U.S. AIR FORCE

Independent Logistics Assessment

Department of the Air Force
Guide for Conducting Independent Logistics Assessments

Handbook

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U.S. Air Force Photo by Kevin Robertson

Foreword

This Independent Logistics Assessment (ILA) handbook describes the new Command process for assessing the logistics supportability of our new weapon systems as they progress through the acquisition milestones. This handbook provides a comprehensive step-by-step process with extensive criteria to be used to conduct formal assessments of a program's logistics planning and implementation. The ILA process will provide the decision-maker (Milestone Decision Authority, Program Executive Officer, Program Manager) with an objective and comprehensive assessment; timely awareness of deficiencies; and recommended fixes to improve the program. The ultimate objective is to ensure new systems are fielded with support systems in place for our warfighters to meet their mission requirements.

The ILA Handbook is one of our first deliverables under the Product Support Campaign to enhance total life cycle system management, and HQ AFMC/A4A is the Process Manager for this initiative.

This handbook is a living document that will be continuously updated and improved. Use the link below to access the latest version.

https://afkm.wpafb.af.mil/ASPs/docman/DOCMain.asp?Tab=0&FolderID=OO-AQ-LG-OO-8&Filter=OO-AQ-LG-OO

This new process and handbook are the embodiment of my commitment to transformation and continuous process improvement. I fully support this process; it will make a difference.

A. B. MORRILL III
Major General, USAF
Director of Logistics and Sustainment

Revisions to this document will be issued as required by HQ AFMC/A4A.

Executive Summary

The Air Force's ability to maximize joint warfighting effectiveness is predicated on establishing and maintaining a foundation of logistics support throughout the system life cycle. To develop this logistics support foundation and sustain essential warfighter performance, the logistics workforce must sharpen the focus on product support and sustainment planning and implementation, particularly in the early acquisition phases. A solid product support strategy is built around the acquisition logistics requirements and sustainment elements and is the result of continuous assessment and stakeholder collaboration. Independent logistics assessments that encompass all programmatic aspects relevant to supportability, logistics, and readiness are conducted to help accomplish these objectives. Therefore, the Directorate of Logistics and Sustainment, Headquarters (HQ) Air Force Materiel Command (AFMC), has established a process for conducting Independent Logistics Assessments (ILAs) to ensure adequate logistics support at major acquisition milestones and decision points.

This handbook outlines the step-by-step process and offers extensive program evaluation criteria that can be used to conduct formal assessments of a program's product support planning and implementation. It includes information to help assessors focus on metrics and documentation most relevant to logistics planning and performance-based logistics (PBL) arrangements. The assessment itself will yield recommended corrective actions and highlight Air Force best practices.

Assessments independent of the system developers provide an impartial evaluation of a program's product support planning and implementation. The handbook communicates expectations for how such independent assessments will be conducted and addresses responsibilities of both the assessors and the program office during the assessment process. The results of these assessments provide Program Executive Officers (PEOs) and the Milestone Decision Authorities (MDAs) an objective evaluation of the logistics health of a program at each acquisition milestone. This handbook provides criteria by which the individual sustainment elements as well as the program's overall logistic support can be measured. This handbook can also be used by program managers as a self-assessment process tool.

Using this approach, Air Force managers will get a clear picture of the program's logistics health and its readiness for upcoming milestone decisions. The ILA process and this handbook are intended as a resource for both assessors and program managers to ensure successful life-cycle logistics and performance-based support programs. Applying a disciplined approach to conducting these assessments will ensure that new systems are fielded with support systems in place to optimize the warfighter's ability to meet mission performance requirements.

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Independent Logistics Assessment Handbook

1. Independent Logistics Assessment (ILA) Overview.

1.1. Purpose.

This handbook is designed as guidance for the use of ILA team members (subject matter assessors) to determine the sufficiency of a program's overall product support and sustainment planning and implementation prior to acquisition milestones and major decisions. The ILA results shall be the basis for the program's Product Support Planning and Implementation certification recommendation in support of the acquisition Milestones B and C and the Full Rate Production (FRP) decisions. Additionally, this handbook supports assessment of Performance Based Logistics (PBL) implementation and program logistics support before Initial Operational Capability (IOC) and Full Operational Capability (FOC) to ensure timely awareness of potential deficiencies requiring immediate attention and corrective action.

1.2. Applicability.

ILAs should be performed for all non-space acquisition programs for systems that are developed, operated, maintained, and supported by the Air Force (including Air Force Special Programs and joint-Service programs, regardless of whether the Air Force is the executive, participating, or lead Service). Direction and specific requirements for conducting ILAs will be provided in a separate implementing instruction.

1.3. Timing.

Scheduling requirements and processes for ILAs will be provided in a separate implementing instruction. However, ILAs must be conducted with sufficient lead time to provide the necessary assurance that product support planning and implementation is adequate at major acquisition decisions points.

1.4. Guidance.

The following additional guidance addresses product support and sustainment planning requirements: Department of Defense (DoD) Directive (DODD) 5000.1, *The Defense Acquisition System*; DoD Instruction (DODI) 5000.2, *Operation of the Defense Acquisition System*; *Defense Acquisition Guidebook*; Air Force Policy Directive (AFPD) 20-5, *Air Force Product Support Planning and Management*; Air Force Instruction (AFI) 63-107, *Integrated Product Support Planning and Assessment*; AFI 63-101, *Operations of Capabilities Based Acquisition System*; AFI 10-602, *Determining Mission Capability and Supportability Requirements*.

2. Guidance for Conducting Assessments.

2.1. The ILA results provide the Program Manager (PM), PEO, Product Center Commander or Air Logistics Center Commander (ALCs/CC), and Milestone Decision Authority (MDA) with a measure of a program's logistics support. The assessment process outlined in this handbook provides an effective methodology for evaluating risk, life-cycle costs (LCCs), supportability, and support system performance from a Total Life-Cycle Systems Management (TLCSM) perspective. Assessments that verify the adequacy of product support and sustainment planning

and implementation before each acquisition milestone and major decision are encouraged in a number of DoD and Air Force guiding documents.

2.2. In *Designing and Assessing Supportability in DoD Weapon Systems: A Guide to Increased Reliability and Reduced Logistics Footprint*, the Under Secretary of Defense for Acquisition, Technology and Logistics (USDAT&L)) emphasizes that acquisition PMs and their teams need to design and then assess the effectiveness of their TLCSM responsibilities. It suggests that system operational effectiveness is maximized through a disciplined program of supportability assessments aligned with traditional major milestones. Accordingly, this guidance calls for the Services to establish an ILA process.

> 2.2.1. The *DoD Template for Application of TLCSM and PBL in the Weapon System Life-Cycle* supports the PM's efforts to ensure effective sustainment is addressed. TLCSM requires a life-cycle focus for the implementation, management, and oversight of all activities associated with the acquisition, development, production, fielding, sustainment, and disposal of a DoD weapon or materiel system. The PM is designated as the Total Life-Cycle System Manager and is responsible for effective and timely product support to ensure performance, availability, and supportability of a system throughout its life cycle.
>
> 2.2.2. PMs are charged with implementing life-cycle logistics in systems engineering to increase reliability and reduce the logistics footprint in the early stages of the acquisition process and subsequently providing effective life-cycle product support using PBL strategies. Figure 2-1, Life-Cycle Logistics in TLCSM, articulates this concept.
>
> 2.2.3. In *PBL: A Program Manager's Product Support Guide*, the emphasis is on designing for increased reliability and reduced logistics footprint and providing effective, affordable product support through PBL strategies. The *Program Manager's Guide to Buying Performance*, the Assistant Deputy Under Secretary of Defense (Logistics Plans and Programs) states that PBL will apply to "new programs or major modifications, or as they reengineer product support strategies for legacy weapon systems." PMs must apply PBL as the DoD-preferred product support strategy to improve weapon system readiness by procuring performance that leverages integrated logistic chains and public private partnerships. These guides call on PMs to apply life-cycle systems engineering processes to identify and continuously assess supportability requirements for the system.

2.3. DODD 5000.1 directs PMs to focus on logistics considerations early in the design process to ensure that reliable, cost-effective, and supportable systems are fielded to achieve peacetime and wartime readiness requirements. Assessments are conducted to assist PMs in accomplishing these objectives and should encompass all programmatic aspects that address or affect supportability and readiness. The ILA process provides the PEO and the MDA independent and objective evaluations of a program's logistics health at each acquisition milestone.

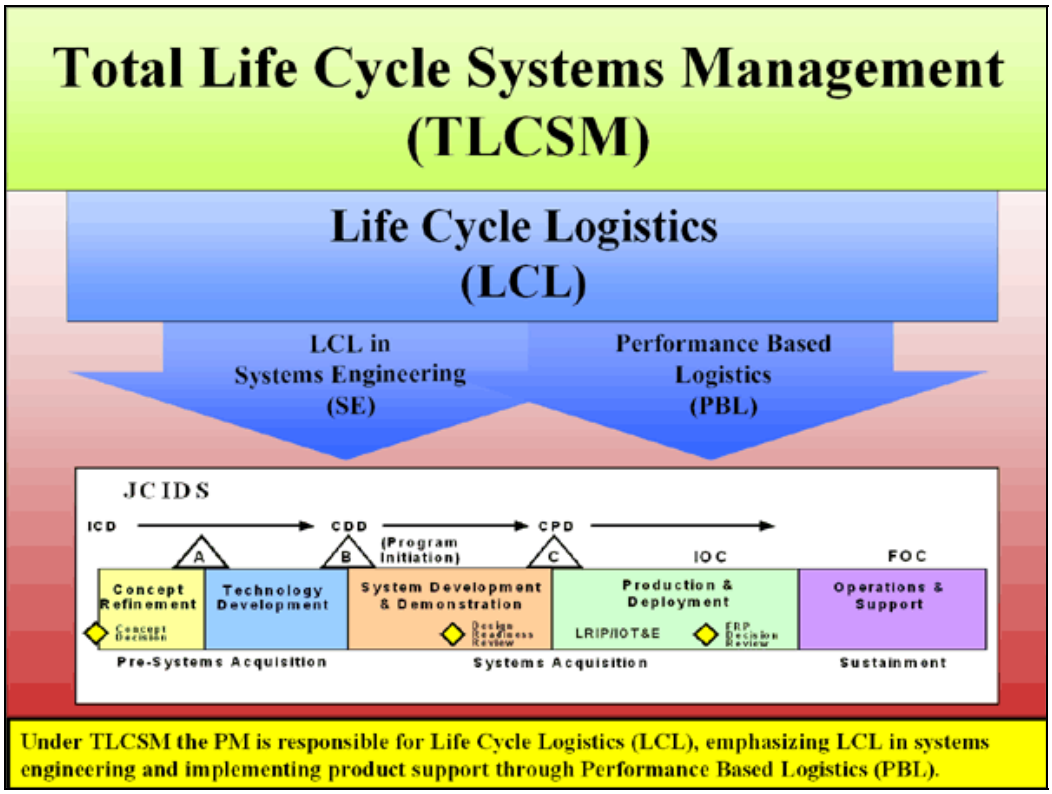


Figure 2-1. Life-Cycle Logistics in TLCSM
Defense Acquisition Guidebook

2.4. DODI 5000.2 requires the Acquisition Strategy (AS) to be updated for all major decisions and states that programs may not proceed beyond a decision point without a MDA-approved strategy. As a major part of the AS, the support strategy describes the supportability planning, analyses, and tradeoffs used to determine the optimum support concept for a system. It also identifies the strategies for continuous affordability improvements throughout the product life-cycle. By Milestone B, the support strategy will define how the program will address the support and fielding requirements necessary to meet readiness and performance objectives, lower Total Ownership Cost (TOC), and reduce programmatic and technical risks.

2.4.1. The *Defense Acquisition Guidebook* suggests that independent assessments be used to support the orderly and timely progression of programs through the acquisition process. It further states that Integrated Product Teams (IPTs) shall have access to independent assessments to enable full and open discussion of issues and that senior acquisition officials shall consider these assessments when making acquisition decisions.

2.4.2. The Defense Acquisition Framework integrates activities of the Joint Capabilities Integration and Development System (JCIDS), the Defense Acquisition System and the Planning, Programming, Budgeting and Execution System to develop and sustain warfighter capabilities. Appendix A provides a graphic overview to help the user understand the Logistics/Sustainment elements of this framework and the corresponding inputs and outputs by phase of the Defense Acquisition System. These inputs and outputs

represent how a product support strategy is developed, implemented, and maintained to ensure effective system life-cycle support. Assessments provide MDAs with verification that these processes critical to life-cycle logistics have been planned and implemented effectively.

2.5. Air Force product support and sustainment guidance is articulated in the policy directives and instructions indicated in Section 1.4. Air Force product support strategies must focus on integrating effective logistics processes on all weapon systems throughout their life cycles while improving the warfighter's ability to perform the mission. Product support is defined as the package of support functions necessary to maintain the readiness and operational effectiveness of weapon systems, subsystems, and support systems. Therefore, product support planning must begin early in the acquisition phase of a weapon system, preferably in the Concept and Technology Development Phase, and provide for a seamless transition to sustainment.

2.5.1. The Air Force product support philosophy integrates the process for the development and ongoing review and maintenance of a product support strategy during the acquisition and sustainment phases of the weapon system life cycle. Achieving a life-cycle focus on weapon system sustainment cost requires a seamless, integrated, continuing process to assess and improve product support strategies.

3. Using the ILA Handbook.

3.1. Use of Handbook.

This handbook is designed for the use of ILA team members (See Section 5.0) to determine the sufficiency of program product support and sustainment planning and implementation for upcoming acquisition milestones and major decisions. ILA team assessors should use the information provided in this handbook to assist them in reviewing specific logistics support aspects, (e.g., configuration management, maintenance, or manpower) of the program's acquisition documentation. The goal of this handbook is to promote high-quality assessments regardless of the user's level of experience.

3.2. Scope of Handbook.

This handbook is designed to be used as a tool for conducting ILAs on all Acquisition Category (ACAT) programs and provides logistics evaluation criteria that can be applied to all Air Force programs. This document does not take precedence over existing statutes, regulations, or policy statements. The criteria provided in the checklists are not platform-specific or system-specific; rather, they are evaluation elements that should be tailored to the specific program being assessed and its phase of the life cycle.

3.3. Key Sections of the Handbook.

3.3.1. Section 2 of the ILA Handbook highlights overarching DoD and Air Force guidance regarding developing and assessing product support strategies. This information is supplemented with a graphic depiction of selected elements from the Integrated Defense Acquisition Framework in Appendix A.

3.3.2. Section 4 of the ILA Handbook provides a detailed description of the expectations for each step of the general assessment process. These steps are supplemented by

information regarding the linkage between Reliability, Availability and Maintainability (RAM) and the sustainment elements in Appendix B and by checklists in Appendix D that provide specific evaluation criteria for those elements. Additionally, a recommended list of documents to review for each milestone is provided in Appendix C.

3.3.3. Section 5 discusses management of the actual assessment process to include interface with the PM before, during and after the assessment. This section provides assessment rating criteria for each logistics element as well as overall logistics program certification criteria.

3.3.4. Section 6 provides a discussion of PBL strategies and is supplemented by evaluation criteria in Appendix F.

3.3.5. Appendix E provides additional evaluation criteria to assess program logistics support prior to IOC and FOC.

3.4. ILA Checklists Overview.

The checklists containing the ILA evaluation criteria are provided in Appendix D. ILA team members should be assigned to cover each of the areas relevant to the phase in the life cycle of the program under evaluation. These checklists include evaluation criteria to address the following areas:

- Warfighter Performance Requirements
- PM Approach to TLCSM
- Product Support Management
- Product Support Budgeting and Funding
- Contract Logistics Considerations
- Sustainment Elements of Integrated Master Plan (IMP) and Schedule (IMS)
- Individual Sustainment Element

3.4.1. Detailed assessments of the sustainment elements and whether those elements have been satisfactory integrated are at the heart of the ILA process. The strength of product support planning and implementation in these areas is the true measure of a program's logistics readiness. Product support strategies are built around the sustainment elements to integrate the acquisition and sustainment phases of a weapon system throughout its life cycle. Table 3-1 identifies the scope of each sustainment element. Although other areas are addressed in the assessment such as TLCSM, contracts and schedules, the ratings outlined in Section 5 will focus primarily on the sustainment elements.

Table 3-1. Sustainment Elements

Sustainment Elements	
Manpower	The human resource affordability of a system; the number of people needed to train, operate, maintain, administer, and support the system.
Personnel	The types and levels of knowledge, skills, and abilities required to optimize total system performance; includes both operators, support personnel and all levels of maintainers.
Maintenance	The orderly arrangement of all maintenance support, including support equipment (SE) and facilities, to keep systems and equipment ready to perform assigned missions. This includes all levels of maintenance and implementation of those levels.
Supportability	A design characteristic stated in operational terms, achieved and sustained through the life cycle. Examples of supportability factors are deployment, mobility, mission frequency, human capabilities, software/hardware, and anticipated service life.
Systems Engineering	An approach to translate approved operational needs and requirements into operationally suitable blocks of systems. The approach consists of a top-down iterative process, throughout the system life cycle, of requirements analysis, functional analysis and allocation, and design synthesis and verification for maintainability, reliability, interoperability, survivability, and Environment, Safety and Occupational Health (ESOH) risk mitigation.
Data Management	An integrated data system that captures and controls the technical baseline, provides data correlation and traceability, facilitates technology insertion for affordability improvements during post-production support, supports configuration procedures and serves as a reference for planning the system engineering effort. Includes addressing technical data, e.g., drawings, technical and commercial operating, calibration and repair manuals, and specifications.
Supply	Selection of sources of supply support, including support management functions that maximize service to the user while minimizing cost. Addresses provisioning data, initial spares, deployment spares and replenishment spares. It includes all necessary actions when determining the requirements to acquire, catalog, mark, receive, store, transfer, issue and dispose of materiel.
Transportation	Includes requirements, procedures, processes, resources, design considerations and methods necessary to ensure that all systems, equipment and support items are preserved, packaged, handled, stored, and transported properly.
Configuration Management	The process that controls the system products, processes, and related documentation. It includes identifying, documenting, and verifying the functional and physical characteristics, and recording and controlling changes of an item and its documentation.
Training	Includes the processes, procedures, techniques, and equipment used to train active-duty, reserve, and civilian personnel (both individuals and crews) to operate and maintain a system throughout its life cycle.

3.4.2. The ILA process outlined in this handbook focuses on program readiness for Acquisition Milestones B, C and the FRP decision. Well-conceived product support strategies and rigorous systems engineering supplemented with a disciplined assessment process lay a solid foundation of logistics support for achieving desired system performance. However, these logistics programs should be assessed again before IOC and FOC to rid product support of deficiencies that may still exist and to improve the overall weapons system.

3.4.3. PBL is DoD's preferred product support strategy. Its successful implementation will optimize system readiness while reducing the system's logistics demand. Additional evaluation criteria provided will help PMs assess their implementation of PBL strategies.

4. Independent Logistics Assessment Process and Criteria.

The purpose of an ILA is to make certain that the system in acquisition can be supported effectively both during the acquisition process and throughout its service life. The ILA will assess the product support management processes needed to achieve the warfighter performance objectives outlined in applicable capabilities documents. In addition to assessing product support planning for the sustainment elements, planning documents should be reviewed to ensure that they project effective product support strategies. Product support planning and implementation processes must demonstrate sufficient life-cycle management planning to promote effective program management and execution of the activities necessary to acquire and subsequently sustain the product successfully. Additionally, assessments of logistics support programs before IOC and FOC ensure timely awareness of potential deficiencies requiring immediate attention and corrective action to affect a successful IOC and FOC.

4.1. Steps of the Assessment Process.

The general assessment steps displayed in Figure 4-1, General Assessment Process, should be followed when conducting an ILA. These steps provide a methodical way to execute the assessment process. ILA team leaders are not constrained to the sequence as outlined, but instead should ensure that aspects appropriate to the acquisition program and phase of the life cycle are addressed in the course of the ILA process. Each of these steps is discussed in more detail in the Appendix G.

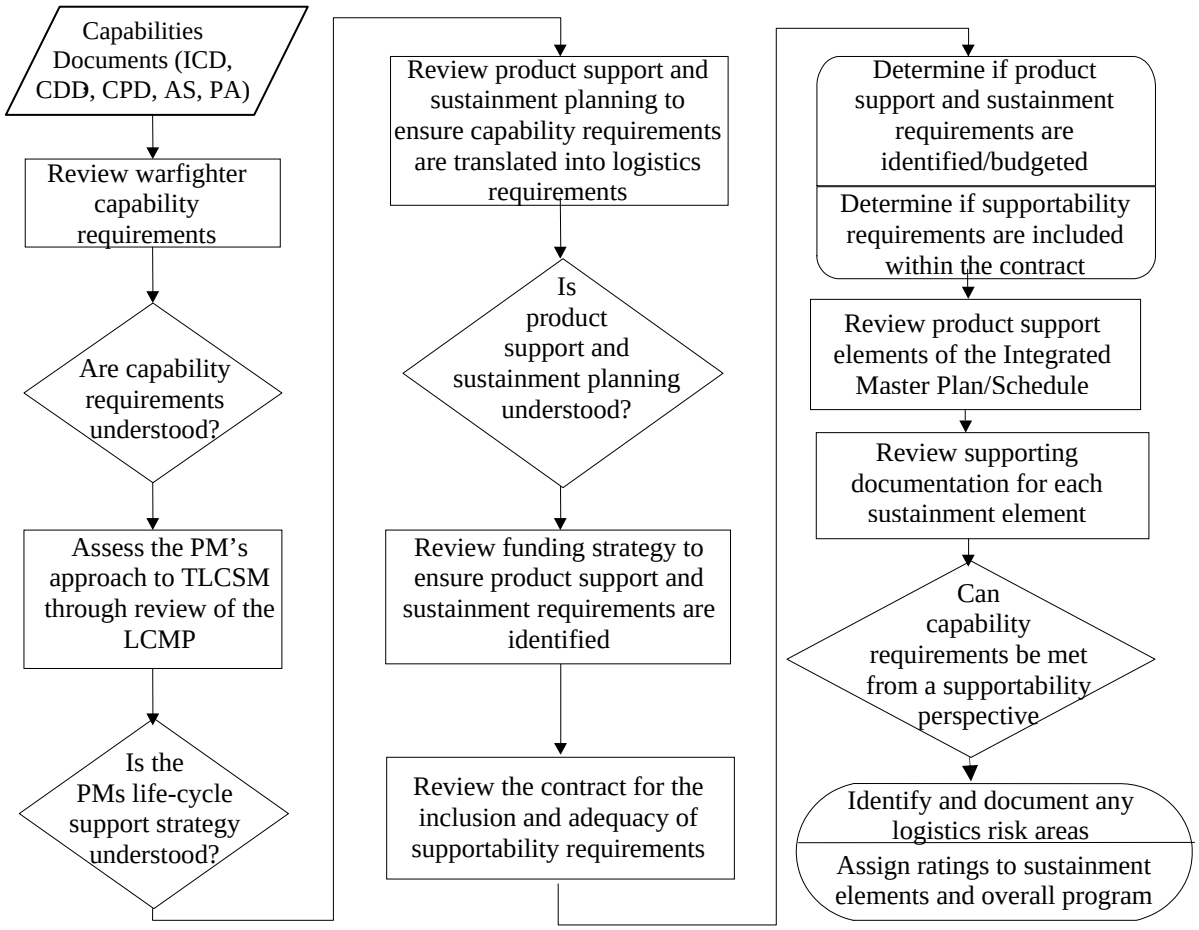


Figure 4-1. General Assessment Process

5. <u>Management of the Assessment.</u>

This section provides guidance for organizing, planning, conducting, documenting and reporting of an ILA.

5.1. Team Membership and Responsibilities.

The PEO, PM, Product Center/ALC Commander with the support of the Center's Acquisition Center of Excellence (ACE) must designate a qualified team leader and provide resources to establish an assessment team. The team leader is responsible for selecting qualified team members also with the support of the Center ACE. Qualifications for team leaders and members are as follows:

- Background/Experience: Team leaders must be Government employees who possess the necessary skills, knowledge, and experience to conduct an ILA. Logistics Managers, PM's, and Systems Engineers may all be qualified to be team leaders depending on their background/experience. It is preferable that a team leader candidate have participated in at least one ILA. Team members can be

drawn from any area of competency, but consideration should be given to prior experience in logistics.

- Independence: To avoid a conflict of interest, team leaders and members must be independent of the program. Independence is defined as an individual who is not actively involved in the design, test, production, or logistics planning of the program, either from the Systems Wing, Squadron, or Group Program Office (PO), supporting field activity or a member of the contractor activity. Independent contracting firms may participate as team members.

- Warfighter representation: As the users/maintainers of the system being reviewed, warfighter representatives are critical to the success of an ILA and must be invited to participate. Warfighter representatives need to be experienced personnel from their respective career fields and meet the background or experience and independence requirements stated above. Selection and scheduling of warfighter representation should be done through the appropriate lead command.

5.1.1. Team Leader Responsibilities.
The team leader is responsible for the following actions:

- Define the scope of the assessment in coordination with the PO
- Identify stakeholders
- Coordinate security requirements
- Approve team members recommended by the Center ACE
- Ensure each checklist is assigned to a team member
- Ensure documentation provided is appropriate for the assessment phase
- Establish a plan of action and milestones (POA&M) for conducting the ILA
- Prepare and deliver an in-brief, periodic progress reports, and a final out-brief to the PM and designated PO representatives
- Interface with the PO and the team members
- Prepare and issue a final report

5.2. Scheduling and Notification of ILAs.
ILAs should be scheduled and completed prior to acquisition milestones B and C as well as the FRP decision point. Scheduling must allow time to complete the ILA and issue the report to stakeholders in sufficient time before the major decision to effect needed changes.

5.2.1. Formal correspondence announcing the ILA should include the dates of the ILA, the scope, the team leader and members, the meeting site, the schedule, the agenda, security and point of contact information. The correspondence should be distributed to the participants and stakeholders at least four weeks before the ILA. Further guidance regarding scheduling and notification procedures will be addressed in the implementing instruction.

5.3. Documentation Request.
All team members should be aware of applicable policy directives as part of the

assessment process. Each team member should also review program documentation affecting their assigned area. The Documentation Request List provided in Appendix C should be used as a baseline for forming the documentation request and tailored to match the program and acquisition phase. The scope and depth of logistics support information in these documents can vary significantly from program to program and by acquisition phase. The PO is responsible for providing the required information to the ILA team. The requested documentation should be received by the ILA team no later than four weeks before the ILA. This will minimize time spent obtaining documentation time during the actual review period and provide team members the opportunity to review the documents in advance of the ILA.

5.4. Meetings and Presentations.

Before, during, and at the completion of an ILA, it is critical that meetings and presentations be conducted to communicate expectations and should include PM presentations, updates, and discussions. A discussion of these meetings and presentations is provided in Appendix H to ensure there is a standard ILA assessment and reporting process in place.

5.5. ILA Final Report.

The ILA team leader is responsible for preparing the ILA final report, coordinating it with the PO, and submitting it to the PM, as well as the appropriate PEO, Product Center Commander and/or ALC Commander. The MDA should use the report to verify the adequacy of the program's product support planning and implementation prior to the milestone decision. The ILA team leader will provide information copies of the final report to AFMC/LG, Secretary of the Air Force (SAF)/AQ, SAF/IE, AF/IL, and appropriate warfighter stakeholders.

5.5.1. The Final Report should clearly distinguish issues that need to be resolved and the time frame for resolution (e.g., before the acquisition milestone decision, contract award, release of the request for proposal, or operational evaluation). All engineering issues should be resolved before release of the RFP and subsequent contract award. The report should contain, at a minimum, the following information:

- Purpose, scope, and dates of the assessment
- A summary of the ratings for each sustainment element
- Overall assessment of the program's product support planning and implementation
- Brief description of the system/equipment
- Listing of team members and areas covered
- All deficiencies/issues identified during the assessment citing specific criteria
- Recommended corrective actions and timelines
- Best practices and other processes of note
- Process or policy barriers that require attention

Table 5-1. Example of Summary of Ratings

Sustainment Element	Rating (example)
Product Support Management	Green
Product Support Budgeting and Funding	Green
Manpower	Yellow
Personnel	Green
Maintenance	Green
Supportability	Green
Systems Engineering	Yellow
Data Management	Green
Supply	Red
Transportation	Yellow
Configuration Management	Green
Training	Green

5.6. Criteria for the Assessment Ratings.

The ILA team will provide an assessment rating for each sustainment element as well as an overall Product Support Planning and Implementation assessment rating for the program. A summary of ratings should be provided at the beginning of the ILA report. Based on the issues within a sustainment element, each element should receive an appropriate rating of red/yellow/green using the criteria outlined in Table 5-2. For areas not assessed, the rationale should be provided. The criteria for the Product Support Planning and Implementation certification recommendation are articulated in Table 5-3.

5.6.1. The team leader should obtain PM concurrence or nonconcurrence on issues/ observations and sustainment element ratings as well as on the overall Product Support Planning and Implementation certification recommendation. An indication of the PM's concurrence/nonconcurrence should be noted in the report. After the final outbrief, the team leader should update the draft ILA report before distribution.

Table 5-2. Sustainment Element Rating Criteria

SUSTAINMENT ELEMENT RATING CRITERIA		
MAJOR (Red)	**MODERATE (Yellow)**	**MINOR (Green)**
COST Supportability cannot be achieved with the planned or currently funded profile, or the funding profile is not adequate or identified.	**COST** Funding for supportability is not available when needed but it is forthcoming (work-around available).	**COST** Minor or no impact to supportability.
SCHEDULE Logistics milestones and requirements cannot be met to support program needs.	**SCHEDULE** There are delays in completion of planned sustainment tasks that impact the ability to meet major sustainment milestones or establish support capability; however, work-arounds have been identified such that the impact on supportability is minimal.	**SCHEDULE** Minor or no impact to supportability.
PERFORMANCE	**PERFORMANCE**	**PERFORMANCE**
Sustainment performance requirements cannot be met.	Budget or schedule issues are impacting sustainment performance requirements. If the identified and available resources are applied, the impact to supportability will be mitigated.	Minor or no impact to supportability.

Table 5-3. Overall Program Assessment Criteria

OVERALL PROGRAM ASSESSMENT CRITERIA		
NOT CERTIFIED (Red)	**CONDITIONALLY CERTIFIED (Yellow)**	**CERTIFIED (Green)**
A program is not certified when there are major product support planning and implementation issues or actions outstanding that have substantial impact on the program's ability to meet sustainment performance requirements within cost and schedule. Further, there are no plans or work-arounds in place that will correct the deficiency. The program should not proceed to a milestone decision until detailed action plans are developed and in place which meet minimum acceptable sustainment performance requirements with acceptable impacts to cost and schedule. Once these plans are in place and properly resourced to the satisfaction of the ILA team lead, PEO sustainment manager, or next echelon of sustainment competency, the program is considered to be conditionally certified.	A program is conditionally certified when product support planning and implementation issues of moderate risk have detailed action plans established and in place. However, the resolution of the deficiency will not occur prior to the milestone decision and requires continued monitoring. Once the action is completed, there is no expected degradation to sustainment performance requirements and minimal impact to cost and schedule. Once identified actions are resolved as verified by the ILA team lead, PEO sustainment manager, or next echelon of sustainment competency, the program is considered certified.	A program is considered certified when there are no (or only minor) product support planning and implementation issues. Each issue has an approved mitigation plan in place to eliminate the deficiency prior to the milestone decision. There is no impact on the program's ability to meet sustainment performance requirements within cost and schedule.

5.7. Corrective Action.

Corrective actions on deficiencies should start as soon as possible, even during the ILA. After the ILA final report is officially released, the PO should establish a formal POA&M to identify steps to mitigate program risks and resolve deficiencies. A corrective action strategy and verification should be coordinated with the team leader. Issues that cannot be resolved between the ILA team leader and PO should be adjudicated by the next echelon of logistics competency, nominally at the Systems/Sustainment Wing Commander or potentially at the PEO/Product Center Commander level. For actions that require completion before proceeding with a milestone decision, the PM should provide written status on their completion to the PEO and MDA. The PEO will inform the SAF/AQ, SAF/IE, AF/IL and appropriate warfighter stakeholders before any decision meetings regarding program deficiencies that resulted in an overall red or yellow assessment as defined in Table 5-3. The

responsibility for tracking and resolution of all of the issues in the report remains with the cognizant PM and the System/Sustainment Wing Commander.

5.8. ILA Process Diagram.

The process outlined in Figure 5-1, ILA Process Overview, provides a general representation of the ILA process. Assessment time and effort should be tailored to correspond to the size and scope of the acquisition program.

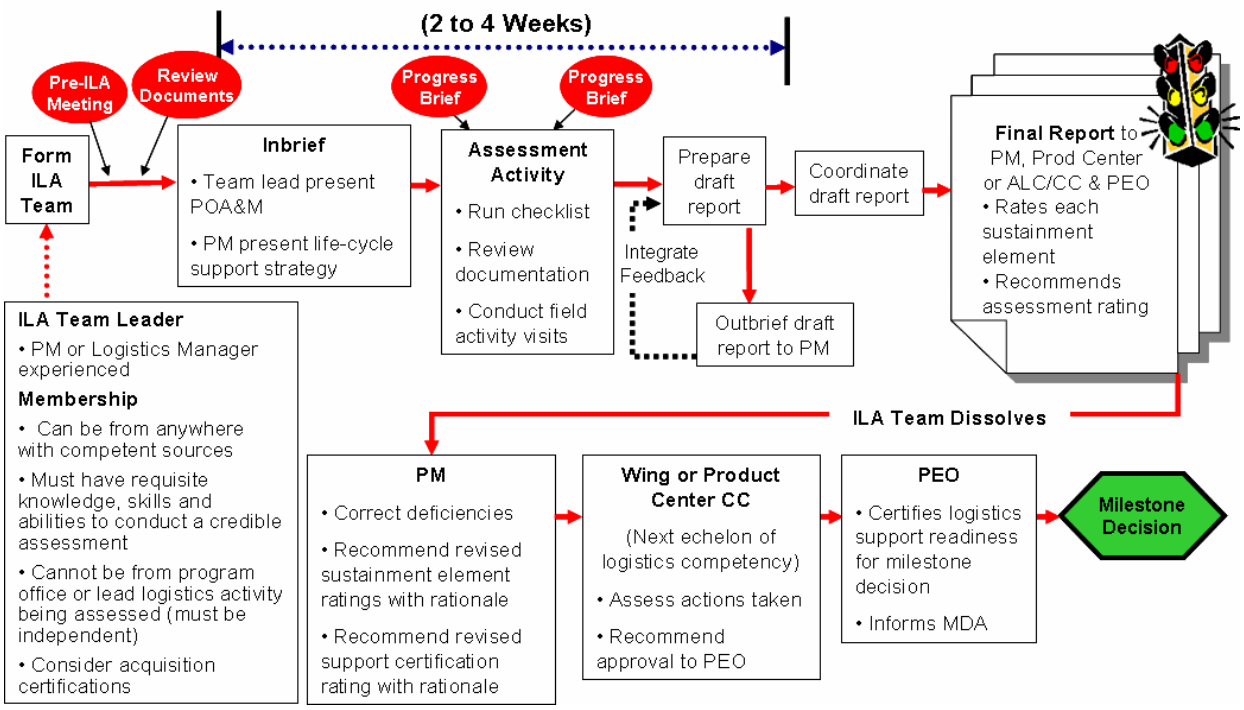


Figure 5-1. ILA Process Overview

6. <u>Performance-Based Logistics (PBL) Assessment Strategy.</u>

The DoD and the military services are transforming from traditional methods of logistics support to PBL as the methodology of product support for the 21st century. The mandate to implement PBL is articulated in DoD Strategic Planning Guidance and USD(AT&L) memoranda and supported with a number of guides for PMs. As DoD's preferred product support strategy, PBL improves weapon system readiness by procuring performance that capitalizes on integrated logistics chains and public-private partnerships (PPPs). The cornerstone of PBL is the effective establishment of weapons system sustainment as an affordable, integrated package, based on output measures such as weapons system availability, rather than input measures such as parts and technical services. Assessing the development and implementation of PBL product support strategies for acquisition programs is an important aspect of preparation for major acquisition decisions and is supported with the information provided in Appendix F.

APPENDICES

A. The Integrated Defense Acquisition Framework -- A Logistics/Sustainment Perspective

B. Relationship between Reliability, Availability and Maintainability Supportability (RAMS)

C. Documentation Request List

D. Evaluation Criteria for Milestones and Full Rate Production (FRP)

E. Evaluation Criteria for IOC and FOC

F. Evaluation Criteria for Performance-Based Logistics (PBL)

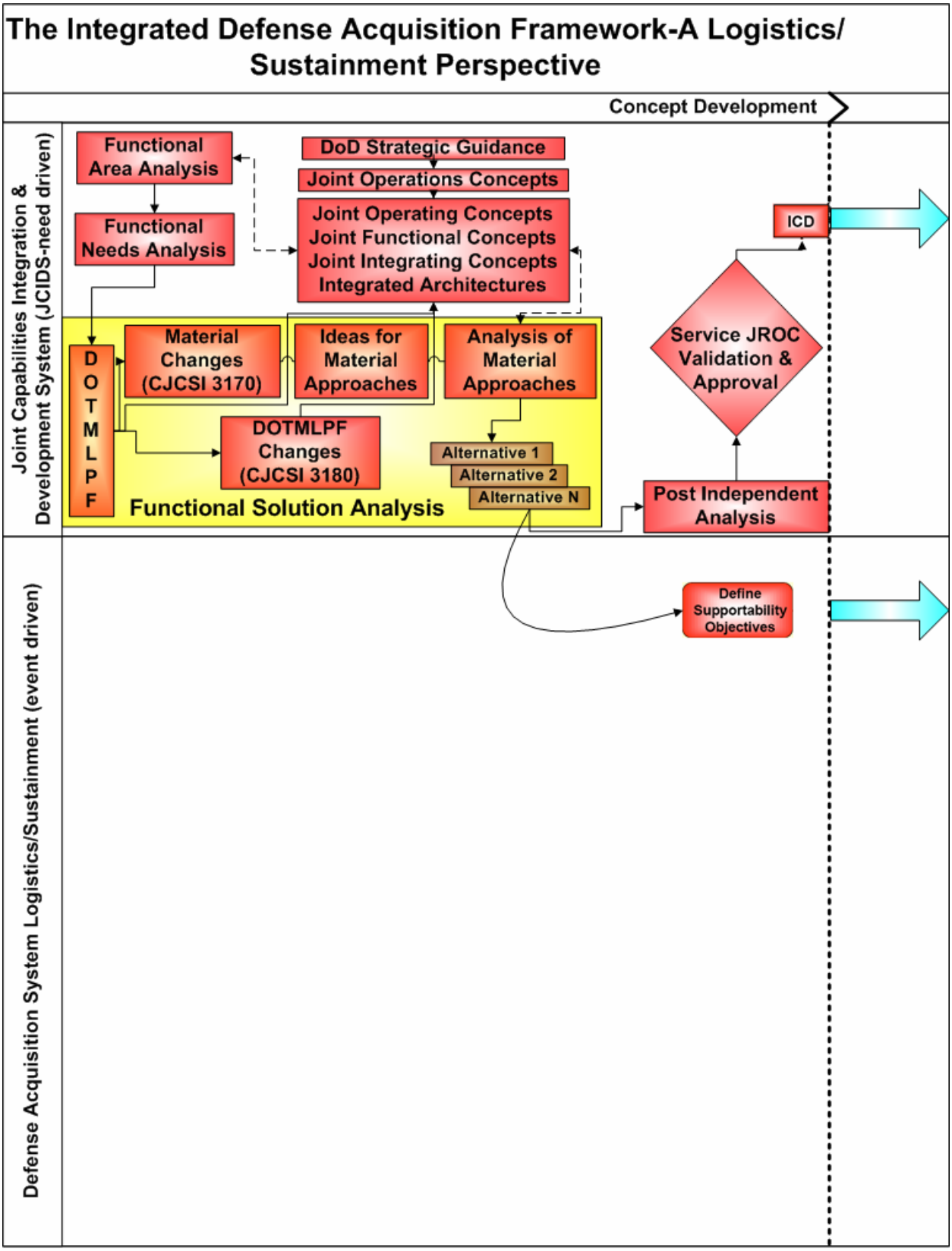
G. ILA Philosophy

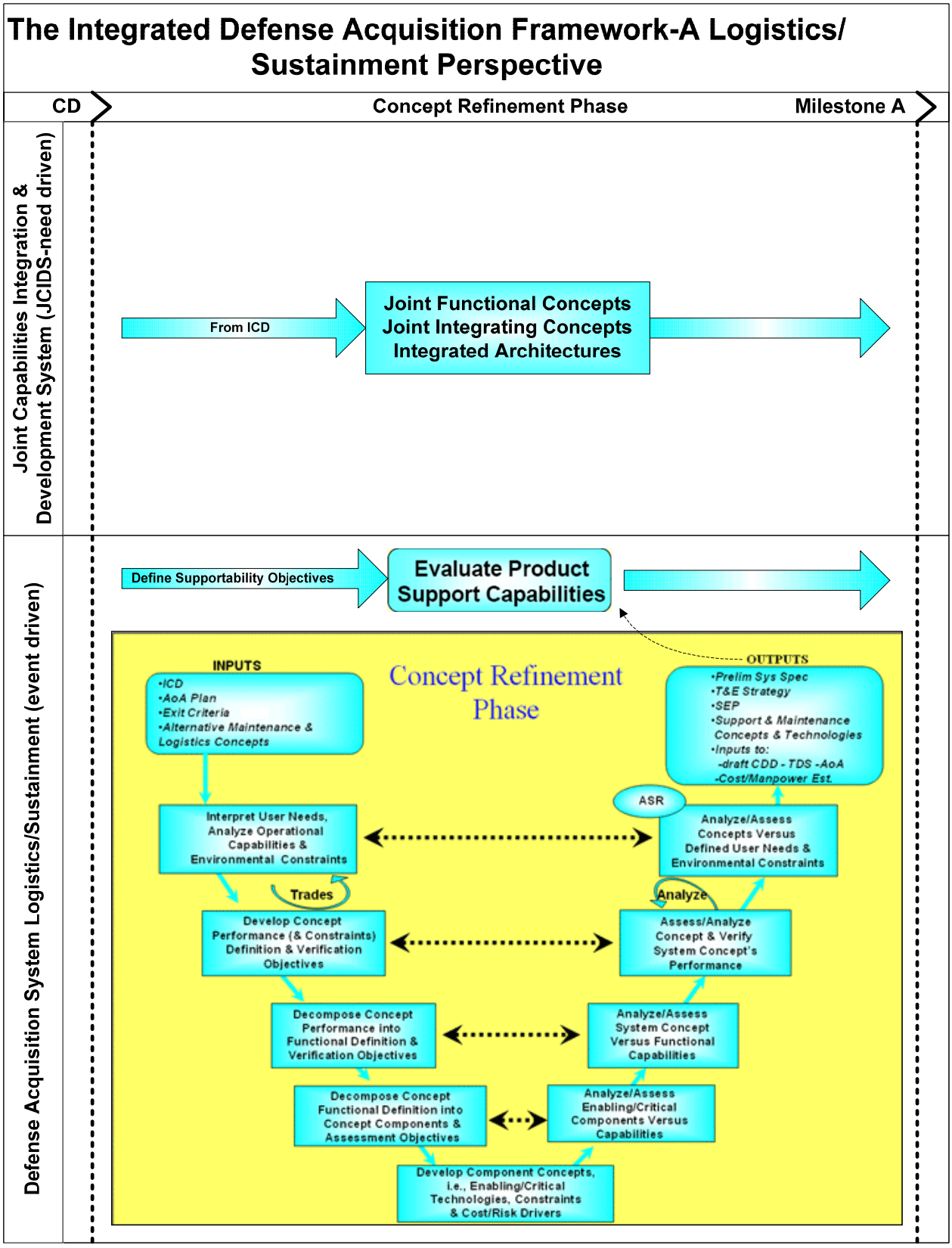
H. ILA Meetings and Presentations

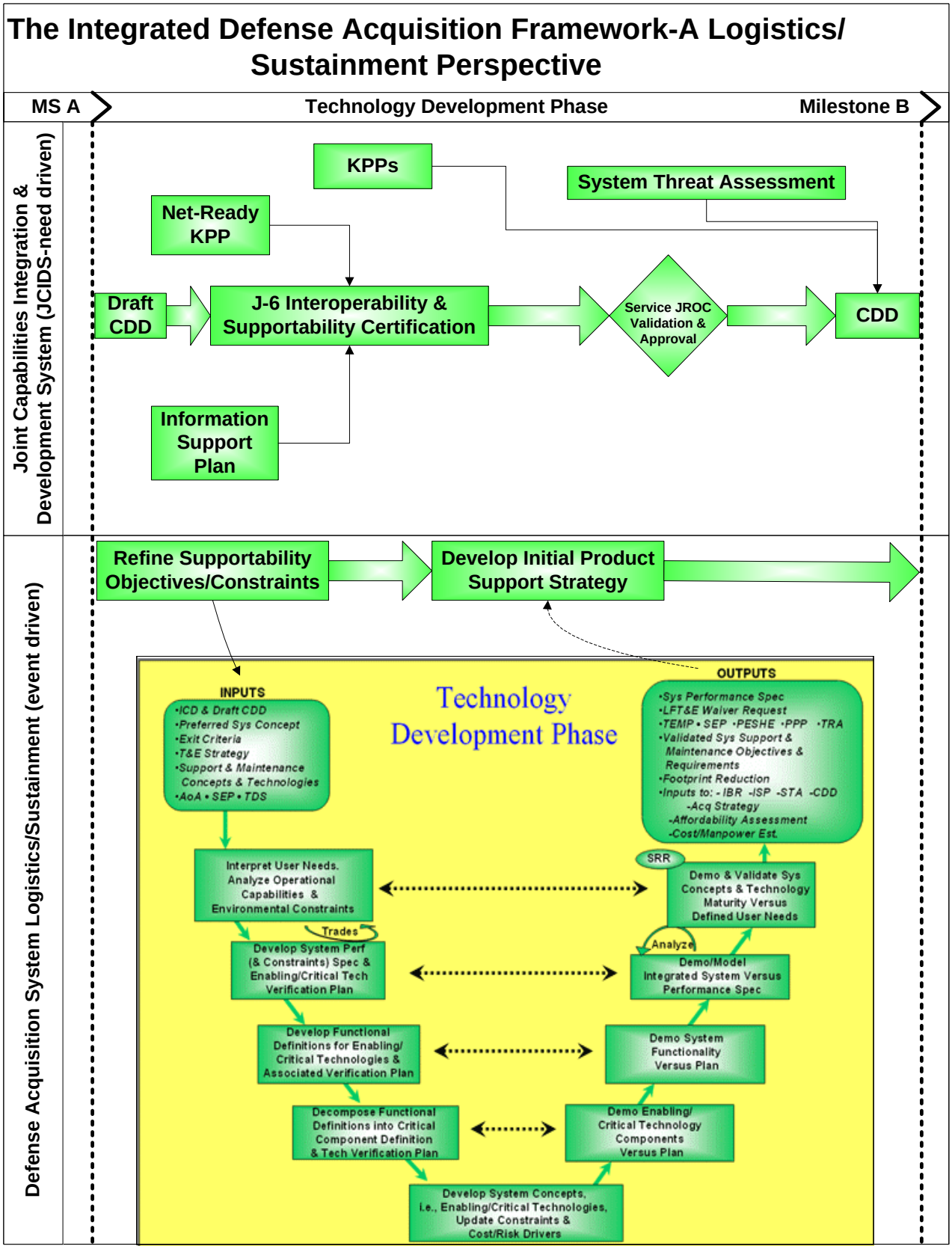
I. Abbreviations and Acronyms

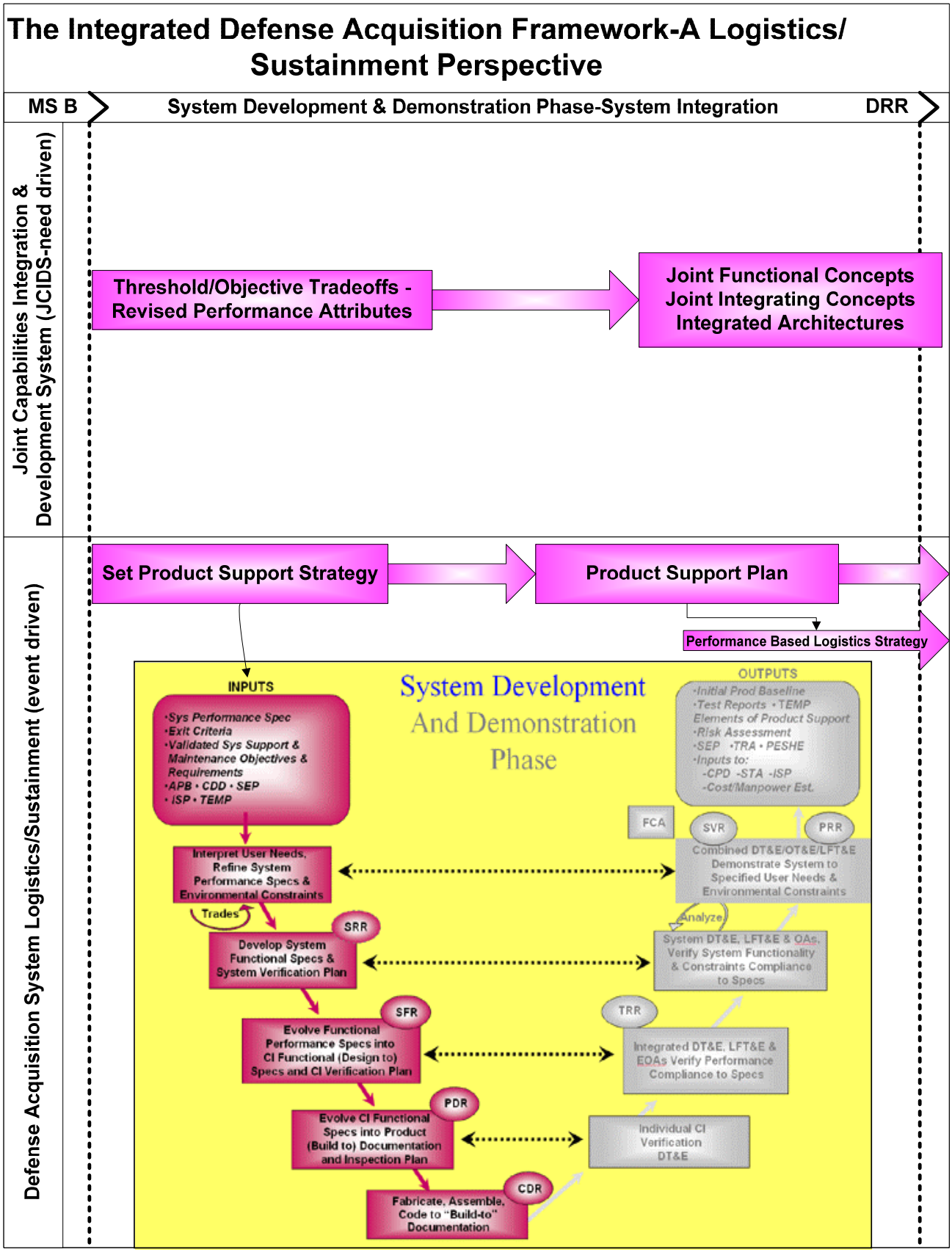
A. The Integrated Defense Acquisition Framework -- A Logistics/Sustainment Perspective

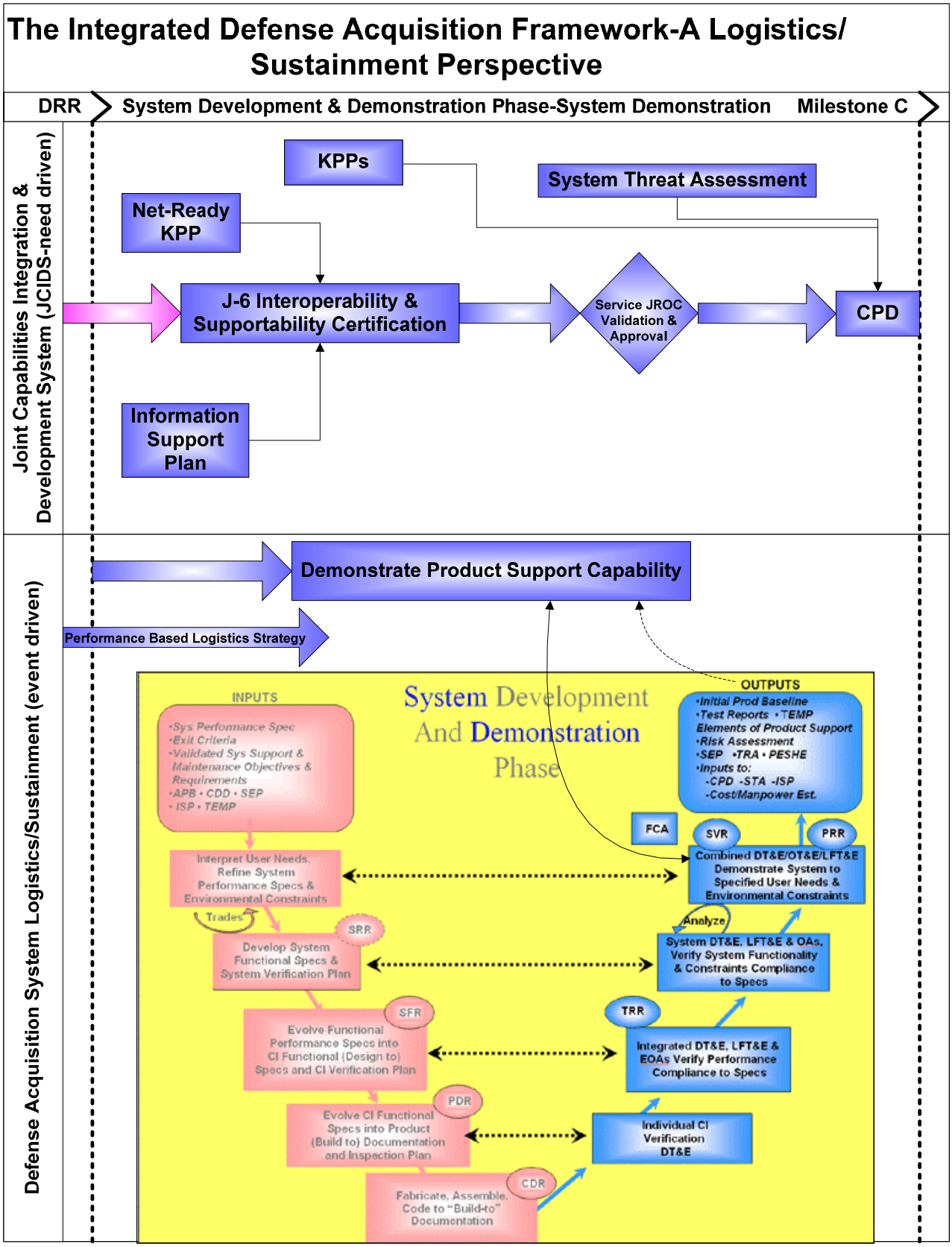
A.1 The following pages show the interaction between the JCIDS, which is need-driven, and the Logistics/Sustainment subsection of the Defense Acquisition System, which is event-driven. It is intended as a visual aid for the ILA team member to help determine if logistics/sustainment actions are occurring at the proper time within the various DoD Acquisition phases. Additionally, the diagram shows how capability requirements flow from and through the JCIDS process.

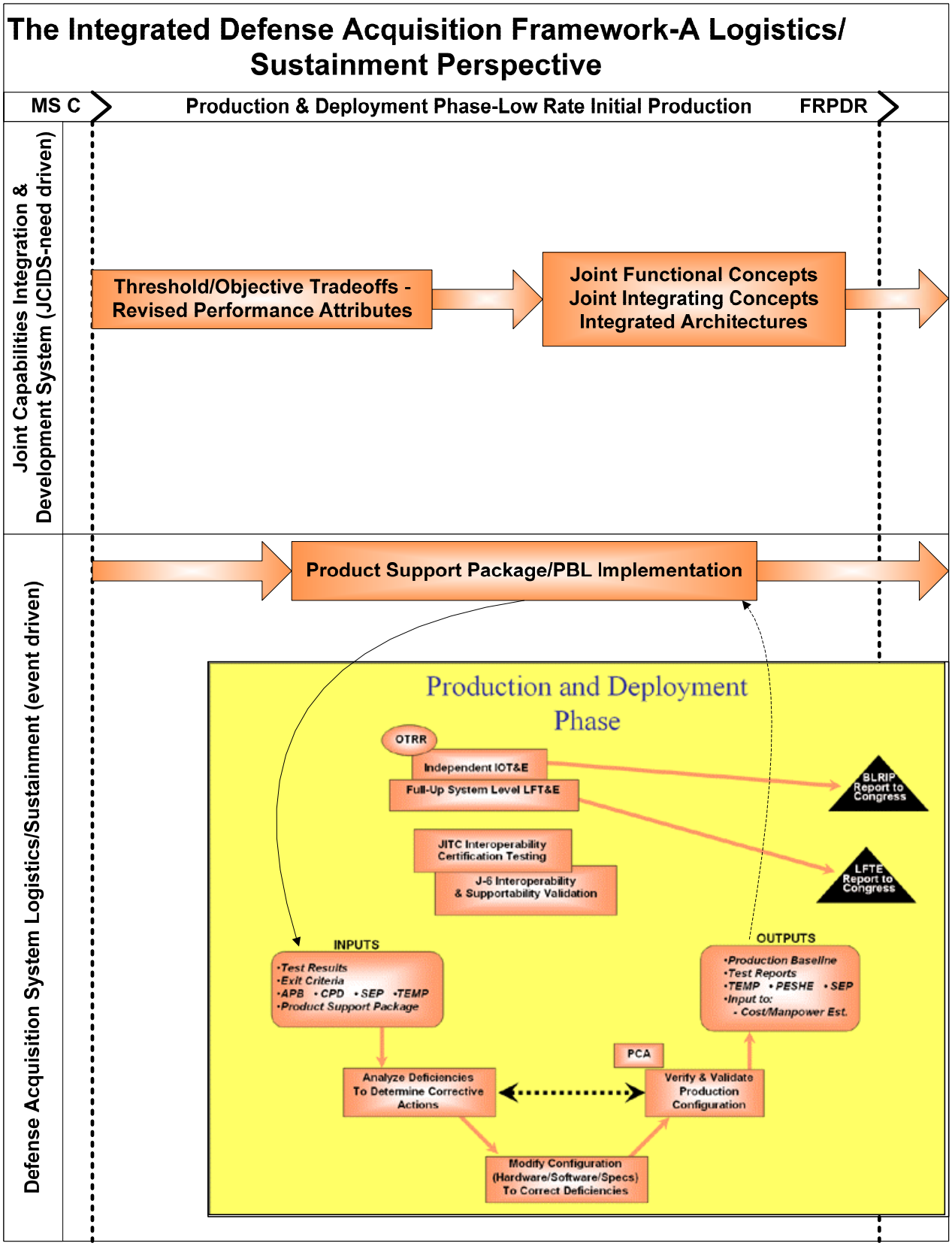

The Integrated Defense Acquisition Framework-A Logistics/ Sustainment Perspective
Concept Development
Joint Capabilities Integration & Development System (JCIDS-need driven)
Functional Area Analysis
Functional Needs Analysis
DoD Strategic Guidance
Joint Operations Concepts
Joint Operating Concepts
Joint Functional Concepts
Joint Integrating Concepts
Integrated Architectures
ICD
D O T M L P F
Material Changes (CJCSI 3170)
Ideas for Material Approaches
Analysis of Material Approaches
Service JROC Validation & Approval
DOTMLPF Changes (CJCSI 3180)
Alternative 1
Alternative 2
Alternative N
Functional Solution Analysis
Post Independent Analysis
Defense Acquisition System Logistics/Sustainment (event driven)
Define Supportability Objectives

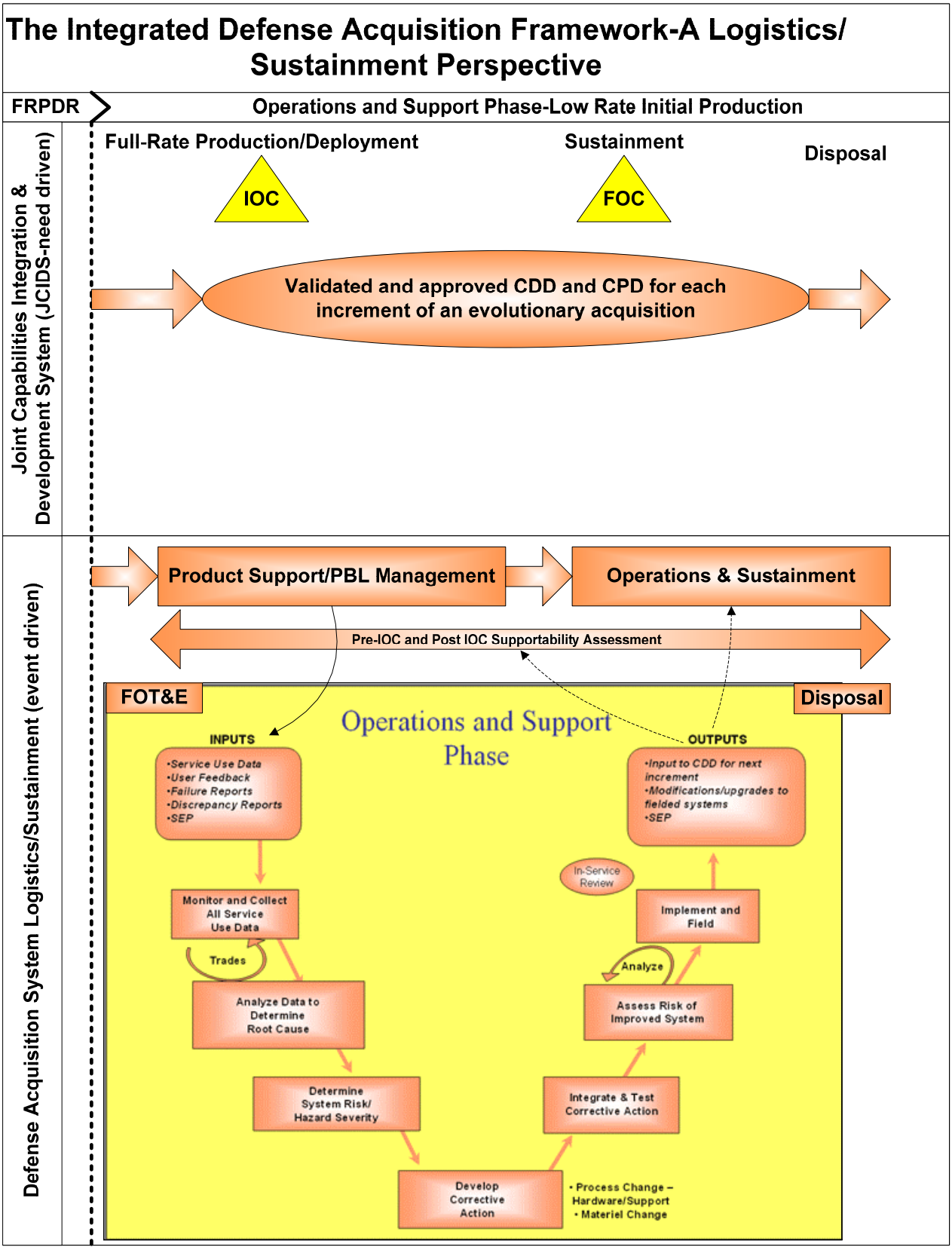

The Integrated Defense Acquisition Framework-A Logistics/ Sustainment Perspective
CD
Concept Refinement Phase
Milestone A
Joint Capabilities Integration & Development System (JCIDS-need driven)
From ICD
Joint Functional Concepts
Joint Integrating Concepts
Integrated Architectures
Defense Acquisition System Logistics/Sustainment (event driven)
Define Supportability Objectives
Evaluate Product Support Capabilities
Concept Refinement Phase
INPUTS
•ICD
•AoA Plan
•Exit Criteria
•Alternative Maintenance & Logistics Concepts
OUTPUTS
•Prelim Sys Spec
•T&E Strategy
•SEP
•Support & Maintenance Concepts & Technologies
•Inputs to:
-draft CDD - TDS - AoA
-Cost/Manpower Est.
ASR
Interpret User Needs, Analyze Operational Capabilities & Environmental Constraints
Analyze/Assess Concepts Versus Defined User Needs & Environmental Constraints
Trades
Analyze
Develop Concept Performance (& Constraints) Definition & Verification Objectives
Assess/Analyze Concept & Verify System Concept's Performance
Decompose Concept Performance into Functional Definition & Verification Objectives
Analyze/Assess System Concept Versus Functional Capabilities
Decompose Concept Functional Definition into Concept Components & Assessment Objectives
Analyze/Assess Enabling/Critical Components Versus Capabilities
Develop Component Concepts, i.e., Enabling/Critical Technologies, Constraints & Cost/Risk Drivers


The Integrated Defense Acquisition Framework-A Logistics/ Sustainment Perspective
MS A
Technology Development Phase
Milestone B
Joint Capabilities Integration & Development System (JCIDS-need driven)
KPPs
System Threat Assessment
Net-Ready KPP
Draft CDD
J-6 Interoperability & Supportability Certification
Service JROC Validation & Approval
CDD
Information Support Plan
Defense Acquisition System Logistics/Sustainment (event driven)
Refine Supportability Objectives/Constraints
Develop Initial Product Support Strategy
Technology Development Phase
INPUTS
•ICD & Draft CDD
•Preferred Sys Concept
•Exit Criteria
•T&E Strategy
•Support & Maintenance Concepts & Technologies
•AoA • SEP • TDS
OUTPUTS
•Sys Performance Spec
•LFT&E Waiver Request
•TEMP • SEP •PESHE •PPP •TRA
•Validated Sys Support & Maintenance Objectives & Requirements
•Footprint Reduction
•Inputs to: - IBR -ISP -STA -CDD
-Acq Strategy
-Affordability Assessment
-Cost/Manpower Est.
Interpret User Needs, Analyze Operational Capabilities & Environmental Constraints
Trades
Develop System Perf (& Constraints) Spec & Enabling/Critical Tech Verification Plan
Develop Functional Definitions for Enabling/ Critical Technologies & Associated Verification Plan
Decompose Functional Definitions into Critical Component Definition & Tech Verification Plan
Develop System Concepts, i.e., Enabling/Critical Technologies, Update Constraints & Cost/Risk Drivers
Demo Enabling/ Critical Technology Components Versus Plan
Demo System Functionality Versus Plan
Demo/Model Integrated System Versus Performance Spec
Analyze
SRR
Demo & Validate Sys Concepts & Technology Maturity Versus Defined User Needs


The Integrated Defense Acquisition Framework-A Logistics/ Sustainment Perspective
MS B
System Development & Demonstration Phase-System Integration
DRR
Joint Capabilities Integration & Development System (JCIDS-need driven)
Threshold/Objective Tradeoffs - Revised Performance Attributes
Joint Functional Concepts
Joint Integrating Concepts
Integrated Architectures
Defense Acquisition System Logistics/Sustainment (event driven)
Set Product Support Strategy
Product Support Plan
Performance Based Logistics Strategy
System Development And Demonstration Phase
INPUTS
•Sys Performance Spec
•Exit Criteria
•Validated Sys Support & Maintenance Objectives & Requirements
•APB • CDD • SEP
• ISP • TEMP
OUTPUTS
•Initial Prod Baseline
•Test Reports • TEMP
Elements of Product Support
•Risk Assessment
•SEP •TRA • PESHE
•Inputs to:
-CPD -STA -ISP
-Cost/Manpower Est.
Interpret User Needs, Refine System Performance Specs & Environmental Constraints
Trades
SRR
Develop System Functional Specs & System Verification Plan
SFR
Evolve Functional Performance Specs into CI Functional (Design to) Specs and CI Verification Plan
PDR
Evolve CI Functional Specs into Product (Build to) Documentation and Inspection Plan
CDR
Fabricate, Assemble, Code to "Build-to" Documentation
FCA
SVR
PRR
Combined DT&E/OT&E/LFT&E Demonstrate System to Specified User Needs & Environmental Constraints
Analyze
System DT&E, LFT&E & OAs, Verify System Functionality & Constraints Compliance to Specs
TRR
Integrated DT&E, LFT&E & EOAs Verify Performance Compliance to Specs
Individual CI Verification DT&E


The Integrated Defense Acquisition Framework-A Logistics/ Sustainment Perspective
DRR
System Development & Demonstration Phase-System Demonstration
Milestone C
Joint Capabilities Integration & Development System (JCIDS-need driven)
KPPs
System Threat Assessment
Net-Ready KPP
J-6 Interoperability & Supportability Certification
Service JROC Validation & Approval
CPD
Information Support Plan
Defense Acquisition System Logistics/Sustainment (event driven)
Demonstrate Product Support Capability
Performance Based Logistics Strategy
System Development And Demonstration Phase
INPUTS
•Sys Performance Spec
•Exit Criteria
•Validated Sys Support & Maintenance Objectives & Requirements
•APB • CDD • SEP
• ISP • TEMP
OUTPUTS
•Initial Prod Baseline
•Test Reports • TEMP
Elements of Product Support
•Risk Assessment
•SEP •TRA • PESHE
•Inputs to:
-CPD -STA -ISP
-Cost/Manpower Est.
Interpret User Needs, Refine System Performance Specs & Environmental Constraints
Trades
SRR
Develop System Functional Specs & System Verification Plan
SFR
Evolve Functional Performance Specs into CI Functional (Design to) Specs and CI Verification Plan
PDR
Evolve CI Functional Specs into Product (Build to) Documentation and Inspection Plan
CDR
Fabricate, Assemble, Code to "Build-to" Documentation
FCA
SVR
PRR
Combined DT&E/OT&E/LFT&E Demonstrate System to Specified User Needs & Environmental Constraints
Analyze
System DT&E, LFT&E & OAs, Verify System Functionality & Constraints Compliance to Specs
TRR
Integrated DT&E, LFT&E & EOAs Verify Performance Compliance to Specs
Individual CI Verification DT&E


The Integrated Defense Acquisition Framework-A Logistics/ Sustainment Perspective
MS C
Production & Deployment Phase-Low Rate Initial Production
FRPDR
Joint Capabilities Integration & Development System (JCIDS-need driven)
Threshold/Objective Tradeoffs - Revised Performance Attributes
Joint Functional Concepts
Joint Integrating Concepts
Integrated Architectures
Defense Acquisition System Logistics/Sustainment (event driven)
Product Support Package/PBL Implementation
Production and Deployment Phase
OTRR
Independent IOT&E
Full-Up System Level LFT&E
BLRIP Report to Congress
JITC Interoperability Certification Testing
J-6 Interoperability & Supportability Validation
LFTE Report to Congress
INPUTS
•Test Results
•Exit Criteria
•APB •CPD •SEP •TEMP
•Product Support Package
OUTPUTS
•Production Baseline
•Test Reports
•TEMP •PESHE •SEP
•Input to:
- Cost/Manpower Est.
PCA
Analyze Deficiencies To Determine Corrective Actions
Verify & Validate Production Configuration
Modify Configuration (Hardware/Software/Specs) To Correct Deficiencies


The Integrated Defense Acquisition Framework-A Logistics/ Sustainment Perspective
FRPDR
Operations and Support Phase-Low Rate Initial Production
Joint Capabilities Integration & Development System (JCIDS-need driven)
Full-Rate Production/Deployment
Sustainment
Disposal
IOC
FOC
Validated and approved CDD and CPD for each increment of an evolutionary acquisition
Defense Acquisition System Logistics/Sustainment (event driven)
Product Support/PBL Management
Operations & Sustainment
Pre-IOC and Post IOC Supportability Assessment
FOT&E
Disposal
Operations and Support Phase
INPUTS
•Service Use Data
•User Feedback
•Failure Reports
•Discrepancy Reports
•SEP
OUTPUTS
•Input to CDD for next increment
•Modifications/upgrades to fielded systems
•SEP
Monitor and Collect All Service Use Data
Trades
Analyze Data to Determine Root Cause
Determine System Risk/ Hazard Severity
Develop Corrective Action
• Process Change – Hardware/Support
• Materiel Change
Integrate & Test Corrective Action
Assess Risk of Improved System
Analyze
Implement and Field
In-Service Review

B. Relationship between Reliability, Availability and Maintainability, and Supportability (RAMS)

B.1 Sustainment quality is driven by performance in RAMS. The PM should establish RAMS objectives early in the acquisition cycle (certain logistics RAMS criteria should be inserted as Key Performance Parameters (KPPs) in order to deliver sound weapons systems from a sustainment perspective) and address them as a design parameter throughout the acquisition process. The PM develops RAMS system support requirements based on the Initial Capabilities Document (ICD) or Capability Development Document (CDD) and TOC considerations and states them in quantifiable, operational terms measurable during Test and Evaluation (T&E). RAMS system requirements impact total life-cycle cost and all sustainment elements. These performance requirements are derived from and support the user's system readiness objectives and are validated through the RAMS rationale process identified in AFI 10-602, *Determining Mission Capability and Supportability Requirements*.

B.2 Application of RAMS and producibility activities during design, development, and sustainment is guided by a concise understanding of the concept of operations, mission profiles (functional and environmental), and desired capabilities. It is important to understand rationale behind RAMS and producibility activities and performance priorities. In turn, this rationale paves the way for decisions about necessary trade studies among system performance, availability, and system cost, with impact on the cost effectiveness of system operation, maintenance, and logistics support. The PM should use Modeling and Simulation (M&S) to demonstrate RAMS requirements, wherever appropriate to increase confidence in meeting RAMS requirements, reduce design risk, and possibly reduce overall program, including test, costs.

B.3 The components of system Availability are a function of Reliability, Maintainability and Supportability (RMS) and Producibility. There are a number of useful references for these terms to include, the OSD guide *Designing and Assessing Supportability in DoD Weapon Systems: A Guide to Increased Reliability and Reduced Logistics Footprint;* AFI 63-107, *Integrated Product Support Planning and Assessment*; AFI 10-602, *Determining Mission Capability and Supportability Requirements;* and, DoD 3235.1-H, *Department of Defense Test and Evaluation of System Reliability Availability and Maintainability -- A Primer.* However, for the purposes of this handbook, the following definitions and information in Table B-1 are provided to illustrate the inter-relationship between these components and sustainment for consideration in conducting ILAs.

- Reliability: The ability of a system to perform as designed in an operational environment over time without failure. Reliability requirements address mission reliability and logistics reliability. The former addresses the probability of carrying out a mission without a mission-critical failure. The latter is the probability of a

system to be supported as designed in an operational environment over time without any failures.

- Operational Availability: The probability a system will be ready for operational use when required. Availability is a function of the ability of the system to perform without failure (reliability) and to be quickly restored to service (a function of both maintainability and the level and accessibility of support resources). Availability is *Uptime* divided by *Total Time.*

- Maintainability: The ability of a system to be repaired and restored to service when maintenance is conducted by personnel using specified skill levels and prescribed procedures and resources. Maintainability requirements address the ease and efficiency with which servicing and preventive and corrective maintenance can be conducted , i.e., the ability of a system to be repaired, calibrated, and restored to service when maintenance is conducted by personnel of specified skill levels with the prescribed procedures and resources.

- Supportability: The inherent quality of a system – including design, technical support data, and maintenance/calibration procedures – to facilitate detection, isolation, and timely repair/replacement of system anomalies. This includes factors such as diagnostics, prognostics, real-time maintenance data collection, "design for support and support the design" aspects, corrosion protection and mitigation, reduced logistics footprint, and other factors that contribute to an optimum environment for developing and sustaining a stable, operational system.

- Producibility. The focus on RAM should be complemented by emphasis on system manufacturing and assembly, both critical factors related to the production, manufacturing, and sustainment cost of complex systems. The degree to which "Design for Manufacturing" concepts have been used to influence system and product design affects the timely, affordable, and optimum-quality manufacture, assembly and delivery of systems to the field. Producibility is closely linked to other elements of availability and costs. Items that feature design for manufacturability are also normally easier to maintain, have better accessibility features, and have lower life-cycle costs (LCCs).

Additionally, Figure B-1, Cause and Effect between Design Decisions and Operational Effects, extracted from *Designing and Assessing Supportability in DoD Weapon Systems*, illustrates the RMS relationship to Availability. Producibility, of course, is both a precursor affecting both the initial deployment of the system as well as an integral element of supportability.

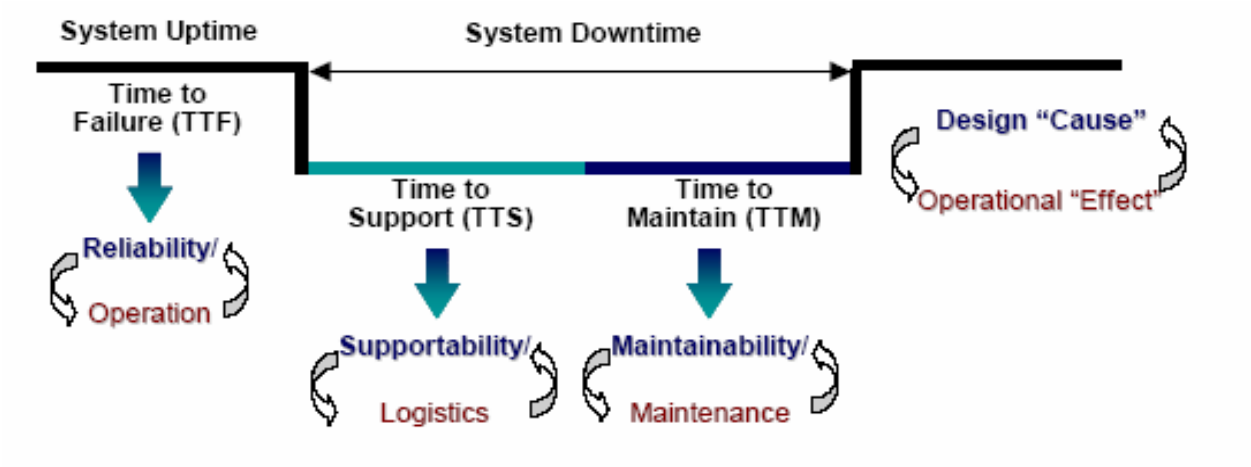


Figure B-1. Cause and Effect Between Design Decisions and Operational Effects

B.4 RAM requirements and tasks are primary sources of information and serve as drivers of many logistics support factors. They provide a critical logistics support interface that can influence design decisions, optimizing long-term system supportability. Table B-1, RAM Relationships to Sustainment Elements, identifies some typical key RAM requirements and tasks, their influence on sustainment elements and guidance in reviewing these factors. When assessing a specific logistics area, RAM requirements should be reviewed to determine if they will be met. This table should be used as a cross-reference to determine the effect reliability will have on the sustainment element under review. The information in Table B-1, RAM Relationships to Sustainment Elements, is not intended to be comprehensive but rather representative.

B-1. RAM Relationships to Sustainment Elements	
RAM Measures	**Relationship to Sustainment Elements**
Mean Time Between Failure (MTBF) is generally defined for a particular operating time interval as the total functional life of a population of an item, divided by the total number of failures within the population. The definition holds for time, miles, events, or other measures of life units. Mean Time Between Critical Failures (MTBCF) is used to address only inherent failures. **Mean Time Between Maintenance (MTBM)** measures the average operating hours between scheduled and unscheduled maintenance events. **Mean Time Between Failure (MTBF) Rate** measures the real failure rate of any sub-system prior to determining MRT and supply support requirements for the system.	• Maintenance: The MTBF/M impacts the frequency of preventative and scheduled maintenance. SE may be required to support authorized levels of repair. The MTBF/M impacts the number and items turned in for repair, directly affecting the facility space and power requirements for repair and storage. • Supply: The MTBF Rate impacts the range and depth of spares and drives provisioning requirements. • Manpower: The MTBF/M drives the frequency and scheduling of maintenance and, therefore, drives the manpower needed to perform maintenance or repair functions. • Training: MTBF/M tradeoffs may affect the level-of-repair decision requiring certain knowledge, skills and abilities at organizational or intermediate levels. • Funding: MTBF/M affects the frequency of repair and preventative maintenance, spares, and manpower requirements and has a direct relationship to operation and maintenance and funding requirements. Funding to achieve higher MTBF/M during the development phase results in higher system availability and lower LCCs.
Mean Repair Time (MRT) measures the average on-equipment or off-equipment corrective maintenance time in an operational environment (including testing times for fault detection, isolation and verification of corrective action).	• Maintenance Planning: MRT impacts the duration of the down time for repairs. • Manpower and Personnel: MRT impacts the duration of the repair and the required manpower. • Supply: The MRT impacts the quantity of pipeline spares required. • Funding: The MRT affects the amount of manpower required for maintenance and the quantity of spares required to fill the repair pipeline. It directly impacts funding requirements. Funding to achieve lower MRTs during the development phase results in higher system availability and lower LCCs.
Mean Downtime (MDT) is the average time elapsed between losing mission capable status and restoring the system to at least partial mission capability. Downtime includes repair labor time, non-labor time,	• Maintenance: The MDT may drive the level of repair since the time to obtain spares may determine if the weapon system is spared at the system level or component level. • Supply: The amount of spares required is directly related to the MDT; the greater the MDT, the more

maintenance- and supply-response time, administrative delays and time for other activities that result in Not Mission Capable status	spares will normally be required to be stored locally to meet availability requirements.

B-1. RAM Relationships to Sustainment Elements (continued)

RAM Measures	Relationship to Sustainment Elements
Maintenance Man-hours per Life Unit (MMH/LU) is used by the Major Commands (MAJCOMs) to measure the total number of direct maintenance personnel needed for a specific Operational Tempo (OPTEMPO)	• Manpower: Manpower projections to support specified operating and maintenance concepts for on-equipment and off-equipment maintenance.
System Analyses [includes Failure Modes, Effects and Criticality Analysis (FMECA), Single Point Failure Analysis (SPFA) and Fault Tree Analysis (FTA)] from the system level to the lowest part level are performed as the design progresses to assess the design robustness and overall reliability. These analyses are built on earlier design analyses and engineering measurement analyses to determine system reliability via unit under test. **Worst-Case Analyses** are performed to identify tolerance stack-up as well as drift in circuit parameters. Calibration and measurement systems are included in these analyses.	• Maintenance: These analyses assist in determining the failure effects which drive the trouble-shooting criteria, strategy and equipment for fault detection of failure modes. • Supply: These analyses identify critical components and their failure modes so they can be adequately spared to optimize repair time and corrective action. • Data Management: These analyses will assist in determining the troubleshooting description, requirements and diagnostics in the technical documentation by identifying failures and their effects. • Systems Engineering (Manpower, Personnel and Training): These analyses may identify failure modes that can create ESOH hazards. • Funding: Design changes or other corrective actions resulting from these analyses may reduce manufacturing, operation and maintenance costs. If these analyses are not performed, design deficiencies may not be identified until later during deployment, negatively affecting the program's sustainment cost.
Sneak Circuit Analysis is conducted to identify unintended product operating modes and performed as a minimum on critical circuits, circuits that perform frequent switching functions, and areas of safety concern.	• Maintenance: Assists in determining the troubleshooting and diagnostic procedures by identifying potential sneak circuits and failure items • Systems Engineering (Supportability): These analyses may identify failure modes that create ESOH hazards. • Funding: These results are similar to the funding impacts found in Systems Analyses reliability measures.

B-1. RAM Relationships to Sustainment Elements (continued)	
RAM Measures	**Relationship to Sustainment Elements**
Thermal Analysis is performed to identify thermal conditions that require corrective actions and includes results from analyses of the detail designs, thermal surveys/tests, and operational tests. **Stress Analyses** (mechanical/finite element, electrical, and thermal) are conducted to identify design margins and assess derating.	• Supply: These analyses identify potential compromised reliability and stressed items, which affect the sparing requirements. • Systems Engineering (Supportability): These analyses may identify failure modes that create ESOH. • Maintenance: Results of these analyses may require special procedures to be followed during maintenance actions. • Funding: Results are similar to the funding impacts found in the Systems Analyses reliability measures.
Reliability Predictions/Failure Reporting and Corrective Action Systems are used to estimate the reliability of an item.	• All sustainment elements: Provides information on whether the reliability (e.g., MTBF) will be achieved, exceeded or missed, so that adjustments can be made to sparing (supply), maintenance, manpower and personnel requirements, training and transportation and supportability. These analyses identify failure rates to consider in determining hazard risks.
Design Limit/Life Testing - Qualification testing is conducted to measure system hardware compliance with performance and design requirements. • Accelerated life testing is conducted using above-normal stresses to estimate the life of an item under normal operating conditions • Step stress testing is a method of performing accelerated life testing to determine design margins by using progressively higher levels of stress.	• Maintenance: Test information is used in determining service life and technical refresh requirements. • Supply: Test information is used to substantiate reliability information that will determine spares requirements. • Funding: Design changes or other corrective actions resulting from these tests may reduce manufacturing, operation and maintenance cost. If these tests are not performed, design deficiencies may not be identified until later during deployment, negatively affecting the program's sustainment cost.

B-1. RAM Relationships to Sustainment Elements (continued)	
RAM Measures	**Relationship to Sustainment Elements**
Design for Testing/Built-In-Test (BIT) objectives are to achieve the required performance monitoring, fault detection/localization and fault isolation capabilities at the appropriate maintenance levels with the optimum mix of BIT, semiautomatic test and general purpose manual test equipment.	• Maintenance: BIT affects testability and diagnostics by optimizing the efficiency of troubleshooting and fault isolation localization, and assist in determining the level of repair. • Supply: Properly designed BIT can reduce the demand for spares as a result of fewer false alarms. • Supportability: BIT effects requirements software/hardware design. The level of BIT implementation directly affects the extent of special test equipment or tools required to diagnose failures. Deployability increases as diagnostic capabilities are improved, reducing spares package, Support Equipment (SE) and infrastructure requirements. • Data Management: BIT impacts the amount of technical publications required to diagnose failures. Documentation required to assess and troubleshoot failures is eliminated as BIT is optimized. • Manpower, Personnel and Training: BIT can reduce manpower, personnel and training requirements since it reduces diagnostic time, skills and training to perform diagnostics. • Funding: BIT decreases cost for diagnostics, downtime and repair of units improperly determined to have failed.
Manufacturing Planning/ Screening integrates actions required to produce, test and deliver acceptable systems on schedule and at minimum cost. Including production schedule planning and diminishing source of supply planning.	• Maintenance and Supply: Manufacturing/screening affects downtime and spares since defects from manufacturing will decrease reliability and increase requirements for parts. • Funding: Manufacturing/screening affects decreases sustainment cost as a result of discovering failures in the factory rather than after deployment.

C. Documentation Request List

C.1 The Documentation Request List provided below should be used as a baseline for determining which documents should be reviewed during the ILA. It should be tailored to match the ACAT level, program and phase, as the scope and depth of logistics support information in these documents can vary significantly from program to program and by acquisition phase. Program product support and sustainment documents may have been developed by a program not only to meet statutory or regulatory requirements but also for program management discretionary purposes. Information content—not quantity or format of the documents—is critical for a successful ILA.

C.2 PO support during the ILA to ensure the applicable information is promptly provided to the ILA team will ensure a more efficient assessment and avoid delaying review activities to obtain documentation. Documentation should be received four weeks *before* the ILA for advance review by the team. Table C-1 identifies documents that should be available as applicable for review during an ILA at Milestone B and Table C-2, Milestone B Documentation identifies documents relevant to Milestone C.

C-1. Milestone B Documentation		
Typical Document Request	**Description**	**Source**
Acquisition Plan	Defines the technical and administrative directions and surveillance actions to identify and document the functional, allocated and physical characteristics of a configuration item, to control changes in configuration from the approved baseline CMP, and record and report change processing and implementation status IAW configuration control board approved actions.	FAR 7.1, as supplemented
Acquisition Program Baseline (APB)	Represents the program as it is expected to be produced or deployed. The baseline contains only those program cost, schedule and performance parameters (both objectives and thresholds) that, if thresholds are not met, will require the milestone decision authority to re-evaluate the program and consider alternative program concepts or design approaches.	10 USC 2435, AFI 63-101
Acquisition Strategy (AS)	Describes the business and technical management approach to achieve program objectives within the resource constraints imposed. It provides the framework for planning, directing, contracting for and managing the program. It provides the basis for formulating functional plans and strategies (e.g., acquisition plan, T&E Management Plan and the Systems Engineering Plan).	DODI 5000.2, AFFARS Part 5307, AFI 63-101, AFMC Pamphlet 63-2
Analysis of Alternatives (AoA)	Provides an analysis to aid decision-makers by identifying risks, uncertainty and the relative advantages and disadvantages of alternatives being considered to satisfy a mission need. The AoA identifies the sensitivity of each alternative to possible change in key assumptions.	DODI 5000.2, DAG

Business Case Analyses (BCA) for performance-based decisions and support decisions.	Evaluates alternative solutions for obtaining best value while achieving operational requirements balancing cost, schedule, performance and risk.	PBL guidance directives, AFI 63-107

C-1. Milestone B Documentation (continued)		
Typical Document Request	**Description**	**Source**
Configuration Management Plan	Defines the technical and administrative directions and surveillance actions to identify and document the functional, allocated and physical characteristics of a configuration item, to control changes and record and report change processing and implementation status.	DAG, DODI 5000.2, AFMAN 63-119, AFMC Pamphlet 63-101, Mil Hdbk-61A
Contractual Documentation	Contains the program contractual requirements. This may include the statement of work/objectives, specification, contract deliverables, performance agreements and any other related contractual documentation that contains support criteria and requirements.	FAR 4.8, DODI 5000.2
Cost Analysis Requirements Description (CARD)	Describes the complete program and used as the basis for program office and DoD Component cost-analysis teams to prepare program LCC estimates. It should be comprehensive enough to facilitate identification of any area or issue that could have a significant effect on LCCs and, therefore, must be addressed in the cost analysis. It also must be flexible enough to accommodate the use of various estimation methodologies.	DODI 5000.2
Design Reference Mission Profile (DRMP)	Provides a time history or profile of events, functions and environmental conditions that a system is expected to encounter during its life cycle, from manufacturing to removal from Service use.	DFARS 207.1, DoD 4245.7, AFI 10-602, AFMC Pamphlet 63-101
Facilities Plan	Describes plans to develop, identify, and implement facility requirements to maintain, operate, and test an item and to train personnel for its use.	MIL-STD-3007, AFI 63-107, AFI 32-1024

C-1. Milestone B Documentation (continued)		
Typical Document Request	**Description**	**Source**
Information Support Plan (ISP)	Used by program authorities to document the information technology (IT) and national security systems (NSS) needs, objectives, interface requirements for all ACAT, non-ACAT and fielded programs. ISPs should be kept current throughout the acquisition process and formally reviewed at each milestone, decision reviews and whenever the operational concepts and IT and NSS support requirements change.	DODI 4630.8, DODD 4630.5, CJCSI 6212.01, DODI 5000.2, DAG
Initial Capabilities Document (ICD),Capability Development Document (CDD)	Guides the Concept Refinement and Technology Development phases of the acquisition process and supports the Milestone A decision. The ICD includes a description of the operational capability gap, threat, shortcomings of existing systems and ISP architectures, capabilities required for the system, program support, force structure, Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel and Facilities (DOTMLPF) analysis and schedule/program affordability for the system. CDDs include the KPPs and KSAs (Key System Attribute) necessary for the acquisition community to design and sustain a proposed system and establish a program baseline. The performance parameters and attributes are stated with thresholds and objectives to guide the development and demonstration of the proposed increment.	CJCSI 3170.01, DAG, AFI 10-601
Human Systems Integration (HSI) Strategy	Provides a methodology to determine manpower, personnel, training, safety and health requirements to support the planning and programming process and the System Training Plan.	DODI 5000.2

C-1. Milestone B Documentation (continued)		
Typical Document Request	**Description**	**Source**
Integrated Master Plan (IMP)	Depicts the overall structure of the program and the key processes, activities and milestones in an event-based plan. It defines the accomplishments and criteria for each event in the plan.	Mil-Hdbk-881, IPPD Best Practice, DAG, AFMC Pamphlet 63-5
Integrated Master Schedule (IMS)	Details the tasks and timing of the work effort in the IMP. It is a networked schedule that identifies all IMP events, accomplishments, criteria and the expected dates for each.	Mil-Hdbk-881, IPPD Best Practice, DAG, AFMC Pamphlet 63-5
Life-Cycle Cost Estimate (LCCE)	Provides an estimate of the total cost to the Government of acquisition and ownership of a weapon system over its useful life. It includes the cost of development, acquisition, support and, where applicable, disposal.	DODI 5000.2
Life-Cycle Management Plan (LCMP)	Describes the overall acquisition and program management strategies, as well as the life-cycle sustainment support strategy. It meets the FAR requirements for Acquisition Planning and the need for written documentation. Integrates information formerly available in the PSMP and the SAMP.	AFFARS 5307.104, AFI 63-107, LCMP Guide
Manpower Estimate	For ACAT I programs, it provides the official statement of manpower requirements and risk assessment for achieving and supporting those requirements.	Title 10 section 2434, U.S.C., DODI 5000.2
Modeling and Simulation (M&S) Strategy and M&S Support Plan	Guides the use of M&S throughout the life cycle of the system being acquired.	DAG, AFI 16-1002, AFMAN 63-119
Program Funding Strategy	Outlines the funding strategy for the program to include the product support aspects of the acquisition program. Identifies logistics funding by element and amount budgeted, the amount that will be received or decremented and appropriation type and impact if not fully funded as planned. Developed in coordination with the lead MAJCOM.	AFI 63-107, AFI 65-601

C-1. Milestone B Documentation (continued)		
Typical Document Request	**Description**	**Source**
Programmatic Environmental, Safety and Health Evaluation (PESHE)	This document is a management tool used to help PMs identify and manage ESOH hazards and risks and determine how best to meet ESOH regulatory requirements and DoD standards. It is a systems engineering document that is continually updated and maintained throughout the progression of a program or project, from concept to disposal. It identifies the ESOH hazards and residual risk acceptance decisions and all National Environmental Policy Act (NEPA) documentation required throughout the life of the program and a schedule for completion of the NEPA documentation.	42 USC 4321, Mil Std 882D, DODI 5000.2
Program Protection Plan (for programs with critical program information (CPI))	Single-source document used to coordinate and integrate all protection efforts designed to deny access to CPI to anyone not authorized or not having a need to know and prevent inadvertent disclosure of leading-edge technology to foreign interests. Includes anti-tamper efforts.	DODD 5200.39
Risk Management Plan/Assessment	Describes the approach to identify, assess, mitigate and continuously track, control and document program risks. May be included in the LCMP.	AFMC Pamphlet 63-101, DoD Risk Mgmt Guide
Software Configuration Management Plan	Documents the procedures for identifying, organizing, controlling, and tracking the configuration of the software (i.e., selected software work products and their descriptions) and systematically controlling changes to the configuration, and maintaining the integrity and traceability of the configuration throughout the software life cycle.	AKSS

C-1. Milestone B Documentation (continued)		
Typical Document Request	**Description**	**Source**
Software Support/Sustainment Plan	Describes the activities to ensure that implemented and fielded software continues to fully support the operational mission of the software.	DAG, AKSS
Systems Engineering Plan (SEP)	Describes the comprehensive, iterative technical management process that includes translating operational requirements into configured systems, integrating the technical inputs of the entire design team, managing interfaces, characterizing and managing technical risks, transitioning technology from the technology base into program specific efforts, and verifying that designs meet operational needs. It addresses life-cycle activities using a concurrent approach to product and process development as well as sustainment.	DAG, DODI 5000.2, USD(AT&L) Policy memo (Feb 04)
System Training Plan	Identifies the resources required to establish and maintain an effective training program throughout the acquisition life cycle. It controls planning for meeting the training requirements and identifies personnel required to install, operate, maintain, or to otherwise use the system.	DAG, AFI 36-2201V1
Technical Order Management Plan (TOMP)	Provides management policy, assigns responsibilities, defines terminology and specifies procedures for the system's TO Acquisition Program. This plan provides basic instructions for development, contractor Quality Assurance (QA), verification and formalization of TOs during the program acquisition phase, and maintenance of the TOs after formalization. The TOMP is an important management tool which is mandatory for major programs and should be considered for all programs.	TO 00-5-3

C-1. Milestone B Documentation (continued)		
Typical Document Request	**Description**	**Source**
Test and Evaluation Master Plan (TEMP)	Documents the overall structure and objectives of the T&E program consistent with the ICD/CDD/CPD/AS. It identifies the Development Test and Evaluation (DT&E), Operational Test and Evaluation (OT&E), Live Fire Test and Evaluation (LFT&E) activities and provides the framework to generate detailed T&E plans.	DAG, DODI 5000.2, AFMAN 63-119, AFMCI 99-103

C-2. Milestone C Documentation		
Typical Document Request	**Description**	**Source**
Capability Production Document (CPD)	Narrows the generalized performance and cost parameters from the CDD into more precise performance estimates for the specific production system increment. The CPD is finalized after the design readiness review.	CJCSI 3170.01, DODI 5000.2; AFI 10-601
Computer Resources Support Plan	Describes the development, acquisition, test and support plans over the life cycle of computer resources integral to, or used in, direct support of systems. May be a part of the LCMP.	AKSS
Commercial Off-The-Shelf (COTS) Refreshment Plan/Program	Defines the plan to avoid obsolescence in the delivered systems. The planning for technology refreshment and insertion is a part of the systems engineering process and includes market research over the life of the system to identify potential replacements in anticipation of end-of-life issues.	DAG, AKSS
Competition Analysis (Depot-level Maintenance $3M rule)	Depot-level maintenance and repair workload that has a value of $3,000,000 or more and is being performed by a depot-level activity of DoD is subject either to competitions among all depot-level activities or to competitions among private- and public-sector entities.	10 USC 2469
Core Logistics Analysis and Source of Repair Assignment Process (SORAP)	Legislative guidance for Core ensures Services establish and maintain organic capabilities to provide a ready-and-controlled source of technical competence and resources and directs compliance with the 50/50 rule; SORAP is the process by which the Air Force postures its depot maintenance workload.	10 USC 146 (Sections 2460; 2464 and 2466), AFI 63-107, DAG
Development Test/Operational Test Results	Provides results from developmental and operational testing on a system. Also includes maintenance concept test planning and documentation.	DODI 5000.2, AFMAN 63-119
Failure Reporting, Analysis and Corrective Action System (FRACAS)	Deficiency identification and correction process test planning and documentation. FRACAS is a closed-loop system to identify hardware/ software failures/discrepancies, analyze root causes, implement corrective actions to prevent recurrence and verify their effectiveness. Recording of data should be comprehensive to provide an accurate database for analyses.	AKSS, Acquisition Logistics Guide, AFMAN 63-119

C-2. Milestone C Documentation (continued)		
Typical Document Request	**Description**	**Source**
Human Factors Engineering (HFE)/Human Engineering (HE) Plan	Defines the plan to develop and implement human engineering design criteria, principles, and practices to achieve mission success through integration of the human into the system, subsystem, equipment and facility. The objectives are to provide work environments that foster effective procedures, work patterns and personnel safety and health, which minimize factors that degrade human performance or increase error. The objective is also to minimize personnel and training requirements within the limits of time, cost and performance tradeoffs.	DAG, Mil Hdbk 46855A
Level Of Repair Analysis (LORA)	Provides an analysis to determine whether an item should be repaired or discarded and, if repaired, at what maintenance level. Analyses are performed and trade-off decisions are made based on mission requirements as well as economic and noneconomic considerations.	DAG
Logistics Support Analysis (LSA) and Logistics Support Analysis Records (LSAR)	Provides U.S. Air Force provisioning instructions and guidance, performance specifications for Logistics Management Information (LMI), and DOD Acquisition Logistics.	AFMC 23-101, MIL-PRF-49506, MIL-HDBK-502
Planned Maintenance System (PMS) Documentation	Includes scheduled maintenance instructions provided on maintenance requirements cards and maintenance index pages. May be included in the interactive electronic technical manual.	AKSS, MIL-PRF-49506, Acquisition Logistics Guide
Post-Production Support Plan	Identifies the plan to ensure continued economical logistical support and systems management of deployed systems after production cessation.	AKSS, LCMP, PPSP Guide
Preferred Parts Selection List/ Approved Parts List	A list of parts or part types that meets the system design requirements over its life cycle and is either recommended or approved for use.	AFMCI 23-101
Quality Assurance Plan	Provides the contractor's plan and program for assuring the quality of the system.	DAG, AFI 63-501

C-2. Milestone C Documentation (continued)		
Typical Document Request	**Description**	**Source**
Reliability, Availability, Maintainability and Supportability (RAMS) Rationale	Report provides plans to influence the design, and provides reports from the results of the completed analyses (e.g., FMECA).	DAG, AFI 10-602
Results of Design Analyses	Provides analyses as part of the design process to identify, quantify and qualify product characteristics in terms of attributes, tolerances and test-and-inspection requirements necessary to produce a quality product that meets its life-cycle and supportability requirements. Examples of analyses include reliability, availability and maintainability predictions, task-time analyses, testability analysis, worst-case tolerance analysis, stress analysis, sneak circuit analysis and FMECA.	DAG
Site Activation Task Force (SATAF) or Program Plans	Site surveys and/or programming plans to identify facility needs at specified test, training, depot, operational deployment, and enroute locations. Review facilities portions of the system contract, statement of work, program management plan, data items, and other system program documentation that identifies facility requirements and strategies for operational deployment of the system.	AFPD 10-5; AFI 10-501
Software Development Plan	Describes responsibilities, tasks, deliverables and schedules. The descriptions include how the design, review and tests will be performed. The plan addresses management and control of the development process, software development practices or standards to be followed, and procedures to be used for tracking and reporting progress.	AKSS
Software Security Plan	Addresses various aspects of security such as information assurance, protection of critical program information, and obtaining security certification and accreditation if not included in other documents.	DAG

C-2. Milestone C Documentation (continued)		
Typical Document Request	**Description**	**Source**
Supply Support Management Plan	Identifies the major supply support events/deliveries/milestones for an acquisition or configuration change with projected and actual delivery dates for each event from budgeting through the material support date.	AKSS
Support Equipment Recommendation Data (SERD)	Contains summary of data used to recommend support equipment.	MIL PRF-49506
Supportability Analysis Summaries	Provides information for planning, assessing program status and decision making by the government relative to the logistics disciplines/elements. May include the following analyses: Maintenance Planning and Repair, Support and Test Equipment, Supply Support, Manpower, Personnel and Training, Facilities, Packaging, Handling, Storage and Transportation, and Post-Production Support.	DAG
System Operating and Maintenance Documents	Contains information and instructions for the installation, operation, maintenance, training and support of a system.	DAG
Unique Identification (UID) Program Plan	Identifies the plan to ensure the mandatory requirement is met on all acquisitions of items meeting specified criteria.	DAG

D. Evaluation Criteria for Milestones B, C, and the FRP Decision

D.1 The evaluation criteria in the tables that follow are intended for use by the ILA team to assess acquisition programs' pending milestone decisions or FRP. The checklists are intentionally detailed to support the entire range of acquisition programs. ILA teams should tailor their use of these checklists or supplement with additional questions as appropriate for the program undergoing assessment.

D.2 The checklists are generally constructed as shown in Figure D-1, Assessment Criteria Checklist Format. Associated with each measure is milestone information for a typical development program. It should be noted that although some of these criteria are initiated prior to Milestone A, the assessment criteria contained herein start at Milestone B. An "X" in a milestone column adjacent to criteria indicates the milestone before which this item should be initiated. Updates and implementation will be assessed at the subsequent milestone and decision point, and is indicated by a "U" in the appropriate column. Varying program requirements and acquisition strategies may require tailoring of the milestone information in the tables as they may not apply to every program at all times. Some checklists contain general information that is not milestone-specific. A blank column is provided to assist the assessor in specifying items that are relevant to the program under assessment. General references for checklist information are provided in Table D-17, Assessment References.

Figure D-1. Assessment Criteria Checklist Format

Logistics Assessment Area Title			
(A definition/description of what is typically considered within this logistics assessment area)			
Evaluation Criteria	**Milestone**		
	B	**C**	**FRP**
1. Subsections within this logistics assessment are highlighted here:			
• More detailed assessment criteria.			
• Questions or statements that prompt the subject matter assessor to focus on specific requirements for this area.			
• These checklists are intentionally detailed and intended to support the entire range of acquisition programs.			
• Criteria should be tailored as appropriate for the program's ACAT and phase of the life cycle			
2. Milestone Columns			
• Associated with each measure is milestone information for a typical development program. An "X" in a milestone column adjacent to evaluation criteria indicates an action should be initiated before the milestone.			
o Checklists with no milestone column are applicable to all milestones.			
• Updates and/or implementation will be assessed at the subsequent milestone and decision point. These are indicated by a "U" in the appropriate milestone column.			
o For instance, an X in the Milestone B column indicates that the activity cited in the criteria should be initiated prior to this milestone and therefore should be include in that milestone ILA.	X		
o A "U" indicates that items initiated for previous milestones will be updated for subsequent milestones, and therefore, should be included in that milestone ILA.		X	U
• Assessors should supplement the criteria contained in the checklists with their own expertise to ensure the ILA meets the intent of assessing the adequacy of product support and sustainment planning and implementation for upcoming milestone decisions.			
• Assessors should supplement milestone indications in the checklists with their expertise to determine if criteria is applicable to a specific milestone.			

D-1. Warfighter Capability Requirements	
Product support requirements should relate to a system's operational effectiveness, operational suitability and TOC. Sources for warfighter performance requirements are KPPs and KSAs in the JCIDS documents (CDD, CPD), the acquisition strategy and other performance agreements. These warfighter performance requirements serve as a basis for logistics tradeoffs, decisions, and implementation of a logistics program.	
• Are the warfighter needs reflected in the performance agreements, capabilities, and specification documents?	
• Do warfighter needs address reduced footprint and TOCs as well as improved operational availability, deployability and sustainability?	
• Are operating and support objectives defined where feasible, considering performance histories of previous systems or systems of similar capabilities?	
• Are key designs for support-related cost and performance parameters (e.g., availability, reliability, maintainability, diagnostics, and manpower) included in the ICD and as design requirements for subsequent acquisition phases?	
• Do requirements improve on logistics footprint reductions, limitations and deployment requirements compared to previous or similar systems?	
• How do the requirements address the need to reduce multiple configurations?	
• Do the performance agreements reflect warfighter requirements and are they measurable objectives?	
• Are contractual performance specifications adequate to address reliability, maintainability, and availability, and is there a requirements traceability matrix linking capability requirements to specifications placed on contract?	

D-2. Total Life-Cycle Systems Management (TLCSM)	
TLCSM is the planning for and management of the entire acquisition life-cycle of a DoD weapons system.	
• Is the PM clearly established as the single point of accountability for accomplishing program logistics objectives including sustainment?	
• Are IPTs established that include warfighters, users, developers, acquirers, technologists, testers, budgeters, and sustainers?	
• Are IPTs effectively communicating and collaborating?	
• Is the Product Support Manager (PSM) a full partner in the IPT with rank/position that corresponds to that of the Engineering and Financial team members?	
• Has the PM established and maintained a collaborative environment among all stakeholders?	
• Have product support strategies been developed and implemented?	
• Are sustainment strategies reviewed on a continuing basis?	
• Does the LCMP address existing or projected cost drivers and performance shortfalls?	
o Does it address product support concepts to prevent, halt or reduce cost increases and alleviate performance shortfalls?	
o Does it evaluate proposed concepts and practices against legislative, regulatory and other applicable decision criteria?	
o Does it include a Depot Maintenance Source of Repair Assignment Process (SORAP) decision and a Depot Maintenance Inter-service Source of Repair determination?	
• Have best-value providers been selected (Government, industry, or Government/ industry)?	
• Has the PM considered performance-based strategies for products and services whenever feasible?	
• Are performance-based support arrangements/contracts based on high-level metrics?	
• Does the support strategy include continuous improvement of weapon system supportability and reduction in operating costs by dedicated investment?	
• Does the support environment maintain long-term competitive pressure on Government and industry providers?	
• Does the support concept leverage secure and integrated information systems across industry and Government?	
• Does the concept enable integrated supply chains and Total Asset Visibility (TAV)?	
• Are product support strategies established to support initial and subsequent fieldings of weapons systems while managed in the PEO portfolio and later transferred to the sustainment portfolio?	

D-3. Product Support Management

The PM is responsible for developing a framework for capability-based acquisition and integrated product support planning. The framework allows the PM to demonstrate the inter-relationship between acquisition and sustainment by defining a plan that addresses a life-cycle product support strategy showing how that will satisfy the warfighter needs at best value.

Evaluation Criteria	Milestone		
	B	**C**	**FRP**
1. Product Support Management Planning			
• Are product support management functions effectively integrated within the program office organization to address all sustainment elements adequately?	X	U	U
• Are product support functions logically organized with clear delineation of roles and responsibilities, including those performed by subcontractors and vendors?	X	U	U
• Is the product support activity responsible for definition and establishment of the system/equipment logistics/supportability technical, program, schedule, and cost requirements?	X	U	U
• Does a single individual have full responsibility for all product support activities of the program, including those of subcontractors and vendors?	X	U	U
• Are product support activities an integral part of the appropriate IPTs and do those IPTs meet with sufficient regularity to address logistics issues effectively?	X	U	U
• Is the "Support Concept" section of the LCMP developed, updated, and implemented?	X	U	U
• Was market analysis conducted to identify available systems and product support capabilities (public and private)? Does it define opportunities for achieving support objectives through design and product support strategies?	X	U	U
• Are product support metrics identified in the APB?	X	U	U
• Are support-related performance and acceptance criteria developed to be demonstrated during planned testing and through M&S?	X	U	U
• Are product support parameters and tests included in the Test and Evaluation Master Plan (TEMP)?	X	U	U
• Is the IOC date established and defined?	X	U	U
• Is the PBL strategy/implementation structured to continuously reduce the demand for logistics support (e.g., continuous improvement of weapon system supportability and reduction of Operating and Support [O&S]) costs through a program of dedicated investments, demand reduction, and improvements in the efficiency of the logistics support system?	X	U	U
• Is planning established/implemented to transition the program's legacy systems and associated support structures to the PBL approach, including the use of a product support integrator to facilitate the transition?	X	U	U

D-3. Product Support Management (continued)

Evaluation Criteria	Milestone		
	B	C	FRP
• Is a Business Case Analysis (BCA) used to support individual PBL decisions? Does that BCA estimate costs, describe the benefits of alternative product support strategies (e.g., buying a predetermined level of availability to meet warfighter's objectives) and has it been validated by the Air Force Cost Analysis Agency?	X	U	U
• Are reviews scheduled in time to support programmatic reviews?	X	U	U
• Is the PBL Product Support Integrator (PSI) identified and is a long-term agreement finalized that: o Identifies all stakeholder roles and responsibilities? o Identifies sources and data to collect and use? o Establishes review/reporting requirements and dispute resolution procedures?	X	U	U
• Are trade studies conducted on a continuous basis to ensure that performance and supportability goals are met? Do trade studies consider alternate operating and support concepts, with specific consideration of performance requirements?	X	U	U
• Is product support included in the life-cycle system engineering approach to supportability, including information interoperability requirements?	X	U	U
• Is public-private partnering (PPP) optimized for best-value support?	X	U	U
• Are contract terms sufficient to meet surge requirements and ensure re-establishment of organic or commercial support capability as necessary?	X	U	U
• Has a risk management program been established that includes both government and contractor participation and sharing of risks?	X	U	U
• Have product support program risks and mitigation strategies been identified and assessed?	X	U	U
• Have post-IOC plans been developed for continued evolution of sustainment strategies?		X	U
• Is continued technology refreshment planned to increase reliability and/or reduce Operating and Support cost?	X		
• Are product support and overall sustainment requirements referenced in the CDD and CPD?	X	U	U
2. Warranty			
• Are mutually beneficial incentives established to facilitate long-term business relationships? Is the provider given incentives to meet specified product quality and performance measures?	X	U	U
• Has cost-benefit analysis been conducted to determine the appropriateness, affordability, and value of implementing a warranty plan?	X	U	U
• Were warranties considered and integrated to the program's logistics support strategy, whether PBL or traditional?	X	U	U

D-3. Product Support Management (continued)

Evaluation Criteria	Milestone		
	B	C	FRP
• Do warranty terms and conditions address the program's risk factors?	X	U	U
• Does warranty administration and enforcement include standard procedures, including performance measurement, for identifying, reporting, tracking, and correcting defects and failures covered by the warranty? (Ensure defect reporting, analysis and corrective action processes are timely and effective.)	X	U	U
• Does the warranty ensure continued contractor responsibility and involvement beyond delivery and for the entire warranty period and is it enforceable?	X	U	U
• Is the cost-effectiveness assessment of the warranty plan performed periodically after its initial award?		X	U
• Are impacts to other related acquisition programs considered when making product support or program transfer decisions? How will support decisions for this program impact related programs?	X	U	U
• Is the sustainment support services contract projected to exceed $100 million per year requiring PEO/CM management oversight under the Management and Oversight of Acquisition of Services Process (MOASP)?	X	U	U
• Does the Source of Repair Assignment Process decision support implementation of a warranty for depot-level maintenance?	X	U	U
• Has depot repair partnering been evaluated with regard to potential warranty repair?	X	U	U
• Is achievement of reliability, maintainability and availability design specification requirements received during functional configuration audits and has adequate design test assured the design is supportable?	X	U	U
• Is the program performing supportability analysis (http://akss.dau.mil/dag/para 4.4.9) as part of the functional analysis in the systems engineering process to determine reliability and maintainability allocations considering total ownership costs?	X		

D-4. Product Support Budgeting and Funding

Cost estimates for programs in pre-systems acquisition or system development and demonstration are usually focused on Life-Cycle Costs (LCC). More refined and discrete Life-Cycle Cost Estimates (LCCE) may be used in the PO to support internal decision-making such as evaluating design changes and assessing producibility, reliability, maintainability, and supportability considerations. As programs mature and transition from production and deployment to sustainment, cost estimates that support the acquisition system or program management may be expanded to address TOC. PMs will determine the costs associated with solutions to satisfy mission capability and life-cycle supportability requirements. Adequate resources must be programmed to fully fund product support and sustainment planning.

Evaluation Criteria	**Milestone**		
	B	**C**	**FRP**
• Have product support funding requirements been identified and documented in a funding strategy document?	X	U	U
• Are product support funding requirements developed using cost as an independent variable? Have accepted cost estimating methods and risk management principles been applied?	X	U	U
• Have LCCEs, including cost-reduction efforts, been developed and validated to optimize TOC and schedule?	X	U	U
• Has the product support activity defined and established the level of personnel, material, and other direct costs, including subcontractor and vendor effort, needed to fully carry out its planning and implementation functions for the entire product support strategy?	X	U	U
• Do funding documents support the budgetary requirements for the product support strategy outlined in the LCMP?	X	U	U
• Are product support and sustainment funding requirements identified in the APB? Does the APB contain cost parameters (objectives and thresholds) for major elements of program LCCs (or TOC, if available)?	X	U	U
• Have all funding requirements been identified for production, fielding, and sustainment of the system, including funding for training courses, trainer development, procurement, modification and concurrency as appropriate?	X	U	U
• Are the correct appropriations identified for each product support requirement?	X	U	U
• Have appropriate decisions been made regarding the type of funds used for procurement of PBL resources (e.g., use of Air Force Working Capital Fund (AFWCF) for long-term spares support for systems that have been procured and deployed rather than use of multi-year increments of appropriated funding)?	X	U	U
• Are funding shortfalls and impacts identified, prioritized, fully documented and addressed to the PM and resource sponsor?	X	U	U
• Are funding requirements realistic and appropriately time-phased?	X	U	U

D-4. Product Support Budgeting and Funding (continued)			
• Are product support and sustainment requirements reflected in the earned value management system?	X	U	U
• Has funding been projected to support sustainment activities while program management responsibilities reside within the PEO portfolio and when transferred to the sustainment portfolio?	X	U	U
• Are product support funding estimates based on Supportability Analysis and result in estimates of supportability resources?	X	U	U
• Has the funding strategy for product support been reviewed and approved?	X	U	U

D-5. Contract Logistics Considerations

Evaluation Criteria	
Contract Specifications and Requirements	
• Is the contractor in compliance with critical completion and delivery dates?	
• Are customer/vendor conferences to foster IPTs and manage expectations scheduled and conducted?	
• Are product support and sustainment planning and related RAM requirements addressed?	
• Were product support and sustainment planning and related RAM analyses conducted?	
• Does the contract comply with requirement to use the results of RAM, product support and sustainment requirements planning and related analyses to impact design?	
• Will design analyses be performed?	
• Will all failures be summarized and categorized (part type, cause, location, supplier, etc.)?	
• Will manufacturing screening be performed?	
• Will COTS/Non-developmental Item (NDI) reliability be identified?	
• Are obsolescence management and technology refreshment programs established?	
• Are responsive contracting vehicles being used?	
• Are commercial specifications and standards or performance standards for asset replenishment or repair being used?	
• Are time delivery requirements for shipments to the AF from the contractors established?	
• Do core transportation carriers provide near real-time tracking services, and include customer access for TAV?	
• Is vendor-managed inventory used whenever justified to reduce inventory costs and delivery times?	
• Are limited data rights for proprietary and copyrighted data being acquired to allow reproduction and distribution of the data for government purposes?	
• Will the contractor develop and provide a Technical Data Package (TDP) of hazardous materials incorporated into the weapon system design and/or required for maintenance?	
• Is it a design goal to minimize the variety and volume of materials required for product support?	
• Do the ESOH integration and design constraints imposed on the contractor minimize long-term ESOH risks and costs?	
• Will the contractor provide product characteristics and support requirements on a periodic basis as design/construction progresses rather than as a one-time deliverable?	

D-6. Sustainment Elements of IMP/IMS	
Evaluation Criteria	
• Does the IMP document all critical tasks required to deliver a high-quality product in order to facilitate success throughout the product's life cycle?	
• Does the IMP identify dependencies and actions which may be performed by different organizations?	
• Are functional and life-cycle inputs integrated into the product and the associated processes produced by the program?	
• Is the plan structured to show an event/accomplishment/criteria hierarchical structure that clearly communicates expectations?	
• Does the IMP identify the links and inter-relationships among the various teams?	
• Does the IMS identify critical risk areas?	
• Does the IMS show the expected start and stop dates for each event/accomplishment/ criterion in the plan?	
• Are criteria broken down into lower-level tasks to manage the program more effectively on a day-to-day basis?	
• If a higher risk program, does the IMP/IMS show detail at a sufficiently low level to give the visibility needed to manage and control that risk?	
• Are completion times for logistics support tasks realistically estimated so that events that may cause delays are apparent?	
• Are sustainment element tasks on schedule? If not, has the PM identified areas of potential risk that require further analysis?	
• Has critical path analysis been used to help identify those logistics support tasks, or sets of tasks, not on schedule? What are the cost, schedule, and performance impacts?	
• Does the IMP/IMS identify interrelationships and higher-level work products dependent on the completion of lower level tasks?	
• Have critical logistics tasks which are essential to ensure schedule and cost goals of the program been identified and are they on schedule?	
• Have the tasks for each sustainment element been planned, scheduled, and integrated with other program activities?	
• Is the schedule realistic considering task sequencing and interdependencies?	
• Are IMS timelines achievable within funding constraints when considering a bottom-up view of all required detailed tasks and their interdependencies?	
• Does the LCMP include a detailed POA&M for each sustainment element for focused product support and sustainment management planning/implementation and is that POA&M commensurate with the IMP/IMS?	
• Is the program's product support strategy effective in the context of the overall program schedule and the design/development milestones?	
• Are logistics schedules achievable within the allocated funding and manpower?	
• Does the IMS factor in the schedule requirements for each sustainment element, based on a bottom-up task analysis to ensure realism?	

D-6. Sustainment Elements of IMP/IMS (continued)	
• Are the detailed sustainment elements tasks developed and integrated into the overall IMS realistically achievable, considering the sequence of all dependent and interconnected tasks to minimize program risks?	
• Do the sustainment element tasks that feed into achieving product support milestones and assessments meet at those milestone/assessment nodes?	
• Have critical paths been reviewed to identify any sustainment element tasks and their actual start/end dates?	
• Are logistics tasks progressing satisfactorily relative to the schedule?	
• Do the schedules reflect tasks such as BIT/testability design, maintainability analyses/verifications, FMECA, special test equipment identification and development of the embedded and on-board training capabilities?	
• Do logistics task completion dates allow adequate time to develop, proof and validate the technical data and support documentation before completing all of the tasks associated with the development, coordination and approval of the training curriculum?	
• Are acquisition activities planned to be completed before transfer from the PEO portfolio to the sustainment portfolio? If not, have residual acquisition tasks been identified for management/tracking by the sustainment activity?	
• Does the IMS/IMP contain critical sustainment milestones such as the sustainment transfer point where management of sustainment activities transfers to the sustainment activity?	

D-7. Manpower

Manpower factors are those job tasks, operation/maintenance rates, associated workload, and operational conditions (e.g., risk of hostile fire) that are used to determine the number and mix of military and DoD civilian manpower and contract support necessary to operate, maintain, support, and provide training for the system.

Evaluation Criteria	Milestone		
	B	**C**	**FRP**
• Has the right skill level mix (with special emphasis on critical skills) required to support the system been identified and documented?		X	U
• Do system engineering designs optimize manpower and keep human resource costs at affordable levels (i.e., consistent with strategic manpower plans)?		X	U
• Have requirements for technology approaches and solutions to reduce manpower requirements and control LCCs been identified in the CDD? For example, material-handling equipment can be used to reduce labor-intensive material-handling operations, and embedded training can be used to reduce the number of instructors.	X	X	U
• If system support is manpower intensive, has a manpower performance parameter been established early in the acquisition process? Establishing a manpower performance parameter will ensure the system fits within manpower constraints established by the AF, that agreed-upon resource thresholds are not exceeded, and that the system will not require additional resources from higher priority programs later in the acquisition process. A KPP should be established only if the adverse manpower effect of exceeding the KPP outweighs the overall benefits of the new capability. In all cases, manpower parameters must be defendable and commensurate with the priority and utility of the new capability.	X	U	U
• Does the CDD address specific, scenario-based factors that affect manpower, such as surge requirements, environmental conditions (e.g., arctic or desert conditions), and expected duration of the conflict? These factors are capability-related and directly affect the ability of the commander to sustain operations in a protracted conflict.	X	U	U
• Has the program office been working with the manpower community to determine the most efficient and cost-effective mix of DoD manpower and contract support, and identify any issues (e.g., resource shortfalls) that could impact the PM's ability to execute the program?		X	U
• Are manpower requirements identified in the funding profile and programmed for within the Future Years Defense Program (FYDP)?		X	U
• Has the PM consulted with the manpower community before contracting for operational support services to ensure that sufficient workload is retained in-house to provide adequate career progression, overseas rotation, and combat augmentation?		X	U

D-7. Manpower (continued)			
Evaluation Criteria	**Milestone**		
	B	**C**	**FRP**
• Are inherently governmental and exempted commercial functions retained in organic activities?		X	U
• Has an evaluation of the manpower pipeline required and/or available to support a new system been accomplished? Does the evaluation consider manpower constraints when establishing contract specifications to ensure the human resource demands of the system do not exceed the projected supply?		X	U
• Are manpower requirements based on task analyses conducted during the functional allocation process? Do they consider all factors including fatigue; cognitive, physical, sensory overload; environmental conditions (e.g., heat/cold); and reduced visibility? Were manpower requirements considered in personnel capabilities, training, and human factors engineering (HFE) tradeoffs?		X	U

D-8. Personnel

Personnel factors are those human aptitudes (i.e., cognitive, physical, and sensory capabilities), knowledge, skills, abilities, and experience levels that are needed to perform job tasks properly. Personnel factors are used to develop the Air Force specialties and civilian job series for system operators, maintainers, trainers, and support personnel. Personnel officials contribute to the Defense acquisition process by ensuring that the PM pursues engineering designs that minimize personnel requirements and retain the human aptitudes necessary for operation and maintenance of equipment at levels consistent with the projected user population at system fielding.

Evaluation Criteria	Milestone		
	B	**C**	**FRP**
• Has the program office worked with the personnel community to establish a Target Audience Description (TAD) that identifies the cognitive, physical, and sensory abilities, i.e., capabilities and limitations, of the operators, maintainers, and support personnel that are expected to be in place at the time the system is fielded?		X	U
• Has the program office used the TAD as a baseline for the personnel requirements assessment? The TAD should include information such as inventory, force structure, standards of grade authorizations, personnel classification (specialty code) description, biographical information, anthropometric data, physical qualifications, aptitude descriptions as measured by the Armed Forces Vocational Aptitude Battery (ASVAB), task performance information; skill grade authorizations, physical profile, security clearance and reading grade levels.		X	U
• Has the program office assessed and compared the cognitive and physical demands of the projected system against the projected personnel supply? Have the physical limitations of the target audience (e.g., color vision, acuity, and hearing) been identified and any shortfalls highlighted?		X	U
• Has the program office determined if the new system contains aptitude-sensitive critical tasks? Has the PM determined if it is likely that personnel in the target audience can perform the critical tasks of the job?		X	U
• Has the PM considered personnel factors such as availability, recruitment, skill identifiers, promotion, and assignment? He/she should consider the impact on recruiting, retention, promotions, and career progression when establishing program costs and assess these factors during tradeoff analyses.		X	U
• Has the PM used a truly representative sample of the target population during test and evaluation (T&E) to get a more accurate measure of system performance? A representative sample during T&E will help identify aptitude constraints that affect system use.		X	U

D-8. Personnel (continued)			
Evaluation Criteria	**Milestone**		
	B	**C**	**FRP**
Human Systems Integration (HSI)			
• Have individual system and platform personnel requirements been developed in close collaboration with related systems throughout the DoD and in various phases of the acquisition process to identify commonalities and merge requirements and to avoid duplication (e.g., Crew Station Working Group (CSWG))? The PM should consider the cumulative effects of system-of-systems, family-of-systems, and related systems integration in developing personnel requirements.	X	U	U
• Has the PM summarized major personnel initiatives necessary to achieve readiness or rotation objectives or to reduce manpower or training costs, when developing the AS? The AS and product support strategy must address modifications to the knowledge, skills, and abilities of Air Force specialties if those modifications have cost or schedule issues that could adversely impact program execution. The PM should also address actions to combine, modify, or establish new Air Force specialties or additional skill indicators, or issues relating to hard-to-fill occupations if they impact the PM's ability to execute the program.	X	U	U
• Has the program office pursued HSI initiatives to optimize total system performance and minimize TOC?	X	U	U
• Has the program office coordinated with the manpower, personnel, training, safety, and occupational health, habitability, survivability, and HFE communities to translate and integrate the HSI thresholds and objectives contained in the capabilities documents into quantifiable and measurable system requirements?	X	U	U
• Has the program office identified any HSI-related schedule or cost issues that could adversely impact program execution? The system's support strategy should identify responsibilities, describe the technical and management approach for meeting HSI requirements, and summarize major elements of the associated training system.	X	U	U
• The Program Office should ensure that Systems Engineering is coordinating the overlapping HSI and ESOH safety and occupational health efforts to avoid duplication of effort and conflicting inputs.	X	U	U

D-9. Maintenance

Acquiring and sustaining DoD weapon systems requires support decisions that affect all levels of maintenance. The most important decisions in terms of criticality and legislative constraints are source-of-repair decisions for depot workloads. Many factors must be considered when determining where and by whom depot maintenance workloads will be accomplished. The Air Force has established the SORAP as a formal process for the PM to ensure all factors are considered and an optimum source-of-repair decision is made.

Evaluation Criteria	Milestone		
	B	**C**	**FRP**
1. Maintenance Concept, Design and Analyses			
• Is the accessibility, diagnostics, repair and sparing concepts for all maintenance levels established?	X	U	U
• Are the requirements for manpower factors that impact system design utilization rates, pilot-to-seat ratios and maintenance ratios are identified?	X	U	U
• Are the weapons system and associated software life-cycle supportability, design, installation, maintenance and operating constraints and guidelines identified and documented in the LCMP?	X	U	U
• Is maintenance planning and analyses consistent with requirements for United States Code (USC) Title 10 core government logistics maintenance capability and PPP?	X	U	U
• Have PBL solutions have been considered?	X	U	U
• Does the maintenance concept support the performance requirements in the CDD?	X		
• Has a SORAP been completed for core candidates?	X	X	U
• Has a SORAP been completed for contract candidate workloads (non-core, not currently identified for partnering)?			X
• Has the weapon system been characterized/tested at the proper level to identify failure/degradation conditions under various life-cycle operating and environmental conditions?		X	U
2. Maintenance Plan			
• If the Reliability-Centered Maintenance (RCM) approach is implemented, is an on-condition status information system defined (e.g., condition-based maintenance plus (CBM+)) and integrated?	X	U	U
• Defines specific criteria for repair and maintenance for all applicable maintenance levels in terms of time, accuracy, repair levels, BIT, testability, reliability, maintainability, nuclear hardening, SE requirements (including automatic test equipment), manpower skills and facility requirements for peacetime and wartime environments.	X	U	U

D-9. Maintenance (continued)			
Evaluation Criteria	**Milestone**		
	B	**C**	**FRP**
• Does the plan identify inter-service maintenance requirements, organic and contractor mix, projected workloads, installation requirements and time-phasing requirements for establishing depot repair capability?		X	U
• Evaluate and assess for commonality of parts/assemblies/systems in order to facilitate maintenance and long-term sustainability. Have COTS options been considered?		X	U
• Is the maintenance approach defined, including level of repair, and does it include the results of the analysis to determine logical maintenance task intervals, grouping and packaging?		X	U
• Defines the actions and support necessary to ensure that the system attains the specified operational availability (A_o) that is optimized considering RCM, CBM, time-based maintenance and TOC.		X	
• States specific maintenance tasks, including battlefield damage repair procedures, to be performed on the materiel system.		X	
• States the extent, duration and use of interim contractor support (when applicable) and provides plans for transition to organic support.		X	
• Defines actions and support required for materiel fielding.		X	
• Specifies the type of repair (e.g., inspect/repair as necessary, disposal or overhaul).		X	
• Maintenance task times have been derived for the following: o Reliability (e.g., Weapon System Reliability [WSR], Break Rate [BR], Component Reliability [CR], Mean Time Between Failure [MTBF]). o Maintainability (e.g., MRT, contractual maintenance task times). o Availability (e.g., task time limits). o Reliability and maintainability tests. o Performance monitoring/fault detection/fault isolation and diagnostics.		X	
• Validation tests are conducted under representative operating conditions.		X	
3. Testability and Diagnostics			
• The testability/BIT concept is defined with the operation concept and the maintenance concept for all levels of maintenance.	X	U	U
• The design contains requirements for sensors to be embedded at the appropriate hardware levels in support of the development of a health monitoring capability.	X		
• Design analyses (e.g., fault tree, failure modes, effects and criticality) have been used to determine test point requirements and fault ambiguity group sizes.		X	
• The level of repair and testability analysis is completed for each configuration item for each maintenance level to identify the optimum mix of BIT, semi-automatic test equipment and general-purpose test equipment.		X	

D-9. Maintenance (continued)			
Evaluation Criteria	**Milestone**		
	B	**C**	**FRP**
• Preliminary BIT/testability analysis is completed by preliminary design review.		X	U
• Detailed BIT/testability analysis is completed by critical design review.		X	U
• The effectiveness of BIT is validated with tests.		X	U
• Failure of the BIT circuitry does not precipitate other hardware/software failures.		X	U
• BIT filtering is applied to minimize false alarms.		X	U
• System anomalies and intermittents are analyzed for possible changes to the BIT design, thresholds/tolerances and/or filtering.		X	U
• BIT software can be revised independently and without change to the operating software.		X	U
• BIT indications and false alarms are analyzed for corrective action.		X	U
4. Support Equipment (SE) Considerations			
• Has contractor screening of the SE in the government inventory been accomplished prior to contractor submittal of peculiar SE recommendations?			
• Do SE, Technical Orders, and provisioning data correlate?			
• The environmental and physical constraints, such as size, weight, power, temperatures and interfaces have been factored into SE design.		X	U
• Analyses to identify the optimum mix of automatic and manual fault detection and isolation equipment at each applicable maintenance level have been conducted.		X	
• Have peculiar support equipment, special tooling, or special test equipment been minimized?		X	
• Are spares required for the various types of support equipment? Are they being acquired?		X	
• Ensure SE Recommendation Data (SERD) are developed and provided by the contractor.		X	
• Has AF common SE been maximized?		X	U
• Have all types of initial SE (peculiar and common) been programmed, budgeted, and funded?		X	U
• Do SE and Technical Orders correlate?		X	U
• Is the delivery of all SE on schedule to meet the weapons system IOC/FOC?		X	U
• Types and quantity of SE for each location has been established.		X	U
• Does Automatic Test Equipment (ATE) comply with USD(AT&L) policy for standardization? o Is the development of new ATE minimized? o Are ATE standard families or COTS components being used to the fullest extent possible to promote commonality/interoperability of equipment?		X	

D-9. Maintenance (continued)			
Evaluation Criteria	**Milestone**		
	B	**C**	**FRP**
• Manpower, training, maintenance levels and maintenance task requirements are identified.		X	U
• The SERD or equivalent is submitted by the contractor to justify SE requirements and initiate follow-on support activities.		X	U
• Does the provisioning documentation include spares for support equipment?		X	U
• Required technical documentation to support the SE is identified and includes: o Procedures to perform the required tests and diagnostics. o Test Measurement and Diagnostic Equipment (TMDE) calibration requirements and associated technical parameters. o All product/technical data required to support and operate required SE throughout the life cycle of that product. o Test fixtures and/or interfaces to connect the system to the test equipment.		X	U
• Does provisioning documentation identify: o Tools and test equipment by task function and maintenance level. o Category codes (e.g., Source, Maintenance and Recoverability [SMR] Codes) are identified for SE. o Manufacturers' part numbers, nomenclatures, descriptions, estimated prices, and recommended SE quantities.		X	U
5. Installation Requirements			
• The types of facilities required to support and sustain the new or modified system have been identified, such as: o Barracks space (including utilities). o Parking aprons and hangar space for aircraft. o Support facilities, supply warehouses, transit sheds, maintenance facilities, and training facilities (for both classrooms and trainers for operational training and maintenance training, including required product/technical data to ensure efficient/effective support of facilities). o Enroute support requirements when the system requires some level of support for continental U.S. and outside continental U.S. activities that are not regular homeports/support sites.	X	U	U
• The facilities support requirements are usually documented in the LCMP, appropriate funding strategy documents and/or the program's Facilities Management Plan or its equivalent.	X	U	U
• Basic facilities requirements have been developed according to the appropriate military handbook (MIL-HDBK-1190, *DoD Facility Planning and Design Guide*, September 1, 1987, and the *Unified Facilities Criteria (UFC)*, Mil Std 3007B).		X	U

D-9. Maintenance (continued)			
Evaluation Criteria	**Milestone**		
	B	**C**	**FRP**
6. Evaluation of Existing Installation/Capabilities			
• System support and basic facilities requirements are provided to the Air Force activities/regions expected to support operations, maintenance, training and other logistical support related to the system. This is done on a periodic (e.g., annual) basis as the system is being designed and constructed so that the receiving support activities may factor support requirements into their facility planning efforts at the earliest possible time. The mechanisms for accomplishing this may be a facilities planning/criteria letter issued by the PM, a project Requirements Document (RD), or a Customer Criteria Document (CCD).	X	U	U
• Existing assets at each impacted base have been evaluated (e.g., site survey) to determine if they can be used to satisfy the basic facilities requirements associated with the new or modified system. If not suitable, the rationale is documented and analysis of viable support alternatives is done to develop a solution for providing adequate facilities to support delivery of the system. Alternatives to be considered include: o Outsourcing (contractor operates Government-owned facilities or their own). o Privatizing (Government buys services and relinquishes all interest including real estate and personal property). o Leasing. o Repair/renovation/conversion of existing assets to satisfy requirements. o New construction to provide required capability.		X	U
• If repair/support facilities cannot be completed in time to meet mission requirements and satisfy the basic facilities requirements, has a designated source of repair/support or practical work-around been identified and received operational concurrence?		X	U
• Has the identification of installation ESOH capabilities as required by DODD 4715.1 been accomplished?		X	U
7. Facility New Construction			
• Identify in the National Environmental Policy Act (NEPA) Completion Schedule the environmental documentation required by the NEPA and Executive Order (EO) 12114 for new construction or modification of existing facilities.	X	U	U
• The program has assessed (e.g., site surveys and trade studies) all means of satisfying a facility requirement prior to selecting the use of Military Construction (MILCON).	X	U	U
• For construction or alterations less than $750,000, the program office has identified funding to support the construction, and contract award is in process.	X	U	U

D-9. Maintenance (continued)			
Evaluation Criteria	**Milestone**		
	B	**C**	**FRP**
• For projects in excess of $750,000 (classified as MILCON), Congressional authorization and funding have been approved.	X	U	U
• Estimates of facility requirements and associated costs have been refined and detailed project documentation and cost estimates have been developed through the SATAF process.	X		
• Funding for MILCON and other construction projects is available in the budget.		X	U

D-10. Supportability

Supportability is a design characteristic stated in operational terms, achieved and sustained throughout the life cycle. Supportability is the inherent quality of a system—including design for reliability and maintainability, technical support data, and maintenance procedures—to facilitate detection, isolation, and timely repair/replacement of system anomalies. Examples of supportability factors are deployment, mobility, mission frequency, human capabilities, software/hardware, and anticipated service life. This includes factors such as diagnostics, prognostics, real-time maintenance data collection, "design for support" and "support the design" aspects, corrosion protection and mitigation, reduced logistics footprint, and other factors that contribute to an optimum environment for developing and sustaining a stable, operational system.

Evaluation Criteria	Milestone		
	B	**C**	**FRP**
• A forecast of the physical and operational maintenance environment of the proposed system has been made.	X	U	U
• Given the forecasted environment, assess the functional characteristics of the proposed system, its complexity, and the obstacles and enablers to effective sustainment in that environment.	X	U	U
• Assess the impact of the proposed system on the maintenance capabilities planned for the period in which the system will be introduced.	X	U	U
• Assess preliminary manpower and personnel requirements and constraints in both quantity and skill levels and use of contractor support.	X		
• Begin compilation of information and requirements for logistics footprint reductions, deployment requirements, and other factors affecting the in-theater operational concept.	X	U	U
• Initiate the development of operating and support reliability objectives and their corresponding benefits and resource requirements. Consider the performance histories of prior systems or systems of similar capability where feasible.	X	U	U
• Assess the concept and technology with regard to their ability to facilitate the use of embedded diagnostics, prognostics, and similar maintenance enablers.	X		
• Initiate the compilation and assessment of data on the projected sustainment demand, standardization of platforms, and required support equipment.	X	U	U
• Develop Rough Order of Magnitude (ROM) LCCE.	X		
• Are Support Services contracts expected to exceed $100 million and, therefore, require PEO/CM oversight under Management and Oversight of Acquisition of Services Processes (MOASP)?	X		
• Preparation and/or assessment of sustainment planning and parameters in the CDD.	X	U	U
• Description of the product support strategy as documented in the AS.	X	U	U

D-10. Supportability (continued)			
Evaluation Criteria	**Milestone**		
	B	**C**	**FRP**
• Description of the appropriate logistics metrics, criteria, and funding requirements in the APB.	X	U	U
• Description of the appropriate logistics considerations and test objectives in the TEMP.	X	U	U
• Mission capabilities: More discrete identification of the taxonomy and metrics driving performance-based outcomes.	X	U	U
• Availability requirements: A detailed assessment of the requirements for the system to operate successfully in the mission operational environment and the necessary support requirements to achieve that objective.	X	U	U
• Reliability: Given the operational environment and combatant commander availability requirements, define the logistics reliability targets and the corresponding sustainment infrastructure necessary to ensure achievement of the reliability objectives.	X	U	U
• Maintainability: Comprehensive identification of both projected maintenance strategy, including diagnostics, prognostics, maintenance duration targets, and similar measures.	X	U	U
• Manpower and personnel requirements, both organic and contractor sourced.	X	U	U
• Continue refinement of LCCEs.	X	U	U
• Support-related performance and acceptance criteria to be demonstrated during planned testing and through M&S.	X	U	U
• The collection, analysis, and evaluation of system performance and maintenance performance data to determine the need for and prescribe changes to the system configuration, maintenance support structure, and maintenance resource requirements. Utilization of on-board (embedded) monitoring sensors, diagnostics, and prognostics is integral to this process.	X	U	U
• Continue inclusion of logistics support considerations in detailed design reviews to include LCCs, and characteristics such as openness of design, upgradeability, modularity, testability, and commercial technology insertion.	X	U	U
• Iterative refinement of logistics support considerations correspondent with the evolutionary AS (when employed).	X	U	U
• Begin verification of support-related design characteristics and product support strategy and infrastructure.	X	U	U
• Identification of PSI, potential product support providers (public and private), and potential partnering opportunities.	X	U	U
• Depot-level maintenance core capability assessment and the identification of workloads required to sustain those capabilities.	X	U	U
• Identification of potential organic depot-level sources of maintenance.	X	U	U

D-10. Supportability (continued)			
Evaluation Criteria	**Milestone**		
	B	**C**	**FRP**
• Development of PBL BCA to determine: o The relative cost versus benefits of different support strategies. o The impact and value of performance/cost/schedule/sustainment tradeoffs. o Data required to support and justify the PBL strategy.	X		
• PSI performance outcomes/requirements, e.g., mission readiness, logistics footprint, response times, etc.	X	U	U
• Development of PBL product support concept to include development of warfighter and support provider agreements.	X	U	U
• Update support strategy within the Acquisition Strategy Review (ASR).		X	U
• Update logistics criteria and parameters with the APB.		X	
• Logistics and overall sustainment requirements as referenced in the CPD.		X	U
• Logistics parameters and test objectives in the TEMP.		X	U
• Acceptable performance in development, test and evaluation, and operational assessment, to include: o Mature software capability. o Acceptable interoperability. o Acceptable operational supportability.		X	U
• Demonstration that the system is affordable throughout the life cycle, optimally funded, and properly phased for rapid acquisition.		X	U
1. System Requirements			
• Mission capabilities: Reviewed and modified as final testing and configuration decisions are made. Emphasis on the capability of the sustainment strategy to meet overall mission capability requirements.		X	U
• Reliability: Mission and logistics reliability should clearly meet desired metric targets while supporting the achievement of overall system performance objectives.		X	U
• Maintainability: The effective operation of diagnostics, prognostics, and performance-based maintenance arrangements should be in place or in transition, meeting previously specified objectives.		X	U
• Manpower and Personnel: Goals for both organic and contractor manpower requirements should be validated.		X	U
• LCCE: Final refinement of LCCs should be validated.		X	
2. Product Support			
• Completed BCA on PBL approach (consistent with evolutionary acquisition/spiral development planning, where applicable).		X	U

D-10. Supportability (continued)			
Evaluation Criteria	**Milestone**		
	B	**C**	**FRP**
• Completed, approved and funded product support/sustainment approach to include: o Documented performance agreements between the PM, PSI, and the force provider that define the system's operational performance requirements, e.g., readiness, availability, response times, etc. o The PM, PSI, and the product support provider(s) (PSP) define required support metrics necessary to meet the system performance requirements. Support providers may be public, private, or a mix to include public/private partnerships. Examples of public PSPs include Service maintenance depots, Service and Defense Logistics Agency (DLA) inventory control points, and DLA distribution depots.		X	
• Funding commitments commensurate with support provided.		X	
• Planned PSI/PSP and warfighter implementation structure to include: o Integrator accountability for managing and integrating all support providers to meet established requirements. o Roles, relationships and functions among PM, PSI, PSPs (public/private), and warfighter to include funding.		X	
• Comprehensive review of support-related performance and acceptance criteria in a pre-IOC supportability assessment. o Verify implementation and execution of PBL agreements. o Verify funding of operations and support to required levels.		X X	
• Satisfaction of sustainment criteria addressed in Initial Operational Test and Evaluation (IOT&E).			X
• PBL agreements among PM, PSI, and warfighter, and PM, PSI, and PSPs.		X	
• Fully funded sustainment program.		X	
• Pre-IOC review o Confirm design maturity of the system. o Determine status of correction of any deficiencies identified. o Confirm configuration control. o Certify PSI/PSP plans to meet warfighter requirements. o Verify PSI/PSP agreements/contracts and funding in place.		X	U
• Construction on MILCON projects has been initiated and is on track to support introduction of the new or modified system to the force.			X

D-10. Supportability (continued)			
Evaluation Criteria	**Milestone**		
	B	**C**	**FRP**
3. Computer Resources Life-Cycle Management Plan (CRLCMP)			
• A computer and software security plan, including safety, has been developed.	X	U	U
• Computer and software product/technical data and the supporting infrastructure are outlined through an integrated digital data environment (IDDE) concept of operations that supports the total life-cycle management of associated product.	X		
• Software functional requirements and associated interfaces have been defined.	X		
• Gap analysis has been performed on candidate COTS software to identify functionality shortfalls.	X		
• Requirements for system firmware and software documentation have been identified and procured.	X		
• A software CM plan has been developed or is included as part of the overall CM plan to assess the applicable software CM requirements.	X	U	U
• Software testing requirements have been identified and integrated into the overall system test program.	X		
• Measures of effectiveness have been established for software.	X	U	U
• A software support activity has been designated/established.		X	
• A software development plan has been developed and reflects program milestones.		X	
• Software maturity can be and has been measured.		X	U
• Required software data rights have been obtained.		X	
• CBM+ software is developed for the operating and maintenance system for diagnostics and prognostics, as applicable. • Does the CRLCMP address SE, ATE and associated TPS?		X	
4. Warranties			
• Mutually beneficial incentives are established to facilitate long-term business relationships. The provider is given incentive to meet specified performance measures.	X	U	U
• Cost-benefit analysis is conducted to determine the appropriateness of implementing a warranty plan.	X		
• Warranties are considered and integrated in developing the program's logistics support strategy, whether PBL or traditional.	X		
• The warranty administration and enforcement includes defect reporting, analysis and corrective action processes that are timely and effective.	X		
• Post-award cost-effectiveness assessment of the warranty plan is performed periodically.		X	

D-11. Systems Engineering

Systems Engineering is an approach to translate approved operational needs and requirements into operationally suitable blocks of systems. The approach consists of a top-down iterative process, throughout the system life cycle, of requirement analysis, functional analysis and allocation, and design synthesis and verification for maintainability, reliability, interoperability and survivability.

Evaluation Criteria	Milestone		
	B	**C**	**FRP**
• Has a Systems Engineering Plan (SEP) has been established and implemented?	X	U	U
1. Reliability, Availability and Maintainability (RAM)			
• Logistics support factors are traceable to the following factors of the Design Reference Mission Profile (DRMP): o The environmental profile includes the system's production, operation and support environments with their associated timelines. The operating and non-operating requirements may include temperature, vibration, electromagnetic interference, electrostatic discharge, humidity, altitude, salt spray, fog, nuclear, chemical and biological, sand/dust, foreign object damage, production contaminants, etc. o Functional profiles are prepared and detailed to the subsystem, assembly and part levels as the system design progresses. They describe the system functional requirements and their associated mission and life-cycle timelines.	X	U	
o Logistics-use profiles and associated timelines are prepared and updated over the life-cycle based on the system detail design and maintenance plan. RAM measures (e.g., A_o, Mean Time Between Failure [MTBF], MRT and MDT) are defined in quantifiable and measurable terms.	X	U	U
• RAM/testability requirements are defined consistent with the ICD and flowed down to program documents and subcontractors as appropriate.	X		
• The appropriate RAM/testability/logistics support design analyses/tests are properly phased into the program.	X	U	
• RAM/supportability design guidelines have been established.	X		
• RCM analysis and FMECA are used to identify failure modes, their frequency, their effects on performance and their criticality and are further used to develop condition-based and schedule-based maintenance tasks.	X		
• Have an Operational Safety, Suitability, and Effectiveness (OSS&E) baseline and plan been developed?	X		
• Predictions, analyses and test results support RAM requirements.		X	U
• A readiness model is used to assess the effects of various levels of redundancies, spares, downtimes and maintenance concepts on operational availability.		X	U
• Has a Joint Reliability and Maintainability Evaluation Team (JRMET) been established to collect and analyze data on R&M and supportability issues?	X		

D-11. Systems Engineering (continued)			
Evaluation Criteria	**Milestone**		
	B	**C**	**FRP**
2. Failure Reporting, Analysis and Corrective Action System (FRACAS)			
• A FRACAS is established and failures are analyzed and trended for product support visibility.		X	U
• A FRACAS is performed on engineering development models, pre-production units and production units.		X	U
3. System Reviews			
• System requirements, including supportability, are flowed to subcontractors.		X	U
• The preliminary design review, including supportability, has been conducted.		X	
• The critical design review, including supportability, has been conducted.		X	
• The production readiness review has been performed to include an assessment of system supportability requirements.		X	
4. Manufacturing Planning			
• A manufacturing plan has been developed and includes: o A defect/variation prevention program. o Manufacturing processes that have defined yield levels and have been validated. o Environmental stress screening to precipitate latent, intermittent or incipient defects or flaws introduced during the manufacturing process.	X	U	U
5. Quality Assurance			
• A Deficiency Reporting (DR) Program is established per TO 00-35D-54, USAF Deficiency Reporting and Investigating System, to identify the root cause and take corrective action to resolve deficiencies identified during DT&E, OT&E and sustainment.	X	U	U
• Ensure acceptance inspection requirements are identified for items to be accepted at source.		X	U
6. Parts and Materials Selection			
• Guidance and/or requirements should be documented in a parts and materials design guide before the start of design, addressing parts selection, derating and testability factors. Adherence to the guidelines should be verified at design reviews.	X	U	U
• Identification of COTS/NDI reliability is required.	X	U	U
• Parts and materials selected are qualified to the worst-case DRMP and detail design environments. Uprating or upscreening of parts is not a best practice and should not be performed.	X		
• Parts derating is required for all electronic/electrical components. Electrical parameters of parts are characterized to requirements derived from the DRMP to ensure that all selected parts are reliable for the proposed application.	X		

D-11. Systems Engineering (continued)

Evaluation Criteria	Milestone		
	B	**C**	**FRP**
• Highly integrated parts (e.g., application-specific integrated circuits) are used to reduce: o The number of individual discrete parts/chips. o The number of interconnections. o Size, power consumption, and cooling requirements. o Failure rates.	X		
• The critical items list has been developed and includes: o Any item of high technical risk with no workaround. o Items with schedule/delivery risk. o Sole-source items. o High failure-rate items. o Safety-of-flight items.	X		
o Critical Safety Items (CSI) identified and listed in the Federal Logistics Information System (FLIS).		X	U
• COTS/NDI parts and their applications meet DRMP.	X	U	U
7. Diminishing Manufacturing Sources and Material Shortages (DMSMS)			
• A formal DMSMS program has been established. This should contain a system technology roadmap, initiated at Milestone A, that includes the following: o Identification of critical items/technologies. o Identification of emerging technologies. o DMSMS forecast integrated into technology refreshment planning.	X	U	U
• Technology insertion/refreshment, if used to mitigate obsolescence, includes the following:	X		
o A formal plan/strategy to specifically identify DMSMS insertion/refreshment requirements.		U	U
o Established intervals agreed to by the program sponsor.		U	U
o Approved funding plan over the system life cycle for each scheduled insertion/refreshment.		U	U
• DMSMS forecasting/management tools and or service providers have been researched and selected.	X		
• Forecasting for obsolescence and product timelines has been conducted and considers: o Product (revisions and generation/technology changes). o Supplier base. o Contract period and life cycle.	X		

D-11. Systems Engineering (continued)			
Evaluation Criteria	**Milestone**		
	B	**C**	**FRP**
• Ongoing review of the parts lists and Bill of Materials (BOM) to identify obsolescence/discontinuance issues is conducted.	X		
• A strategy for DMSMS design and manufacturing documentation has been developed and considers: o Design disclosed items, including subtier hardware indenture levels. o Form/fit/function/proprietary design items, including subtier hardware indenture levels.	X		
• The design approach minimizes impact of DMSMS by addressing: o Modular open-system architecture. o Order of precedence for parts selection. o Use of qualified manufacturers' lists parts (particularly for applications requiring extended temperature ranges). o Selection of parts relatively new in their life cycle. o Minimized use of custom parts. o The requirement for a preferred parts list and parts control before detailed design to minimize obsolescence issues. o Identification of shelf- and operating-life requirements. o Identification of technology life expectancies.	X		
• DMSMS BCA is performed as part of trade studies to determine return on investment on mitigation actions.	X		
• Obsolescence life cycle (versus contract period) mitigation strategy is defined (e.g., life of type buy, reclamation, captive line, emulation, bridge buy, redesign/technology refreshment, aftermarket, existing stock, substitute/alternate part, chip/die availability, and storage).	X	U	U
• DMSMS LCC and cost avoidance have been estimated.	X		
• Current and out-year budget established/planned based on DMSMS forecast, tracking, and mitigation efforts.	X		
• Funding shortfalls (appropriation, amount, and timing) and impact are identified, prioritized, and documented.	X		
• Contractual data requirements define, as appropriate: o Contractor and Government life-cycle DMSMS tasks and responsibilities. o DMSMS incentives/awards. o Decision on ownership of product/technical data package (TDP) rights and COTS licensing agreements. o PBL/total system support strategy for legacy system DMSMS. o DMSMS planning and mitigation requirements. o System architecture/design to minimize obsolescence costs.	X		

D-11. Systems Engineering (continued)			
Evaluation Criteria	**Milestone**		
	B	**C**	**FRP**
o DMSMS production/repair/procurement capability including hardware/software, support and test equipment, tooling/fixtures and chip/die availability and storage.			
o Supply chain monitoring/management including contractor/vendor notification of pending parts obsolescence and part/firmware changes.			
• Configuration management (CM) to the appropriate obsolescence mitigation levels. o DMSMS database establishment and maintenance through an IDDE concept of operations that supports the total life-cycle management of the product. o TDP that supports the DMSMS mitigation strategy: o Specifications, technical manuals, engineering drawings/product data models that provide appropriate level of detail for reprocurement, maintenance and manufacture of the product. o Special instructions for items such as unique manufacturing, quality and test processes, preservation and packaging. o Very High Speed Integrated Circuit Hardware Description Language (VHDL) documentation of digital electronic circuitry. o The version, release, change status and other identification details of each deliverable item. o Program, design and production readiness reviews of contractor DMSMS management effectiveness. o Provisioning screening required to maximize use of existing supply items.	X	U	U
• DMSMS considerations are incorporated into the life-cycle management plan and post-production support plan.	X		
• Items that are single source and those for which the Government cannot obtain data rights and the associated corrective action plans are identified.	X	U	U
• Strategies to resolve potential DMSMS problems (e.g., production or repair capabilities, software upgrades/maintenance, and support equipment) are established.	X		
• A PM/supply activity reprocurement engineering support agreement is in place.	X		
• Monitoring of usage and anticipated demand versus items available for DMSMS mitigation planning throughout the items' life cycle.	X		

D-11. Systems Engineering (continued)			
Evaluation Criteria	**Milestone**		
	B	**C**	**FRP**
8. Environment, Safety and Occupational Health (ESOH) Integration ESOH programs identify the ability of existing resources to meet operational requirements and assess risks caused by resource degradation or denial. By focusing on operational requirements and following the regulatory strictures for sustaining resources, the ESOH program achieves the dual aims of warfighter support and protection of the environment, workforce and community.			
• The program office is using the System Safety methodology in MIL-STD-882D to integrate ESOH considerations into the Systems Engineering process.	X	U	U
• A Program Environmental, Safety and Health Evaluation (PESHE) has been developed that includes as a minimum: o A strategy for integrating ESOH considerations into the systems engineering process using MIL-STD-882D. o Identification of ESOH responsibilities. o An approach to identify ESOH hazards, assess the risks, eliminate the hazards, and mitigate ESOH risks to acceptable levels. o Identification and status of ESOH risks including approval authority for residual ESOH risks (based on MIL-STD-882). o A method for measuring and tracking the effectiveness of ESOH risk mitigation measures throughout the life cycle. o A schedule for completing NEPA/EO 12114 documentation including the approval authority of the documents (the Component Acquisition Executive (CAE) or designee (for joint programs, the CAE of the Lead Executive Component) is the approval authority for system-related NEPA/EO 12114 documentation). o Identification of hazardous materials (HAZMAT) used in the system and for the operations and maintenance of the system and a plan for their demilitarization/disposal.	X	U	U
• All other physical risks (ionizing and non-ionizing radiation, ergonomics) are adequately addressed to minimize occupational illnesses and injuries and maximize productivity.	X	U	U
• NEPA Compliance o NEPA/EO 12114 Compliance Schedule should identify all known or projected NEPA documentation requirements throughout the life cycle to include identification of the proponent responsible for the documentation o Program Office NEPA documents must be focused on discrete actions occurring at specific locations. They should not be programmatic documents covering the entire life cycle of a system.	X	U	U
• The following activities typically require NEPA documents: o Conducting development and acceptance test (proponent-Program Office).	X	U	U

D-11. Systems Engineering (continued)			
Evaluation Criteria	**Milestone**		
	B	**C**	**FRP**
o Conducting training (proponent-Air Education Training Command). o Planning basing locations (proponent-Operational Command). o Planning new facilities to support the system (proponent-Operational Command).			
• NEPA decisions result in one or more of the following: o Categorical Exclusion (CATEX). o Finding of No Significant Impact (FONSI) based upon an Environmental Assessment (EA). o Record of Decision (ROD) based upon an Environmental Impact Statement (EIS). o SAF/AQR is the NEPA approval authority for all NEPA documents where the Program Office is the proponent.	X	U	U
• ESOH considerations include the following: o Clean Water Act. o Clean Air Act. o Air permits. o National Emissions Standards for Hazardous Air Pollutants. o National Ambient Air Quality Standards. o Resource Conservation and Recovery Act. o Endangered Species Act. o Federal and state noise abatement standards. o Federal and state material toxicity standards. o Federal and state personnel protective equipment standards.	X	U	U
• Acceptance/sign-off of program environmental, system safety, and occupational health design risks shall be done by the appropriate managing level authority in accordance with MIL-STD-882/industry standard before IOT&E.	X	X	U
• ESOH Risk Management o ESOH design requirements are specified, e.g., all systems containing energetic must comply with insensitive munitions criteria. o Hazardous risk probability level and severity categories, risk values, risk categories, and risk acceptance authority criteria are specified. o ESOH hazards, including hazardous materials, are identified and traced throughout the life cycle. o Hazards are eliminated or risks mitigated to an acceptable level. Note that this process is also referred to as “Pollution Prevention” for environmental issues. o Mitigation measure effectiveness is verified.	X	U	U

D-11. Systems Engineering (continued)			
Evaluation Criteria	**Milestone**		
	B	**C**	**FRP**
o ESOH risk acceptance decisions are made by the appropriate authority according to DODI 5000.2 and with the concurrence of the Lead Command for the system being developed or modified. o The Program Office provides the ESOH hazard tracking data to the testers, trainers, operators and maintainers of the system to use as the basis for ORM according to AFI 90-901.			
• Hazardous Material Management o Hazardous materials prohibited in the weapon system design because of operation, maintenance and disposal risks and the costs associated with the use of such materials have been identified. o Hazardous materials whose use cannot be avoided have been documented and communicated to the user and support installations. This includes an inventory of materials incorporated into the weapon system during production and those materials required for operations and maintenance. o The program has a plan for tracking, storing, handling, and disposing of hazardous materials consistent with AFI 32-7086. o Hazardous material findings and determinations are incorporated into the training program as applicable. o No Class I or II ODS are used to operate or maintain the system without having obtained a Senior Acquisition Official (SAO) approval according to AFI 32-7086.	X	U	U
• Pollution Prevention o The program has a plan to recycle or dispose of system replaceable and disposable components, such as metals, plastics, electronic components, oils, coolants and refrigerants during system life and end-of-service life.	X	U	U
• Operational Safety, Suitability and Effectiveness (OSS&E) o A robust CM process has been established to preserve OSS&E baselines. o All Technical Orders and technical data clearly identify procedures and requirements necessary to preserve OSS&E baselines. o Developmental T&E (DT&E), Operational T&E (OT&E), and/or other approved developmental testing, must be completed and identified deficiencies corrected or accepted by the user before the OSS&E baselines are validated. o All proposed changes to operational use, configuration, maintenance procedures, or part substitutions must be evaluated for potential OSS&E impact.		X	U

D-11. Systems Engineering (continued)			
Evaluation Criteria	**Milestone**		
	B	**C**	**FRP**
o Inspections and maintenance procedures are developed and reviewed to prevent degradation of OSS&E.			
o All required certifications supporting OSS&E must be obtained before system or end-item operational use.			
o The PM has implemented a data protection procedure according to DODDs 5230.24/5230.25 and DoD 5400.7-R. o The program has developed and implemented anti-tamper measures according to the determination of the MDA, as documented in the anti-tamper annex to the program protection plan (see DOD 5200.1-M).			

D-12. Data Management

Data Management, which consists of the disciplined processes and systems that plan for, acquire and/or access, manage, and use data throughout the total system life cycle, is an important part of Life-Cycle Logistics. Under TLCSM, the PM is responsible for Data Management for the system throughout its life cycle. Data Management is defined as the process of applying policies, systems and procedures for identification and control of data requirements; for the timely and economical acquisition of such data; for ensuring the adequacy of data; for the access, distribution or communication of the data to the point of use; and for analysis of data use. Data are defined as recorded information regardless of the form or method of recording. This section concentrates on technical, product, and logistics data in support of the development, production, operation, sustainment, improvement, demilitarization and disposal of a system. This includes both Government- and contractor-created data.

Evaluation Criteria	Milestone		
	B	**C**	**FRP**
1. Integrated Digital Data Environment (IDDE)			
• A concept of operations for an IDDE is developed, implemented and managed throughout the system life cycle to ensure information/data interoperability with other programs and their interfacing logistics systems.	X	U	U
• Logistics product/technical data for new systems (depending on PBL strategy and applicable logistics product/technical data from interfacing legacy systems) should be acquired, converted, accessed and/or developed in digital electronic form to perform life-cycle support using digital operations.		X	U
• Electronic data interchange online access and automation issues are addressed starting with development of the information exchange requirements and continuing through the IDDE concept of operations.		X	U
• Are software support requirements for the preferred system concept(s) traceable to the CDD?		X	U
• Authoritative data sources and the associated change authority have been identified.		X	
2. Product/Technical Data Package and Publications			
• A product/technical data management plan, guided by the IDDE concept of operations, including change-control processes and in-process reviews, as appropriate, has been developed and validated.	X	U	U
• Can the data management system provide data correlation and traceability among performance requirements, designs, decisions, rationale, and other related program planning and reporting elements?	X	U	
• Does the program require contractor certification of T.O.s prior to submittal, and is there a plan to ensure T.O. verification by the AF operational and depot customers?		X	U
• Are initial software functional and performance requirements identified?	X	U	

D-12. Data Management (continued)			
Evaluation Criteria	**Milestone**		
	B	**C**	**FRP**
• A determination has been made regarding ownership of product/TDP rights and COTS licensing agreements.	X	U	
• The product/TDP is consistent with the maintenance plan and provides a sufficient level of detail for reprocurement, upgrade, maintenance and repair of hardware. The product/TDP normally includes: o Specifications, technical manuals, publications, engineering drawings/product data models and special instructions such as for unique manufacturing and test processes. o Interchangeability and form/fit/function information. o ESOH requirements. o Preservation and packaging requirements. o Test requirements data and quality provisions. o Preventative maintenance system/maintenance requirements card. o Environmental stress screening requirements.	X	U	
3. Technical Orders			
• Contents are verified on production configured system or equipment by government personnel.	X	U	U
• Ensure ALC, lead MAJCOM, contractor personnel and all other stakeholders participate in technical order (TO) guidance conferences.	X	U	U
• Has a TO manager been appointed?	X	U	
• Is funding adequate for the development of operator and maintenance manuals?	X	U	
• TOs include: o Required readability/comprehension levels. o Operational and maintenance instructions. o Parts lists and breakdowns. o Related technical information or procedures exclusive of administrative procedures.	X	U	U
• Commercial manuals have been evaluated using MIL-HDBK-1221.	X	U	U
• The contents of the product/technical orders have been integrated into the interactive electronic technical manual (IETM), considering the following (if applicable): o The contents meet Web-enabled Air Force requirements as applicable.	X	U	

D-12. Data Management (continued)			
Evaluation Criteria	**Milestone**		
	B	**C**	**FRP**
o The Standard Generalized Markup Language (SGML)/eXtensible Markup Language (XML) format is selected over contractor-unique or proprietary systems to ensure interoperability for subject data throughout their life cycle as applicable. o The phased development schedule is in parallel with the system development, including validation and transition to the Air Force. o Operator and maintainer training are embedded and job performance aids included. o Legacy data are converted and incorporated. o Software is used to create, manage, and update IETM. o The established IETM level is achievable and within the schedule. o IETMs shall meet existing U.S. Air Force guidance in the use of COTS data and the most current version of S1000D, *International Standard for Technical Publications Utilizing a Common Source Database*.			
• Is the TO Management Plan (TOMP) completed early in the system acquisition process?	X	U	U
• Have Work Unit Codes been identified for input to REMIS?		X	U

D-13. Supply

Supply includes the selection of sources of supply support, including support management functions that maximize the service to the user while minimizing cost, and establishing systems to provide supply data for weapon systems spares acquisition and sustainment. Supply support includes planning processes to ensure that the right items, in the right quantities, are at the right places at the right times at the most economical cost. Supply support is vital to achieving system operational goals since the lack of a single critical spare component part can render the entire system inoperable.

Evaluation Criteria	Milestone		
	B	**C**	**FRP**
1. Sparing Analyses			
• Supportability analyses with the associated BCA define the sparing approach (e.g., PBL, direct vendor delivery, inventory control point reprocurement and provisioning). Has the use of a prime vendor direct vendor delivery concept been considered for usage on the program during its life cycle particularly for weapon system consumable parts to support an AF organic repair/maintenance concept?	X	U	U
• Support cost drivers are identified.	X		U
• Initial spares breakout is included in the provisioning strategy	X	U	
• Key activities and milestones such as material support dates have been identified.	X		
• A readiness-based spares model is used to compute spares requirements, including special emphasis on: o Failure rates. o Repair times. o Maintenance/repair limitations. o Downtimes. o Criticality of the spare to the mission. o Required A_o and mission times.		X	U
• Responsibility and requirements for warehousing and transportation are established.		X	
2. Asset Management			
• Asset visibility is fully maintained on Integrated Management Data System (IMDS)/CAMS files.		X	U
• From a wholesale supply management perspective, is asset visibility maintained within the Wholesale Stock Control System (D035A)?		X	
• Has a Source of Supply Assignment Plan (SOSAP) been completed?		X	
• The inventory of spares to be procured is determined.		X	U
• Adequate funding for replenishment is identified.		X	U

D-13. Supply (continued)			
Evaluation Criteria	**Milestone**		
	B	**C**	**FRP**
• Allowances are determined.		X	U
• Provisions for surge requirements are identified.		X	U
• A provisioning system/model is used in budgeting for initial and recurring spares, as applicable to the support strategy.		X	U
• Is an integrated supply chain implemented across Government and industry that focuses on improvements to system readiness and responsive warfighter support, as applicable.		X	
• Are Unique Identification (UID) and Radio Frequency Identification (RFID) policies incorporated into spares requirements?		X	
• A secure, integrated information system is implemented across industry and government that enables comprehensive supply chain integration and full asset visibility, as applicable.		X	
• Are Provisioning Guidance conferences conducted with the contractor to obtain a mutual understanding of the Provisioning contractual requirements and preparation of Provisioning Technical Documentation and Supplemental Data for Provisioning?		X	
• Provisioning screening has been conducted to: o Prevent duplicate entries in the DoD supply data system. o Obtain maximum use of existing supply items.		X	
• Item management codes, which include SMR codes, various maintenance factors, and catalog management data are assigned during the Spares Provisioning Conference.		X	
• Provisioning data reports, such as the following, have been generated: o Recommended repair parts list provided for pre-operational repair parts and training equipment. o Provisioning parts list determining the range and quantity of support items for an initial period. o Support Equipment Recommendation Data (SERD). o Spare Acquisition Integrated with Production (SAIP). o Long Lead Time Item List (LLTIL). o Short Form Provisioning Parts List (SFPPL). o Provisioning Parts List (PPL). o Document Control Number (DCN). **(See Table D-9, Support Equipment, for associated provisioning requirements)**		X	U
3. Interim Contractor Support			
• The interim support item list identifies support requirements from a transitional operating period as well as the funding for that support.		X	U

• Contractor Supported Weapon System (CSWS) is being used for bringing initial spares into government inventory for new weapon systems and modifications to existing weapon systems.		X	U
• Transition planning is developed and implemented to ensure attainment of full operational support beyond the interim support period for all applicable sustainment elements.		X	U

D-13. Supply (continued)

Evaluation Criteria	Milestone		
	B	C	FRP
• Contractor Supported Weapon System (CSWS) is being used for bringing initial spares into government inventory for new weapon systems and modifications to existing weapon systems.		X	U
• Transition planning is developed and implemented to ensure attainment of full operational support beyond the interim support period for all applicable sustainment elements.		X	U
• Planning initiated to minimize ICS after organic support concept has been approved.			
• Contractor teams are supporting fielded units if Government support is not available.			X
4. Organic Support			
• Organic support requirements and funding are defined to transition from interim to organic support.	X	U	U
• Inter-service visibility is established for optimal organic support selection.	X		
• A POA&M is developed to phase in organic support.	X		
5. Post-Production Support			
• Post-production support strategy has been developed and implemented.		X	U
• Items that are single source or those for which the Government cannot obtain data rights and the associated corrective action plans are identified.		X	
• Product shelf and useful operating life are specified in the post-production support plan.		X	
• Strategies to resolve potential problems (e.g., production or repair capabilities, software upgrades/maintenance, SE, technical data) are established.		X	U
• A PM reprocurement engineering support agreement is in place.		X	
6. Other Support			
• If required, has Interservice support been developed and implemented?			
• If required, has Foreign Military Sales (FMS) support been developed and implemented?			

D-14. Packaging, Handling, Storage and Transportation

Transportation includes the requirements, procedures, processes, resources, design considerations and methods necessary to ensure that all systems, equipment and support items are preserved, packaged, handled, stored, and transported properly.

Evaluation Criteria	Milestone		
	B	**C**	**FRP**
1. Requirements			
• Storage, handling and transportation profiles of the configuration items over the system life cycle from acceptance through disposal have been derived from the Design Reference Mission Profile.	X	U	U
• The DoD's computerized Container Design Retrieval System database has been searched to preclude the design of new specialized containers when suitable ones exist in the system.	X		
• Military Packaging, MIL-STD-2073, has been considered for: o Items that documented analyses have shown cannot be protected and preserved in a cost-effective manner using commercial packaging. o Items delivered during wartime for deployment with operational units. o Items requiring reusable containers. o Items where the government has determined military packaging is the optimal packaging solution.	X		
• Packaging intended for international use has been approved by the Department of Transportation.		X	
• Storage monitoring requirements are incorporated into technical publications.		X	
• Transportability problems are addressed, to include: o Oversized/overweight items. o Items requiring special transportation modes. o Items that are classified.		X	
• Shelf-life requirements have been identified.		X	U
• Time-delivery requirements for all shipments to the Air Force from contractors have been identified.		X	
• Carriers are required to provide near real-time shipment tracking services and support customer access to their shipment tracking system.		X	
2. Testing			
• Design validation testing has been conducted on special packaging identified in MIL-PRF–49506.		X	U
• Hazardous material packages have been tested in accordance with the applicable requirements for performance packaging contained in the *International Air Transport Association Dangerous Goods Regulations and the Code of Federal Regulations (CFR) Titles 29, 40 and 49*.		X	
• Are ammunition tests conducted to the requirements of MIL-STD-1660?		X	

D-15. Configuration Management

Configuration Management (CM) is the application of sound business practices to establish and maintain consistency of a product's attributes with its requirements and product configuration information. It involves interaction among Government and contractor program functions such as systems engineering, design engineering, logistics, contracting, and manufacturing in an IPT environment. CM includes system hardware, software, and documentation (data). A CM process guides the system products, processes, and related documentation, and facilitates the development of open systems. CM efforts result in a complete audit trail of decisions and design modifications. See MIL-HDBK-61A, Figure 4-5, Page 4-10 for an illustration showing how CM objectives are related to Program activity and Program objectives for each phase of the life cycle.

Evaluation Criteria	Milestone		
	B	**C**	**FRP**
1. Configuration Baseline			
• CM decisions are based on factors that best support implementation of performance-based strategies throughout the product life cycle.	X	U	U
• Requirements for the configuration identification, control, status accounting, waivers/deviations, engineering changes and verification/audit functions are established for hardware, software and product/technical data.	X		
• Is EIA-836 being used for CM implementation?	X		
• At the appropriate milestones, the functional, allocated and product baselines have been established and approved from development through disposal.	X		
• Nomenclature has been established where appropriate.	X		
• Interfaces are defined using interface control documents as applicable.	X	U	U
• The hardware/software requirements and product/technical data specification and interface requirements specification have been prepared and approved.	X	U	U
• Physical and functional characteristics are accurately reflected in design documentation.	X	U	U
• Have functional, allocated and product baselines been developed?	X	U	U
• Each computer software configuration item and its corresponding computer software components and computer software units have been identified.		X	
• A software design document has been written for each computer software configuration item.		X	U
• The version, release, change status and other identification details of each deliverable item of software are known.		X	U
• For COTS/NDI and form/fit/function, information has been required/provided for refreshment.		X	U
• Subcontractor CM requirements including information, data and metrics are established.		X	U

D-15. Configuration Management (continued)			
Evaluation Criteria	**Milestone**		
	B	**C**	**FRP**
2. Configuration Control			
• Configuration control processes and procedures are established including change initiation, evaluation, and disposition. An engineering release system is used to control change, manufacturing and acceptance processes.	X		U
• A configuration control board is established that includes logistics representation and is focused on life-cycle support of the weapons system.	X	U	
• Does the CCB process consider affected sustainment elements and required retrofit actions (funds budgeted, schedule, and contracting)?		X	U
• Are the upgrades for those affected sustainment elements being placed on contract concurrently with the modification?		X	U
• Will the schedule for the sustainment element updates support the fielding of the revised Class I change to the weapon system?		X	U
• Audits have been conducted to verify the functional, allocated and/or baseline configuration.		X	U
• Has a Physical Configuration Audit (PCA) that verifies form/fit/function and technical documentation been performed?		X	
• Each configuration item is functionally audited to verify performance against design documentation.		X	
• A functional configuration audit is conducted at the end of the System Development and Demonstration phase on each configuration item and subsequently for changes.		X	
• A PCA is conducted to verify as-built hardware meet design documentation.		X	
3. Configuration Status Accounting			
• The configuration status accounting information is maintained in a CM database that may include such information as the as-designed, as-built, as-delivered or as-modified configuration of the product and any replaceable components within the product along with the associated product/technical data.		X	U
• Traceability of requirements from the top-level documentation through all subordinate levels has been established.		X	
• The results of configuration audits, including the status and final disposition of identified discrepancies and action items have been recorded.		X	
• The status of proposed engineering changes from initiation to final approval and contractual implementation has been recorded and reported. • CPIN is assigned for each software configured item.		X	

D-16. Training

Training is the learning process by which personnel individually or collectively acquire or enhance predetermined job-relevant knowledge, skills, and abilities by developing their cognitive, physical, sensory, and team dynamic abilities. The "training/instructional system" integrates training concepts and strategies and elements of logistic support to satisfy personnel performance levels required to operate, maintain, and support the systems. It includes the "tools" used to provide learning experiences such as computer-based interactive courseware, simulators, and actual equipment (including embedded training capabilities on actual equipment), job performance aids, and IETMs.

Evaluation Criteria	Milestone		
	B	**C**	**FRP**
1. AF Training Systems Planning			
• A Training Planning Process Methodology is conducted.	X	U	U
• Resource requirements are specified for training equipment (hardware and software), materials, facilities and personnel.	X	U	U
• HQ AETC participates with the lead MAJCOM during the acquisition of new systems, equipment and major modifications.	X	U	U
• Instruction in formal schools, on-the-job-training and follow-on training includes: o System operation and maintenance levels (e.g., daily, weekly, monthly, quarterly, semi-annually and on-condition), o Individual and team training, and o Instructor training.	X	U	U
• Operator and maintenance training locations are identified.	X	U	U
• Initial operator and maintenance training is in place before initial equipment fielding.	X	U	U
• Training requirements reflect configuration updates to the weapon system.	X	U	U
2. Training Outline and Curricula Design			
• Terminal training objectives are defined in detail.		X	U
• Specific criteria are established to determine the success of training.		X	
• Operator and maintainer training are embedded in the IETM. Job performance aids are included.		X	U
• ESOH procedures have been incorporated into training curricula.		X	
3. Training Material			
• Technical manuals are developed prior to the development of training materials. Preliminary technical manuals may be used to support the development of training materials.		X	U
• Instructor guides, course curriculum and student guides, as well as audio-visual training aids, are developed for classroom training.		X	U
• Software is developed to disseminate computer-based training.		X	U

D-16. Training (continued)			
Evaluation Criteria	**Milestone**		
	B	**C**	**FRP**
• After development, the training material is evaluated for content, clarity and accuracy, typically in a controlled environment of a pilot course.		X	U
4. Training Devices/Simulators			
• Training devices to support operator or maintainer training are identified and budgeted for, including logistics support of all devices and simulators.		X	U
• A military characteristics document is prepared for each training device, defining its basic physical and functional requirements.		X	
• Embedded on-board training capability in deployed equipment is maximized.		X	
• Pre-faulted modules or software to simulate faults for diagnostics training are used.		X	
• Simulation of scenarios reflecting the actual operating environment is used for operator training.			
5. Initial Training Requirements			
• Initial training is provided in the operation, maintenance, or employment of a system or training aid.		X	U
• Contractor T&E activities are used for validation of training requirements and initial field training for Operational Evaluation and operating force introduction.		X	U

D-17. Assessment References

Assessment Areas	Reference
Warfighter Performance Requirements	Defense Acquisition System DODD 5000.1; Defense Acquisition Guidebook; CJCSI 3170.01; AFI 63-101; AFI 63-107; AFI 10-602
Total Life-Cycle Systems Management	Defense Acquisition System DODD 5000.1; Defense Acquisition Guidebook; AF Life-Cycle Management Plan Guide; AFI 63-107; Designing and Assessing Supportability in DoD Weapon Systems; DoD Template for Application of TLCSM and PBL in the Weapon System Life-Cycle
Product Support Management	Defense Acquisition System DODD 5000.1; Defense Acquisition Guidebook; AFI 63-107; AFI 10-602; Designing and Assessing Supportability in DoD Weapon Systems
Product Support Budgeting and Funding	Defense Acquisition System DODD 5000.1; Defense Acquisition Guidebook; AFI 63-101; AFI 63-107
Contract Logistics Considerations	Defense Acquisition System DODD 5000.1; Defense Acquisition Guidebook; AFI 63-107; Designing and Assessing Supportability in DoD Weapon Systems; Performance Based Logistics: A Program Managers Product Support Guide
Sustainment Elements of IMP/IMS	Defense Acquisition Guidebook; AFI 63-107; AFI 63-101
Manpower	Defense Acquisition Guidebook; AFI 38-201; AFI 10-602
Personnel	Defense Acquisition Guidebook; AFI 38-201; AFI 10-602
Maintenance	Defense Acquisition Guidebook; AFPD 20-5; AFPD 21-1; AFI 21-101; AFI 63-101; AFI 10-602; AFI 21-113; DoD Handbook 3235.1-H Department of Defense Test & Evaluation of System Reliability Availability and Maintainability-A Primer
Supportability	Defense Acquisition Guidebook; AFI 10-602; AFI 63-107; DoD Handbook 3235.1-H Department of Defense Test & Evaluation of System Reliability Availability and Maintainability-A Primer
Systems Engineering	Defense Acquisition Guidebook; SAF/AQ Memo 03A-005; AFPD 63-17 AFI 10-602; AFI 63-101; AFI 63-501; AFI 91-104; AFOSHSTD 91-501; AFI 63-1201; Guidance for the use of Robust Engineering in AF Acquisition Programs; DoD Handbook 3235.1-H Department of Defense Test and Evaluation of System Reliability Availability and Maintainability-A Primer

D-17. Assessment References (continued)	
Assessment Areas	**Reference**
Data Management	Defense Acquisition Guidebook; AFPD 21-3; AFPD 21-4; AFPD 33-2; AFI 10-602; AFTM TO-00-5-3
Supply	AFMAN 23-110; AFI 10-602; AFI 63-101
Transportation	AFMAN 24-206; AFI 10-602
Configuration Management	Defense Acquisition Guidebook; AFI 10-602; TO 00-5-17; MIL-HDBK-61A
Training	Defense Acquisition Guidebook; AFPD 36-4; AFPD 36-22; AFI 10-602; AFI 36-2251

E. Evaluation Criteria for Initial Operational Capability (IOC) and Final Operational Capability (FOC)

E.1 While acquisition phase activities are critical to designing and implementing a successful and affordable sustainment strategy, the ultimate measure of success is application of that strategy after the system has been deployed for operational use. TLCSM, through single-point accountability, and PBL, by designating performance outcomes vice segmented functional support, enables that objective. Warfighters require operational readiness and operational effectiveness—systems accomplishing their missions according to their design parameters in a mission environment. Systems, regardless of the application of design for supportability, suffer varying stresses during actual operational deployment and use. Accordingly, the PM, PEO and Product/ALC Commanders are required to assess logistics readiness in conjunction with the user before IOC or FOC. This Appendix provides additional guidance for these assessments.

E.2 Effective sustainment of weapon systems begins with the design and development of reliable and maintainable systems through the continuous application of a robust systems engineering methodology. The acquisition program should define the actions, when complete, that will constitute attainment of IOC and FOC. The program should be planned, managed, executed, and resourced so that full logistics support will be in place at system IOC and FOC.

E.3 The Services, in conjunction with users, are required to conduct continuing reviews of sustainment strategies, using comparisons of performance expectation, as defined in performance agreements against actual performance measures. PMs must revise, correct, and improve sustainment strategies as necessary to meet performance requirements.

E.4 An IOC assessment is performed as the basis for certifying the adequacy of the in-place product support for IOC. The assessment is conducted by the developing activity with participation from its warfighter/user. This assessment provides the warfighter with an opportunity to accept, reject, or modify the PM-designed workarounds to resolve any supportability deficiencies and/or delays to IOC. IOC supportability reviews assessed performance and related acceptance criteria to confirm:

- Design maturity of the system,
- LCMP approval,
- All required logistics resources have been delivered to the user,
- PSI/PSP agreements, contracts and funding are in place, and
- Product Support Integrator/Provider plans to meet warfighter requirements.

E.4.1 Sustainment strategies for iterative production increments in an evolutionary AS should fully address the support requirements for each block increment. A thorough assessment of the existing support strategy relative to new system performance and support requirements should be conducted at each evolutionary phase and changes made as necessary. An initial assessment at increment one should address the support

implications of the logistics support strategy for both the initial block and follow-on increments. At each successive increment, a total systems support assessment should be conducted for that block. This introduces the need for assessment and revision of support strategies as a continuing, life-cycle process, with the corresponding need for regular reviews, as outlined below.

E.5 FOC supportability reviews assess the adequacy and effectiveness of existing logistics support. They are required at FOC, and periodically thereafter, or when precipitated by changes in requirements/design or performance problems. These post-deployment reviews are held nominally every 3-5 years after IOC or when precipitated by changes in requirements/design and should include:

- Review PSI/PSP performance,
- Review incorporated product improvements,
- Confirm configuration control, and
- Modify PBL agreements as needed based on changing warfighter requirements, system design or effectiveness of the product support/sustainment strategy.

E.6 Pre-IOC and FOC Product Support Criteria. The following checklist provides product support assessment questions that may be applicable to IOC or FOC assessments:

E-1. Pre-IOC and FOC	
Evaluation Criteria	
• Has the LCMP been coordinated with the user community?	
• Have all required logistics resources been procured and delivered to the user?	
Maintenance	
• What post-production issues have been identified?	
• Have corrective actions or plans been developed to address these issues?	
• What is the schedule for supportability assessments?	
• What is the schedule for post-deployment reviews?	
• Who is responsible for maintaining the maintenance plan?	
• Is the maintenance concept rational and articulate?	
Depot Planning	
• Has the SORAP been completed and approved?	
• Has a depot maintenance interservice study been completed and are agreements in place, if required?	
• Is the interim depot repair capability trained, equipped, and in place to perform depot maintenance?	
• If depot repair is to be performed commercially, has the contract been awarded?	
• Has the depot manager certified the depot repair capability?	
• Is the repair capability trained, equipped, and in place to perform depot maintenance?	
• Are depot capital improvement projects necessary to support this repair capability completed or on schedule?	
• Do the planning efforts articulate the required timing for establishing a depot capability relative to IOC?	
• Is PPP between the depots, original equipment manufacturers and other PSPs being considered?	
• Are cost estimates for establishing depot capability addressed and included in the product support funding profile?	
Facilities	
• Are required unit-level MILCON projects complete or on schedule?	
• If MILCON is not complete, what interim facility workarounds have been planned?	
• Have all beddown sites been activated?	
• If beddown sites have not been activated, do the activation plans support the system fielding/deployment on schedule?	
• Are all host tenant support agreements in place?	
Warranty	
• Does the maintenance plan identify warranty requirements?	
• Have problems with warranty administration at the Organizational and Intermediate levels been identified during early fielding of the system?	
• Have modifications to the warranty program been proposed or implemented to address those problems?	
• What incentives have been offered to the contractor to increase the warranty period?	

E-1. Pre-IOC and FOC (continued)	
Support Equipment (SE)	
• Have required common and peculiar SE, their calibration requirements and procedures, and necessary TMDE and tools been identified in the LCMP?	
• Has availability and adequacy of SE and tools for O- and I-level repair at operational sites and training schools been verified?	
• Does the SE deployment strategy support the system beddown schedule for IOC and FOC?	
• Has an SE support strategy been developed and implemented?	
• Have SE training classes been developed and do they support the beddown schedule?	
• What is the depot support concept for the SE?	
• Have Allowance Standards of the pre-IOC/FOC checklist been updated to reflect all SE requirements?	
• Does the schedule for deployment of Automatic Test Equipment (ATE) to user sites support the system beddown strategy?	
• Have installation control drawings for ATE been delivered?	
• Have calibration requirements for ATE been determined and documented?	
• Have CM responsibilities for ATE been assigned and are processes implemented?	
• Are all required Test Program Sets (TPS) complete?	
• Have the TPSs and associated documentation been evaluated and verified?	
• Will TPSs required for O- and I-level repair be available at IOC/FOC?	
• Are plans to duplicate and deploy verified TPSs in place and on schedule?	
• Has an AF activity (e.g., software support activity) been designated to maintain the diagnostic software, issue field changes, etc.?	
• If planned, is the transition to organic support on schedule?	
Supportability	
Computer Resources Support	
• Will the software support activity have all software support established (budget, personnel, tools, facilities, hardware, documentation and support equipment) before IOC?	
Supportability Analysis	
• Is post-production support planning on schedule?	
• Is there a plan for a sustained maintenance planning IPT to review the established maintenance support structure?	
• Is the sustained maintenance planning IPT functional, including data collection and analysis funded?	
• Have support issues been identified?	
• Have potential solutions been identified and implemented to support the beddown plan?	
• Are logistics reviews planned during the deployment phase to assess and address supportability issues?	

E-1. Pre-IOC and FOC (continued)	
• Are plans in place or implemented to assess supportability (identify deviations between predicted and actual supportability values, identify the causes and propose remedies)?	
• Is the supportability analysis database available to the maintaining activity?	
• How will the results of post-deployment reviews and sustained maintenance planning be reflected in the maintenance data documentation?	
Systems Engineering	
Reliability, Availability and Maintainability (RAM)	
• Is the process implemented to assess achieved RAM performance by collection and analysis of user data?	
• Are system thresholds for RAM being achieved in the fleet?	
• Does equipment maintenance data indicate that uncorrected logistics problems exist?	
• What are the POA&M for corrective actions?	
Human Factors Engineering (HFE)	
• Have HFE deficiencies identified during previous ILAs or testing been corrected?	
• Have HFE requirements been identified as candidates for engineering change proposals?	
• Have contractual provisions been made to allow for adequate HFE simulations using mockups, models or computer simulations for engineering change proposals?	
Environment, Safety, and Occupational Health (ESOH)	
• What ESOH issues remain open? o Has the Program Office provided the operators, maintainers, testers, and trainers the ESOH hazard tracking data according to AFI 90-901? o What ESOH hazards have not been eliminated and the residual risks not accepted at the appropriate management level? o What residual ESOH risks remain in the high or medium risk categories? o Have all the NEPA or EO 12114 documentation requirements identified in the NEPA Compliance Schedule as being required prior to IOC or FOC been completed?	

E-1. Pre-IOC and FOC (continued)	

• What ESOH concerns were raised during initial training and fielding of the system?
  o Have the operators, maintainers, testers, and trainers worked with the Program Office to integrate the Hazardous Materials (HAZMATs) used to operate and maintain the new or modified system into the Installation HAZMAT Management Program (IHMP) according to AFI 32-7086?
  ▪ Have HAZMATs required to support the system been identified?
  ▪ Are these HAZMATs new to the user community?
  ▪ Does training emphasize the proper handling and storage of these materials?
  ▪ What efforts will be made to reduce or eliminate the use of HAZMATs for the support of the system?
  ▪ Are HAZMAT properly tracked, stored, handled, and disposed of adequately?
• Are Material Safety Data Sheets (MSDS) available for all HAZMAT?	

o Have the operators, maintainers, testers, and trainers used the Program Office-supplied ESOH hazard tracking data as the basis for their application of Operational Risk Management (ORM) to the operations and maintenance of the new or modified system according to AFI 90-901? o What new ESOH hazards were identified and have the risks been assessed, hazards eliminated or risks mitigated, mitigation measures verified, and residual risk accepted at the appropriate management levels? o Are the operators and maintainers working with the Program Office to ensure the Operational Safety, Suitability, and Effectiveness of the new or modified system as required by AFI 63-1201?	
• Have corrective actions been identified and implemented to address these issues and concerns?	
Data Management	
Product and Technical Data	
• Has the government accepted the TDP?	
• Have changes been made that were identified during the PCA?	
• Is the TDP suitable for provisioning and competitive procurement?	
• Does the TDP cover all replenishment spare and repair parts?	
• What data rights does the government own?	
• Are control drawings for all vendor items contained in the TDP?	
• Does the TDP adequately describe all unique manufacturing processes, test requirements, etc.?	
• Has the TDP been delivered to the drawing repository?	
Technical Manuals	
• Are approved technical manuals available to support the end item and all peculiar support equipment?	
• If not, what is the workaround plan to compensate for this deficiency?	
• How will funding requirements for post-production support of technical manuals be identified (i.e., updates and revisions)?	

E-1. Pre-IOC and FOC (continued)	
• Are technical manuals (hard copy or electronic) available in the quantities required?	
• Are they up-to-date?	
• Do they match the fielded configurations?	
Supply	
• Is there an adequate, formalized plan for transitioning from contractor supply support to full Air Force supply support or have commercial support agreements been established?	
• Have adequate funds been budgeted to support both interim and Air Force support requirements?	
• Is an approved parts list provided for each equipment type?	
• Have requisition and turn-in procedures been established for repairable items?	
• Are contractor points of contact identified for the supply officer to seek assistance when supply problems occur?	
• Is wholesale supply support adequate?	
• Are there backorders for critical parts?	
• Do parts lists reflect the current component level configuration?	
• Has TAV been implemented across the program, including contractor assets?	
• Have asset identification strategies been implemented (RFID, UID, etc.)?	
Configuration Management	
• Does the platform configuration and logistics support index database/weapons system file reflect accurate configurations?	
• Does the appropriate program database reflect an accurate system configuration?	
• How are software configurations tracked and are processes in place to ensure repository accuracy?	
Training	
• Are training courses adequate and appropriate to fielded configuration(s)?	
• Have instructors and key personnel training been accomplished?	
• Are training courses conducted in a sufficient timeframe to support IOC/fielding?	
• What kind of training equipment is required for maintenance, support personnel, and crews?	
• Is the training equipment meeting its specifications?	

F. Evaluation Criteria for Performance-Based Logistics (PBL)

F.1 DoD policy states that PMs shall develop and implement PBL strategies that optimize total system availability while minimizing cost and logistics footprint. Further, sustainment strategies shall include the best use of public- and private-sector capabilities through government/industry partnering initiatives, in accordance with statutory requirements. The requirement to pursue a PBL approach applies to new programs, major modifications and upgrades as well as reprocurement of systems, subsystems, and spares that are procured beyond the initial production contract award.

F.2 Product support is defined as a package of logistics support functions necessary to maintain the readiness and operational capability of a system or subsystem. It is an integral part of the weapon system support strategy as documented in the LCMP. The PM is the single point of accountability for accomplishing program objectives for TLCSM, including supportability, and is directed to consider supportability, LCCs, performance and schedule on a comparable basis when making program decisions. Planning for operations and support and estimating TOCs shall begin as early as possible. Supportability, a key component of performance, shall be considered throughout the system life cycle.

F.3 PMs are responsible for the development and documentation of an AS to guide program execution from program initiation through retirement – design to disposal. In doing so, they pursue two primary objectives. First, the weapon system as designed, maintained and modified should continuously strive to reduce the demand for logistics. Second, logistics support must be effective and efficient, minimizing the resources required to provide product support while meeting warfighter needs. As a product support strategy, PBL aims to balance and integrate the support activities necessary to meet these two objectives. PBL is focused on implementing long-term support agreements to achieve a performance outcome, such as readiness or availability to meet warfighter need.

F.4 Initial product support strategies for ACAT I programs will be developed prior to Milestone B to include definition of metrics that define a program's ability to meet future logistics and operational performance requirements. These strategies shall provide the foundation for detailed PBL Business Case Analysis (BCA) to be completed prior to Milestone C and/or contract award that are based on the detailed design. BCA estimates shall be accomplished at significant subsystem/repairable item levels that provide the information necessary to initiate cost-effective maintenance and repair actions.

> F.4.1 For new system BCAs, detailed Milestone C baselines shall be established considering reliability and maintainability projections at the major system repairable level. These individual estimates shall be sufficiently detailed to provide the basis for contractual actions leading to implementable support strategy actions. BCAs will continue throughout the life-cycle process with oversight to ensure reassessment at appropriate times, such as LCC updates, Reduction in Total Ownership Cost (R-TOC) activities and/or continuous improvement actions. PBL performance will be evaluated at appropriate decision points.

F.5 The criteria contained in Appendix F should be used as a guide to assess the planning and status of the PBL strategy for the system under review. Numerous additional sources of information regarding PBL and performance-based arrangements (PBAs) are available to supplement the guidance in DoD 5000.2, and federal, DoD and Service acquisition regulations to include *Performance Based Logistics: A Program Managers Product Support Guid*e, the *Defense Acquisition Guide*, various USD(AT&L) memoranda and other resources available at the Defense Acquisition University web site.

F-1. PBL Product Support Strategy	
Evaluation Criteria	
1. Requirements and Support Integration	
• Does the PM have a clear understanding of the warfighter requirement in terms of performance?	
• Have specific support-related KPPs and KSAs been identified in the ICD, CDD or CPD?	
• Have logistics requirements identified in JCIDS documents been validated?	
2. PBL Team Formed	
• Has the PM formed a PBL Team?	
• Has the PM established, documented and communicated achievable goals for the team?	
• Does the team include all appropriate stakeholders, including warfighter and logistics representatives?	
• Have team members established goals, developed POA&Ms and obtained adequate resources?	
3. Baseline the System	
• Has the system baseline been defined and documented? o Has the scope of the support requirement been determined (what sustainment functions are planned to be included in this product strategy)?	
• Has the PM distinguished between the existing and desired performance requirements? o Have the key stakeholders been identified? o Have cost and performance objectives been determined? o Have the sustainment and readiness performance history and associated O&S costs been determined?	
4. Develop Performance Outcomes	
• Do performance outcomes focus on the warfighter's needs?	
• Have corresponding logistics metrics been established that link to warfighter performance measures and outcomes?	
5. Select the Product Support Integrator (PSI)	
• Has the PM designated a product support manager (PSM) to lead the development and implementation of the product support and PBL strategies?	

F-1. PBL Product Support Strategy (continued)	
• Has the PSM selected a PSI from DoD or industry to coordinate the work and business relationships needed to satisfy the performance-based agreement?	
• Has the PSI been formally bound or charged with integrating all sources of support within the scope of the PBL agreement?	
• Has the PM ensured that the product support concept is integrated with other logistics support and combat support functions?	
• Have Defense Logistics Agency (DLA) and candidate depot (ALCs and others Services' depots) activities been invited to participate in product support strategy development and IPTs?	
6. Develop Workload Allocation Strategy	
• Have the specific capabilities required to perform the desired sustainment functions been identified?	
• Has each discrete workload been addressed, considering where, how and by whom it can best be accomplished?	
• Have statutory or regulatory limitations associated with the performance of these functions been identified and considered?	
• Have inherently governmental functions been identified?	
• Has a best-value determination been made regarding who is best to perform the desired sustainment functions, considering Title 10, existing support processes, support infrastructure and SORAP decisions?	
• Has public- and private-sector market research been conducted to identify the source of repair that will provide the best capabilities?	
7. Develop the Supply Chain Management (SCM) Strategy	
• Has an SCM strategy been developed to consider the supply support needs?	
• Have system-unique reparable items been identified?	
• Have common reparable items been identified?	

• Have system-unique consumable items been identified?
  o Has DLA been considered as the source of support for these items?
• Have common consumable items been identified?
  o Has DLA been considered as the source of support for these items?	

• Has consideration been given to drawing down unique DoD inventory before buying spares and repairs from private sources?	

• Do the SCM strategies for these items address:
  o Distribution processes?
  o Asset visibility?
  o Obsolescence management?
  o Transportation management?	

8. Establish the PBAs	
• Has a formal relationship been established (contract, Memorandum of Understanding (MOU), Memorandum of Agreement (MOA) or SLA as applicable) among stakeholders to achieve agreement on expected levels of operational support and performance?	

F-1. PBL Product Support Strategy (continued)	
• Does it clearly delineate performance outcomes, their corresponding support requirements, and the resources required to achieve them?	
• Does it specify the highest level metric critical to the desired performance outcome?	
• Does the agreement define and specify the system operational requirements (e.g., readiness, availability, response times, etc.)?	
o Has a range of outcome performance been identified with a threshold and objective value for each level of PBL capability?	
o Has a target price (cost to the user) been specified? o Are cost vs. price considerations clearly articulated? o Does it include provisions to maintain the flexibility of execution funding? o Does it include provisions to accept priority revisions? o Does it include terms and conditions related to surge and warfighting requirements? o Does it outline what will be considered "over and above"?	
• Have factors that could affect performance but are outside the control of the PBL provider been identified?	
• Does the agreement:	
o Include provisions to permit use of DLA as a support provider? o Identify any potential shared risk factors? o Include risk-sharing strategies to mitigate or compensate the parties for taking on risk? o Include risk-sharing strategies to incentivize providers to make good decisions to improve reliability or support? o Include appropriate incentives to properly motivate behavior of the support provider? o Include appropriate remedies for non-performance under the PBL arrangement?	
• Has the PM considered opportunities available under FAR Part 12 – "Acquisition of Commercial Items" – to develop an agreement that provides best value?	
9. Conduct the PBL BCA	
• Is the BCA based on warfighter-stated performance requirements?	
• Have the process, scope and objectives for the PBL BCA developers been clearly communicated?	
• Does the BCA address: o Assumptions, analytical methods and case boundaries? ▪ Methods and rationale used to quantify benefits and costs o Financial and non-financial business impacts for each scenario? ▪ Impact and value of performance, cost, schedule and sustainment tradeoffs o Risk assessment that shows how results depend on important assumptions? Data required to support and justify the PBL strategy to include information from all appropriate stakeholders, including government and industry providers	

F-1. PBL Product Support Strategy (continued)	
▪ Sensitivity of that data to change	
▪ Analysis and classification of risks	
• Does the BCA specifically address contract vs. organic risk management financial accountability and recovery actions?	
• Does the BCA include risk assessment of expected performance, supply chain responsiveness and surge capabilities?	
• Does the risk assessment address the probability and confidence level of the following events occurring? o Poor performance o Cost growth o Extended labor disputes o Changeover in PSI or Product Support Provider (PSP)	
• Items that provide the best overall benefit to requirements to include: o Cost per output o Performance measures o Capitalization/asset ownership o Size of footprint o Reliability growth o DMSMS management o Obsolescence and appropriate obsolescence mitigation plans o Technology insertion o Risk management	
• Does the BCA show the linkage between the product support alternatives and the strategic objectives of the program, demonstrating how each alternative will comply with product support performance measures?	
• Does the BCA articulate the impact of each product support alternative on the stakeholders?	
• Does the BCA identify the various budget accounts and amounts affected by the various product support strategies? o Were Cost Analysis Improvement Group (CAIG) concerns addressed?	
• Has the full range of minimum and maximum essential logistics capabilities (peacetime to full mobilization requirement) been addressed? o Does the BCA consider operational requirements and DoD guidance for : ▪ Contractors on the battlefield? ▪ The necessity for the DoD to maintain core logistics capabilities? ▪ The limit on contracting for depot-level maintenance (50/50)? ▪ Synchronization with the Defense Transportation System? ▪ Flexibility to support contingencies and surges?	
• Does the BCA provide a best-*value* analysis considering factors other than just cost, such as performance, producibility, reliability, maintainability and supportability enhancements?	

F-1. PBL Product Support Strategy (continued)	
• Does the BCA provide a recommendation and summary of the implementation plan for proceeding with the best-value alternative?	
• Has the BCA been developed independently and without prejudice?	
• Was the BCA developed using analytic tools approved by the AF?	
10. Award Contracts or MOU/MOA	
• Does the PBL contract specify:	
o Performance requirements and desired outcomes?	
o Stakeholder roles and responsibilities? o Terms of the contract? ▪ Specify metrics ▪ Specify how performance will be assessed ▪ Incentives and remedies o Reliability growth targets? o Maintainability improvements? o Flexibility (range of support)? o DMSMS and obsolescence management? o Continuous modernization/improvement? o Cost reduction/stability?	
• Does the contract include a provision for tailored cost reporting to enable appropriate contract management and facilitate future cost estimating and price analysis?	
• Does the contract include a provision for full access to DoD demand data?	
• Is the contract vehicle appropriate to the risk level of the program (i.e., cost-reimbursement contracts or fixed-price contracts)?	
• Does the PBL contract include adequate exit criteria should worst-case scenarios arise regarding contractor inability to continue providing support?	
• Are the contract period of performance and option years of sufficient length to incentivize the service provider to make desired investments in infrastructure and processes to achieve reliability improvements?	
• Does the contract contain review points and benchmarking agreements to maintain ongoing value for money?	
• Is the contract competitively sourced to make maximum use of small, disadvantaged or service-disabled, veteran-owned businesses?	
11. Employ Financial Enablers	
• Has the PM estimated annual costs based on operational requirements?	
• Has the PM reviewed funding streams for applicability?	
• Do the PM and the force provider (customer) agree on a financial management strategy to assure funds will be available as needed to fund the negotiated PBL agreement?	
• Has the AFWCF been considered as the vehicle to implement the PBL arrangement?	
12. Implement and Assess	
• Has the PM developed a performance assessment plan?	

F-1. PBL Product Support Strategy (continued)	
• Is the PM proactively managing performance?	
• Is the PM adequately representing the warfighter by certifying the PSI performance and approving incentive payments?	

• Are periodic assessments of system support strategies being conducted to assess expected vs. actual levels of performance and support every 3-5 years after IOC or as dictated by changes in requirements, design, or performance problems that include:
  o PSI/PSP performance?
  o Product improvements that have been incorporated?
  o Adequacy of configuration control?
• Is the provider's capacity to sustain and surge commensurate with warfighter requirements subject to verification and routine audit?
• Are product support strategies and PBAs being revised, as necessary, based on changing warfighter requirements or system design changes?	

G. ILA Philosophy

G.1 General Assessment Steps.

The general assessment steps displayed in Figure 4-1, General Assessment Process, provide a methodical way to execute the assessment process and should be followed when conducting an ILA. ILA team leaders are not constrained to the sequence as outlined, but rather should ensure that aspects appropriate to the acquisition program and phase of the life cycle are addressed in the course of the ILA process. The intent of each of these steps is discussed in more detail below.

G.2 Understand Warfighter Performance Requirements.

The DoD movement toward the use of commercial specifications, best practices, and performance specifications dictates that support requirements, as stated in formal program documentation, be addressed in terms of program performance objectives. Figure G.1, Linkage Between System Performance and Sustainment Objectives, shows the inter-relationship between warfighter performance objectives, sustainment objectives and the performance agreements developed to fulfill those objectives. Specifically, product support requirements should relate to a system's operational safety, suitability, and effectiveness, and TOC. These performance requirements serve as a basis for logistics tradeoffs, decisions, and implementation of a logistics program. The questions outlined in Table D-1, Warfighter Performance Requirements, of Appendix D will give the ILA team an understanding of the program and the overarching warfighter performance requirements driving the design of the support system. This foundation of information will set the stage for their subsequent assessment of the PM's acquisition logistics efforts.

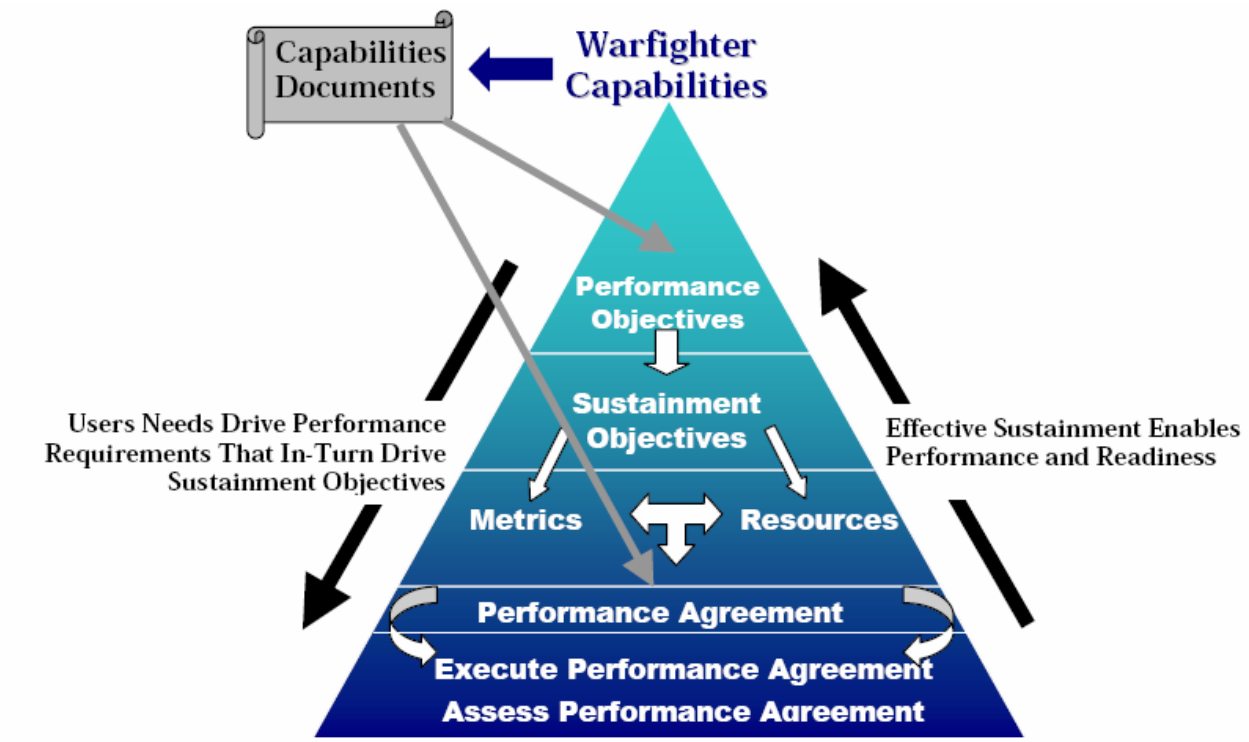


Figure G-1. Linkage Between System Performance and Sustainment Objectives
***"Designing and Assessing Supportability in DoD Weapon System: A Guide to Increased Reliability and Reduced Logistics Footprint,"* OSD, October 24, 2003**

G.2.1 ILA team members should review the warfighter performance requirements and program performance agreements, in these documents:

- Initial Capabilities Document (ICD)
- Key Performance Parameters (KPP) and Key System Attributes (KSAs) in the
  - Capability Development Document (CDD)
  - Capability Production Document (CPD)
- Acquisition Strategy (AS), depending on program phase
- Performance Agreements (PAs)

G.3 Assess the PM's Approach to Total Life-Cycle Systems Management (TLCSM).

The TLCSM approach requires the PM to create and maintain a life-cycle product support strategy for his/her system. That support strategy, which is a major part of the AS, should provide for life-cycle sustainment and continuous improvement of product affordability, reliability, and supportability, while sustaining readiness. The support strategy describes the supportability planning, analyses, and tradeoffs applying Cost Benefit Analysis (CBA) and BCA to determine the optimum support concept for a materiel system and identify the strategies for continuous affordability improvements throughout the product life cycle. The product support strategy will be developed and updated in the support concept section of the Life-Cycle Management Plan (LCMP)[1]. The TLCSM questions in Table D-2, Total Life-Cycle Systems Management of Appendix D, will provide the ILA team with a top-level view of the PM's life-cycle approach and the general status of major elements of product support.

G.4 Assess Product Support Management.

ILA team members will review the product support and sustainment planning strategy to ensure performance requirements have been translated into logistics requirements. The PM is responsible for developing a framework for capability-based acquisition and integrated product support planning. This framework allows the PM to demonstrate the inter-relationship among acquisition, product support and sustainment by defining a plan that addresses a life-cycle product support strategy, and by managing the product support implementation to ensure warfighter needs will be satisfied at best value. The support concept section of the LCMP should also provide a mapping to the primary product support and technical documentation. The questions in Table D-3, Product Support Management of Appendix D, will provide the ILA team with a more detailed understanding of the PM's approach to product support management.

G.5 Review Product Support Budgeting and Funding.

The financial management strategy must support the product support strategy. Adequate resources must be programmed for product support and sustainment planning. ILA team members will review the funding strategy and funding documents to ensure product support and sustainment funding requirements are appropriately identified, funding is available and shortfalls are identified. Appendix C provides a list of relevant documentation that may be applicable to reviews for Milestones B and C. The questions in Table D-4, Product Support Budgeting and Funding of Appendix D, will give the ILA team insight to the financial management aspects of the program.

[1] The LCMP integrates plans formerly articulated in the Single Acquisition Management Plan (SAMP) and the Product Support Management Plan (PSMP)

G.6 Review the Contract.

The solicitation package or contract should be assessed for adequacy of supportability requirements. The solicitation package for the next acquisition phase, if available, should also be reviewed to ensure that it is adequate to meet the requirements of the LCMP or other program documentation. This is critical for ensuring that planning is complete. For instance, the sustainment elements assessed previously may show that a particular metric may need to be complete by Milestone C. During the ILA for entrance into Phase B, the solicitation package should be assessed to ensure that planning and requirements to meet those metrics are in place. The questions in Table D-5, Contract Logistics Considerations of Appendix D, will provide the ILA team with more detailed guidance when reviewing the weapons system contract for logistics considerations.

G.7 Assess the Integrated Master Plan (IMP)/Schedule (IMS).

One way of defining tasks and activities is the use of an IMP and IMS, which provides an overarching framework against which all work is accomplished. PMs should use event-driven schedules and the participation of all stakeholders to ensure that all tasks are accomplished in a rational and logical order. These tools facilitate communication and help to manage expectations among stakeholders. The PM should also ensure that necessary input conditions to complete each major task are identified, and no major task should be declared complete until all required input conditions and component tasks have been satisfied. ILA teams should assess the reasonableness of the tasks and likelihood of completion of each product support and sustainment task within the allocated schedule and available man-loading. Overly optimistic, success-oriented schedules that do not reflect realistic conditions may mask eventual program cost growth, schedule delays or perhaps failure. Project management charting tools are commonly used to schedule and organize program tasks, graphically showing their schedule and dependencies.

G.7.1 The IMP provides an overarching framework against which all work is accomplished. It documents all the tasks required to deliver a high-quality product and facilitate success throughout the product's life cycle. The IMP also serves to identify dependencies which may be performed by different organizations. The IMS helps the PM understand the links and inter-relationships among the various teams and identify critical risk areas. Critical path analysis should be used to help identify which tasks, or sets of tasks, will be more difficult or costly to complete. The sequence and dependencies of one task upon another must be included in determining schedule realism. The IMS timelines must be achievable within funding constraints when considering all required detailed tasks and their interdependencies.

G.7.2 The effectiveness of a program’s product support strategy must be reviewed in context of the overall program schedule and the design/development milestones. The tasks for each sustainment element must be planned, scheduled and integrated with other program activities. The IMS must also factor in these schedule requirements for each sustainment element, based on a bottom-up task analysis. To minimize program risks, the detailed logistics support tasks developed and integrated into the overall IMS must be realistically achievable, considering the sequence of all dependent and interconnected tasks. Assessors should review critical paths to identify logistics tasks including their actual start/end dates and to review progress and timeliness of each task against its schedule. Schedules, for example, should reflect tasks such as Built-in Test (BIT)/testability design; maintainability analyses/verifications, Failure Modes, Effects

and Criticality Analysis (FMECA); special test equipment identification and development of the embedded and on-board training capabilities. The questions contained within Table D-6, Sustainment Elements of IMP/IMS of Appendix D, will help the ILA team assess the inclusion of specific sustainment elements within the IMP/IMS.

G.8 Assess Sustainment Elements.

A product support strategy is built around the sustainment elements to integrate the acquisition and sustainment phases of a weapon system throughout its life cycle. ILA team members will review the primary supporting documentation for each sustainment element to ensure logistics requirements are further detailed and required analyses have been performed. This should include a review of the funding strategy and funding documents to ensure funding requirements for each sustainment element are appropriately identified and that funding is available and shortfalls identified. The ILA team members will ensure that each sustainment element is funded in the year funding is contractually required to produce the end item per the IMP. The questions in Tables D-7 through D-16 of Appendix D provide the ILA team a methodology for a detailed assessment of all required logistic support elements.

G.9 Assess Ability to Meet Performance Requirements.

ILA team members will assess each of the sustainment elements to determine if the performance agreements, specified supportability KPPs and critical system parameters in the capabilities documents can be met from a supportability perspective. Depending on program phase, the information required to perform this assessment can generally be found in RAM models and predictions, development and operational test information documents, RAM/BIT requirements in the contract/statement of work, RAM analyses and test results, and in AF sponsored tests, etc.

G.9.1 If the RAM KPPs and critical system parameters of the ICD/CDD/CPD are not met, then the product support and sustainment areas must be reassessed to determine what impact the lower RAM numbers will have on the supportability of the system. For instance, if the actual reliability number does not meet the threshold in the CDD and spares are being reviewed, then the calculated requirements for spares may be incorrect and require adjustment, or the manpower analysis may be inaccurate since it does not account for the higher failure rate and longer repair times. If there is an impact, assess risk to the program and document a finding. Appendix A contains a cross reference of typical reliability measures and their relationship to the product support and sustainment planning factors and should be used as a guide to determine if there is any impact to a particular sustainment element.

G.10 Determine and Document Results of Assessment.

The ILA team will document the program's risks and issues in an ILA report. They will rate the product support planning and implementation using the metrics provided in Section 5. The assessment will provide a rating for each sustainment element as well as an overall Product Support Planning and Implementation certification recommendation for the program.

H. ILA Meetings and Presentations

H.1 As noted in Section 5, it is critical that meetings and presentations be conducted to ensure all individuals participating in the ILA understand the process. These presentations offer the PM an opportunity to educate the ILA team on the program and to receive information from the ILA team during the course of the assessment. A discussion of the expected meetings and presentations is provided here to ensure standardization of ILA reporting.

H.2 Pre-Assessment Meeting.

The pre-assessment meeting is conducted to establish coordination/planning among the team leader, PM, and logistics manager. The following issues should be addressed:

- Confirm the responsibilities of the PO, team leader and team members,
- Confirm the purpose and scope of the review,
- Discuss specific review procedures,
- Coordinate the availability and location of product support and program documentation (a listing of available documents should be prepared before the ILA for distribution to team members at the pre-brief),
- Clarify specific ILA schedule of events/agenda,
- Identify the location of all assessment activities,
- Identify and determine availability of PO personnel to respond to ILA team member questions,
- Necessary security requirements and arrangements, including access to classified material,
- Conduct of the assessment,
- Issuance of draft and final reports and coordination procedures,
- Post-review procedures to include follow-up on identified issues (as required), and
- Issuance of a certification statement reflecting the results of the assessment.

H.3 Opening Brief.

The opening brief provides the ILA team with a foundation of information regarding program background, its current status, logistics structure and a review of what to expect during the assessment. It is important to recognize that ILA team members may not be familiar with the subject program, and the opening brief is the best opportunity to provide the ILA team with a basic understanding of the program and provide the necessary background information to place the program in its proper context. The opening brief consists of the following:

H.3.1 Program overview (presented by the PM or Deputy PM):

- Acquisition Program Baseline (APB) to include status of KPPs and KSAs and Program Risk assessment,
- A general description of the system (physical as well as functional),
- System interfaces,
- The planned operational use of the system,
- Support strategy (including unique considerations and performance requirements),

- Current status of the program (including any pertinent history and program peculiarities),
- Size of the program (acquisition objective and funding profile),
- Funding status,
- Organizational structure of the program office,
- AS (including contract status) and IMS,
- Status of the program's documentation,
- Scope of the review, and
- Program office and logistics points of contact.

H.3.2 Product Support Strategy brief (presented by the Program's Director of Logistics):

- Structure of the logistics management team and organization,
- Discussion of the LCMP, SORAP, and PPP,
- Status of logistics KPPs and KSAs,
- Overview of the maintenance concept,
- Funding issues affecting product support strategy implementation,
- Status of applicable documentation (e.g., approval status),
- Status of each of the sustainment elements to be reviewed,
- Rationale for not reviewing a specific area (if applicable),
- Contract vehicle and status, and
- Names and phone numbers of program office counterparts.

H.3.3 Team brief (presented by the ILA team leader):

- A review of the responsibilities of the team leader and team members,
- Specific logistics assessment schedule of events/agenda,
- Instructions on documenting observations,
- Report format and contents,
- Guidance on determining the time frame in which recommended actions need to be completed (e.g., does the action need to be completed before the program decision milestone or contract award?), and
- Post-review procedures.

H.4 Periodic Progress Briefs.

These briefs are conducted during the ILA at times agreed upon by the team lead and the program office representative. The purpose is to brief the program office of any issues noted during the assessment as well as to resolve any issues from the previous progress brief that were unresolved. During these briefs, the ILA lead will:

- Discuss new issues with the PM,
- Obtain the PM's concurrence or non-concurrence on each issue/observation as well as on the team leader's logistics certification recommendation, and
- Conduct follow-up on issues from the previous progress brief.

H.5 Final Outbrief.

This brief is presented at the conclusion of the assessment by the ILA team to the PM, the Product Support Manager and other PO members as identified by the PM. In the final outbrief, the team lead will discuss the final assessment results, the draft report, and

recommended certification rating. The intent is to ensure that the content of the report is understood and to conduct any follow-up discussions on issues that require resolution or for issues that cannot be resolved and require inclusion as deficiencies. The team lead should also provide overall impressions of the product support strategy, including best practices identified or missing as well as process or policy barriers affecting the success of the program. Finally, the team lead will establish, with the PM, a time frame for coordination of any outstanding issues before release of the Final Report.

I. Abbreviations and Acronyms

A_o—Operational Availability
ACAT—Acquisition Category
ACE—Acquisition Center of Excellence
AETC—Air Education and Training Command
AFFARS--Air Force Federal Acquisition Regulation Supplement
AFI—Air Force Instruction
AFMC—Air Force Materiel Command
AFMCI—Air Force Materiel Command Instruction
AFPD—Air Force Policy Directive
AFWCF—Air Force Working Capital Fund
AKSS—AT&L Knowledge Sharing System
ALC—Air Logistics Center
AoA—Analysis of Alternatives
APB—Acquisition Program Baseline
AS—Acquisition Strategy
ASR—Acquisition Strategy Review
ASVAB—Armed Forces Vocational Aptitude Battery
ATE—Automatic Test Equipment
BCA—Business Case Analysis
BIT—Built-In Test
BLRIP—Beyond Low Rate Initial Production
BOM—Bill-Of-Materials
BR—Break Rate
CAE—Component Acquisition Executive
CAIG—Cost Analysis Improvement Group
CATEX—Categorical Exclusion
CAMS—Core Automated Maintenance System
CARD—Cost Analysis Requirements Description
CBM—Condition-Based Maintenance
CBM+—Condition-Based Maintenance Plus
CC—Commander
CCB – Configuration Control Board
CCD—Customer Criteria Document
CDD—Capability Development Document
CDR—Critical Design Review
CFR—Code of Federal Regulations
CI—Configuration Item
CJCSI—Chairman Joint Chiefs of Staff Instruction
CLS—contractor logistics support
CM—Configuration Management
CMP – Configuration Management Plan
COTS/NDI—Commercial Off-The-Shelf/Non-Development Item
CPD—Capability Production Document
CPI—Critical Program Information

CR—Component Reliability
CSI—Critical Safety Items
DCS—Deputy Chief Of Staff
DCN—Document Control Number
DFARS—Department of Defense Federal Acquisition Regulation Supplement
DLA—Defense Logistics Agency
DoD—Department of Defense
DODD—Department of Defense Directive
DODI—Department of Defense Instruction
DOTMLPF—Doctrine, Organization, Training, Material, Leadership and Education, Personnel and Facilities
DRMP—Design Reference Mission Profile
DMSMS—Diminishing Manufacturing Sources and Material Shortages
DT&E—Development Test and Evaluation
EA—Environmental Assessment
e.g.—for example
EIS—Environmental Impact Statement
EO—Executive Order
EOA—Early Operational Assessment
etc.—etcetera; meaning “and so forth”
ESOH—Environment, Safety and Occupational Health
FAR—Federal Acquisition Regulation
FCA—Functional Configuration Audit
FLIS—Federal Logistics Information System
FMECA—Failure Modes, Effects and Criticality Analysis
FMS—Foreign Military Sales
FOC—Full Operational Capability
FONSI—Finding of No Significant Impact
FOT&E—Follow-on Test & Evaluation
FRACAS—Failure Reporting, Analysis and Corrective Action System
FRP—Full Rate Production
FTA—Fault Tree Analysis
FY—Fiscal Year
FYDP—Future Years Defense Program
GFE—Government Furnished Equipment
GFP—Government Furnished Property
GFM—Government Furnished Material
HFE—Human Factors Engineering
HQ—Headquarters
HSI—Human Systems Integration
IAW—In accordance with
I&L—Installations and Logistics
I-level—Intermediate Level of Repair
IBR—Integrated Baseline Review
ICD—Initial Capability Document
ICS—Interim Contractor Support

IDDE—Integrated Digital Data Environment
i.e.—id est; meaning “that is”
IETM—Interactive Electronic Technical Manual
ILA—Independent Logistics Assessment
IMDS—Integrated Management Data System
IOC—Initial Operational Capability
IOT&E—Initial Operational Test and Evaluation
IMP—Integrated Master Plan
IMS—Integrated Master Schedule
IPS--Integrated Program Summary
IPT—Integrated Product Team
ISP—Information Support Plan
IT—Information Technology
JCIDS—Joint Capabilities Integration and Development System
JITC—Joint Interoperability Test Command
JTAV—Joint Total Asset Visibility
JROC—Joint Requirements Oversight Council
KN—Knowledge Now
KPP—Key Performance Parameter
KSA—Key System Attribute
LCC—Life-Cycle Costs
LCCE—Life-Cycle Cost Estimate
LCL—Life-cycle Logistics
LCMP—Life-Cycle Management Plan
LFT&E—Live Fire Test and Evaluation
LLTIL—Long Lead Time Item List
LMI—Logistics Management Information
LORA—Level of Repair Analysis
LRIP –Low Rate Initial Production
LRU—Line Replaceable Unit
LSA—Logistics Support Analysis
LU—Life Unit
M&S—Modeling and Simulation
MAIS—Major Automated Information System
MAJCOM—Major Command
MC—Mission-Capable
MDA—Milestone Decision Authority
MDAP—Major Defense Acquisition Program
MDS—Mission Design Series
MDT—Mean Downtime
MER—Manpower Estimate Report
MILCON—Military Construction
MIL-HDBK—Military Handbook
MIL-PRF—Military Performance Specification
MIL-STD—Military Standard
MMH—Maintenance Man-hours

MOA—Memorandum of Agreement
MOU—Memorandum of Understanding
MOASP—Management and Oversight of Acquisition of Services Process
MRT—Mean Repair Time
MS—Milestone
MSDS—Material Safety Data Sheet
MTBCF—Mean Time Between Critical Failures
MTBF—Mean Time Between Failure
MTBM—Mean Time Between Maintenance
NEPA—National Environmental Policy Act
NSS—National Security Systems
OA—Operational Assessment
O-level—Organizational Level of Repair
O&S—Operating and Support
ORM—Operational Risk Management
OSD—Office of the Secretary of Defense
OSS&E—Operational Safety, Suitability, and Effectiveness
OT&E—Operational Test and Evaluation
OTRR—Operational Test Readiness Review
PA—Performance Agreement
PBA—Performance-Based Agreement
PBL—Performance-Based Logistics
PCA—Physical Configuration Audit
PDR—Production Design Review
PEO—Program Executive Officer
PESHE—Programmatic Environment, Safety and Health Evaluation
PHS&T—Packaging, Handling, Shipping & Transportation
PM—Program Manager
PMS—Planned Maintenance System
PO—Program Office
POA&M—Plan of Action and Milestones
PPL—Provisioning Parts List
PPP—Public-Private Partnering
PRR—Production Readiness Review
PSE—Peculiar Support Equipment
PSI—Product Support Integrator
PSM—Product Support Manager
PSMP—Product Support Management Plan
PSP—Product Support Provider
RAM—Reliability, Availability and Maintainability
RAMS—Reliability, Availability, Maintainability and Supportability
RCM—Reliability-Centered Maintenance
RD—Requirements Document
RFID—Radio Frequency Identification
ROD—Record of Decision
ROM—Rough Order of Magnitude

R-TOC—Reduction In Total Ownership Cost
SAF—Secretary of the Air Force
SAIP—Spares Acquisition Integrated with Production
SAMP—Single Acquisition Management Plan
SAO—Senior Acquisition Official
SCM—Supply Chain Management
SE—Support Equipment
SE—Systems Engineering
SEP—Systems Engineering Plan
SERD—Support Equipment Requirements Data
SFPPL—Short Form Provisioning Parts List
SFR—System Functional Review
SGML—Standard Generalized Markup Language
SLA—Service-Level Agreement
SMR—Source, Maintenance and Recoverability
SOR— Source of Repair
SORAP—Source of Repair Assignment Process
SOSAP—Source of Supply Assignment Process
SPFA—Single Point Failure Analysis
SRR—System Requirements Review
SRU—Shop Replaceable Unit
STA—System Threat Assessment
STE—Special Test Equipment
SVR—System Verification Review
TAD—Target Audience Description
TDP—Technical Data Package
TDS—Technology Development Strategy
T&E—Test and Evaluation
TEMP—Test and Evaluation Master Plan
TLCSM—Total Life-Cycle Systems Management
TMDE—Test, Measurement and Diagnostic Equipment
TOC—Total Ownership Cost
TOMP—Technical Order Management Plan
TPS—Test Program Set
TRA—Technology Readiness Assessment
TRR—Test Readiness Review
TSSR—Total System Support Responsibility
UID—Unique Identification
US—United States
USAF—United States Air Force
USC—United States Code
USD(AT&L)—Undersecretary of Defense for Acquisition, Technology and Logistics
VHDL—Very High Speed Integrated Circuit Hardware Description Language
WBS—Work Breakdown Structure
WSR—Weapon System Reliability
WWW—World Wide Web

XML—eXtensible Markup Language