workforce: Organic, Civil Service, AF, Contractors, Program Office Cadre, etc.
- Build Stakeholder List
- Vet Stakeholder List
- Identify Stakeholders likely to participate in HPTs as core and support members. Plan for continuity across HPTs
- Generate Memorandums of Understanding (MOUs)/Memorandums of Agreement (MOAs) where necessary

Test and Evaluation (T&E). AFI 99-103, *Capabilities-Based Test and Evaluation*, and AFMCI 99-103, *Test Management*, address the integration of the T&E community through the HPT Support Process and the JCIDS Document Review Process.

Attachment 6: Sample DP Subprocesses

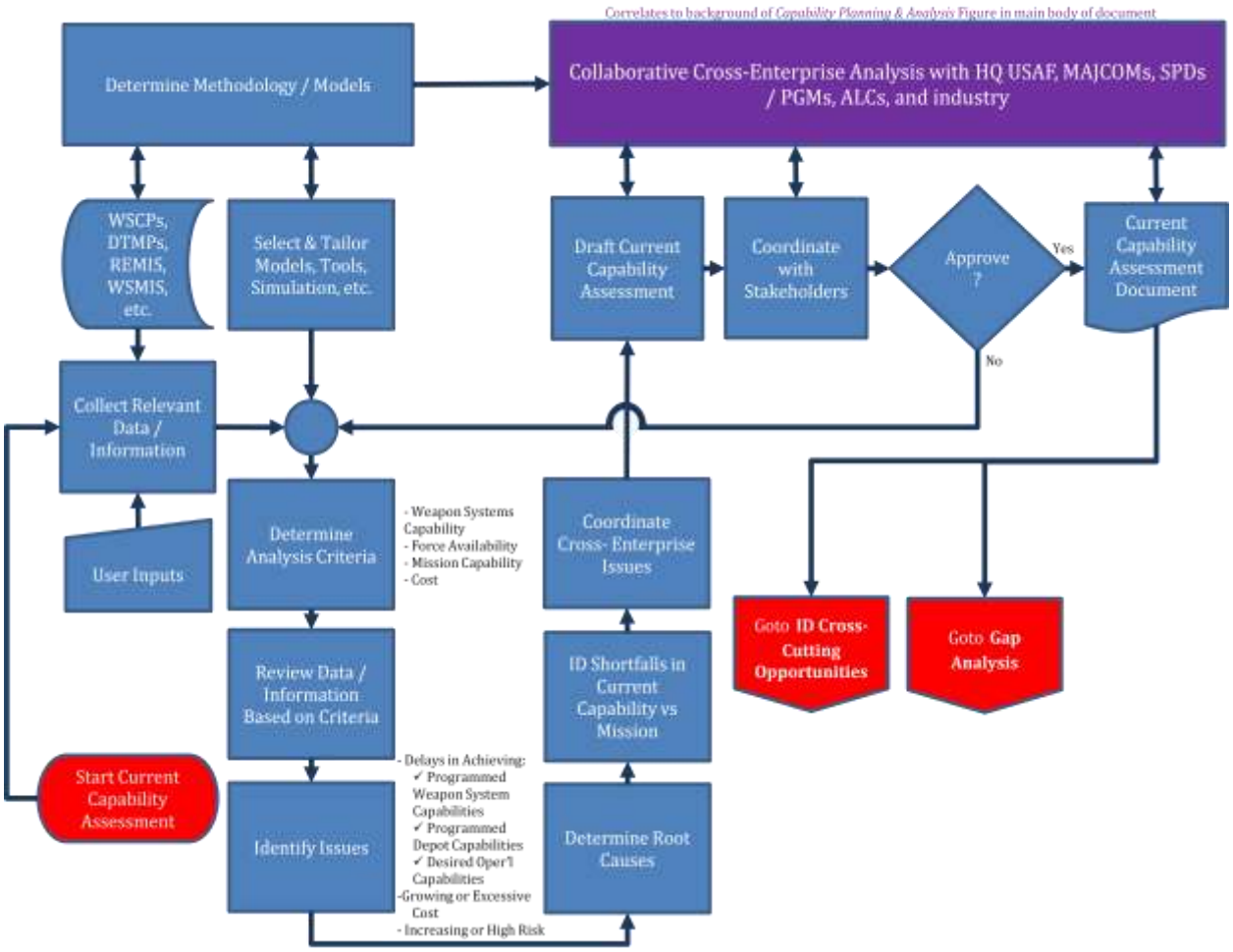

Figure A6.1 Current Capability Assessment

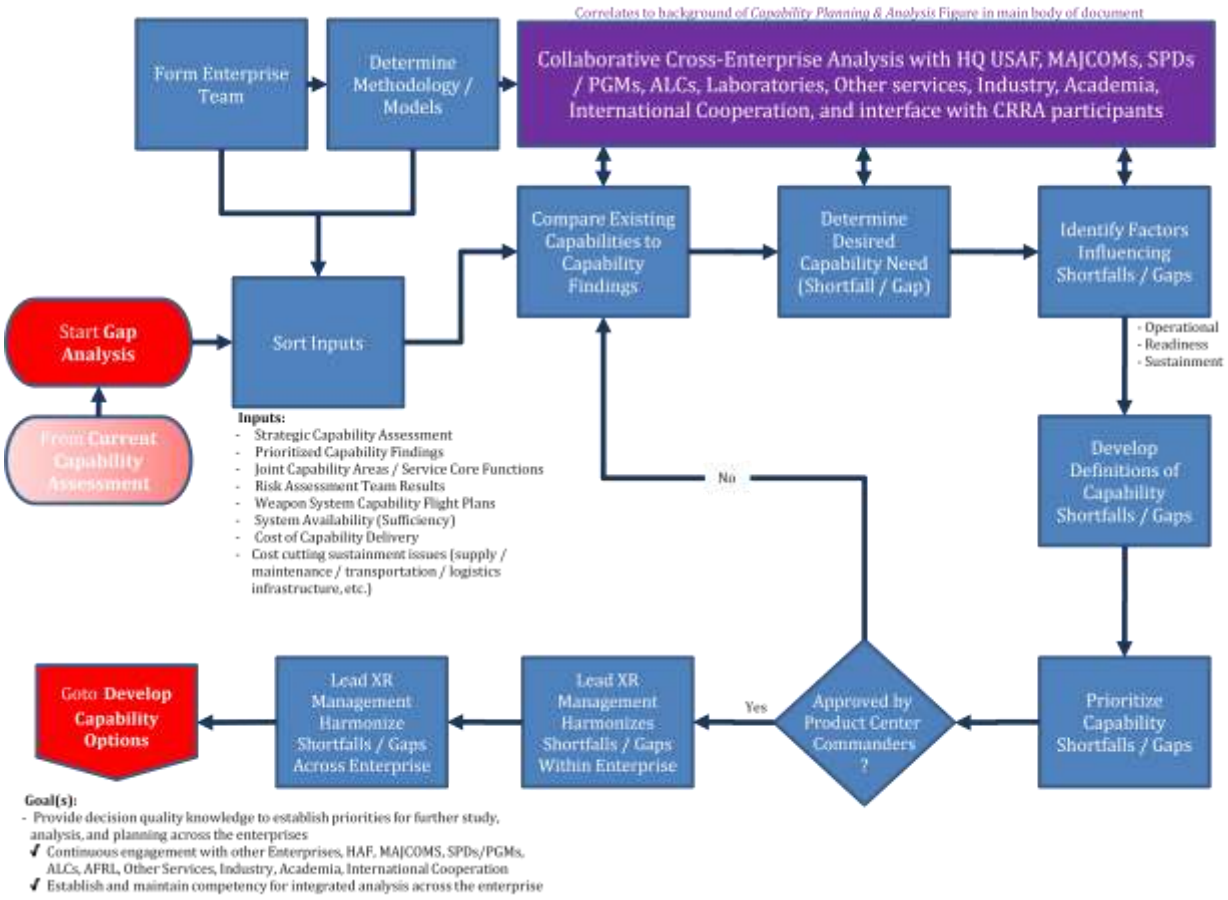

Figure A6.2 Gap Analysis

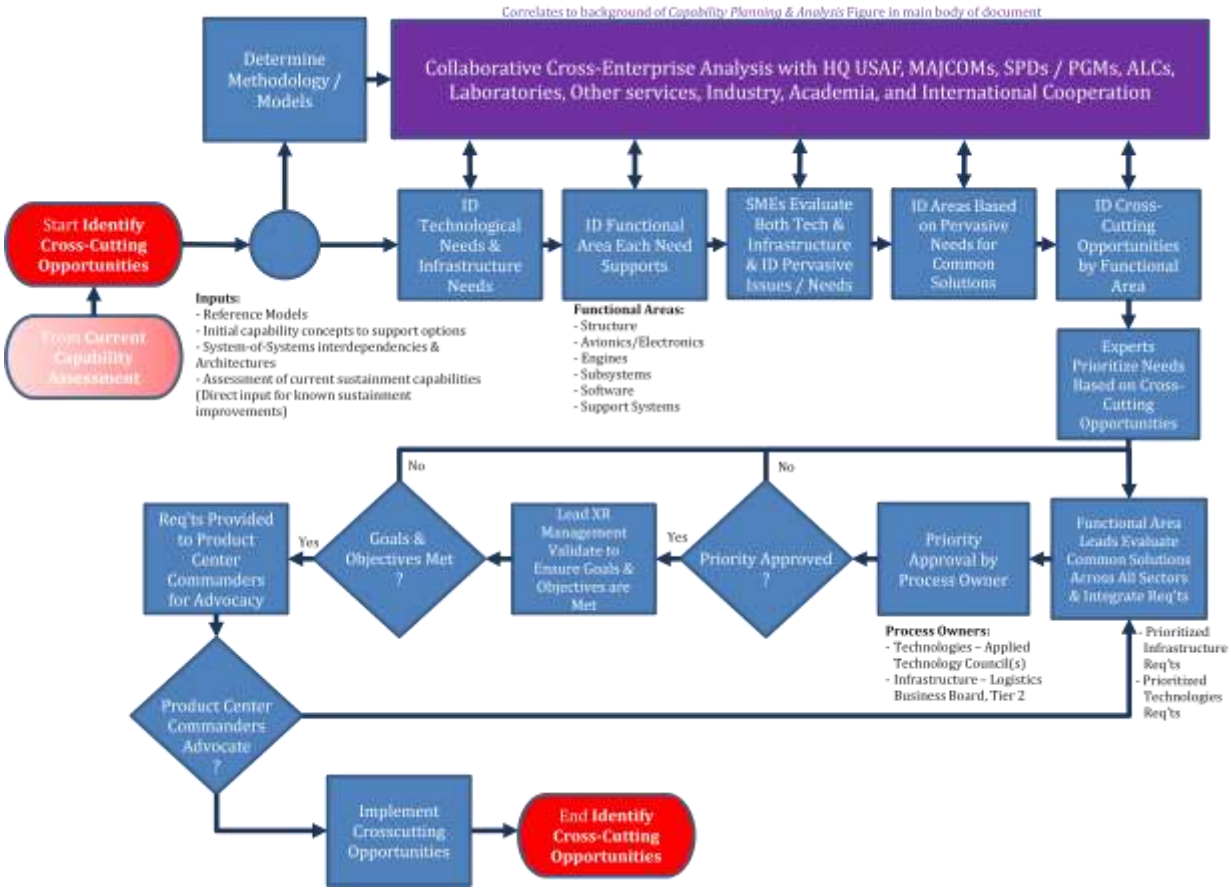

Figure A6.3 ID Crosscutting Opportunities

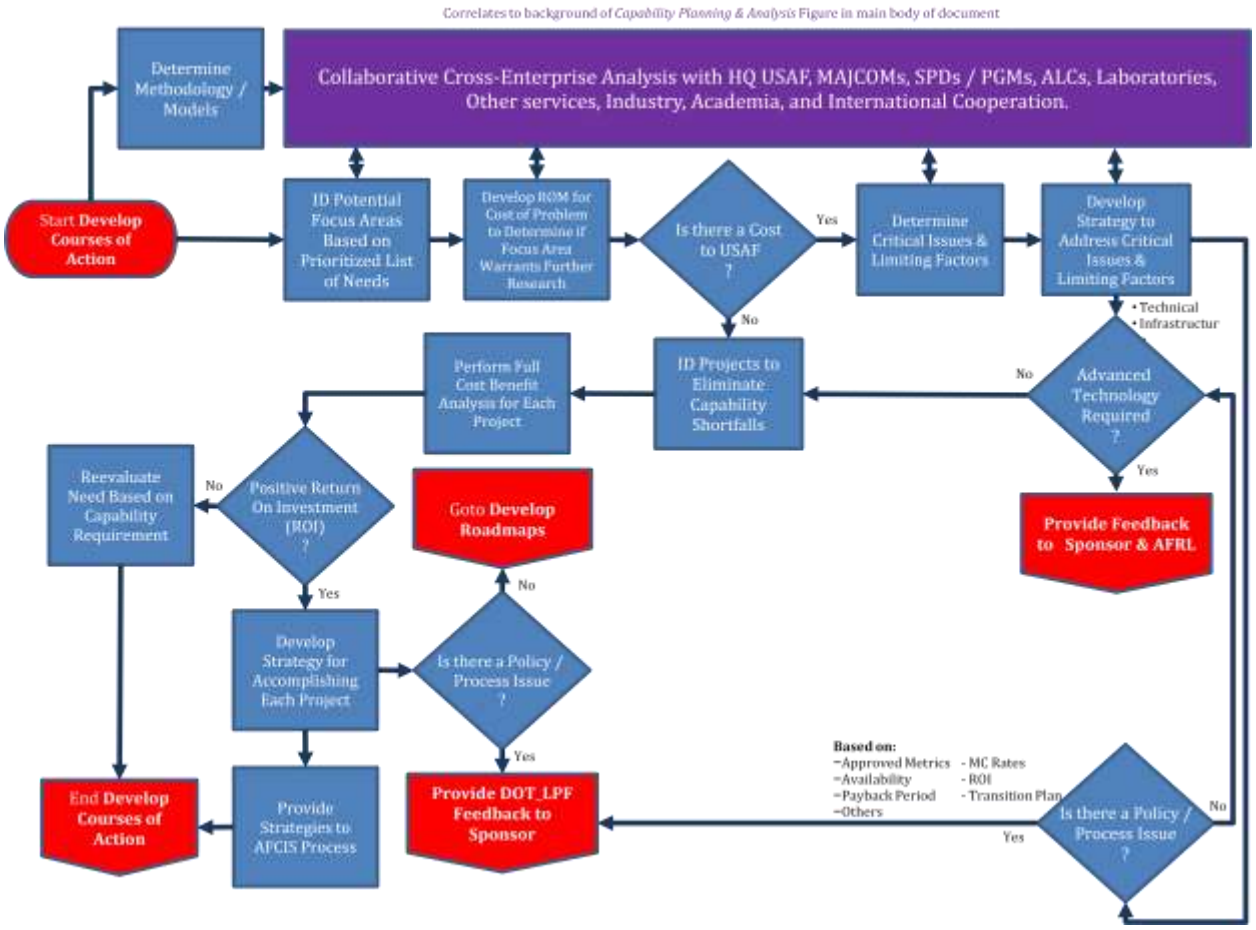

Figure A6.4 Develop Courses of Action

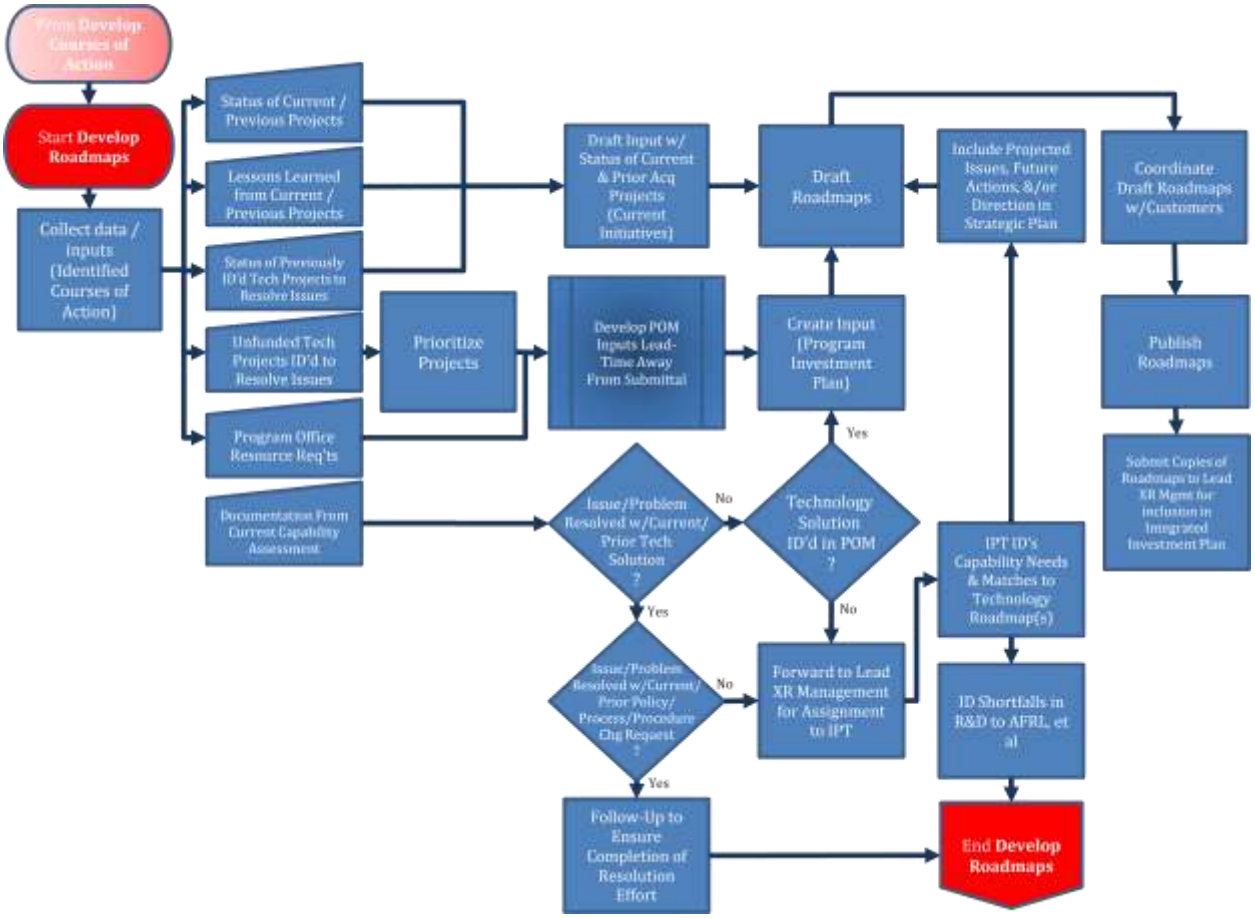

Figure A6.5 Develop Roadmaps