



NATIONAL SECURITY SPACE ACQUISITION POLICY

NUMBER 03-01
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SAF/USA

GUIDANCE

for

DoD Space System Acquisition Process

1. PURPOSE

This document provides acquisition process guidance for the Department of Defense (DoD) entities that are part of the National Security Space (NSS) team.

2. AUTHORITY

2.1 DoD Space Milestone Decision Authority

The Under Secretary of the Air Force (USecAF) is the DoD Space Milestone Decision Authority (MDA) for all DoD Space Major Defense Acquisition Programs (MDAPs). This authority has been delegated by the Defense Acquisition Executive (DAE) through the Secretary of the Air Force (SecAF) to the USecAF (Ref: 14 Feb 02 USD(AT&L) & 14 Mar 02 SecAF memos) and cannot be delegated further.

2.2 DoD Space Program Acquisition Execution Chain

The responsibility for the execution of DoD space system MDAPs flows from the DoD Space MDA, through the Component Acquisition Executive (CAE), to the appropriate Space Program Executive Officer (PEO) and space System Program Director (SPD)/Program Manager (PM). SPDs, PMs, PEOs, and other General Officers/Senior Executive Service members serving in critical acquisition billets shall be assigned in accordance with the Defense Acquisition Workforce Improvement Act (DAWIA). (Ref: National Security Decision Directive 219 & DAWIA, 10 USC 1701-1763.)

3. APPLICABILITY

National Security Space is defined as the combined space activities of the DoD and National Intelligence Community (IC). This policy describes the streamlined decision making framework for all DoD space system MDAPs. It is authorized per DoDD 5101.2 para 6.2.9. and supersedes *NSS Acquisition Policy 03-01* dated 6 Oct 03. National Reconnaissance Office (NRO) *Directive 82-2a, Acquisition Management - Directive 7*, describes a similar acquisition process for the IC portion of the NSS team.

3.1 DoD Space Acquisition Programs

A DoD space acquisition program is a program that is listed in the space virtual Major Force Program (vMFP) as maintained by the Director, Program Analysis and Evaluation (PA&E). The vMFP can be found as a table within the President's Budget submission.

3.1.1 DoD Space Major Defense Acquisition Programs

A DoD Space MDAP is a space acquisition program that is designated by the DoD Space MDA or DAE (USD(AT&L)) as special interest or estimated by the DoD Space MDA to require an eventual total expenditure for research, development, test, and evaluation (RDT&E) of more than \$365 million in fiscal year (FY) 2000 constant dollars; or, for procurement, of more than \$2.190 billion in FY 2000 constant dollars.¹ Highly sensitive classified programs as defined by 10 USC 2430 are not Space MDAPs.

¹ The dollar requirements are established by statute in FY 1990 dollars. The dollar amounts have been updated in accordance with procedures identified in the statute. The definition is based on Title 10 USC 2430 and is also the DoD definition of an Acquisition Category (ACAT) I program

3.1.2 DoD Space Non-MDAPs

A DoD Space Non-MDAP is a program that does not meet the criteria in paragraph 3.1.1. Non-MDAPs include “major” systems as defined in 10 USC 2302d and “non-major” systems. The MDA for DoD Space Non-MDAPs is the CAE or CAE-designated representative (e.g., PEO).

3.1.2.1 DoD Space “Major” System

A DoD Space Program is a “major” system if it is estimated by the DoD Component Head to require an eventual total expenditure for RDT&E of more than \$140 million in FY 2000 constant dollars, or, for procurement, of more than \$660 million in FY 2000 constant dollars or if designated as “major” by the DoD Component Head. The estimate shall consider all blocks that will make up an evolutionary acquisition program to the extent subsequent blocks can be defined.²

3.1.2.2 DoD Space “Non-Major” System

A DoD Space Program is a “non-major” system if it does not meet the criteria for a DoD Space MDAP or a DoD Space Major system.

3.2 Automated Information Systems

DoD space programs are not considered Automated Information Systems since they are not acquired as purely Information Technology (IT) systems. The IT components of NSS systems are integral parts of DoD space programs. Compliance with the Clinger Cohen Act (CCA) is required and will be documented in the appropriate sections of the Integrated Program Summary (IPS). Per the 8 Mar 02 Clinger-Cohen Act Compliance Policy joint memo from USD(AT&L) and ASD(NII), a separate, written CCA compliance *certification* by the Military Department (MILDEP) Chief Information Officer (CIO) is not required for DoD Space programs; however, MILDEP CIO *confirmation* of CCA compliance is required. The requirement for MILDEP CIO confirmation can be satisfied by obtaining the MILDEPs CIO’s concurrence on the SPDs/PMs answers to the questions listed in the CCA Compliance Table (see E5.12).

3.3 DoDI 5000.2 Waiver and Exemption

The Space Milestone Decision Authority is authorized to approve waivers and exemptions to provisions of DoD instructions or publications, as defined by DoD Directive 5025.1, to the extent that the instruction or publication, and its subject matter, are under the jurisdiction of the Under Secretary of Defense for Acquisition, Technology, and Logistics (USD(AT&L)). To use this process, SPD/PMs can request a waiver through their PEO and CAE via a memo to the DoD Space MDA. Once the DoD Space MDA has granted the waiver and exemption, it remains valid for the life of the program unless the DoD Space MDA rescinds the waiver. (The DoD Space MDA waiver authority does not include DoDD 5000.1 or other DoD Directives.) For DoD Space Non-MDAPs, the appropriate CAE or CAE-designated representative (e.g., PEO) has the authority to establish basic acquisition practices and to act as the MDA following DoDI 5000.2 or following a CAE non-MDAP supplement to this policy with an approved waiver from the DoD Space MDA.

² The dollar requirements are established by statute in FY 1990 dollars. The dollar amounts have been updated in accordance with procedures identified in the statute. The definition is based on 10 USC 2302, 10 USC 2302d, and is also the DoD definition of an ACAT II program.

4. DOD SPACE MDA GUIDING PRINCIPLES

Over the first fifty years of the history of space acquisition, several enduring principles have emerged. The following principles should be considered by all NSS members to set the tone and guide decision making in the acquisition of NSS systems:

- a.) **Mission Success:** The overarching principle behind all National Security Space programs is mission success. When acquiring space systems, mission success must be the first consideration when assessing the risks and trades among cost, schedule, and performance. Risk management, test planning, system engineering, and funding profiles must be driven by this objective.
- b.) **Accountability:** The acquisition execution chain is ultimately accountable for a program's success or failure. The SPD/PM, as the leader of the Government-Contractor team for a program, must be accountable and have the authority to accomplish the program's objectives and meet the user's needs. The PEO or CAE and the DoD Space MDA have the responsibility to provide the SPD/PM with the resources and guidance necessary to accomplish these goals.
- c.) **Streamlined /Agile:** The NSS acquisition team should work to reduce the acquisition decision cycle time and have short, clear lines of authority with decision making and program execution at the lowest levels possible. Staff elements, at all levels, exist to advise the acquisition decision making principals (i.e., DoD Space MDA, PEO, CAE, SPD/PM). No more than two layers can be between the SPD/PM and the MDA. (Ref: NSDD 219).
- d.) **Inclusive:** Advice and information should be actively sought from all parties with an interest in NSS programs. A collegial/team relationship among all government, academia, and industry partners is the goal. DoD Space acquisition plans and documents should be coordinated with the appropriate lead user/operating command.
- e.) **Flexible:** The "model" acquisition processes outlined in this document should be tailored to properly fit the circumstances of each NSS program. Only those activities, reports, plans, coordinations, or reviews required by statute or directed by the NSS acquisition execution chain are required.
- f.) **Stable:** Within a given acquisition increment stable budgets, stable requirements, stable direction, and low personnel turnover are necessary for successful program acquisition. Decisions made by the acquisition execution chain must be durable.
- g.) **Disciplined:** All parties to this space acquisition policy must exercise the discipline necessary to achieve its goals without allowing its procedures to become unnecessarily burdensome and/or time consuming.
- h.) **Credible:** The NSS team must deliver what it promises on schedule and within budget. The NSS process is meant to incentivize and foster quality decision making for programs that exhibit the necessary maturity to proceed into the next acquisition phase.
- i.) **Cost Realism:** The goal is to develop and grow a world class national security space cost estimating capability. Cost estimates must be independent and accomplished in a timely, realistic, and complete manner. Cost will be controlled by estimating accurately and focusing on quality to reduce rework and achieve mission success. All members of the NSS acquisition execution chain must insist on, and protect, a realistic management reserve.

5. NATIONAL SECURITY SPACE (NSS) ACQUISITION APPROACH

The acquisition of DoD space systems results from the interaction of three complementary processes: the Joint Capabilities Integration and Development System under the authority of the Chairman of the Joint Chiefs of Staff; the Planning, Programming, Budgeting, and Execution process under the authority of the DoD Comptroller; and the NSS acquisition process under the authority of the DoD Space MDA. To work effectively, the acquisition process requires constant coordination among these processes and their authorities.

5.1 Joint Capabilities Integration and Development System (JCIDS)

The JCIDS process identifies, develops, and validates all defense-related capability needs. (For the IC, the Mission Requirements Board (MRB) defines and prioritizes future national foreign intelligence needs within substantive mission areas and drives those needs into intelligence planning, resource, and large system acquisition decisions.) CJCSI 3170.01D describes the JCIDS process and serves as the governing capability needs process document for this NSS policy. A disciplined capability needs process is key to achieving effective and timely acquisitions within expected budgets. Users and operators are responsible for comprehensive, clear, and timely identification of capability needs through the JCIDS process. Space system SPDs/PMs are responsible for supporting the JCIDS process by providing users and operators with timely, credible programmatic implications (cost, schedule, and risk) of meeting operational capability needs. SPDs/PMs should work closely with the users and operators to support the development of the Key Performance Parameters. This will allow the users and operators to make informed decisions. Within the DoD the capability needs validation authority and acquisition authority are separate.

5.2 Planning, Programming, Budgeting, and Execution Process (PPBE)

The PPBE process translates military capability needs into budgetary requirements, which are presented to Congress for funding consideration. Each of the functions of the PPBE operates on a near-continuous basis throughout the fiscal year. Within the DoD the budget authority and the acquisition decision authority are separate.

5.3 National Security Space (NSS) Acquisition Process

The NSS model emphasizes the decision needs for "high-tech" small quantity NSS programs, versus the DoD 5000 model that is typically focused on making the best large quantity production decision. The funding profile for a typical NSS program is usually front-loaded when compared to a production-focused system. This requires the key decisions for a NSS program to be phased earlier than the typical DoD 5000 milestone decisions.

The NSS Acquisition Process is a streamlined, tailorable method for the DoD Space MDA to use in the executive management and oversight of the DoD space programs under his authority. The process includes unambiguous acquisition phases, acquisition decision points based on program maturity with focused program assessments, and periodic reports and reviews. This policy includes four amplifying appendices and five enclosures that provide process details as listed below:

Appendix 1: NSS Space Acquisition Models, Key Decision Points (KDPs), and Acquisition Phases

Appendix 2: Defense Space Acquisition Boards (DSABs) and the Independent Program Assessment (IPA) Process

Appendix 3: DoD Space Independent Cost Analysis Process

Appendix 4: Key DoD Space Acquisition Documentation

Enclosure 1: References to the Interim Defense Acquisition Guidebook and DoDI 5000.2

Enclosure 2: IPA Readiness Review Checklist and KDP Entry Criteria

Enclosure 3: DoD Space Acquisition Documentation Approval / Coordination Requirements Matrix

Enclosure 4: DoD Space Statutory Reference Information

Enclosure 5: Integrated Program Summary (IPS)

5.3.1 NSS Acquisition Phases

NSS programs will typically progress through four acquisition phases as depicted in Figure 1:

Phase A: A Concept Development phase that will typically result in the refinement of concepts and architectures that result in a system baseline which is sufficiently mature to enter Phase B.

Phase B: A Preliminary Design phase that will typically result in mature technology and a preliminary design of sufficient definition to allow passage into Phase C.

Phase C: A Complete Design phase that will typically result in a finalized design of sufficient definition to enter Phase D.

Phase D: A Build and Operations phase that includes the acquisition activities of fabrication, testing, deployment (e.g., launch), and operational support (e.g., sustainment and eventual disposal) of a NSS system.

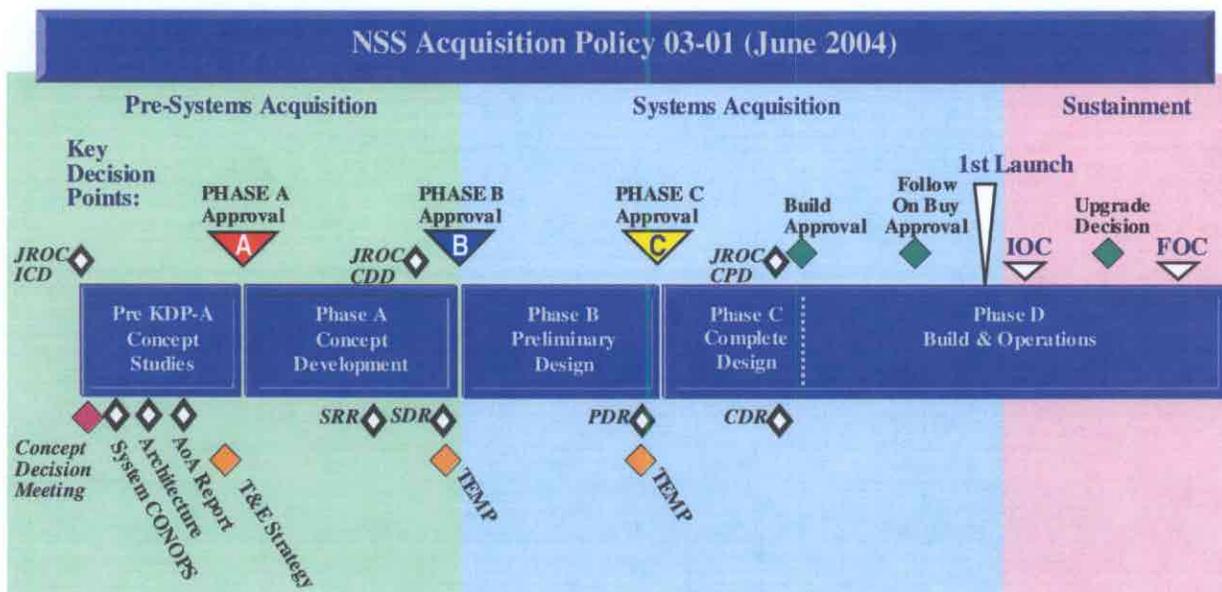


Figure 1: NSS 03-01 Acquisition Phases

5.3.2 Key Decision Points

As a DoD Space MDAP enters and moves through the NSS acquisition process it will reach Key Decision Points (KDPs) where DoD Space MDA approval is required prior to proceeding with the program (Ref: OMB Circular A-109). The KDPs are placed at specific program maturity assessment points occurring between the acquisition phases. KDP entry criteria are found in E2. KDPs provide the DoD Space MDA with structured opportunities to determine whether or not the program is sufficiently ready to proceed into the next acquisition phase. The DoD Space MDA may authorize entry into the acquisition system at any point, consistent with phase-specific entrance criteria and statutory requirements. Progress through the acquisition life cycle depends on obtaining sufficient knowledge to continue to the next stage of development. SPDs/PMs must explain and appropriately tailor, within their Acquisition Strategy, the program's acquisition phases and placement of KDPs and MDA program reviews to meet the program's needs. The DoD Space MDA shall identify the full funding required for a DoD Space MDAP at KDP-B. Transition into Phase B, Preliminary Design, requires full funding, which shall be programmed when a system concept and design have been selected, a SPD/PM has been assigned, capability needs have been approved, and preliminary design is ready to begin. Full funding shall be based on the cost of the most likely system alternative. The DoD Components shall fully fund their share of approved joint and international cooperative program commitments. Additional phase model and KDP information is described in API.

5.3.3 Defense Space Acquisition Boards (DSABs)

The DoD Space MDA will convene a Defense Space Acquisition Board (DSAB) at each KDP, inviting appropriate representatives to attend and provide advice. A favorable decision by the DoD Space MDA at a KDP-A, B, or C DSAB authorizes the start of the activities related to that next acquisition phase. To schedule a DSAB, a SPD/PM must forward a written request through the respective PEOs to the DoD Space MDA. Upon notification by the DoD Space MDA, the DSAB Executive Secretary (Director, NSSO) will facilitate the preparation for and execution of the DSAB meeting. Details concerning DSAB scheduling and conduct are described in AP2.

5.3.3.1 Independent Program Assessment (IPA)

Prior to each DSAB, the DoD Space MDA will convene an Independent Program Assessment Team (IPAT) to advise him on a program's readiness to advance into the next acquisition phase. The IPAT's findings and recommendations are presented to the DoD Space MDA at the DSAB and the Build Approval. In preparation for the IPA, the SPD/PM produces a consolidated set of program documentation, known as an Integrated Program Summary (IPS), to facilitate the IPAT review. Details concerning the IPA are described in AP2. Details for how to generate an IPS are described in AP4.

5.3.3.2 Independent Cost Analysis

A cost analysis conducted by an Independent Cost Analysis Team (ICAT) is also presented as part of the DSAB and Build Approval processes. Independent cost analysis details are described in AP3.

5.3.4 Build Approval

Build Approval is a DoD Space MDAP program review held to obtain DoD Space MDA approval to proceed into Phase D. Build Approval entry criteria are found in E2. National Security Space Office (NSSO) will facilitate the preparation for and execution of the Build Approval. Details concerning Build Approval scheduling and conduct are the same as for DSABs and described in AP2. Additional phase model and Build Approval information is found in AP1.

5.3.5 Program Reviews and Periodic Reports

SPDs/PMs, PEOs, and/or CAEs will conduct DoD Space MDAP reviews with the DoD Space MDA or his designee twice a year³ and shall advise the MDA of potential program deviations (see AP4.1.3.1 for statutory reporting requirements). Each Service should continue to submit its Selective Acquisition Reports (SARs), Unit Cost Reports (UCRs), and Defense Acquisition Executive Summary (DAES) reports via its Service processes to the Office of the Secretary of Defense (OSD) Staff. (Ref: Interim Defense Acquisition Handbook in E1 for DAES, SAR, and UCR procedures.) After review by the DoD Space MDA, copies of the above reports for DoD Space MDAPs shall be provided to the NSSO staff. (Ref: 10 USC 2432 & 2433)

6. IMPLEMENTATION

This policy is effective immediately. Supplements to this policy by MILDEP CAEs and PEOs are authorized but shall be minimized and coordinated with the DoD Space MDA. Questions concerning the implementation of this policy should be addressed to the Deputy for Military Space, SAF/US(D). The DoD Space MDA will approve process changes to this policy.

Peter B. Teets
DoD Executive Agent for Space
DoD Space Milestone Decision Authority

³ Expect spring program reviews to occur in April or May and fall program reviews to occur in October or November.

AP1. APPENDIX 1

NSS ACQUISITION MODELS, KEY DECISION POINTS (KDPs), AND ACQUISITION PHASES

AP1.0 Purpose

This appendix describes the decision models used for DoD space systems.

AP1.1 NSS Acquisition Models

DoD space acquisition programs can be grouped into four system types (See Table AP1-1). The acquisition characteristics of Space System Types 1, 2 and 3 are similar to each other but different from Space System Type 4. This difference results in two primary acquisition models that fit most NSS systems, the Small Quantity System model and the Large Quantity Production Focused model.

| Space System Type | Examples |
|--------------------------------------|--|
| 1.) Space-based systems | Satellites |
| 2.) Ground-based systems | Satellite command and control (C2), launch C2, ground station payload data processing stations, space surveillance stations, command and control systems |
| 3.) Satellite launch vehicle systems | Boosters, upper-stages, payload processing facilities, space launch facilities, ground support equipment |
| 4.) User equipment | Hand-held user terminals, data reception terminals, user terminals |

Table AP1-1: DoD Space Acquisition Program Types

AP1.1.1 Small Quantity System Model

This model typically applies to the DoD Space System Types 1, 2 and 3 in Table AP1-1.

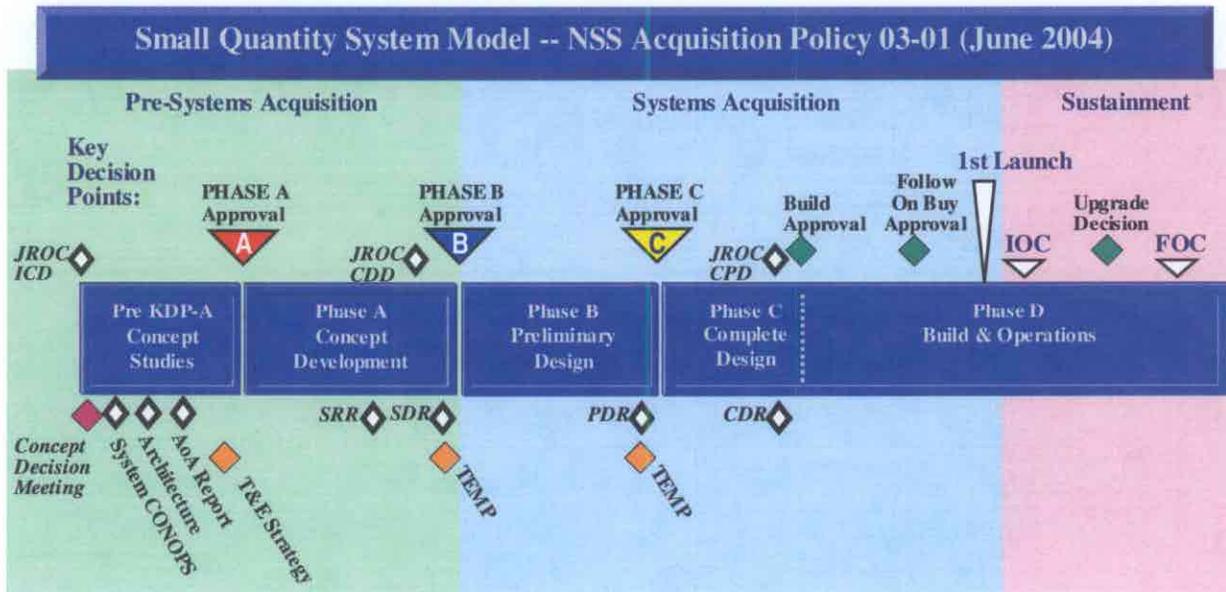


Figure AP1-1: Small Quantity Model

Satellite programs, along with their ground stations and boosters, are usually bought in quantities of ten or less. These types of programs usually do not have on-orbit prototypes to select a winner for a production contract. This is due to the expense of the satellites and launch costs. Instead of a “fly-off,” the downselect between satellite system contractors usually occurs based on design.

1 AP1.1.1.1 "Follow-on Buy" Decision

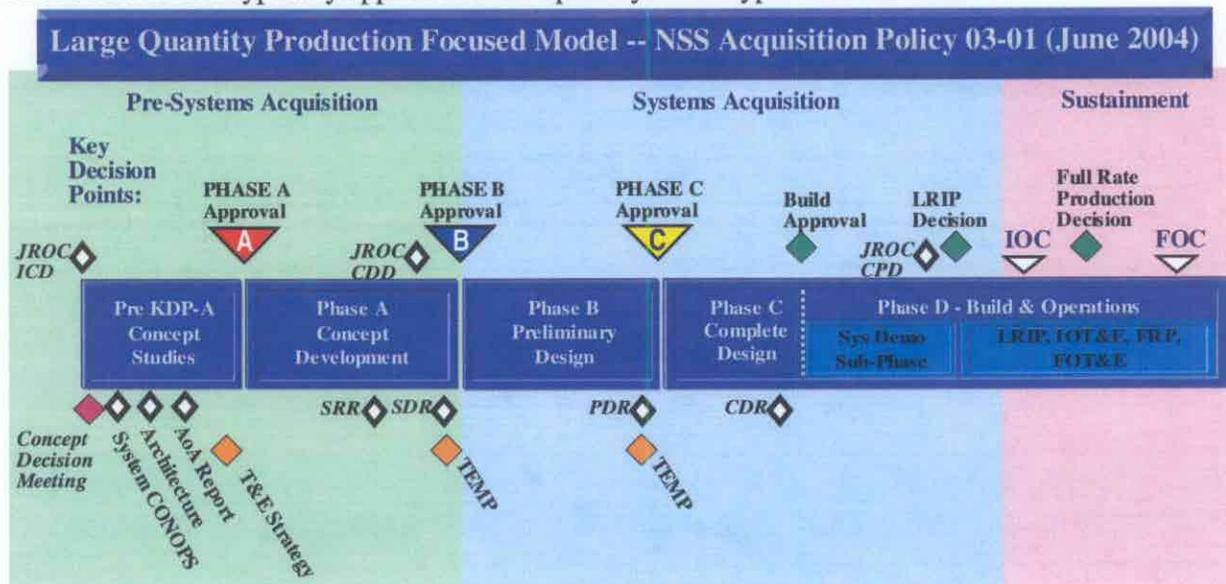
2 The Follow-on Buy decision is a meeting held by the DoD Space MDA to authorize the follow-on
3 procurement of the additional end items (e.g., satellites) required to complete the planned system buy.
4 The DoD Financial Management Regulation (DoD 7000.14-R), June 2002, volume 2A page 1-28,
5 paragraph 9.b states "The first satellite of a new design is normally placed into operational use. For
6 programs in which satellites are launched individually, the first two satellites may be financed with
7 either RDT&E or Procurement appropriations. The third and subsequent satellites shall in all cases be
8 financed with Procurement appropriation." The Follow-on Buy decision provides the authorization to
9 expend the Procurement funding to complete the initial small quantity procurement. No IPA is
10 required for a Follow-on Buy decision since there should be no appreciable change between the first
11 two end-items that were authorized at Build Approval and the remaining end-items required to
12 complete the buy. The SPD/PM should provide a program status briefing at this meeting, addressing
13 compliance with the Acquisition Strategy, Build Approval direction, and program execution status
14 (e.g., technical, schedule, performance, testing, and cost).
15

16 AP1.1.1.2 Post Production Upgrade Decision

17 If a new requirement drives the need for an upgrade whose total research, development, and
18 production cost exceeds \$180 million (in FY2000 dollars) to an approved space system production
19 baseline, then the SPD/PM, through the PEO and DSAB Executive Secretary, will request a DSAB or
20 a waiver to a DSAB from the DoD Space MDA. At a minimum, a Program Office Estimate (POE)
21 should be done to scope the cost of the upgrade. The complexity, cost, risk, and magnitude of the
22 desired upgrade will influence whether a DSAB, with an IPA, will be waived. Additionally the DoD
23 Space MDA will decide which KDP (e.g., KDP-A, B or C) the upgrade will be required to meet in
24 order to begin the acquisition process. The SPD/PM may not initiate any actions to accomplish the
25 system modification prior to MDA determination of the KDP for which to prepare or MDA approval
26 of a waiver to the DSAB. Upgrades with costs below \$180 million may be assessed and approved by
27 the appropriate CAE or Service PEO once adequacy of funding has been determined by the CAE or
28 PEO.
29

30 AP1.1.2 NSS Large Quantity Production Focused System Model

31 This second model typically applies to DoD Space systems Type 4 in Table AP1-1.



32 **Figure AP1-2: Large Quantity Production Focused Model**
33
34

1 These systems are typically bought in quantities of 50 or more and tend to follow the more traditional
2 DoD life cycle cost model and acquisition phasing. Figure AP1-2 shows how this NSS policy can be
3 adapted to add a System Demonstration sub-phase (for demonstrating prototypes), a Low-Rate Initial
4 Production (LRIP) decision, and a Full-Rate Production (FRP) decision for NSS acquisitions of large
5 quantity buys. Even though the LRIP decision point and the FRP decision point are not depicted as
6 KDPs, a DSAB, preceded by an IPA and ICE, will usually be held. The purpose of the IPA and
7 DSAB for the LRIP decision point is to assess the program's readiness to build the initial production
8 items. A JCIDS approved CPD should be in place prior to the LRIP decision meeting. The purpose of
9 the IPA and DSAB for the FRP decision is to assess the program's readiness to begin Full-Rate
10 production. For a Production Focused program not requiring a System Demonstration sub-phase, as
11 depicted in Figure AP1-2, the KDP-C becomes the LRIP decision point.
12

13 AP1.1.3 Evolutionary Acquisition

14 Within both NSS acquisition models, Evolutionary Acquisition (EA) is the preferred strategy for rapid
15 acquisition of mature technology for the user. EA is defined as an acquisition approach that delivers
16 capability in increments, recognizing up front the need for future capability improvements. This
17 approach requires collaboration among the user, tester, and developer. The two main processes to
18 perform EA are:
19

20 a) Spiral Development. In this process, a desired capability is identified, but the end-state
21 requirements are not known at program initiation. Those requirements are refined through
22 demonstration and risk management, there is continuous user feedback, and each increment
23 provides the user the best possible capability. The requirements for future increments depend
24 on feedback from users and technology maturation.

25 b) Incremental Development. In this process, a desired capability is identified, an end-state
26 requirement is known, and that requirement is met over time by development of several
27 increments, each dependent on available mature technology.
28

29 Evolutionary acquisition has been a cornerstone for space system development since the early 1960's.
30 Incremental software and hardware improvements to the ground-based segments of a space system are
31 commonplace. It is also common to perform incremental upgrades on satellites within a space system
32 or constellation. The SPD/PM should describe the program's EA strategy in the program's
33 Acquisition Strategy. The IPS constitutes the "spiral development plan" for programs using the spiral
34 development process (Ref: Pub. L. 107-314 sec 803). A decision to proceed into the next acquisition
35 phase by the DoD Space MDA "approves" the spiral development plan.
36

37 AP1.1.4 Earned Value Management System (EVMS)

38 Regardless of which NSS acquisition model applies, EVMS, with Integrated Baseline Reviews (IBRs),
39 shall apply to all NSS RDT&E contracts, subcontracts, and other transaction agreements and intra-
40 government work agreements with a value of \$50 million or more (in FY 2000 constant dollars), or
41 procurement or operations and maintenance contracts, etc., with a value of \$315 million or more (Ref:
42 OMB Circular A-11, Part 7 and ANSI/EIA-748 (2002 version). The EVMS is required on all DoD
43 contracts meeting these thresholds unless waived by the DoD Space MDA. The SPD/PM must justify
44 why EVMS methodologies should not apply and are not in the best interests of the government. Waivers
45 should occur prior to KDP-B.
46
47

1 AP1.1.5 Systems Engineering (SE)

2 Robust SE is essential to the success of any program. Program offices must focus attention on the
3 application of SE principles and practices throughout the system life cycle. Program offices must
4 elevate these SE principles to a level commensurate with other programmatic considerations such as cost
5 and schedule. It is the responsibility of the JCIDS and NSSO processes to develop integrated
6 architectures and initial operational view (OV) products for NSS systems (Ref: CJCSI 3170.01D, the
7 Joint Technical Architecture, and the DoD Architecture Framework). It is the role of the program office
8 to develop the systems view (SV) and the technical view (TV) products to ensure the NSS system
9 developed can properly integrate into the larger DoD architectures.

10 AP1.1.6 Space System Testing

11 Developmental Test and Evaluation (DT&E) is the responsibility of the SPD/PM. The office of the
12 Deputy Director of Developmental Test and Evaluation within USD(AT&L), in support of the DoD EA
13 for Space, should be consulted on the formulation and conduct of the DT&E activities. The Service
14 Operational Test Agency and the Director, Operational Test and Evaluation (DOT&E) are responsible
15 for the formulation and conduct of the OT&E activities. Where appropriate, SPD/PMs should
16 implement a combined DT&E/OT&E approach where key events during DT&E reflect future OT&E
17 test conditions to demonstrate progress towards readiness to enter OT&E. The test program for NSS
18 system testing should be compliant with MIL-STD-1540E and MIL-HDBK-340A. The Parts, Material,
19 and Processes Alert and Pedigree system for NSS systems should follow MIL-STD 1547. Test planning
20 should consider the potential impacts on the environment, personnel, and public safety.

21 AP1.1.7 Environmental, Safety, and Occupational Health Evaluation (ESOH)

22 As part of the risk reduction, the SPD/PM shall prevent ESOH hazards where possible and shall
23 manage ESOH hazards where they cannot be avoided. The acquisition strategy shall incorporate a
24 summary of the Programmatic ESOH Evaluation (PESHE). The SPD/PM should consult the Safety
25 Office and the Environmental Office of their own Service or Agency for guidelines on how to prepare
26 the appropriate PESHE and/or National Environmental Policy Act (NEPA) documents for their
27 program (Ref: 42 USC 4321-4370d & Executive Order 12114). The CAE (or for joint programs, the
28 CAE of the Lead Executive Component), or designee, is the approval authority for system-related
29 NEPA and E.O. 12114 documentation.

30 AP1.1.8 System Disposal

31 At the end of its useful life, a system shall be demilitarized and disposed in accordance with the legal
32 and regulatory requirements and policy relating to safety (including explosive safety), security, and the
33 environment. During the design process, PMs shall document hazardous materials contained in the
34 system and shall estimate and plan for the system's demilitarization and safe disposal.

35 AP1.1.9 Joint, Cross-Service, and International Management Considerations

36 Consult E1 for specific reference to language within DoDI 5000.2 for applicable guidance on Joint,
37 Cross-Service, and International program management.

38 AP1.1.10 Technology Readiness Assessment (TRA)

39 An accurate TRA is critical to determining program risk. The SPD/PM is responsible for identifying
40 critical technologies and conducting the TRA. For KDP-B and KDP-C, the Component S&T
41 Executive will conduct an independent review of the SPD/PM generated TRA. The Component S&T
42 Executive will provide the results of this independent review to the IPA Team Leader.

1 AP1.1.11 Protection Strategy

2 NSS systems face increasing threats that must be addressed in the acquisition process. The NSS
3 protection strategy is to ensure space capabilities are protected to an appropriate level commensurate
4 with their contribution to national security, considering planned use, consequence of lost or degraded
5 capability, availability of other means, and the threat. NSS protection will be a key interest item for all
6 program reviews and KDP DSABs.
7

8 AP1.2 Key Decision Points (KDPs) and Acquisition Phases

9 KDPs are points in the acquisition timeline of a DoD Space program where the program's maturity is
10 evaluated by the DoD Space MDA to determine its readiness to proceed into the next acquisition phase.
11 The choice of model - "Small Quantity" or "Large Quantity Production Focused" - primarily affects the
12 placement of KDPs within a program's schedule. KDPs may be, but need not be, coincident with
13 contractor down-selection points or other contractual actions since contracting actions are addressed
14 through existing source selection processes.
15

16 AP1.2.1 Pre KDP-A Activities

17 Prior to meeting a KDP-A, the JCIDS process, the architecting process, and the operating/using
18 entities will have been developing their JCIDS products (e.g., Initial Capabilities Document (ICD),
19 Joint Operation Concepts, etc.) with support from the space acquisition organizations as requested.
20 Once it is clear from the JCIDS process that a space system needs to be acquired, the Joint Staff Force
21 Structure, Resources, & Assessment Directorate (J8) will notify the DoD Space MDA.
22

23 AP1.2.1.1 Concept Decision Meeting

24 The DoD Space MDA convenes the Concept Decision Meeting with the J8, Director, PA&E, and
25 appropriate OSD Principle Staff Assistants. The J8 and/or concept sponsor (as defined in CJCSI
26 3170.01D) will brief the results of the JCIDS effort at the Concept Decision Meeting. From this
27 briefing the DoD Space MDA, with advice from the Director, PA&E, will determine if the results of
28 the JCIDS process are sufficient to satisfy the requirement for an Analysis of Alternatives (AoA)
29 report or determine that a separate AoA will be required to generate that report.
30

31 AP1.2.1.2 Stand Alone AoA

32 If a separate AoA is required, the DoD Space MDA will designate the appropriate entity to perform the
33 AoA. The Director, PA&E provides initial guidance for the development of the AoA. The entity
34 selected to perform the AoA will provide an analysis plan to the Director, PA&E for review prior to
35 the start of the AoA. The AoA report should be provided to the Director, PA&E in time to allow
36 PA&E's review prior to the start of the Independent Program Assessment for KDP-A. (See AP2.1.8)
37

38 AP1.2.1.3 System-Level CONOPS

39 In addition to the concept of operations materials described as part of the JCIDS process, the concept
40 sponsor also needs to provide a system-level CONOPS that is focused on the system being acquired.
41 The system-level CONOPS is to be a high level written description of a space system that identifies
42 the system's purpose, operational assumptions, the desired effects, how the system will be used, and
43 who is envisioned to operate and use it. It should include a description of the operational nodes and a
44 high level description of the connections between the nodes and the elements of the space system. The
45 sufficiency test for a system-level CONOPS is whether sufficient written detail has been provided in
46 order to generate the required Operational View architecture products for the ICD. By KDP-A, a fully
47 approved and appropriately coordinated document is desired; however, an initial document that has
48 been signed by an appropriate flag rank authority may be acceptable. Full coordination and resolution
49 of all issues within a system-level CONOPS is not mandatory at KDP-A. Items identified as "To Be
50 Resolved" (TBR) or "To Be Determined" (TBD) are acceptable since resolution of these type of issues
51 is the purpose of Phase A. Full coordination with appropriate stakeholders and resolution of the TBR
52 and TBD issues needs to occur by KDP-B since system-level CONOPS issues can be design drivers.

1 AP1.2.1.4 Acquisition Office KDP-A Preparation

2 At the Concept Decision meeting, the DoD Space MDA will designate a lead acquisition office to
3 begin the preparation for a KDP-A DSAB. The lead acquisition office produces the Acquisition
4 Strategy and IPS. The lead acquisition office will conduct concept studies to include identifying
5 pertinent technologies and potential solutions. (See E2 for KDP entry criteria, AP2 for details on the
6 DSAB preparation process, and AP4 for Acquisition Strategy and IPS preparation guidance.)
7

8 AP1.2.2 KDP-A for Concept Development Phase Entry

9 The purpose of KDP-A is to determine a program's readiness to enter the concept development phase.
10 Due to special circumstances (e.g., senior leadership direction), some programs start Phase A activities
11 without a formal KDP-A. In these cases, the DoD Space MDA will still provide an ADM for Phase A
12 activities. In such cases, an approved ICD and CDD shall document the need for the capability prior to
13 commencing Phase A. (See E2 for a list of products that should be available prior to starting the KDP
14 A IPAT.)
15

16 AP1.2.3 Phase A, Concept Development Phase

17 The activities of this phase typically include concept development and trade studies, system
18 architecture development, assessment of vulnerability and protection mitigation measures, technology
19 development and technology maturity assessments, risk reduction, requirements development, support
20 concept trade studies, Test and Evaluation Master Plan development, initial PESHE planning, initial
21 design supporting functional baseline development, and industrial capability assessments for key
22 technologies and components. The results of Phase A activities will provide critical input to the
23 JCIDS process and will be the basis for an affordable program baseline that can satisfy the users
24 requirements and can be executed at the start of Phase B. In addition to complying with the direction
25 contained in the KDP-A ADM see E2 for the tasks that should typically be completed and documented
26 in the IPS to successfully complete Phase A.
27

28 AP1.2.4 KDP-B for Preliminary Design Phase Entry

29 The purpose of KDP-B is to determine the program's readiness to begin the preliminary design
30 development activities of Phase B. KDP-B is the official "Program Initiation" point for a NSS
31 program. Program Initiation is the point within a MDAP where it is appropriate to submit SARs to the
32 Congress and require a formal APB. For DoD Space programs, program initiation typically occurs
33 with the establishment of a program office and the approval by the DoD Space MDA to proceed into
34 the Preliminary Design Phase or "Phase B" of a program at the KDP-B DSAB. The DoD Space MDA
35 shall identify the full funding required for a DoD Space MDAP at KDP-B. Full funding shall be based
36 on the cost of the most likely system alternative. A SPD/PM will be designated and a program office
37 established no later than KDP-B. (See E2 for a list of products that should be available prior to starting
38 the KDP-B IPAT.)
39

40 AP1.2.5 Phase B, Preliminary Design Phase

41 The purpose of this phase is to conduct preliminary design development activities. Phase B is
42 designed to increase confidence in the selected NSS system alternative(s) by assessing the estimated
43 risk levels and projected performance envelope at a detailed engineering level. Where feasible, critical
44 technology should complete testing in a relevant environment during Phase B. Technology which has
45 not been tested in a relevant environment should be moved to the next increment or spiral.
46 Additionally, Phase B provides critical input to the JCIDS process, and in conjunction with Phase C,
47 will allow a well-founded Capability Production Document (CPD) to be generated and validated in
48 time to support the Build Approval In addition to complying with the direction contained in the KDP-
49 B ADM, see E2 for the tasks that should typically be completed and documented in the IPS to
50 successfully complete Phase B.
51

1 AP 1.2.6 KDP-C for Complete Design Phase Entry

2 The purpose of KDP-C is to determine the program's readiness to begin the final design development
3 activities of Phase C. A key aspect of KDP-C is to assess the program's progress towards meeting the
4 baseline established at KDP-B. (See E2 for a list of products that should be available prior to starting
5 the KDP-C IPAT.)
6

7 AP 1.2.7 Phase C, Complete Design Phase

8 The purpose of this phase is to conduct the design development activities. Phase C is designed to
9 further increase confidence in the selected NSS system alternative(s) by assessing the estimated risk
10 levels and projected performance envelope at a more detailed engineering level. Additionally, Phase C
11 provides critical input to the JCIDS process, allowing a well-founded CPD to be generated and
12 validated in time to support the Build Approval. The CPD can wait for final approval until the LRIP
13 decision meeting when using the production focus model. In addition to complying with the direction
14 contained in the KDP-C ADM, see E2 for the tasks that should typically be completed and
15 documented in the IPS to successfully complete Phase C.
16

17 AP1.2.8 Build Approval for Build Phase Entry

18 The purpose of Build Approval is to authorize the conduct of all acquisition-related activities
19 associated with fabrication, testing, deploying (e.g., launch), and supporting operations of new space
20 systems. These activities constitute Phase D. The Build Approval is an MDA program review.
21 Although the Build Approval is not a KDP, the meeting will be preceded by an IPA and an ICE is
22 required (10 USC 2434). The Build Approval IPAT and ICAT teams will follow the same timelines
23 and guidelines established in AP2 and AP3 for DSABs. (See E2 for a list of products that should be
24 available prior to starting the Build Approval IPAT.)
25

26 AP1.2.9 Phase D, Build & Operations Phase

27 The purpose of Phase D is to conduct system-level fabrication, integration, testing, and deployment
28 activities and provide operations support for a NSS system. (If the program is following the
29 "Production Focused" acquisition model, the JCIDS process will continue to develop the Capability
30 Production Document (CPD) in parallel with the initial Phase D activities. The CPD should be
31 approved prior to the LRIP Decision meeting.) Unless otherwise directed, the SPD/PM conducts
32 studies to assess the long-term reliability, maintainability, and availability issues of the system; to
33 resolve hardware or software problems; and to maintain mission performance over the planned life of
34 the system. As the program moves into operations, the SPD/PM is responsible for accomplishing
35 those requirements assigned at the KDP-C DSAB and the Build Approval, as well as any others
36 subsequently assigned by the DoD Space MDA. The SPD/PM is expected to track these requirements
37 closely as they evolve over time. In addition to complying with the direction contained in the Build
38 Approval ADM, see E2 for the tasks that should typically be completed to successfully complete
39 Phase D.
40
41

AP2. APPENDIX 2**DEFENSE SPACE ACQUISITION BOARDS (DSABS)
AND THE
INDEPENDENT PROGRAM ASSESSMENT (IPA) PROCESS****AP2.0 Purpose**

This appendix describes the DSAB and IPA process.

AP2.1 Defense Space Acquisition Board (DSAB)

The DoD Space MDA convenes a DSAB for each KDP to obtain advice and information necessary to support his decision whether or not to proceed into the next acquisition phase. A DoD Space MDA decision to proceed authorizes the SPD/PM to perform appropriate activities in accordance with the approved acquisition strategy and ADM. The DoD Space MDA will determine the scope of the program review and may direct other Space MDAP systems that interact with or are impacted by the program under consideration to participate in the IPA process.

AP2.1.1 DSAB Members

The DoD Space MDA chairs the DSAB and the Vice Chairman of the Joint Chiefs of Staff (VCJCS) is the Vice Chair. The DSAB Executive Secretary (Director, NSSO) facilitates the preparation for and execution of the DSAB meeting. DSAB principals are advisors and representatives of entities who have a material interest in the program under consideration. Their role is to act in an advisory capacity to the DSAB chairman. The DoD Space MDA is the sole decision maker for a DSAB.

AP2.1.2 DSAB Initiation

The SPDs/PMs written request for a DSAB formally initiates the process. This request is sent through the PEO or CAE to the DoD Space MDA. Such requests should typically be made a minimum of five months prior to the desired DSAB date to provide adequate time to conduct the IPA and the independent cost analysis. It is imperative that the PEO make the DoD Space MDA aware, as early in the process as possible, of his intent to request a DSAB date in order for the DoD Space MDA staff to communicate upcoming ICAT workload requirements to the OSD Cost Analysis Improvement Group (CAIG). Prior to formal initiation of the DSAB process, the DoD Space MDA staff will maintain an early and ongoing dialog with the various NSS SPDs/PMs to facilitate entry of their programs into the formal process. Throughout the process, the DoD Space MDA staff shall provide advice, training, and sample DSAB products.

AP2.1.3 DSAB Request Letter

The PEO shall endorse and forward the SPD/PM written request to the DoD Space MDA to initiate the formal DSAB process. The DSAB request letter shall include: a) program name, b) desired DSAB date, c) KDP being met, d) identification of KDP pre-requisite checklist shortfalls (See E2), and e) explanation of why this KDP decision is being requested. Further, the PEO should provide the DoD Space MDA with the approved Acquisition Strategy applicable for the upcoming acquisition phase. (Details on the Acquisition Strategy creation and approval process are found in AP4.1.1.) The letter shall also include a request and rationale for the DoD Space MDA to grant a waiver and exemption to the processes and procedures contained within DoDI 5000.2 if a waiver has not previously been granted. Submission of the formal DSAB Request Letter starts the IPA process depicted in Figure AP2-1.

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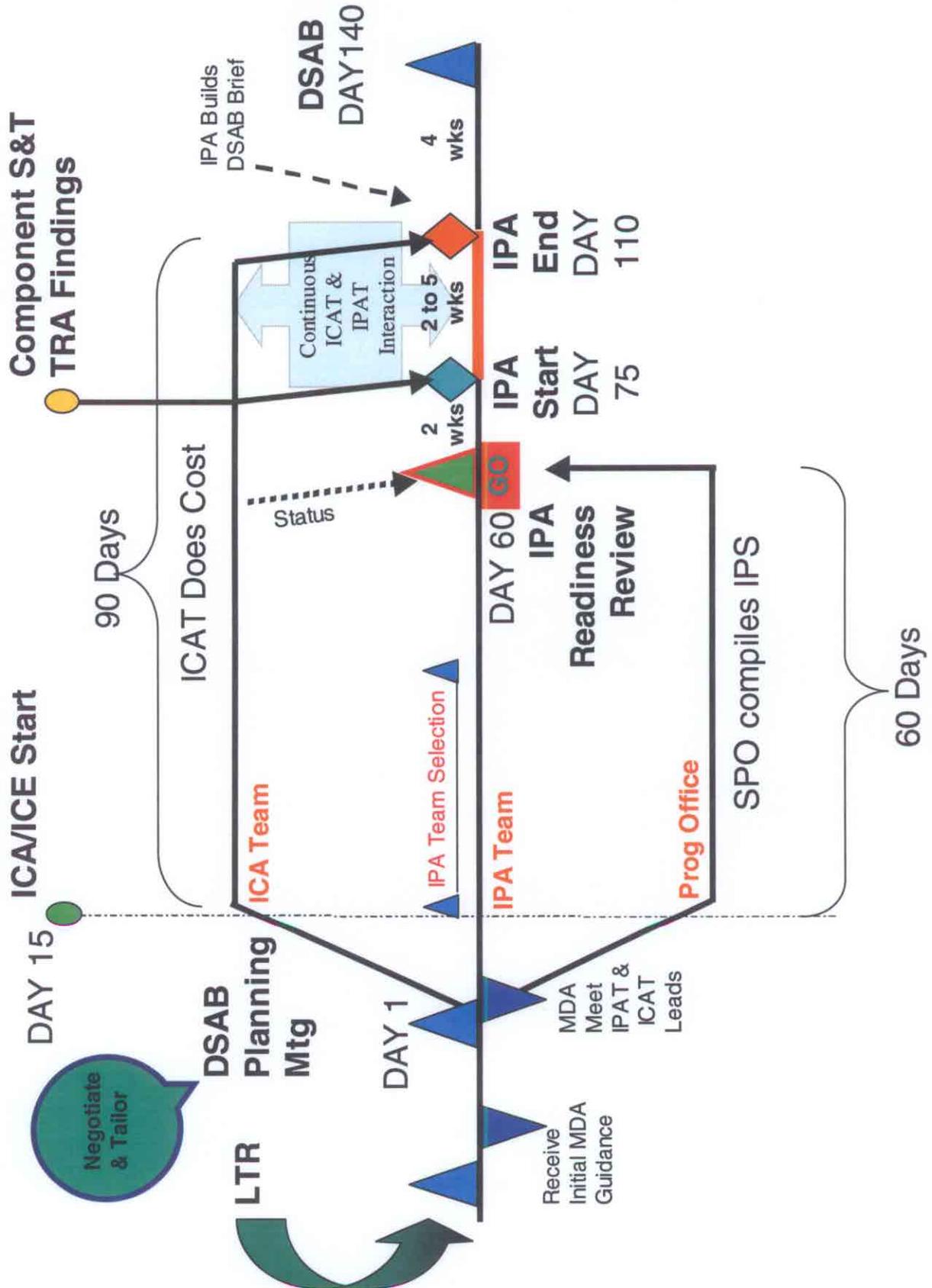


Figure AP2-1: DSAB and IPA Readiness Process
(This is a notional timeline.)

1 AP2.1.4 DoD Space MDA Initial Activities

2 Immediately after receipt of the DSAB Request Letter, the DoD Space MDA will inform the DSAB
3 Executive Secretary of the request to initiate the formal DSAB process, providing initial guidance for
4 the preparation and conduct of the IPA and DSAB.
5

6 AP2.1.5 DSAB Executive Secretary Initial Activities

7 Upon notification by the DoD Space MDA of the DSAB request, the DSAB Executive Secretary will
8 begin the process of assisting the DoD Space MDA with the nomination of potential IPAT leaders.
9 The DSAB Executive Secretary will also notify the Chairman of OSD CAIG, Vice Chairman of the
10 Joint Chiefs of Staff, USSTRATCOM, ASD(NII), the Services, and those OSD, Joint Staff, and other
11 entities who have an interest in the program under consideration of the pending DSAB. Once notified
12 by the DoD Space MDA who the IPAT and ICAT Leaders will be, the DSAB Executive Secretary will
13 establish and announce the date for the DSAB Planning Meeting. The IPAT Leader is accountable to
14 the MDA. The IPAT leader will conduct the review and advise the MDA whether the program is ready
15 to move into the next phase.
16

17 AP2.1.6 DSAB Planning Meeting

18 Just prior to the DSAB Planning Meeting, the DSAB Executive Secretary, IPAT Leader, and ICAT
19 Leader will meet with the DoD Space MDA to receive guidance for the IPA activity. The DSAB
20 Executive Secretary will document the guidance (issues, concerns, and strategies) provided by the
21 DoD Space MDA to the IPAT and ICAT leaders. The DSAB Planning Meeting will typically be
22 called within 10 calendar days of receipt of a formal DSAB written request from the PEO. The purpose
23 of this meeting is to tailor the review requirements by going through the IPS, IPA, and independent
24 cost analysis items identified in AP2, AP3, E2, and E5. The DSAB Executive Secretary, SPD/PM, IPA
25 and ICAT leads, along with representatives from ASD(NII), DOT&E, J-8, and NSSO will discuss
26 DoD Space MDA issues, concerns, and strategies; review required documents; and discuss
27 recommendations to streamline the process based on each individual program's unique qualities. The
28 DSAB Executive Secretary will notify the MDA of any streamlining recommendations or disconnects
29 (e.g., entering the acquisition process at KDP-B or C, any differences between the acquisition strategy
30 and the nominal schedules in this policy, etc.). Tentative dates for the independent cost analysis start,
31 IPA Readiness Review meeting, actual IPA start, and DSAB will be set at this meeting. The DSAB
32 Executive Secretary will task the meeting attendees to accomplish the actions identified in the
33 appropriate portion of the E2 in time for the IPA Readiness Review meeting. During the meeting the
34 DSAB Executive Secretary will also request nominations for IPAT members. ASD(NII) will notify
35 the OSD staff elements of the request for nominations to ensure all stakeholders are notified.
36

37 AP2.1.6.1 IPAT Member Nomination

38 Entities and organizations that have a vested interest in a DoD Space acquisition program shall identify
39 candidates to serve as either "part-time" stakeholders or nominees for the full-time "core" IPAT
40 members. Entities and organizations shall provide their nominations to the IPAT Leader not later than
41 7 days after being notified by the DSAB Executive Secretary of the solicitation for IPAT members.
42 IPAT candidates can be Government, Federally Funded Research and Development Centers (FFRDC)
43 staff, University Affiliated Research Center staff, or System Engineering and Technical Assistance
44 (SETA) support contractor personnel that are not directly affiliated with the program under review
45 (e.g., cannot be member of the program office or development contractor team). The DSAB Executive
46 Secretary will provide nomination format and content guidance.
47

48 AP2.1.7 Independent Cost Analysis, IPA and SPD/PM Preparation Process

49 After the DSAB Planning Meeting three activities begin in parallel: the independent cost analysis, the
50 IPA, and SPD/PM preparatory activities.
51

1 AP2.1.7.1 ICAT Planning and Review Activities

2 The independent cost analysis will start immediately after the DSAB Planning Meeting with ICAT
3 member selection by the ICAT Leader. Details of the independent cost analysis process are found in
4 AP3. All ICAT administrative costs (e.g., ICAT member travel costs) are the responsibility of the
5 SPD/PM whose program is under review.
6

7 AP2.1.7.2 IPA Planning Activities

8 The IPAT Leader begins planning activities immediately after the DSAB Planning Meeting. These
9 activities include program assessment planning (e.g., issue identification, agenda, etc.), IPAT core
10 member selection, and IPAT administrative considerations (e.g., location, communications, security,
11 computer, facilities, travel, etc.). Typically, a facilitator is named by the DSAB Executive Secretary to
12 assist with the IPA preparation and conduct. Coordination of the administrative requirements is the
13 responsibility of the DSAB Executive Secretariat staff. The facilitator will also assist with the
14 identification and satisfaction of the IPAT's administrative and logistics requirements. All IPA
15 administrative costs (e.g., IPAT core member travel costs) are the responsibility of the SPD/PM whose
16 program is under review.
17

18 AP2.1.7.2.1 IPAT Member Selection

19 IPAT member nominations are due to the IPAT Leader no later than 10 working days after the DSAB
20 Planning Meeting. IPAT selection should be completed no later than two weeks after receipt of the
21 nominations. The IPAT Leader will select individuals to serve as core members of the IPAT based on
22 the program's review needs and candidate qualifications as determined by the IPAT Leader. Typical
23 topics and areas that an IPAT will review are found in Table AP4-1. Normally the IPAT Leader will
24 select ten to fifteen people to make up the core IPA team. (A typical IPAT would be composed of two
25 to three core members to review the program management topics covered by IPS items 1, 2, 7, 12, 16
26 & 17 in Table AP4-1; five to seven core members to cover the system engineering and test topics
27 covered by IPS items 3, 4, 5, 6, 8, 9, 11, 14 & 15; and four to five core members to address support
28 issues covered by IPS items 10 & 13.) These core team members will be selected because of their
29 recognized expertise in a particular area that requires review by the IPAT. Core team members are
30 expected to be present full time during the anticipated two to five week IPA review period.
31

32 AP2.1.7.2.2 Stakeholder IPAT Members

33 Individuals not selected to serve on the IPAT as core members can serve as part-time stakeholder
34 members to represent their organizational interests. Stakeholder members (e.g., OSD, MAJCOMs,
35 Combatant Commanders, Components) have a need to understand the program but either cannot
36 dedicate the time to be full-time members or were not selected as "core" members. Stakeholder
37 members should be identified before the start of the IPA process and are expected to serve throughout
38 the entire IPA activity in order to maintain continuity and minimize the need to revisit previously
39 covered material. All program review materials and briefing schedules will be available to these
40 members. The stakeholder members will work with the DSAB Executive Secretariat staff and the IPAT
41 Leader to define their participation in the review process. The role of the "stakeholder" IPAT members
42 is to be the single interface between their organization and the IPAT. The stakeholder members are
43 expected to formally identify their organizations' concerns at the start of the IPA process to the IPAT
44 Leader so their issues can be properly addressed by the IPAT. The stakeholder members will be
45 provided access to all the IPA review documentation via an appropriately secure website and are
46 responsible for preparing their senior principal for the DSAB. Due to the interdependence of ICAT and
47 IPAT activities, the ICAT is considered a stakeholder member and may choose to appoint a full-time
48 ICAT representative to the IPAT. Regardless of whether a full-time ICAT representative is appointed to
49 the IPAT, all IPAT activities and meetings will be open to the ICAT. Similarly, all ICAT meetings and
50 activities will be open to the IPAT.
51

1 AP2.1.7.3 Program Office Preparatory Activities

2 The program office preparatory activities begin immediately after the DSAB Planning Meeting with
3 the generation of the Integrated Program Summary (IPS). Details on the IPS are found in AP4 and E5.
4 The IPS is prepared by the SPD/PM and provides a succinct, integrated picture of the program status
5 for use by the IPAT, the DSAB process, and the DoD Space MDA. The IPS must be completed at the
6 time of the IPA Readiness Review meeting. In addition the program office will support independent
7 cost analysis activities as required.
8

9 AP2.1.8 IPA Readiness Review Meeting

10 The IPA Readiness Review is typically held 50 days after the DSAB Planning Meeting. The purpose
11 of the IPA Readiness Review meeting is to determine if all necessary resources and documentation are
12 in place and/or on a path to support the IPAT. The DSAB Executive Secretary, SPD/PM, ICAT lead,
13 and IPAT lead, along with representatives from ASD(NII), DOT&E, J-8, and NSSO will attend. The
14 DSAB Executive Secretary will decide at the IPA Readiness Review if the SPD/PM, IPAT, and ICAT
15 are ready to proceed with the IPA review. The appropriate KDP section of the IPA Readiness Review
16 checklist (See E2) will be used by the DSAB Executive Secretary as a guide to determine a program's
17 readiness to proceed into the IPA. The J8 representative will be asked to state the user/operator's
18 readiness to proceed with the DSAB process. Typically the IPA will start two weeks after a successful
19 IPA Readiness Review. At this meeting, there will be no pre-assessment of the quality of the material-
20 -only a decision based on whether everything necessary for the review to proceed smoothly is
21 available, or will be available in time for the IPAT to start their review. If the decision is to proceed,
22 the DSAB Executive Secretary will officially set the DSAB date with the DoD Space MDA and
23 formally announce the IPA start and scheduled DSAB date to all interested parties. Only the DoD
24 Space MDA may change the DSAB meeting date once it is formally announced.
25

26 AP2.2 Independent Program Assessments (IPAs)

27 The purpose of the IPA is to advise the DoD Space MDA on a program's readiness to proceed to the
28 next acquisition phase. The focus of the IPA should be on the identification and evaluation of all
29 elements of program risk. In essence, the IPA's job is to determine if the SPD/PM has properly
30 identified and quantified program risk areas and then assess whether adequate risk mitigation plans are
31 in place.
32

33 AP2.2.1 Conduct of an IPA

34 An IPA is a focused, short duration "peer review" activity that typically runs from two to five weeks in
35 duration depending on the program's complexity. The core members of an IPAT are assigned to work
36 the assessment full-time for the IPAT Leader, who is responsible for the final recommendation to the
37 MDA. The IPA activity is usually conducted at the program office locale and/or the contractor facility
38 to facilitate easy, ready access to the system experts, the data, and the equipment under review. While
39 the IPAT may discuss issues with various elements in conducting the assessment, the assessment is not
40 a consensus process. Rather, it produces an unbiased, structured, independent evaluation of the
41 proposed space acquisition activity in order to provide the DoD Space MDA an overview of how well
42 the SPD/PM has addressed problematic issues and to identify areas of concern or potential risk. The
43 IPA will also report out on the vulnerability and protection mitigation measures being addressed by the
44 program. The IPA also compares program accomplishment with program objectives and with previous
45 DoD Space MDA direction, guidance, decisions, and/or Presidential or Congressionally directed
46 actions.
47

48 AP2.2.2 IPAT, ICAT and Program Office Interaction

49 The assessment process shall be a cooperative effort among the program office, the ICAT, and the
50 IPAT. The ICAT must deliver preliminary Independent Cost Assessment (ICA) or Independent Cost
51 Estimate (ICE) results to the IPAT no later than the mid-point of the IPAT's review activities.
52 Constant interaction between the ICAT and IPAT is required once the IPA review begins in order for

1 each team to stay abreast of each other's activities, assumptions, and conclusions. To help ensure this
2 communication, the ICAT leader will make sure the IPAT is informed of all ICAT meetings and
3 activities and the IPAT leader will make sure the ICAT is informed of all IPAT meetings. All ICAT
4 activities and meetings will be open to IPAT attendance, and all IPAT meetings will be open to ICAT
5 attendance. The IPAT and ICAT shall discuss their major findings with the program office as the
6 assessment is on going and in advance of the DSAB. Frequent, informal meetings and joint question
7 and answer sessions should be held among the IPAT, ICAT, and program office to clarify issues,
8 identify contentious areas, fill information gaps, and eliminate potential misunderstandings early in the
9 IPA and independent cost analysis process. The IPAT and ICAT team should provide briefing
10 outlines to program briefers whenever possible to ensure the information provided by the program
11 office is what the IPAT and/or ICAT needs.
12

13 AP2.2.3 IPA Review Scope

14 The assessment is not necessarily a detailed technical evaluation, and may or may not involve interaction
15 with the SPD/PM's contractors. It is the type of high-level review and analysis that the DoD Space
16 MDA would do personally if time were available. SPDs/PMs will make necessary data available to the
17 IPAT conducting the assessment. The IPAT is not required to gather raw data independently or repeat
18 analyses performed by the SPD/PM, except to the extent judged necessary by the IPAT Leader to answer
19 specific questions/concerns expressed by the DoD Space MDA. The assessment may not involve equal
20 depth in all areas. Instead, the process will include a first order review of the entire program, followed
21 by more in-depth reviews of those areas of particular criticality, controversy, risk, or as directed by the
22 DoD Space MDA. (See the IPS section of AP4 and E5 for more detail on the scope of the IPA Review.)
23

24 AP2.2.3.1 IPA Program Schedule Assessment

25 An integral part of the IPA evaluation activities will be a schedule assessment as a necessary
26 complement to technical and cost assessment activities. For KDP-B, C and Build Approval, the IPA
27 should conduct a sufficiency review of the program integrated master schedule (IMS). For KDP-C and
28 Build Approval, this includes reviewing the program office critical path analysis. The results of the
29 sufficiency review should be reported at the DSAB.
30

31 AP2.2.4 IPA Required Documentation

32 For all KDPs, an IPS, an IPAT Annotated Briefing, an IPAT Report, and an ICAT cost analysis are
33 prepared. The IPS provides a succinct, integrated picture of the program status for use by the IPAT,
34 the DSAB process, and the DoD Space MDA. The results of the IPAT assessment are documented in
35 an IPA Annotated Brief and IPAT Report prepared by the IPAT, covering the same areas as the IPS.
36 The results of the independent cost analysis are documented in a separate annotated brief prepared by
37 the ICAT. (See AP3 for details on the ICAT and the IPS section of AP4 and E5 for more detail on the
38 IPS and the IPA Annotated Brief.)
39

40 AP2.2.5 DSAB Preparatory Package

41 The DSAB Executive Secretary will make available a DSAB read-ahead package composed of the
42 program office program briefing, the IPS (including the DoD Space MDA approved Acquisition
43 Strategy), the IPA Annotated Briefing, and the ICAT briefing to all principals that have been invited to
44 attend the subject DSAB. This package will be provided via an appropriately secure website typically
45 ten working days prior to the DSAB. Due to the potentially large number of DSAB principals, no pre-
46 briefs by the SPD/PM, IPAT or ICAT members will be conducted unless requested by DSAB
47 principals and approved by the DoD Space MDA. The Stakeholder IPAT members are expected to
48 use the DSAB read-ahead package to prepare their principals to attend the DSAB.
49
50

1 AP2.2.6 Conduct of the DSAB

2 The DSAB will be orchestrated by the DSAB Executive Secretary. Typically, the SPD/PM will
 3 present a brief summary of the program, the National Security Space Office will present any
 4 architectural related issues, and then the IPAT Leader and the ICAT Leader will each present their
 5 independent assessment findings and recommendations. The DSAB Executive Secretary will work
 6 with the SPD/PM and the IPAT and ICAT Leaders to coordinate the briefing sequence and content. At
 7 each DSAB, with the benefit of the IPA, the independent cost analysis, and the advice of the DSAB
 8 members, the DoD Space MDA should:
 9

- | |
|---|
| a) Review the status of the program relative to validated requirements, confirming whether the mission need is still valid, that the DoD and/or other appropriate components still support the program, protection measures are adequate to address vulnerabilities, and whether the proposed performance thresholds and objectives satisfy the validated requirements and validated Concept of Operations (CONOPS). |
| b) Review the status of program execution and the plans for the next phase and the remainder of the program. Explicitly consider the risks associated with the program to include changes in system threats, per the program's tailored threat description as updated, and the adequacy of risk management planning. |
| c) Review significant cost-schedule-performance trade-offs made by the SPD/PM and either approve those trades or issue appropriate direction. |
| d) Assess the program life cycle financial implications of what is being proposed. |
| e) Review the near- and long-term aspects of the acquisition strategy as part of verifying that realistic objectives for cost, schedule, and performance have been established (SPD/PM are to ensure that their strategy for acquisition and specific contracting actions support the KDP process by linking contract events with accomplishments in requirements development, exit criteria, and the program schedule.). |
| f) Determine if the program should be continued into the next phase, redirected, or terminated. |
| g) Ensure that the requirements analysis, acquisition management, and programming and budgeting systems are effectively integrated. |
| h) In addition to the above, for KDP-A DSABs where the decision is to proceed into the concept development phase, where appropriate the DoD Space MDA shall: <ol style="list-style-type: none"> 1. Authorize the SPD/PM, through the CAE and PEO, to proceed with contracting actions (e.g., contract award, exercise contract option, etc.) for the next acquisition phase; 2. Designate one or more of the CAEs, PEOs, and/or program office to study alternative concepts and present the results at KDP-B; 3. Determine whether the alternative(s) will be a MDAP or Non-MDAP, consistent with statutory requirements; 4. Document the MDA directed major strategic KDP-A DSAB decisions and Phase A exit criteria in an Acquisition Decision Memorandum (ADM). (The DSAB Executive Secretariat will document the other DSAB actions and decisions.) The ADM will be signed and distributed within ten working days after the DSAB. |
| i) In addition to items a-g above, for KDP-B DSABs where the decision is to proceed into the preliminary design phase, where appropriate the DoD Space MDA shall: <ol style="list-style-type: none"> 1. Authorize the SPD/PM, through the CAE and PEO, to proceed with contracting actions (e.g., contract award, exercise contract option, etc.) for the next acquisition phase; 2. Decide whether each selected option will be a MDAP or Non-MDAP; (If he has not done so at KDP-A) 3. Document "Program Initiation" and approve the Acquisition Program Baseline (APB); 4. Determine the LRIP quantities per 10 USC 2400, if required; 5. Document the MDA directed major strategic KDP-B DSAB decisions and Phase B exit criteria in an Acquisition Decision Memorandum (ADM). (The DSAB Executive Secretariat will document the other DSAB actions and decisions.) The ADM will be signed and distributed within ten working days after the DSAB. |
| j) In addition to items a-g above, for KDP-C DSABs, where the decision is to proceed into the complete design phase, where appropriate the DoD Space MDA shall: <ol style="list-style-type: none"> 1. Authorize the SPD/PM, through the CAE and PEO, to proceed with contracting actions (e.g., contract award, exercise contract option, etc.) for the next acquisition phase; 2. Assign supporting tasks to other DoD organizations; 3. Document the MDA directed major strategic KDP-C DSAB decisions and define any Phase C actions in an Acquisition Decision Memorandum (ADM). (The DSAB Executive Secretariat will document the other DSAB actions and decisions.) The ADM will be signed and distributed within ten working days after the DSAB; 4. Validate the SPD/PM's proposed lifecycle management strategy. |
| k) Review system internal and external segment synchronization planning. |

10
11

1 AP2.2.7 Post-DSAB Action Tracking

2 Program performance and action completion accountability is the responsibility of the SPD/PM. The
3 IPAT is responsible for reviewing the status of actions documented in the ADM from the previous
4 KDP as part of their assessment of program readiness for the next phase. The CAE staff (e.g., program
5 element monitors) is responsible for monitoring compliance with ADM direction throughout the
6 development of the program and is specifically responsible for tracking actions after the KDP-C
7 DSAB is held.
8

9 AP2.2.8 Program Record Keeping and DSAB History File

10 The DSAB Executive Secretariat shall retain the IPS, ADM, IPAT brief, IPAT report, ICAT results, |
11 DSAB meeting summary, and APB, along with essential supporting materials as the official program
12 decision record. The SPD/PM shall comply with record keeping responsibilities under the Federal
13 Records Act for the program information collected and retained in the form of electronic records.
14 (Ref: DoDD 5015.2) Electronic record keeping systems shall preserve the information submitted, as
15 required by 44 USC 3101, et seq.
16
17

AP3. APPENDIX 3**DoD SPACE INDEPENDENT COST ANALYSIS PROCESS****AP3.0 Purpose**

This section of the DoD Space MDA NSS acquisition policy is issued pursuant to 10 USC 2434, as amended, and other applicable law. This appendix prescribes a uniform policy for implementation of the independent cost analysis activity in support of the DoD Space MDA's goal of acquiring NSS systems using a fast-paced, streamlined management process. An independent cost analysis is an analysis of program cost prepared by an office or other entity not directly responsible for carrying out the development or acquisition of the program. There are two forms of independent cost analyses:

- a) **Independent Cost Estimate (ICE)**: A comprehensive estimate of the cost of a program prepared by an office or other entity that is not directly responsible for carrying out the development or acquisition of the program. An ICE includes all elements of cost that must be considered when deciding whether to proceed with the development, production, and operation of the system; is neither optimistic nor pessimistic; and is based on a careful assessment of program risks. It serves as a realistic budget estimate, reflecting a complete appraisal of the level of cost most likely to be realized over the life cycle of the program. An ICE is required for programs meeting KDP-B & KDP-C and Build Approval reviews.
- b) **Independent Cost Assessment (ICA)**: An analysis of program cost that is not as rigorous or reliable as an Independent Cost Estimate (ICE), but serves as a reasonable cost and budget realism check. Typically an ICA would be required for a program meeting a KDP-A DSAB.

AP3.1 Objectives

The independent cost analysis activity described in this appendix will:

- a) Establish sound, consistent cost estimating and analysis policies for the DoD Space MDA with a long-term objective to develop a cost estimating process and organizational structure that fosters the development of unbiased, consistent, objective cost estimates;
- b) Build and maintain a world-class capability within the government for space and space-related weapon systems cost estimating;
- c) Establish the Office of the Secretary of Defense Cost Analysis Improvement Group (OSD CAIG) as the responsible agent for the independent cost analysis activity for DoD Space MDAPs;
- d) Provide SPDs/PMs with guidance as to when an independent cost analysis is required, how to obtain an independent cost analysis, and what program office activities are required to support the independent cost analysis;
- e) Set standards and guidelines for use of ICAT resources;
- f) Ensure consistency with acquisition reform initiatives;
- g) Define the interaction between the IPA and independent cost analysis processes;
- h) Foster synergy and efficiency of DoD cost estimating resources and research activities by encouraging cooperation and joint use of resources in cost research, cost database development and maintenance, and cost model development and maintenance.

AP3.2 Mission

The OSD CAIG will be responsible for and lead the independent cost analyses of DoD Space MDAPs in support of the DoD Space MDA's DSAB process. These independent cost analyses will not only be accurate and timely, but also be demonstrably cohesive, consistent, tractable, and realistic.

1 AP3.2.1 Independent Cost Analysis Teams (ICAT)

2 The OSD CAIG will accomplish the NSS mission by forming ICATs whose primary function is the
3 preparation of independent cost analyses in support of the DoD Space MDA. The OSD CAIG will
4 select the ICAT Leaders. To ensure the most efficient use of limited cost analysis expertise within the
5 NSS community, the OSD CAIG will augment its own staff with qualified personnel drawn from
6 across this community to serve as ICAT members. This community includes, among others, the
7 Intelligence Community's Cost Analysis Improvement Group (IC CAIG), the Air Force Cost Analysis
8 Agency (AFCAA), the NRO Cost Group (NCG), the Office of the Deputy Assistant Secretary of the
9 Army for Cost & Economics, the Naval Center for Cost Analysis (NCCA), and the cost estimating
10 organizations of the Air Force Space Command (AFSPC), Air Force Space and Missile Systems
11 Center (SMC), and the Space and Naval Warfare Systems Command (SPAWAR). ICAT leaders must
12 be government personnel. The OSD CAIG shall consider non-OSD CAIG personnel for positions as
13 ICAT leaders, as well as ICAT staff estimating positions. The CAIG has the discretion to require that
14 ICAT lead candidates have experience serving on an ICAT prior to appointing the candidate as a lead.
15 In addition, the CAIG, at its discretion, may choose not to appoint Service members to ICAT lead
16 positions if the CAIG or the Service member's organization feels the Service member's career or
17 objectivity as ICAT lead may be adversely affected by conflict of interest with his/her duties as an
18 ICAT lead. If an analyst from outside OSD CAIG is selected as the ICAT leader, in the role as ICAT
19 leader he/she will act under the authority and direction of the Chairman, OSD CAIG as the
20 independent cost analysis authority for DoD Space MDAPs. While individuals are assigned to an
21 ICAT their ICAT duties have priority over their normal job responsibilities. For this reason, each
22 individual's organization and supervisor must make necessary allowances for him/her to perform
23 required ICAT duties. If it is not possible for the individual to dedicate sufficient time to adequately
24 perform ICAT duties, the individual will not be assigned to participate on an ICAT. For reviews of
25 programs going to a KDP-A DSAB, NSS cost estimating organizations may use FFRDC personnel
26 and/or SETA contractors to fulfill their obligation to provide team member(s) to the ICAT, except in
27 the role as ICAT lead, or to provide cost estimating and/or technical/programmatic analysis expertise
28 in support of their government members serving as ICAT members. At the discretion of the OSD
29 CAIG, this may also apply to reviews of programs going to a KDP-B or KDP-C DSAB or Build
30 Approval review. These FFRDC personnel and/or SETA contractors must be fully qualified and
31 independent as determined by the ICAT leader per paragraph AP3.5

32 AP3.2.2 ICAT Leader Duties

33 The ICAT Leader will:

- 34 a) Assist the OSD CAIG in identifying candidate ICAT members based foremost on the analysts'
35 quality, but also considering availability and agency responsibility for the space system under
36 review;
- 37 b) Participate in the DSAB Executive Secretary-led DSAB Planning and IPA Readiness Review
38 meetings;
- 39 c) Present ICAT results at the various meetings and reviews as required by the Space MDA;
- 40 d) Interact with IPA Leader on issues as they are identified.
- 41 e) Strive to achieve a collegial environment for ICAT members in which differences of opinion
42 concerning estimating issues are surfaced early, and appropriate attempts are made to reconcile
43 these issues.
- 44
- 45

46 AP3.3 Policy

47 ICAT support is required for the following activities, presented in descending order of priority:

- 48 a) Space MDA directed reviews: An Independent Cost Estimate is required for Build Approval.
- 49 b) Defense Space Acquisition Board (DSAB) reviews: An independent cost analysis is required for
50 all DSAB reviews conducted in support of KDPs, unless specifically waived by the DoD Space

1 MDA. An Independent Cost Assessment (ICA) is required for all KDP-A reviews and an
2 Independent Cost Estimate (ICE) is required for all KDP-B & C reviews.

- 3 c) Senior management requested reviews: Senior managers may request an independent cost
4 analysis in support of any space system acquisition activity.
5

6 **AP3.4 Data Collection**

7 To assist the OSD CAIG and the Services in developing better program cost estimates, maintaining
8 current cost databases, and streamlining future data collection requirements, NSS will implement the
9 Contractor Cost Data Reporting (CCDR) and Software Resources Data Report (SRDR) systems.
10 CCDRs are required on all DoD Space MDAP acquisition contracts that exceed \$50 million (FY 2002
11 constant dollars) in total value, including priced options. CCDRs may also be required on high risk or
12 high technical interest contracts that are priced between \$7 million and \$50 million (FY2002 constant
13 dollars) at the request of the ICAT and with the approval of the CAIG Chair. SRDRs are required on
14 all DoD Space MDAP contracts with software efforts of \$25 million or more (FY 2002 constant
15 dollars). SRDRs can also be required on critical elements below \$25 million when justified by the
16 ICAT and approved by the CAIG Chair. The CAIG Chair and the appropriate Service Cost Chiefs
17 will determine the specific programs that must implement the CCDR and SRDR systems. A program
18 office developed Cost and Software Data Reporting Plan will be developed for each contract that
19 meets the reporting dollar threshold values and will contain the program Work Breakdown Structure
20 (WBS), related dictionary and planned CCDR reporting type and frequency as shown in DoD 5000.4-
21 M-1 and DoD 5000.4-M-2. For KDPs and Build Approval, the plan is required to be delivered to the
22 ICAT leader for evaluation prior to the DSAB Planning meeting in preparation for the ICE/ICA
23 activity. Generally, the NSS program office shall follow the standard product-oriented WBS structure
24 specified in MIL-HDBK-881. Any tailoring of the standardized space system CCDR and SRDR must
25 be approved, in writing, by the responsible Service Cost Chief and the Chairman, OSD CAIG. The
26 OSD CAIG has the lead role for developing and maintaining the standardized space CCDR and SRDR
27 reporting requirements with input and assistance from the NSS cost estimating community and the
28 Defense Cost and Resource Center (DCARC). The Chairman, OSD CAIG must approve the program
29 plan.
30

31 A contract Cost and Software Data Reporting Plan will also be developed by the program office for
32 each contract and/or subcontract for hardware or software development or acquisition that meets the
33 reporting thresholds. For KDPs and Build Approval, this plan is also required to be delivered to the
34 ICAT leader for evaluation prior to the DSAB Planning meeting in preparation for the ICE/ICA
35 activity. The contract plan will include all the contract WBS elements, reporting type and frequency.
36 The Chairman, OSD CAIG must also approve the contract plan. WBS element reporting is normally
37 at level 3 of the contract WBS. However, the ICAT with Chairman, OSD CAIG approval can extend
38 reporting below level 3 when justified for cost estimating purposes. The Chairman, OSD CAIG
39 recognizes that the NSS community often requires reporting below level 3 for valid cost estimating
40 needs and will normally approve such reporting when recommended by the ICAT. The ICAT will
41 determine report types and frequency that will be submitted, via the DCARC, for Chairman, OSD
42 CAIG approval on the contract Cost and Software Data Reporting Plans. CCDR and SRDR reporting
43 requirements shall be placed on contract in accordance with the approved contract Cost and Software
44 Data Reporting Plan. The program office is responsible for funding the contractor/subcontractor to
45 provide these required reports. Reports will be prepared electronically in accordance with the
46 instructions contained in DoD 5000.4-M-1 to include the specific CDRL and DID for each CCDR
47 report. The program Cost and Software Data Reporting Plan will be provided, via the DCARC, for
48 Chairman, OSD CAIG and appropriate Service Cost Chief review and approval before the DSAB
49 Planning Meeting.
50
51

1 AP3.4.1 Independent Cost Analysis Performance Metrics

2 The DoD Space MDA has requested performance metrics for all DoD space MDAP ICA/ICEs.
3 ICA/ICE performance is measured by comparing the ICA/ICE against program actual cost. Two
4 metrics are used to measure this performance:

- 5 a) The mean⁴ of the percentage differences between the ICE and program actuals; and
- 6 b) The root mean square⁵ (variance measure) of the percentage differences between the ICE and
7 the program actuals.

8
9 The difference between the ICA/ICE and program actuals, labeled "ICE vs. actual" is calculated as
10 (ICE - actuals) / ICE. Two "ICE vs. actual" values are calculated, a raw ICE vs. actual and an adjusted
11 ICE vs. actual. The raw score reflects the unaltered --absolutely no adjustments for changes in
12 program scope --difference between the ICE and the actual. The adjusted score reflects adjustments
13 only for program changes outside the scope of the ICA/ICE. These changes are strictly limited to
14 adding/subtracting a major program component (e.g., spacecraft, ground station, or major payload) or
15 extending the operations and maintenance period of performance. No adjustments are made for other
16 program changes -- requirements creep, program schedule slips, budget perturbations, etc. -- as these
17 are considered within the scope of the ICA/ICE. Also note that there are no adjustments for inflations
18 as the ICE vs. actual is computed using the "then year" (budget dollar) ICE and the "then year"
19 program actual. These performance metrics should be updated at least annually and measured on all
20 ICA/ICEs. To support the calculation of these metrics, program offices are required to provide the
21 appropriate Service Cost Chief and OSD CAIG with:

- 22
- 23 a) Distribution copies of contractor cost reports including program cost estimates at completion;⁶
- 24 b) A list, including cost, and description of engineering change proposals added to the contract,
25 particularly those involving changes in program scope;⁷
- 26 c) A list and description of changes in the estimate at completion since contract award scope;⁷
- 27 d) A list and description of changes in other program requirements included in the ICAT estimate
28 scope;⁷
- 29 e) Timely access to program office personnel, advisors, or contractors for questions or additional
30 explanation on any of the above scope.⁷

31 32 **AP3.5 Independence**

33 The ICAT leader will ensure that the ICAT members are objective, unbiased and free from conflicts of
34 interest that may influence the results of their analysis. In addition, independence of ICAT products
35 from potential program office influence and protection of program office and contractor proprietary
36 data is paramount. The ICAT will ensure that budgetary, proprietary, and source selection sensitive
37 information is adequately protected from improper disclosure by ensuring full use of nondisclosure
38 statements when access to that information is required.

39 40 **AP3.6 Independent Cost Analysis Planning**

41 The DSAB Executive Secretary and the Chairman, OSD CAIG, will periodically review the status of
42 all programs under the purview of the DoD Space MDA to identify those that are scheduled for a
43 DSAB review or may require a DSAB review within the next twelve to eighteen months. For such
44 programs, the Chairman, OSD CAIG will designate a CAIG POC who is responsible for ensuring that

$$^4 \text{ Mean} = \left(\sum_{i=1}^n ((\text{actual}_i - \text{estimate}_i) / \text{actual}_i) \right) / n$$

$$^5 \text{ RMS} = \left(\left(\sum_{i=1}^n ((\text{actual}_i - \text{estimate}_i) / \text{actual}_i)^2 \right) / n \right)^{0.5}$$

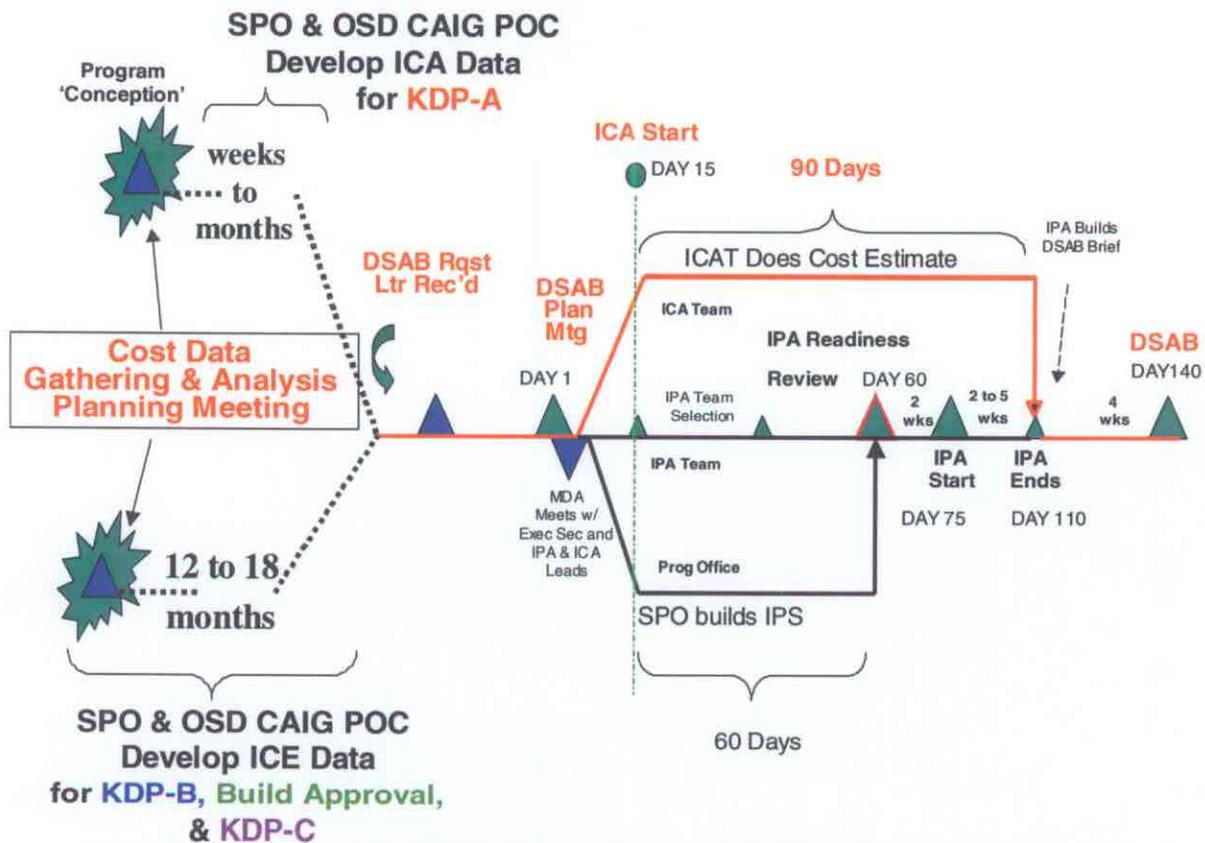
⁶ Submit quarterly in January, April, July, and October until program completion

⁷ Submit annually in February of each year and as required in accordance with major program changes

1 the SPD/PM understands, well in advance of the submittal of the DSAB Request Letter, what
2 information, documents, and data must be provided and what other requirements must be met prior to
3 commencement of the ICAT review. The CAIG POC may or may not later serve as the ICAT Leader.
4 To accomplish this requirement, the CAIG POC, shortly after being designated, will conduct a Cost
5 Data Gathering and Cost Analysis Planning Meeting.
6

7 AP3.6.1 Cost Data Gathering and Cost Analysis Planning Meeting

8 A Cost Data Gathering and Cost Analysis Planning Meeting will be convened by the CAIG POC with
9 the DoD Space MDAP SPD/PM at the earliest opportunity for a program meeting a KDP-A and well
10 in advance for a program meeting a KDP-B or KDP-C or Build Approval to start the necessary dialog
11 and data sharing activities. See Figure AP3-1 for the notional timeline.
12



33
34
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37
38
39 **Figure AP3-1: Cost Data Gathering and Cost Analysis Planning Meeting Timeline**

40
41 At this meeting the CAIG POC will identify to the SPD/PM the information and/or data required to
42 initiate a DSAB-related cost analysis. Among the items required is a space program tailored Cost
43 Analysis Requirements Description (CARD). General guidance on the preparation of the CARD is
44 found in DoD 5000.4-M, *Cost Analysis Guidance and Procedures*, December 11, 1992 (more specific
45 guidance for a space system CARD will be forthcoming from OSD CAIG). Other information and/or
46 data nominally required include:

- 47 a) Approved Acquisition Strategy.
- 48 b) A phase-appropriate description of the technical and programmatic content of the program.
49 The level of detail will be established at this meeting and may include such information as a
50 list of system technical parameters (weight, power, bandwidth, etc.)
- 51 c) Description of the impact to systems and interfaces affected outside of program's responsibility
52 (terminals, receivers, ground stations, etc.)
- 53 d) Detailed schedule of program activities.

- 1 e) Schedule of events needed to achieve requested DSAB or Build Approval date.
- 2 f) Funding identified to support ICA/ICE development.
- 3 g) Non-CAIG ICE/ICA team members identified and committed.
- 4 h) Program office point of contact identified.
- 5 i) Draft CCDR, Contractor Work Breakdown Structure (CWBS), and SRDR CDRLs.
- 6 j) Program and contract WBS elements and related dictionaries to include descriptions of every
7 WBS element that clearly identifies which WBS elements have recurring costs and which have
8 non-recurring costs. Any required mapping of program and contract WBS elements.
- 9 k) Current budget baseline broken out by appropriation; when multiple sources fund any portion
10 of a program's total life cycle cost, a complete description of each sources' responsibilities
11 must be provided.
- 12 l) Historical cost, schedule, and technical data from completed or ongoing programs that are
13 applicable to the program under review.
14

15 At the Cost Data Gathering and Cost Analysis Planning Meeting, the CAIG POC and SPD/PM will
16 work to tailor the CAIG-requested information to fit the program's level of maturity and the
17 requirements of the upcoming KDP/Build Approval and acquisition phase. The meeting should also
18 include a discussion of need dates for final products and any interim deliveries that either party may
19 require in order to complete the DSAB review on schedule. The information and/or data identified at
20 this meeting will be presented to the DSAB Executive Secretary and the CAIG POC at the DSAB
21 Planning Meeting. Between the Cost Data Gathering and Cost Analysis Planning Meeting and the
22 DSAB Planning Meeting, the CAIG POC will work with the program office to pre-validate all data
23 requested (i.e., that it is complete, accurate, and timely) and that no extraneous data is requested.
24 Further, the CAIG POC will assist the program office in formatting the data in requested formats, and
25 generating a working schedule detailing the development and delivery of the required data items.
26

27 AP3.6.2 Independent Cost Analysis Preparation and the DSAB Planning Meeting

28 The DSAB Executive Secretary will notify the Chairman, OSD CAIG immediately upon the receipt of
29 the DSAB Request Letter of the DSAB date requested by the PEO and the anticipated date for the
30 DSAB Planning Meeting. Upon notification, the Chairman, OSD CAIG will inform the CAIG's
31 program POC who will ensure that data requirements established at the Cost Data Gathering and Cost
32 Analysis Planning Meeting are ready to be presented at the DSAB Planning Meeting. During the
33 DSAB Planning Meeting, the DSAB Executive Secretary, CAIG POC, and ICAT Leader will review
34 the information and/or data provided by the program office in response to direction received at the
35 Cost Data Gathering and Cost Analysis Planning Meeting. If the information and/or data are found to
36 be acceptable, the CAIG POC will immediately activate the ICAT. The DSAB Planning Meeting
37 should also include a discussion of need dates for all final products and any interim deliveries that
38 either the IPAT or ICAT may require to complete the DSAB review on schedule.
39

40 AP3.6.3 Space Cost Analysis Review Meeting

41 A meeting, chaired by the OSD CAIG Chairman, will be held just prior to the completion of the IPA
42 effort in which both the program office and ICA estimates will be briefed and their respective
43 differences discussed. The goal of the meeting is to provide the space cost community an opportunity
44 to comment on the approaches employed by both the estimates. Each of the organizations that support
45 the ICA process will be invited to attend as well as the IPA team leader and the DSAB Executive
46 Secretary.
47

48 AP3.6.4 ICAT Activities

49 The DSAB Executive Secretary shall keep the appropriate Service Cost Chiefs and the Chairman,
50 OSD CAIG informed of any preliminary dates for DSABs that have been identified. The Chairman,
51 OSD CAIG will use these preliminary dates to develop a staffing plan for the ICAT that will conduct
52 the subject program's cost analysis. With the approval of the Chairman, OSD CAIG, the ICAT Leader

1 may tailor the ICE/ICA review and briefing process. Such tailoring must be completed in time to be
2 presented at the DSAB Planning Meeting. The ICAT review and briefing process shall not adversely
3 impact the DSAB review and briefing process outlined in Appendix 2. Once activated, the ICAT shall
4 complete its review within ninety calendar days. Throughout the entire DSAB timeline, the ICAT will
5 need technical and programmatic support from the program office and/or its contractor(s) to resolve
6 questions/issues that may arise during development of the independent cost analysis. Fact finding trips
7 to prime contractor(s) and/or major subcontractor facilities will be required to collect data; to tour
8 contractor facilities where the system will be built; to meet with contractor personnel assigned to the
9 program under review for purposes of discussing the program and analyzing technical and cost data
10 from the program under review; to collect and analyze cost and technical data from analogous
11 government programs the contractor supported in the past; and for other various reasons. In addition,
12 there may be instances where fact-finding trips to other locations, such as operating locations or user-
13 command bases, are required. Accordingly, the SPDs/PMs must work with the ICAT to anticipate,
14 plan for, and facilitate these ICAT requirements.
15

16 AP3.6.4.1 ICAT Duties

17 The ICAT shall perform the independent cost analysis and shall:
18

- 19 a. Provide quantitative assessments of the risk in the cost estimates. These assessments may be
20 tailored based upon the requirements and processes of those agencies responsible for the
21 acquisition of the space system. In developing an assessment of cost risk, the ICAT shall
22 consider whether assertions and assumptions stated in the CARD (e.g., schedules, production
23 rates, etc.) are consistent with historical information.
- 24 b. Consider uncertainties in inputs to any cost estimating relationships (CERs) used in its
25 estimates, as well as the uncertainties inherent in the calibration of the CERs, and shall
26 consider uncertainties in the factors used in making any estimates by analogy. The ICAT shall
27 consider cost implications of the IPAT's assessments of the program's schedule and technical
28 risks, and may include the results in its cost-risk assessments.
- 29 c. Coordinate review activities with the IPAT to ensure significant issues are identified,
30 communicated, and resolved early and as often as appropriate during the review process. The
31 IPAT Leader is specifically responsible for providing independent program, schedule and
32 technical risk assessment input to the ICAT. The ICAT Leader is responsible for providing
33 cost assessment input to the IPAT.
- 34 d. As part of the ICA/ICE process, work with the program office to identify and understand the
35 differences between their respective cost positions.
- 36 e. Just prior to the completion of the IPA, conduct a CAIG review to brief the draft ICE/ICA to
37 the IPAT. Other attendees at the briefing may include the Chairman, OSD CAIG, the PEO, the
38 SPD/PM, the responsible Service Cost Chief and/or their representatives, and other
39 organizations as determined by agreement between the IPAT and ICAT leads. The ICAT and
40 IPAT leads will decide the appropriate time for the ICE or ICA to be given to the IPAT lead
41 for inclusion in the IPA. The ICAT is also responsible for briefing its final results and findings
42 to the DSAB (including relevant pre-briefs).
- 43 f. Subsequent to a DSAB decision, provide the program office and the DSAB Executive
44 Secretary with the independent cost analysis briefing, list of key assumptions, all associated
45 costing models, ICAT's documented cost estimate, and other relevant documents developed
46 and briefed at the just-completed DSAB. It is recommended these materials be considered by
47 the program office and future IPATs and ICATs in subsequent costing exercises.
- 48 g. Review draft ADM provided as part of the IPS, providing appropriate comments and actions.
49

50

1 AP3.6.4.2 Program Office Duties

2 SPDs/PMs of programs planning to go before a DSAB shall:

- 3
- 4 a. Budget for ICAT team leader defined resources needed to support the ICA effort and to
 - 5 comply with the requirements of this appendix.
 - 6 b. When contacted by the OSD CAIG POC, identify a program office POC with whom the CAIG
 - 7 POC can begin immediate planning, coordination, and data collection.
 - 8 c. Ensure the timely, complete, and accurate preparation of the data identified at the Cost Data
 - 9 Gathering and Cost Analysis Planning Meeting so the data are ready to be presented at the
 - 10 DSAB Planning Meeting.
 - 11 d. Ensure their program office staff provides adequate programmatic support to assist in
 - 12 characterizing the system being estimated (generation of an ICA/ICE also requires extensive
 - 13 program office programmatic input to ensure that the system being estimated is described as
 - 14 completely and accurately as possible). The system contractors and program office staff
 - 15 should provide this support. The most effective method of fulfilling this programmatic
 - 16 information requirement is through the completion of a CARD tailored by the NSS cost
 - 17 estimating team for space systems. Tailoring will occur at the Cost Data Gathering meeting.
 - 18 The ICAT must receive a draft CARD from the program office not later than Day 15 after the
 - 19 Cost Data Gathering and Cost Analysis Planning Meeting and the final CARD at the DSAB
 - 20 Planning Meeting, unless the ICAT agrees to other due dates.
 - 21 e. Ensure their program office staff submits their Program Office Estimate (POE) and risk
 - 22 analysis to the ICAT Leader at the DSAB Planning Meeting. (A POE is an estimate of the cost
 - 23 of a system prepared by employees of the program office. This may include an assessment of
 - 24 cost estimates prepared by the system's prime contractor.) If no risk analysis exists, the
 - 25 program office shall submit a detailed assessment of programmatic cost, schedule, and
 - 26 technical risks for consideration by the ICAT in their risk analysis.
 - 27

28 AP3.7 General Cost Analysis Support

29 Service Cost Chiefs have the responsibility and authority for establishing policy:

- 30
- 31 a. And providing resources for conducting independent cost assessments for programs not
 - 32 covered by this policy, i.e. Non-MDAP DoD Space programs,
 - 33 b. And providing resources for conducting all other independent cost assessment activities
 - 34 supporting the acquisition of DoD space systems⁸
 - 35 c. To ensure quality and consistency of program office estimates for MDAP and Non-MDAP
 - 36 DoD Space programs.
 - 37 d. And providing resources for cost research, data collection, database and cost model
 - 38 development and maintenance, contract cost data reporting, and independent cost analysis
 - 39 metrics for Non-MDAP DoD Space programs.
 - 40

⁸ For source selections on MDAPs, an independent cost assessment or single best estimate (SBE) is highly recommended. For budget formulation, long-range planning, and analyses of alternatives, Service Cost Chiefs, at the request of the MDA and in consultation with the Service PEO and the Operational Command, are responsible for producing independent cost estimates and/or supporting the development of the Service PEO and the Operational Command's cost assessments.

AP4. APPENDIX 4**KEY DoD SPACE ACQUISITION DOCUMENTATION****AP4.0 Purpose**

This appendix describes the key acquisition documentation required for DoD space systems. As part of the acquisition streamlining efforts, the intent is to limit the amount of acquisition documentation to the minimum necessary.

AP4.1 Stand-Alone Documentation

The IPS shall contain the majority of NSS acquisition documentation necessary for acquisition oversight as detailed in section AP4.2 of this appendix. Section AP4.1, provides details on the additional "stand-alone" acquisition documentation required for acquisition oversight.

AP4.1.1 Acquisition Strategy (Ref: 10 USC 2440 and 2469):

The purpose of an Acquisition Strategy is to describe and document the acquisition approach the program office will use to acquire a NSS system. The Acquisition Strategy is a crucial document in the form of a written paper of approximately 10-20 pages. An Acquisition Strategy needs to be prepared for each phase of the acquisition and then updated as appropriate. For a program approaching a KDP-A, the Acquisition Strategy should focus on the Phase A activities and briefly project the plans for the Phase B, C, and D activities. The Acquisition Strategy should typically be updated for KDP-B, KDP-C and Build Approval focusing on the next phase activities and projecting the plans for the remaining phases. Once the SPD/PM has developed the Acquisition Strategy, the appropriate Service PEO or CAE will typically convene and chair an Acquisition Strategy Panel (ASP) composed of acquisition seniors, determined by the appropriate Service PEO/CAE and the DoD Space MDA, to review the Acquisition Strategy and provide input, feedback, and advice to the SPD/PM. The Acquisition Strategy must also be reviewed by the appropriate General Counsel/Judge Advocate General to determine that the acquisition is consistent with U.S. domestic law and U.S. obligations (e.g., treaties, customary international law, laws of armed conflict, etc.) Once the appropriate PEO endorses the Acquisition Strategy, the SPD/PM and the appropriate PEO will submit the Acquisition Strategy to the DoD Space MDA to obtain guidance and approval. The Acquisition Strategy should be approved by the DoD Space MDA prior to the PEO forwarding the DSAB request letter. Request for Proposals associated with the next acquisition phase should not be released until after the DoD Space MDA has approved the Acquisition Strategy and approved the program entering the next acquisition phase. The Acquisition Strategy should comply with FAR Part 7.105 and should address the following areas:

- | |
|--|
| <p>1. Program Description:</p> <ul style="list-style-type: none"> a. Present a brief description of the program and the capability being provided and/or need being met. b. Briefly summarize the technical and contractual history. c. Indicate what management system will be used by the government to monitor the contractor's effort (e.g., EVMS). d. Identify the program's cost goals (to include cost estimate data if available), delivery/performance period, and required performance characteristics. <p>Certify the program's compliance with the DoD Strategic Plan and comply with 5 USC 306, 10 USC 118, and Pub. L. 106-65.</p> |
| <p>2. Program Office Description and Activities:</p> <ul style="list-style-type: none"> a. Describe the program office and the nature and scope of activities to be undertaken by the program office to satisfy the requirements. b. Discuss proposed program office vs. contractor(s) responsibilities (e.g., systems integration, system engineering, maintenance and support, launch) and use of commercial practices. |
| <p>3. Risk Areas and Design Considerations:</p> <ul style="list-style-type: none"> a. Briefly describe known risk areas and/or design considerations affecting the acquisition strategy. b. Briefly state all known significant conditions affecting the acquisition such as cost, schedule, and/or performance constraints. |

| | |
|----|--|
| | <ul style="list-style-type: none"> c. Indicate any government furnished property or government furnished information to be provided to the contractors including material, facilities, manuals, drawings, test data, etc. d. For KDP-B and C, briefly describe (or reference appropriate documents describing) the program's test, logistics, environmental, safety, and security plans. |
| 4. | <p>Acquisition Approach and Program Structure:</p> <ul style="list-style-type: none"> a. Explain why or why not Evolutionary Acquisition (EA) is being used for this program. If EA is being used, explain rationale for dividing the research and development into separate spiral or increments. b. Present life cycle program schedule with key dates identified (e.g., acquisition milestones, Initial Operational Capability (IOC), Full Operational Capability (FOC), major reviews, significant test events, deliveries, planned launches, etc.), explicitly linking program decisions to demonstrated accomplishments/exit criteria. c. Provide a detailed monthly schedule of events for the upcoming acquisition phase (e.g., Phase A) and a listing of planned accomplishments for that acquisition phase. d. Provide a preliminary "planning" schedule by quarter for any subsequent acquisition phases (e.g., Phase B, C, and D). <p>(Note: Schedules should include preliminary dates for Acquisition Strategy approval, authority to proceed, RFP release, contract award, desired KDPs/DSABs, SRR, SDR, PDR, CDR, key test events, and other key acquisition events as required (e.g., first launch date if a satellite program, tentative LRIP start and Full-Rate Production dates if appropriate).</p> |
| 5. | <p>Business and Contracting Strategy:</p> <ul style="list-style-type: none"> a. Discuss competition plans. (Ref 10 USC 2304) Provide details on how the competition approach will foster selection of best value to meet all program requirements including, if applicable, a smooth transition from legacy system to a new system and from an existing source to a new source . b. Discuss market research plans and/or results, small-business issues, and potential sources. Show evidence of the market research conducted that tried to identify commercial and non-material solutions. (Ref: 10 USC 2377 & 2440) For bundled procurement efforts, comply with 15 USC 644(e)(2) regarding small business issues. c. Discuss planned contract type and incentive structure (to include fee structure) for each upcoming acquisition phase. d. Discuss the planned number of contractors within each phase, planned RFP release points, and anticipated contractor down-select points. Discuss source selection issues to include the timing for submission and evaluation of proposals and the relationship of evaluation factors to the attainment of acquisition objectives. e. Discuss, if appropriate, the implications of the U.S. District Court Judgment regarding the Northrop-Grumman Corp. acquisition of TRW, Inc. Consult the DoD Compliance Officer in NSSO. |
| 6. | <p>Identify potential sources.</p> <ul style="list-style-type: none"> a. Discuss considerations for the use of commercial hardware and software and/or non-development items. b. Identify any industrial base issues. c. Discuss plans for incorporating new technologies/improvements or securing new sources. |

AP4.1.2 Acquisition Decision Memorandum (ADM)

The purpose of the Acquisition Decision Memorandum (ADM) is to document program direction from the DoD Space MDA. The DoD Space MDA will issue a written ADM documenting the decisions of the DSAB and establishing the exit criteria for the next phase. The signed ADM authorizes or prohibits the space program to move into the next acquisition phase. The ADM provides specific direction to the SPD/PM, PEO, and CAE as a result of KDP or Build Approval activities including:

- a) Direction concerning the acquisition program baseline (APB);
- b) A high-level description of the performance expected as a result of successfully accomplishing the next acquisition phase;
- c) The target date for the next KDP or Build Approval and, if necessary, the dates and criteria for any intermediate reviews or special reporting requirements during the next phase;
- d) Program-specific accomplishments, called exit criteria, which must be satisfied during the next acquisition phase;
- e) Approval to expend funds against the program up to a specified amount over a defined period of time; and
- f) Key schedule dates such as launch, Initial Operational Capability (IOC), or Full Operational Capability (FOC).

1 The program office will draft the initial ADM and provide it as part of the IPS to the IPAT for review
2 and comment. The proposed ADM will be briefed to acquisition execution chain members as part of
3 the DSAB pre-brief cycle and to the DoD Space MDA at the Pre-DSAB. Coordination of the ADM
4 with entities outside of the acquisition execution chain begins with the distribution of the DSAB
5 Preparation Package and via the interaction among the principals at the DSAB. The DoD Space MDA
6 will address the ADM to the appropriate PEO. The DoD Space MDA will sign the ADM within ten
7 working days after the completion of DSAB. The DSAB Executive Secretary will distribute copies to
8 the DSAB attendees. If additional program direction from the DoD Space MDA is required between
9 DSABs, the DoD Space MDA will issue an "ADM Update" to the appropriate PEO. Coordination
10 requirements for conducting an "ADM Update" not part of a DSAB are found in E3.
11

12 AP4.1.3 Acquisition Program Baseline (APB) (Ref: 10 USC 2435)

13 The purpose of the APB is to document the program's approved baseline by reporting top-level
14 program drivers and risk areas associated with schedule, performance, and cost thresholds and
15 objectives. The program office should have a clear, unambiguous set of priorities among cost,
16 schedule, performance, and supportability. These priorities should drive the acquisition strategy,
17 source selection decisions, test strategy, sustainment approaches, as well as day-to-day decisions. The
18 KDP-A ADM serves as the APB for Phase A. Each DoD Space MDAP in Phase B, C, or D must be
19 managed according to a standalone, detailed APB established between the DoD Space MDA and the
20 SPD/PM, through the appropriate CAE/PEO. The APB must be kept up to date to reflect program
21 changes discovered during the course of development activities and due to directed budgetary
22 decisions (e.g., Program Decision Memorandums and Program Budget Decisions). Specific written
23 approval by the DoD Space MDA for DoD Space MDAPs is required prior to committing to a change
24 in the capability of a system or a material change to the interface with DoD or other user elements.
25 (For DoD space Non-MDAPs the Service designated MDA fulfills this role.) The initial APB for
26 Phase B, C, and D will be drafted by the program office and provided as part of the IPS to the IPAT
27 for review and comment for KDP-B and KDP-C and Build Approval. The proposed APB will be
28 provided to the acquisition execution chain members as part of the DSAB pre-brief cycle and to the
29 DoD Space MDA at the Pre-DSAB. Coordination of APB with entities outside of the acquisition
30 execution chain takes place as part of the DSAB Preparation Package review and via the interaction
31 among the principals at the DSAB. If there is a need to accomplish an "APB Update" between
32 DSABs, due to a program deviation, the proposed updated APB should clearly show the "old"
33 information that was previously approved, and the proposed updated APB information. Coordination
34 requirements for conducting an "APB update" that are not part of a DSAB are found in E3. All Key
35 Performance Parameters, when validated by the JROC, shall be inserted verbatim into the performance
36 section of the APB.
37

38 AP4.1.3.1 Program Deviation

39 A program deviation occurs when the SPD/PM has reason to believe that the current estimate for the
40 program indicates that a performance, schedule, or cost threshold value will not be achieved. The
41 SPD/PM will immediately notify the DoD Space MDA when a deviation occurs. Within 30 days of
42 the occurrence, the SPD/PM shall notify the DoD Space MDA of the reason for the program deviation
43 and the actions that need to be taken to bring the program back within baseline parameters. Within 90
44 days of the occurrence of the program deviation, the program shall be back within APB parameters, or
45 a new APB (changing only those parameters that breached) shall have been coordinated in accordance
46 with E3 and presented to the DoD Space MDA for approval. Consult 10 USC 2432 & 2433 and E1 for
47 breach thresholds and procedures requiring congressional notification.
48
49

1 AP4.2 Integrated Program Summary (IPS)

2 3 AP4.2.1 IPS Generation

4 The purpose of the IPS is to provide a concise record that documents a NSS program's
5 accomplishments, status, and plans at each KDP and Build Approval. The IPS is not a document that
6 goes through coordination. The program office generates the IPS by incorporating a minimal set of
7 pre-approved material (e.g., capability documents, acquisition strategy, test and evaluation master plan
8 (TEMP)) and newly generated material that covers the IPS subject matter. Once completed, the
9 SPD/PM provides the IPS and referenced material to the IPAT Leader prior to IPA start. The IPAT
10 then uses the IPS as the starting point for the IPA review. Coordination and approval of the IPS
11 material occurs as a result of a successful IPAT review. The program office is encouraged to begin
12 preparation of the IPS well before the formal start of the IPA readiness process.
13

14 AP4.2.2 IPS Document and IPA Annotated Briefing Content

15 Table AP4-1 outlines the content of the IPS document and the IPA Annotated Briefing. The length of
16 the IPS document and IPA Annotated Briefing will depend on the maturity of the program and the
17 complexity of the issues involved. The IPS will be tailored appropriately for the level of detail required
18 at each KDP and Build Approval. A DSAB planning meeting will be conducted in advance of the start
19 of the IPA process where the level of detail will be determined between the SPD/PM and the DSAB
20 Executive Secretary. While this NSS policy does not provide explicit direction for the format of an
21 IPS and IPA Annotated Briefing, certain core issues must be addressed at each DSAB to provide a
22 foundation upon which the DoD Space MDA can make sound acquisition decisions and provide
23 program direction. The following is a brief description of the type of information to be addressed
24 within each IPS parameter. The descriptions are not all-inclusive but rather are provided as a guide to
25 assist in the development of the IPS. As the program matures, the information in the IPS shall evolve
26 and become more definitive.
27

| <u>ITEM</u> | <u>DESCRIPTION</u> |
|-------------|---|
| 1 | Acquisition Strategy |
| 2 | Execution Status of Program |
| 3 | ADM Exit Criteria and Direction at Previous KDP |
| 4 | Requirements Summary |
| 5 | Systems Engineering Process Review and System Engineering Plan |
| 6 | Alternatives Assessed and Results |
| 7 | Most Promising Alternatives & Rationale |
| 8 | Cost Drivers and Major Trade-offs |
| 9 | Risk Assessment and Risk Reduction Plans |
| 10 | Support Issues (e.g., Manpower, Training, Logistics, Impact on Other Organizations, etc.) |
| 11 | Interfaces with and Impacts on Other Systems and Architectures |
| 12 | Clinger Cohen Act Compliance |
| 13 | Mission Protection, Program Protection Planning, Information Assurance, and Cryptological Systems |
| 14 | Developmental and/or Operational Testing Approach |
| 15 | Program Environmental, Safety, and Occupational Health Evaluation |
| 16 | Program Office Estimate and Future Years Defense Planning Implications |
| 17 | Integrated Master Schedule (for KDP B, C, Build Approval) |
| 18 | Recommendations (ADM, Exit Criteria, etc.) |

Table AP4-1: Integrated Program Summary (IPS) and Independent Program Assessment Brief Content Outline

E1. ENCLOSURE 1**REFERENCES TO THE INTERIM DEFENSE ACQUISITION GUIDEBOOK**
30 OCT 2002

| INFORMATION REQUIRED | 03-01 REFERENCE | INTERIM DEFENSE ACQUISITION GUIDEBOOK REFERENCE |
|----------------------------------|------------------------|--|
| DAES, SAR and UCR Reporting | 5.3.5, AP4.1.3.1 | C7.15.3, C7.15.4, C7.15.5 |
| Technology Readiness Level (TRL) | E5.9 | AP6 |
| Technology Maturity Assessment | E5.9, AP1.1.10 | AP6 |
| ISP | E5.11 | AP5.5 |
| TEMP | E5.14, E2 | AP2 |
| T&E Strategy | E5.14, E2 | C3.2, AP2 |

REFERENCE TO THE DOD INSTRUCTION 5000.2
12 MAY 2003

| INFORMATION REQUIRED | 03-01 REFERENCE | DoDI 5000.2 |
|--|------------------------|--------------------|
| Joint Cross-Service, and International Management Considerations | AP1.1.9 | E.9.4, E9.5 |
| TEMP | E5.14, E2 | E5.4.1 |
| T&E Strategy | E5.14, E2 | E5.3 |
| Operational Test Plans | E5.14, E2 | E5.7.2 |

E2. ENCLOSURE 2: IPA READINESS REVIEW CHECKLIST AND KDP ENTRY CRITERIA

Pre-KDP-A Activities

- a) JCIDS process development of the Initial Capabilities Document (ICD).
- b) Development of Operational View (OV) of Integrated Architecture.
- c) Conduct of the Concept Decision Meeting by the DoD Space MDA with J8 and Director, PA&E.
- d) Conduct of the Analysis of Alternatives (AoA) by the assigned organization.
- e) Development of the Systems-Level Concept of Operations (CONOPS) by the concept sponsor.
- f) Development of the Acquisition Strategy by the assigned acquisition office and approval by DoD Space MDA.
- g) Creation of the IPS by the assigned acquisition office.
- h) Conduct initial test and evaluation planning and T&E activities. Deliver the Test and Evaluation (T&E) Strategy to the Director, OT&E in time for approval prior to KDP-A.

| IPA READINESS REVIEW CHECKLIST FOR KDP-A | |
|--|---|
| a) | ICD (validated) and CDD from Capability Needs Authority (J8) |
| b) | AoA report from assigned organization (e.g. Lead Ops Command) |
| c) | Initial system level CONOPS from concept sponsor (e.g. Lead Ops Command) |
| d) | OV Architecture Products from concept sponsor (e.g. Lead Ops Command, NSSO, others) |
| e) | DoD Space MDA approved Acquisition Strategy from acquisition office |
| f) | Integrated Program Summary (IPS) from acquisition office |
| g) | Clinger Cohen Act Compliance table in IPS by acquisition office |
| h) | "New Start" certification from acquisition office in IPS |
| i) | Draft ADM from acquisition office in IPS |
| j) | Status report on ICA from ICAT Leader |
| k) | Team Composition and IPA Plan and Agenda from the IPAT Leader |
| l) | Director, OT&E Approved Test & Evaluation Strategy from program office |

Phase A Program Office Activities

- a) Document and satisfy the intent of 10 USC 2350a, 2364, & 2377 regarding cooperative opportunities with allies, the use of Defense Research activities and the conduct of market research for applicable commercial items and/or 15 USC 644(e)(2) bundled procurement contracts affecting small business.
- b) Certify the program's compliance with the DoD Strategic Plan in the acquisition strategy and comply with 5 USC 306, 10 USC 118, and Pub. L. 106-65.
- c) Review Joint Requirements Oversight Council (JROC) approved National Security Space Office (NSSO) architectures to determine relevant architectures that apply to the program or system.
- d) Develop technologies and conduct a Technology Maturity Assessment.
- e) Produce the initial PESHE document detailing the Program Office's strategy and responsibilities for integrating ESOH into the Systems Engineering process, the risk matrices and data elements required for ESOH risk management, and initial NEPA completion schedule.
- f) Conduct system architecture development efforts and produce the initial System View (SV) architecture products initial Technical View architecture products, and updated Operational View products, for the CDD and to support the System CONOPS as required per CJCSI 6212.01C, DoDD 4630.5, and DoDI 4630.8.
- g) Conduct test and evaluation planning and T&E activities. Deliver the Test and Evaluation Master Plan to the Director, OT&E in time to be approved prior to KDP-B (Ref: Interim Defense Acquisition Guidebook. See E1 for the specific reference for content.)
- h) Produce updated PESHE in compliance with NEPA, 42 USC 4321, et seq., implementing Executive Orders, and other directives.
- i) Conduct requirement development activities (e.g., requirements derivation, flow down, definition, etc.) to include successful completion of a System Requirements Review (SRR) and System Design Review (SDR).
- j) Produce the System Specification (i.e., "A" Spec).
- k) Initiate Integrated Logistics Support (ILS) planning.
- l) Conduct a legal review prior to KDP-B of the acquisition strategy by the appropriate General Counsel/Judge Advocate General, to determine that the acquisition is consistent with U.S. domestic law and U.S. obligations (e.g., treaties, customary international law, laws of armed conflict, etc.).
- m) Conduct initial system internal and external segment synchronization planning.
- n) Produce the Acquisition Program Baseline (APB) for use in Phase B and comply with 10 USC 2435.
- o) Conduct initial Information Assurance Strategy planning for NSS systems that meet the definition of a "mission critical information system" or a "mission essential information system" and register those systems with the DoD Chief Information Officer (CIO) through the Component CIO and comply with Pub. L. 106-398, Section 811.

- 1 p) Update Clinger-Cohen Act (CCA) table and obtain Component CIO's confirmation that program complies with
- 2 CCA and complies with 40 USC 1401 and Pub. L. 107-248 sec 8088.
- 3 q) Develop a tailored space system Cost Analysis Requirements Description (CARD) and a fully documented life-
- 4 cycle cost estimate consistent with the CARD.
- 5 r) Produce initial risk management plan and conduct risk reduction.
- 6 s) Request production of the System Threat Assessment Report (STAR) through appropriate intelligence office.
- 7 t) Identify preliminary Space Situational Awareness (SSA) support required for program including system
- 8 requirements for intelligence, surveillance, reconnaissance, space environment, and C4 support.
- 9 u) Conduct initial information assurance strategy planning and begin the Systems Security Authorizations
- 10 Agreement accreditation activities per DoDI 5200.4 for NSS systems that meet the definition of a "mission critical
- 11 information system" or a "mission essential information system" as defined in DoDD 8500.1.
- 12 v) Develop and coordinate ISP. ASD(NII) will distribute the initial ISP generated by program office as part of the
- 13 IPS for KDP-B in accordance with procedures described in the Interim Defense Acquisition Guidebook for DoD-
- 14 wide review. Comments will be due back prior to KDP-C .
- 15 w) Develop IMS for the concept(s) going forward into Phase B.
- 16 x) Conduct initial assessment of mission protection measures to address system vulnerability and target protection
- 17 levels.
- 18

| IPA READINESS REVIEW CHECKLIST FOR KDP-B | |
|--|---|
| a) | Updated OV Architecture Products from concept sponsor (e.g., Ops Command, NSSO, others) |
| b) | Initial Integrated Architecture for the system from program office |
| c) | Updated system level CONOPS from concept sponsor (e.g. Lead Ops Command) |
| d) | DoD Space MDA approved Acquisition Strategy from program office |
| e) | CDD from Capability Needs Authority (J8) |
| f) | Director, OT&E Approved Test & Evaluation Master Plan from program office |
| g) | Integrated Program Summary (IPS) from program office |
| h) | Clinger Cohen Act Compliance table in IPS by program office |
| i) | "New Start" certification from program office in IPS |
| j) | Draft ADM from program office |
| k) | Draft APB from program office |
| l) | Status report on ICE from ICAT Leader |
| m) | Team Composition and IPA Plan and Agenda from the IPAT Leader |

- 19
- 20 Phase B Program Office Activities
- 21 a) Conduct risk reduction, complete technology development and conduct a Technology Maturity Assessment,
- 22 continue test and evaluation activities, and update risk management plan.
- 23 b) Review JROC approved NSSO architectures to determine relevant architectures that apply to the program or
- 24 system.
- 25 c) Conduct appropriate technical design reviews (e.g., PDR).
- 26 d) Produce the Development Specification(s) (i.e., "B" Spec). Produce the Software Requirements Specifications
- 27 (SRSs), Interface Requirements Specifications (IRSs), software architectural design, and software detailed design
- 28 determined by the particular software life cycle model used as appropriate.
- 29 e) Develop and coordinate ISP. ASD(NII) will distribute the initial ISP generated by program office as part of the IPS
- 30 for KDP-B in accordance with procedures described in the Interim Defense Acquisition Guidebook for DoD-wide
- 31 review. Comments will be due back prior to KDP-C. Program office should then update the OV, SV and TV
- 32 products per CJCSI 6212.01C, DoDD 4630.5, and DoDI 4630.8 and produce the updated ISP section of the IPS in
- 33 time for IPAT start for KDP-C. ASD(NII) will distribute updated ISP section for a truncated review in parallel with
- 34 IPAT review with comments due back by IPA end. (See E1 for the specific reference for content guidance.)
- 35 f) Update the initial PESHE with ESOH risk management data (e.g., identified hazards, risk assessments, mitigation
- 36 decisions, residual risk acceptance, ongoing assessments of the effectiveness of mitigation measures and comply
- 37 with 42 USC 4321, documenting in the PESHE the status of planned and completed NEPA documentation.
- 38 g) Conduct System Disposal initial planning.
- 39 h) Update the TEMP and comply with 10 USC 2399 (& 2366 f required). For MDAPs, the SPD/PM, PEO, CAE,
- 40 Service Operational Test Agency (OTA), DoD Space MDA, ASD(NII) and Director, OT&E must sign the TEMP.
- 41 i) Produce the APB for use in Phase C and comply with 10 USC 2435.
- 42 j) Produce the required periodic reporting products (e.g., SARs, UCRs, etc.) and comply with 10 USC 2432 and
- 43 2433.
- 44 k) Certify the program's compliance with the DoD Strategic Plan in the updated acquisition strategy and comply with
- 45 5 USC 306, 10 USC 118, and Pub. L. 106-65.
- 46 l) Determine the LRIP quantity required for OT&E if there is a full-rate production decision, and present to DoD
- 47 Space MDA and Director, OT&E for decision no later than KDP-C DSAB. (Ref 10 USC 2399 and 2400.)

- 1 m) Submit the Stage 2 Experimental Application for Frequency Allocation prior to KDP-C, if required, and comply with
2 47 USC 305, Pub. L. 102-538 sec 104, and 47 USC sec 901-904. Also consult OMB Circular A-11, Part 2 and
3 DoDD 4650.1 for guidance.
- 4 n) Continue Integrated Logistics Support planning, sustainment planning and pre-planned product improvement
5 planning, as appropriate, and conduct the depot maintenance (e.g., Source of Repair Analysis process) analysis
6 prior to KDP-C in compliance with 10 USC 2460/2464/2466/2469.
- 7 o) Conduct a legal review prior to KDP-C of the Acquisition Strategy by the appropriate General Counsel/Judge
8 Advocate General to determine that the acquisition is consistent with U.S. domestic law and U.S. obligations (e.g.,
9 treaties, customary international law, laws of armed conflict, etc.).
- 10 p) Conduct system internal and external segment synchronization planning.
- 11 q) Update mission protection, program protection and security planning.
- 12 r) Update the tailored space system Cost Analysis Requirements Description (CARD) and a fully documented life
13 cycle cost estimate consistent with the CARD.
- 14 s) Update the information assurance strategy and update the Systems Security Authorizations Agreement per DoDI
15 5200.4 for NSS systems that meet the definition of a "mission critical information system" or a "mission essential
16 information system" as defined in DoDD 8500.1.
- 17 t) Update Clinger Cohen Act (CCA) table and obtain Component CIO's confirmation that program complies with CCA
18 and comply with 40 USC 1401 & Pub. L. 107-248 sec 8088.

| IPA READINESS REVIEW CHECKLIST FOR KDP-C | |
|--|--|
| a) | Updated OV Architecture Products from concept sponsor (e.g., Lead Ops Command, NSSO, others) |
| b) | Updated Integrated Architecture for the system from program office |
| c) | Updated system level CONOPS from concept sponsor (e.g. Lead Ops Command) |
| d) | DoD Space MDA approved Acquisition Strategy from program office |
| e) | CPD from Capability Needs Authority (J8) |
| f) | Director, OT&E Approved TEMP from SPO |
| g) | Integrated Program Summary (IPS) from program office |
| h) | Clinger Cohen Act Compliance table in IPS by program office |
| i) | "New Start" certification from program office in IPS |
| j) | Draft ADM from program office |
| k) | Draft Updated APB from program office |
| l) | Status report on ICE from ICAT Leader |
| m) | Team Composition and IPA Plan and Agenda from the IPAT Leader |

- 19
- 20 Phase C Program Office Activities
- 21 a) Conduct risk reduction, continue test and evaluation activities, and update Risk Management Plan.
- 22 b) Reassess JROC approved NSSO architectures to determine relevant architectures that apply to the program or
23 system.
- 24 c) Conduct appropriate technical design reviews (e.g., CDR).
- 25 d) Produce the appropriate Specification(s) (i.e., Production or "C" Spec); finalize the Software Requirements
26 Specifications (SRSs), Interface Requirements Specifications (IRs), software architectural design, and software
27 detailed design determined by the particular software life cycle model used as appropriate.
- 28 e) Update ISP with comments received as part of KDP-C. Program office should then update the OV, SV and TV
29 products required per CJCSI 6212.01C, DoDD 4630.5, and DoDI 4630.8 and produce the updated ISP section of the
30 IPS in time for IPAT start for Build Approval. ASD(NII) will distribute updated ISP section for a truncated review in
31 parallel with IPAT review with comments due back by IPA end. (See E1 for the specific reference for content
32 guidance.)
- 33 f) Update the PESHE with ESOH risk management data (e.g., identified hazards, risk assessments, mitigation
34 decisions, residual risk acceptance, ongoing assessments of the effectiveness of mitigation measures and comply
35 with 42 USC 4321, documenting in the PESHE the status of planned and completed NEPA documentation.
- 36 g) Continue System Disposal planning.
- 37 h) Update the TEMP and comply with 10 USC 2399 (& 2366 f required). For MDAPs, the SPD/PM, PEO, CAE,
38 Service Operational Test Agency (OTA), DoD Space MDA, ASD(NII) and Director, OT&E must sign the TEMP.
- 39 i) Produce the APB for use in Phase D and comply with 10 USC 2435.
- 40 j) Produce the required periodic reporting products (e.g., SARs, UCRs, etc.) and comply with 10 USC 2432 and 2433.
- 41 k) Certify the program's compliance with the DoD Strategic Plan in the updated acquisition strategy and comply with 5
42 USC 306, 10 USC 118, and Pub. L. 106-65.
- 43 l) Determine the LRIP quantity required for OT&E if there is a full-rate production decision, and present to DoD Space
44 MDA and Director, OT&E for decision no later than Build Approval. (Ref 10 USC 2399 and 2400.)
- 45 m) Submit the Stage 2 Experimental Application for Frequency Allocation prior to Build Approval, if required, and
46 comply with 47 USC 305, Pub. L. 102-538 sec 104, and 47 USC sec 901-904. Also consult OMB Circular A-11,
47 Part 2 and DoDD 4650.1 for guidance.

- 1 n) Continue Integrated Logistics Support planning, sustainment planning and pre-planned product improvement
- 2 planning, as appropriate, and conduct the depot maintenance (e.g., Source of Repair Analysis process) analysis
- 3 prior to Build Approval in compliance with 10 USC 2460/2464/2466/2469.
- 4 o) Conduct a legal review prior to Build Approval of the Acquisition Strategy by the appropriate General Counsel/Judge
- 5 Advocate General to determine that the acquisition is consistent with U.S. domestic law and U.S. obligations (e.g.,
- 6 treaties, customary international law, laws of armed conflict, etc.).
- 7 p) Conduct system internal and external segment synchronization planning.
- 8 q) Update program protection and security planning.
- 9 r) Update the tailored space system Cost Analysis Requirements Description (CARD) and a fully documented life
- 10 cycle cost estimate consistent with the CARD.
- 11 s) Update the information assurance strategy and update the Systems Security Authorizations Agreement per DoDI
- 12 5200.4 for NSS systems that meet the definition of a "mission critical information system" or a "mission essential
- 13 information system" as defined in DoDD 8500.1.
- 14 t) Update Clinger Cohen Act (CCA) table and obtain Component CIO's confirmation that program complies with CCA
- 15 and comply with 40 USC 1401 & Pub. L. 107-248 sec 8088
- 16
- 17

| IPA READINESS REVIEW CHECKLIST FOR Build Approval (and LRIP or Full-Rate Production Decision Meeting if using the Production Focused Model) | |
|---|--|
| a) | Updated OV Architecture Products from concept sponsor (e.g., Lead Ops Command, NSSO, others) |
| b) | Updated Integrated Architecture for the system from program office |
| c) | DoD Space MDA approved Acquisition Strategy from program office |
| d) | CPD from Capability Needs Authority (J8) |
| e) | Director, OT&E Approved TEMP from SPO (Updated TEMP for LRIP Decision and Full-Rate Production decision) |
| f) | Integrated Program Summary (IPS) from program office |
| g) | Clinger Cohen Act Compliance table in IPS by program office |
| h) | "New Start" certification from program office in IPS |
| i) | Draft ADM from program office |
| j) | Draft Updated APB from program office |
| k) | Status report on ICE from ICAT Leader |
| l) | Team Composition and IPA Plan and Agenda from the IPAT Leader |

18
19 Phase D Program Office Activities

- 20 a) Build, test, and deploy the space related program, product, or service and comply with 10 USC 2399 & 2366
- 21 (if required).
- 22 b) Refine/complete Integrated Logistics Support/sustainment planning to ensure supportability of fielded system.
- 23 c) Produce the required periodic reporting products (e.g., SARs, UCRs, etc.) and comply with 10 USC 2432 and
- 24 2433.
- 25 d) Conduct the "Follow-on Buy" decision, if required.
- 26 e) Conduct the "system demonstration" sub-phase if required.
- 27 f) Produce the LRIP items, if required.
- 28 g) Provide information to DOT&E for the "Beyond-LRIP" Report if required, and comply with 10 USC 2399
- 29 h) Make the Full-Rate Production decision if required.
- 30 i) Conduct the post deployment performance review and comply with 5 USC 306, 40 USC 1401, and Pub. L.
- 31 107-217, sec 11313 if required.
- 32 j) Implement system internal and external segment synchronization plan.
- 33 k) Continue to update the ESOH risk database, the NEPA documentation, and completion status.
- 34 l) Complete system disposal planning. Phase D ends with system disposal.
- 35
- 36
- 37

E3. ENCLOSURE 3: DoD SPACE ACQUISITION DOCUMENTATION
APPROVAL/ COORDINATION REQUIREMENTS MATRIX*

| Document Title | Written By | Approval Required Per Statute | Approval Required Per SAF/US | Coord Required Per Statute | Coord Required (Per SAF/US) |
|---|-----------------------------|---|---|----------------------------|--|
| ADM including when not produced as part of a DSAB | SPO and DoD Space MDA Staff | N/A | MDA | N/A | SPD/PM; PEO; CAE; ASD(NII); USD(AT&L); PA&E; Lead User/ Operating Command; Affected Agencies and Departments |
| APB including when not produced as part of a DSAB | SPO | N/A | MDA | OSD(C) (10 USC 2220) | J8; SPD/PM; PEO; USD(AT&L); PA&E; CAE; Lead User/ Operating Command; ASD(NII); Affected Agencies and Departments |
| T&E Strategy | SPO | N/A | Dir OT&E for MDAPs; ASD(NII); Service OTA for "major" systems; SPD/PM; CAE; PEO | N/A | Service Test Authority |
| TEMP | SPO | Dir OT&E for MDAPs; Service OTA for "major" systems (10 USC 2399) | MDA; ASD(NII); CAE; PEO; Service Test Authority; SPD/PM; | N/A | Affected Services and/or Agencies |
| Acquisition Strategy | SPO | N/A | MDA; PEO; SPD/PM | N/A | CAE; Service Contracting Authority; ASD(NII); Lead User/Operating Command |
| IPS | SPO | N/A | SPD/PM prior to IPA | N/A | NONE |

*Ten working days is considered a reasonable time period to allow for coordination of key DoD Space Acquisition documentation. If no response is received from addressees after 10 working days, coordination packages may be forwarded to the DoD Space MDA for review and signature.

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2**E4. ENCLOSURE 4: DoD SPACE STATUTORY REFERENCE INFORMATION**

| INFORMATION REQUIRED | APPLICABLE STATUTE | 03-01 REF | EVENT |
|---|--|------------------------------|-----------------------------|
| Consideration of Technology Issues | 10 U.S.C. § 2364 | E.2, E5.2 | KDP-B |
| Market Research | 10 U.S.C. §2377 15 U.S.C. §644(e)(2) | AP4.1.1, E2 | KDP-B |
| Clinger-Cohen Act (CCA) Compliance | 40 U.S.C. §1401 Pub. L. 107-248, Section 8088, Pub. L. 105-261, Subtitle D, Section 331 | 3.2, E2, E5.12 | KDP-A, B, C |
| Post-Deployment Performance Review | 5 U.S.C. §306, 40 U.S.C. §1401, Pub. L. 107-217, Section 11313 | E2 | Phase D |
| Registration of mission-critical and mission-essential information systems | Pub. L. 107-248, Section 8088 Pub. L. 106-398, Section 811 | E2, E5.2 | KDP-B |
| Beyond-LRIP Report (OSD T&E Oversight programs only) | 10 U.S.C. §2399 | E2 | Phase D |
| Programmatic Environment Safety and Occupational Health Evaluation (PESHE) (including National Environmental Policy Act Schedule) | 42 U.S.C. §4321 | AP1.1.7, E2, E5.15 | KDP-A, B, C |
| Spectrum Certification Compliance (DD Form 1494) (applicable to all systems/equipment that require utilization of the electromagnetic spectrum) | 47 U.S.C. §305 Pub. L. 102-538, Section 104 47 U.S.C. §901-904 | E2, AP4.2. | Phase B |
| Selected Acquisition Report (SAR)—DD-AT&L(Q&A)823 (MDAPs only) Unit Cost Report (UCR)—DD-AT&L(Q&R)1591 (MDAPs only) | 10 U.S.C. §2432 10 U.S.C. §2433 | 4.3.4, AP4.1.3.1, E2 | Phase B, C, D |
| Live Fire Waiver & alternate LFT&E Plan (Covered Systems only) | 10 U.S.C. §2366 | AP1.1.6, E5.14 (if required) | Phase B |
| Industrial Capabilities (part of acquisition strategy) | 10 U.S.C. §2440 | AP4.1.1 | KDP-A, B, C |
| LRIP Quantities | 10 U.S.C. §2400 | E2, AP2.2.7 | KDP-B |
| Independent Cost Estimate and Manpower Estimate (MDAPs Only) | 10 U.S.C. §2434 | AP3 | KDP-B, Build Approval |
| LFT&E Report (OSD-covered programs only) | 10 U.S.C. § 2366 | AP1.1.6, E2, E5.14 | Phase D |
| Core Logistics Analysis/Source of Repair Analysis (part of acquisition strategy) | 10 U.S.C. §2464 10 U.S.C. §2460 10 U.S.C. §2466 | E2, E5.10 | KDP-C |
| Competition Analysis (Depot-level Maintenance \$3M rule) (part of acquisition strategy) | 10 U.S.C. §2469 | E2, E5.10 | KDP-C |
| Integrated Program Summary | Pub. L. 107-314 Section 803 | AP4.2, E5 | KDP-A, B, C, Build Approval |
| Acquisition Program Baseline (APB) | 10 U.S.C. §2435 | AP4.1.3, E2 | KDP-B, C, Build Approval |
| Program Deviation Report | 10 U.S.C. § 2432, 10 U.S.C. § 2433, 10 U.S.C. § 2435 | AP4.1.3.1 | As required |
| Operational Test Plan (T&E Oversight Programs only) | 10 U.S.C. §2399 | AP1.1.6, E2, E5.14 | KDP-B, C |
| Cooperative Opportunities | 10 U.S.C. §2350a | E2, E5.2, AP4.1.1 | KDP-A, B, C |
| Acquisition of Services | Pub. L. 107-107, Section 801(d) | N/A | As required |
| APB Coord | 10 U.S.C. § 2220(a)(2) | AP4.1.3 | KDP-B, C, Build Approval |
| Compliance with Strategic Plan (as part of the analysis of alternatives, whenever practical) | 5 U.S.C. §306 10 U.S.C. §118 Pub. L. 106-65 | E5.1, E2 | KDP-A, B, C |
| MDAP & Non-MDAP | 10 U.S.C. § 2430 | 3.1.1, 3.1.2 | |
| Major System | 10 U.S.C. § 2302d | 3.1.2.1 | |
| Value Engineering | 41 U.S.C. § 432 | E5.5 | KDP-A, B, C |

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2**E5. ENCLOSURE 5: INTEGRATED PROGRAM SUMMARY (IPS)**

| IPS Contents | |
|--|--|
| E5.1 <u>Space System Acquisition Strategy (Acquisition Strategy)</u> (Ref: 10 USC 2440 and 2469.) | Present DoD Space MDA approved Acquisition Strategy as described in AP4.1.1. |
| E5.2 <u>Execution Status of Program</u> | <ul style="list-style-type: none"> a) Summarize program management structure and program office staffing levels to include relevant experience and qualifications of key program office personnel as defined by the SPD/PM. b) Provide evidence of "New Start" certification/notification. c) Provide high-level description of what the program entails (e.g., development activities, acquisition issues, security factors, plans for launch and operations of space vehicles and associated ground communications equipment, etc.). d) Describe program progress made in prior phase. For KDP-A, the discussion would address technologies and/or studies accomplished. e) Compare current program content and cost to the following documents as appropriate and explain any differences: <ul style="list-style-type: none"> KDP-A: AoA Report and System CONOPS KDP-B: KDP-A ADM and/or ADM Updates. KDP-C: KDP-B ADM and/or ADM Updates, Phase B APB Build Approval: KDP-C ADM and/or ADM Updates, Phase C APB f) Identify current unit costs if applicable and changes from original program baseline documents as identified in (d) above. Explain all changes. g) Describe current year financial execution performance. h) Discuss the use of an Earned Value Management System (EVMS), to include a current EVMS performance assessment and a description of the program office processes for IBRs, Baseline Changes, EVM surveillance, critical path management, and technical performance measures as applicable. i) Explain efforts to explore and evaluate cooperative opportunities with Allies (Ref: 10 USC 2350a). j) Provide status/evidence of registering the NSS system with the DoD CIO if applicable. (Registration must occur if the NSS system meets the definition of a Mission Critical Information System or a Mission Essential Information System. (Ref: Pub. L. 106-398, 811)). k) Provide status of the program's application for Frequency Application Status (Ref: 47 USC 305 & 901-904 and Pub. L. 102-538 Section 104). l) Provide the status and result of any program related technology assessments and/or technology issues identified by DoD research facilities (Ref: 10 USC 2364). m) Project the program's executability for the next phase and document the underlying assumptions. n) At KDP-C, discuss system disposal plans. o) Summarize Class 1 Engineering change activity and other important decisions made or reviewed by the DoD Space MDA, CAE, PEO, and/or SPD/PM in advance of the KDP. |
| E5.3 <u>ADM Exit Criteria and Direction at Previous KDP</u> | <ul style="list-style-type: none"> a) Describe how the exit criteria established at the prior KDP review were met. b) Discuss guidance, decisions, and/or Congressional actions made subsequent to prior KDP review and how they were accommodated. |
| E5.4 <u>Requirements And Architecture Summary</u> | <ul style="list-style-type: none"> a) Present the requirements set that the program is expected to satisfy [to include the ICD, CDD, CPD, and summary of the System Threat Assessment Report (STAR) or other appropriate threat assessment document. Consult DoDD 5105.21 for STAR guidance]. b) Identify when the requirements were validated/approved and the validating/approval agency(ies). Discuss any remaining or ongoing requirements validation/approval activities. c) Describe reasons for requirements shortfalls, waivers, anticipated referrals deviations, and/or deletions or omissions. d) Discuss any remaining requirements validation activity. e) Describe which JROC approved NSSO architectures apply to the system and/or program and explain how this program is in compliance with the relevant NSSO architecture or explain why the system and/or program is not compliant. f) Describe how the system will meet the requirements for mission protection, program protection, system vulnerability, and radiation hardening. For nuclear performance criteria see CJCSI 6811.01A, "Nuclear Command and Control System Technical Performance Criteria" (June 2000) or explain how this instruction is not applicable. g) Describe the Space Situational Awareness (SSA) requirements for the program. h) Discuss Modular Open Systems Approach (MOSA) |

| IPS Contents | |
|---|--|
| E5.5 System Engineering Process Review and System Engineering Plan | |
| a) | Provide the Systems Engineering Plan describing the systems engineering processes that have been used to produce results to date and those that will be used in the next phase. Base assessment of key process areas on the Systems Engineering Capability Maturity Matrix Integration (CMM-I) model. Include the processes for requirements analysis, functional analysis/allocation, synthesis, systems analysis and control, verification, and requirements traceability. In addition, for KDP-B & KDP-C and Build Approval: |
| b) | Describe how system requirements were identified and flowed down to more detailed interface requirements for the designs. |
| c) | Describe mechanisms used to manage and control interfaces throughout the development process. |
| d) | Provide verification cross reference matrix(ces) showing the mapping between each requirement and the method(s) to be used for verification of the requirement. |
| e) | Show traceability of capability needs to system requirements. |
| f) | Show traceability of system requirements flowed down to design components (KDP-C and Build Approval only). |
| g) | Describe how "value engineering" principles have been used. Value Engineering means an analysis of the functions of a program and/or project has been performed by qualified personnel with the intention of improving performance, reliability, quality, safety, and life cycle costs. (Ref: 41 USC 432). |
| h) | Describe the status of key systems engineering processes/practices, including how the program is incentivizing the contractors to perform robust systems engineering. |
| E5.6 Alternatives Assessed and Results | |
| Summarize advantages and disadvantages of each alternative in terms of cost, schedule, and technical/operational performance. | |
| For KDP-A summarize the AoA results. | |
| For KDP-B summarize concept/architectural studies. | |
| For KDP-C summarize design alternatives. | |
| For Build Approval summarize complete design. | |
| E5.7 Most Promising Alternative and Rationale | |
| a) | Outline the cost, schedule, and performance assessment of the most promising alternative; if no most promising alternative clearly exists, so state. |
| b) | Describe the reasons supporting its selection (e.g., optimum balance achieved between cost and technical risk in meeting defined user needs). |
| E5.8 Cost Drivers & Major Trade-offs | |
| a) | Discuss the use of Cost As an Independent Variable (CAIV) or methodologies to balance life cycle costs, schedule, and technical issues while satisfying user requirements. |
| b) | Highlight current cost drivers. |
| c) | Identify major trade-off decisions affecting cost, schedule, and/or performance that were made in the prior acquisition phase and ones to be made in the future. |
| d) | Describe how contractor(s) will be incentivized to meet or exceed cost objectives and program office contractor(s) cost sharing arrangements (overrun/underrun). |
| e) | If using a commercial system, describe the strategy to ensure cost goals are met. |
| E5.9 Risk Management | |
| a) | Summarize the program's risk management plan. It should include all significant risks (known or potential) that must be addressed in the upcoming acquisition phase (e.g., system threat environment, technology or manufacturing processes, use of commercial practices, government furnished equipment, risk of technical obsolescence, security, dependencies among programs, risk of creating a monopoly for future procurements) in terms of cost, schedule, and/or performance risk. At each KDP and Build Approval, the program office should identify the key technology components of the system and provide their assessment of the maturity of each key component using the Technology Readiness Level (TRL) method identified in the Interim DoD Acquisition Guidebook. (See E1 for the specific reference). The IPAT will review the program office assessment and determine if, in their view, all key technology components of the program have been identified. The IPA will also provide its own independent assessment of the maturity of the key components using the TRL method. The intent is not to require a specific TRL for each key component in order to proceed into the next acquisition phase, but to instead allow for the DoD Space MDA to be made knowledgeable of the state of key component maturity so appropriate direction can be given in the ADM for additional technology maturation/risk reduction activities. |
| b) | Specify proposed risk sharing arrangement between program office and contractor(s). |
| c) | Identify the component(s) or subsystem(s) most directly affected. |
| d) | Discuss risk mitigation strategies, including actual or planned risk reduction efforts being undertaken. |
| e) | Present how the maturity of the program's software contractor and software effort was determined (e.g., was the SEI Capability Maturity Model Integration (CMMI) used?) Present the software capability maturity level of the contractor performing the software development and/or software integration and the age of the assessment. (The DoD goal is to use a contractor graded at least CMMI level 3.) Include a thorough discussion of the strategies to be used for reducing software development and integration risk and by KDP-C provide a detailed software development strategy. |

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IPS Contents**E5.10 Support Issues and Plans**

- a) Present the manpower resource requirements.
- b) Present plans for training.
- c) Summarize logistics supportability concepts. Ensure the following key support elements are addressed: Design Interface; Technical Data; Maintenance Planning for both hardware and software (e.g., Organizational and depot Maintenance/SORAP analysis and results; Facilities; Support Equipment; Personnel; Supply Support; Training and Training Support; Packaging, Handling, Storage and Transportation; and Computer Resources Support. In addition, ensure support/sustainment are clearly integrated into the SPDs/PMs lifecycle management strategy.
- d) Discuss program's planned adherence to related directives, policies, instructions, and regulations.
- e) Describe depot maintenance analysis if appropriate.
- f) Include schedule for transitioning program to the Lead Command and into sustainment.

E5.11 Architecture Description

Describe the program architecture and its interfaces with other systems and architectures [e.g., the Information Support Plan (ISP) section] (Ref: 40 USC 1401 and Pub. L. 107-248 section 8088).

- a) At KDP-A, provide the Operational View (OV) of the Integrated Architecture. For KDP-B, provide the initial System View (SV) and Technical View (TV) Architecture products updated OV Architecture products. For KDP-C, develop and coordinate ISP and provide updated OV, SV and TV Architecture products, meeting the ISP content requirements of the Interim Defense Acquisition Guidebook (see E1 for specific reference for content.). For Build Approval, update the ISP with comments received as part of KDP-C and provide updated OV, SV, and TV Architecture products. Reference CJCSI 6212.01C, DoDD 4630.5, and DoDI 4630.8 for guidance on the required architecture products and on supportability and interoperability certification.
- b) Discuss systems in acquisition or operations such as ground communications, tasking and exploitation systems, launch systems, etc.
- c) Discuss Space Situational Awareness interface requirements.
- d) Discuss interfaces/impacts with other NSS organizational elements and with external organizations.
- e) Interfaces/impacts may be of a cost, schedule, and/or performance nature.
- f) Address synchronization across programs and among space, ground, user equipment, and other end-to-end program elements and segments. Identify disconnects and any program impacts, including to system segments that are provided through separate acquisition programs not under the SPD/PM control.

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IPS Contents

E5.12 Clinger-Cohen Act (CCA) Compliance

Document evidence of compliance with the Clinger Cohen Act (CCA) by completing the following matrix and obtaining MILDEP CIO confirmation of the program's answers to the questions in the matrix below (Ref: 8 Mar 2002 USD(AT&L) memo, DoDI 5000.2, Table E.4.T1 and Sec 811 of the FY01 Authorization Act). MILDEP CIO confirmation is required prior to making contract award per Pub. L. 105-261, Subtitle D, Sec 331.

CLINGER-COHEN ACT (CCA) COMPLIANCE TABLE

| # | Requirement Related to the Clinger-Cohen Act (CCA) of 1996 (paragraph 4.7.3.2.3.2 within DoDI 5000.2) | Applicable Program Documentation** |
|----|---|--|
| 1 | *** Make a determination that the acquisition supports core priority functions of the Department | MNS/ICD Approval |
| 2 | *** Establish outcome-based performance measures linked to strategic goals | MNS/ICD, ORD/CDD, APB Approval |
| 3 | *** Redesign the processes that the system supports to reduce costs, improve effectiveness, and maximize the use of COTS technology | Approval of MNS/ICD, Concept of Operations, AOA, and ORD/CDD |
| 4 | * No Private Sector or government source can better support the function | Acquisition Strategy page XX, Para XX; AOA page XX |
| 5 | * An analysis of alternatives has been conducted | AOA |
| 6 | * An economic analysis has been conducted that includes a calculation of the return on investment; or for non-AIS programs, an LCCE has been conducted | Program LCCE |
| 7 | There are clearly established measures and accountability for program progress | Acquisition Strategy page XX, Para XX; APB |
| 8 | The acquisition is consistent with the Global Information Grid policies and architecture, to include relevant standards | APB (Net-ready KPP) ISP (IERS) |
| 9 | The program has an information assurance strategy that is consistent with DoD policies, standards, and architectures, to include relevant standards | Information Assurance Strategy |
| 10 | To the maximum extent practicable, (1) modular contracting has been used, and (2) the program is being implemented in phased, successive blocks, each of which meets part of the mission need and delivers measurable benefit, independent of future blocks | Acquisition Strategy (e.g., Acquisition Strategy) page XX, Para XX |
| 11 | The system being acquired is registered | Registration Data Base |

* For weapons systems and command and control systems, these requirements apply to the extent practicable (40 U.S.C. 11103)

** The system documents/information cited are examples of the most likely but not the only reference for the required information. If other references are more appropriate, they may be used in addition or instead of those cited.

*** These requirements are presumed satisfied for Weapons Systems with embedded IT and for Command and Control Systems that are not themselves IT systems.

E5.13 Program Protection Planning, Information Assurance Strategy, and Cryptological Systems

- a) Provide the relevant Program Protection Planning (P3) information. Use the P3 description in the Interim Defense Acquisition Guidebook as a content guide for this IPS section. P3 shall include all DoD space systems, interfaces, USG information systems and networks. Consult DoDD 5200.39 for guidance. A P3 at minimum shall address the following elements:
1. List of Critical Program Information (CPI) and Critical System Resources (CSR) to be protected in the system or program
 2. List of potential threats to the CPI
 3. Vulnerabilities of CPI to threats
 4. Result of sensitive technology assessment and technology control plan
 5. Classification guides
 6. Planned countermeasures to threats
 7. Protection costs
 8. Foreign disclosure, foreign sales, co-production, and follow-on support plans

IPS Contents

E5.13 Program Protection Planning, Information Assurance Strategy, and Cryptological Systems (continued)

- b) Provide verification that Information Assurance (IA) requirements are considered and addressed during the entire life cycle of the space system. IA shall comply with DoDD 8500.1.
- c) CRYPTO: Identify the crypto needs for the NSS program, both what and when needed. Provide the status of the National Security Agency plans to meet those needs.
1. Identify the requirements for the cryptological hardware and model number if known.
 2. Provide the most current schedule for the development, production, and delivery of the cryptological hardware from the developer.
 3. Identify in the program schedule when the cryptological hardware is required to maintain the schedule.
 4. Estimate schedule impacts in terms of time, tasks, additional costs, and other impacts, material and non-material, caused by the late delivery of the cryptological hardware.
 5. Report if alternative cryptological hardware is available for the program and quantify the impacts to schedule, costs of redesign, costs of changes to test and integration procedures and processes, and other factors as appropriate.

E5.14 Developmental and/or Operational Testing Approach (Ref: 10 USC 139, 2366 2399, and 2400) Use the Interim Defense Acquisition Guidebook as the guide for the test section of the IPS for KDP-A, KDP-B, and for the T&E Strategy that is due to the Director, OT&E prior to KDP-A. (See E1 for the specific reference for content.) Follow the Interim Defense Acquisition Guidebook for producing the TEMP in preparation for KDP-B and KDP-C. (See E1 for the specific reference for content.)

- a) Describe the overall structure and objectives of the test and evaluation program including use of modeling and simulations, schedule, and required resources.
- b) Identify the necessary developmental and operational test and evaluation activities.
- c) Relate the test objectives to critical operational issues, critical technical parameters, minimum acceptable performance requirements, evaluation criteria, and exit criteria.
- d) Link requirements verification matrix in operational test plan to validated requirements documents.

E5.15 Program Environmental, Safety, and Occupational Health Evaluation (PESHE)

The SPD/PM shall prepare an initial Program Environmental Safety and Occupational Health Evaluation (PESHE) document by KDP-B and then keep the PESHE updated over the system life cycle. After KDP-B, the updating of the PESHE document will primarily involve the recording of additional data on ESOH risks and HAZMAT in a data management format selected by the program office. There is no specific format prescribed for the PESHE; however, the PESHE should include, as a minimum, the following:

- 1) Strategy for integrating ESOH considerations into the SE process;
- 2) Identification of ESOH responsibilities for implementing this strategy;
- 3) Approach to identify ESOH hazards, to assess the risks, to mitigate or avoid those risks, to accept the residual risk and to assess the effectiveness of the mitigations;
- 4) Identification and status of ESOH risks (including the identification of hazardous materials used in the system and the plan for their demilitarization/disposal); and
- 5) Schedule for completing National Environmental Policy Act (NEPA)/Executive Order 12114 Environmental Effects Abroad of Major Federal Actions documentation.

E5.16 Program Office Estimate (POE) and Future Years Defense Plan Implications (Ref: 10 USC 2434)

A subset of the data and inputs provided by the program office to the ICAT should be used for this IPS section to reduce the amount of work on the program office and to ensure the IPAT and ICAT are working from a common cost baseline for the program under review. In this section the program office should:

- a) Present POE on a fiscal year basis for the recommended alternative and how it fits within the FYDP;
- b) Identify costs as nonrecurring and recurring;
- c) Identify source(s) of program funds by appropriation and any projected shortfalls/issues;
- d) Include previous ICA/ICE results for KDP-B and KDP-C;
- e) At the procurement decision, identify whether the current official Service or Agency budget position (e.g., official Program Objective Memorandum, Budget Estimate Submission, and or President's Budget) contains full funding for the procurement of the system.

E5.17 Integrated Master Schedule (IMS) (Ref: DI-MISC-81183A)

The SPD/PM shall produce an IMS by KDP-B and then keep the IMS updated continuously. The IMS will be used to substantiate critical schedule dates. The SPD/PM shall conduct a critical path analysis prior to KDP-C and Build Approval.

E5.18 Recommendations (ADM, Exit Criteria, etc.)

- a) Provide the draft exit criteria to be accomplished either during the upcoming acquisition phase and/or by the next KDP review, and any other DoD Space MDA program direction desired.
- b) Identify any issues that require resolution or waivers by the DoD Space MDA or higher-level decision authority (Secretary of Defense and/or Director of Central Intelligence).
- c) Provide draft ADM.
- d) Provide draft APB for KDP-B & KDP-C and Build Approval.
- e) Provide draft RFP if applicable.