PRODUCT SUPPORT UPDATES

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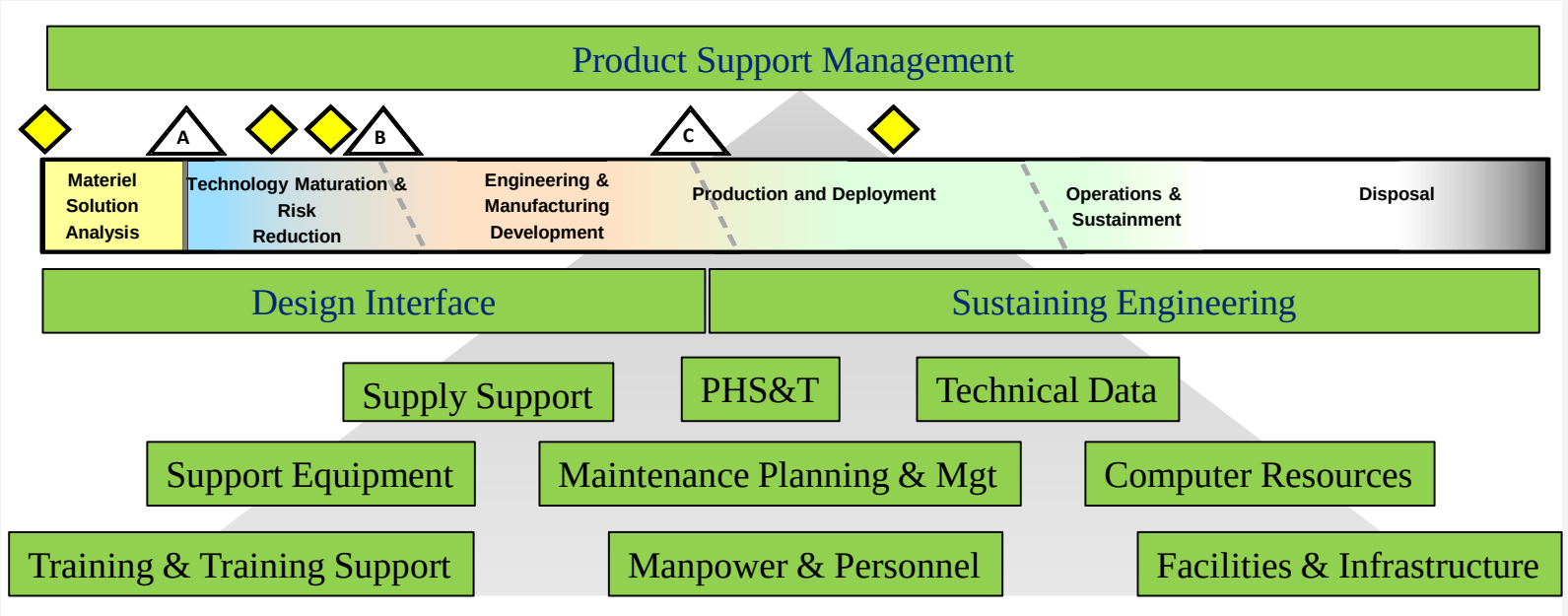
TODAY'S TOPICS

- **Frameworks**
- **Latest Policy Changes**
- **Product Support Strategy Options**
  - Traditional
  - Performance Based
- **Today's Product Support Challenges**

FUNCTIONAL FRAMEWORK

- Product Support often referred to as system sustainment
- Considers both acquisition and logistics
- Includes full life cycle, from requirements determination through system design, development, operational use, retirement, and disposal
- Based on twelve Integrated Product Support (IPS) Elements



SUPPORT FRAMEWORKS

SUPPLY MANAGEMENT

- Forecasting and Demand Planning
- Supply Planning
- Sourcing
- Inventory Management

MAINTENANCE SUPPORT

- Maintenance Operations (includes depot maintenance)
- Production & Support

DEPLOYMENT/ DISTRIBUTION/ TRANSPORTATION

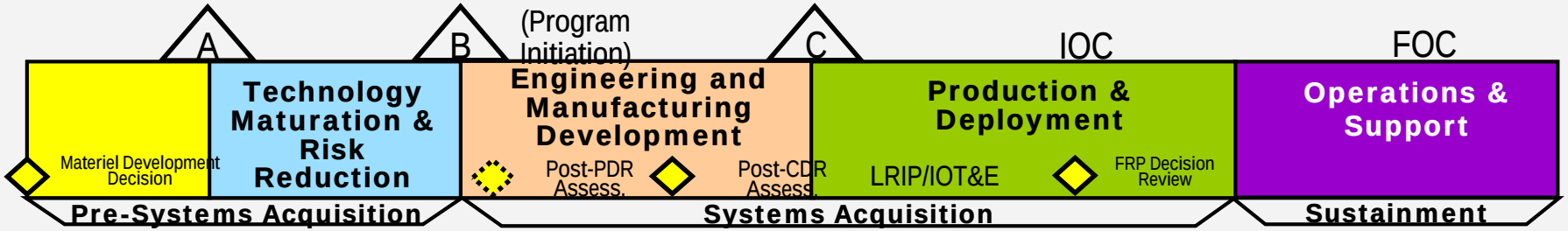
- Physical Distribution/ Transportation Operations
- Deployment Planning

LIFE CYCLE LOGISTICS

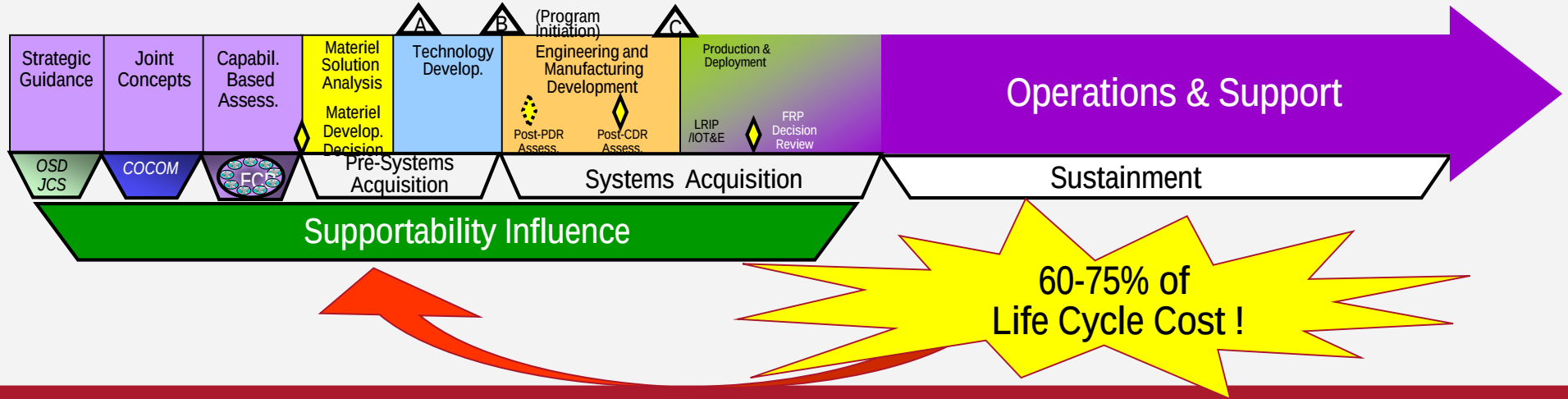
- Logistics Design Influence
- Integrated Logistics Support Planning
- Product Support & Sustainment
- Configuration Management
- Reliability and Maintainability Analysis
- Technical/Product Data Management
- Supportability Analysis

LIFE CYCLE FRAMEWORK

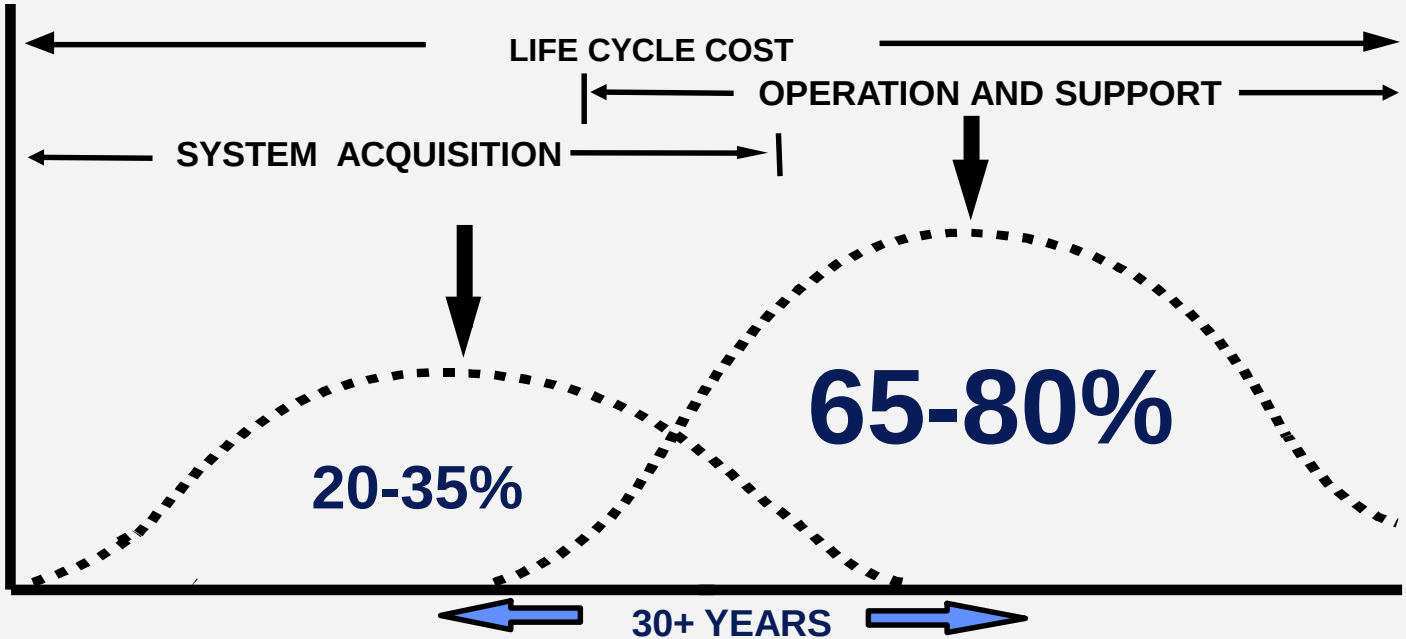
Traditional Acquisition Perspective

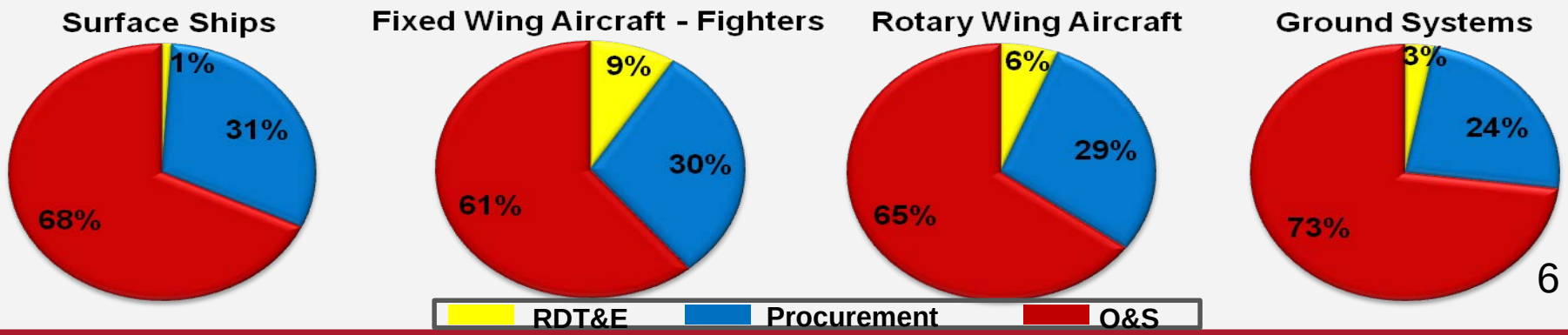


Life Cycle Management Perspective



FINANCIAL FRAMEWORK





MANAGEMENT FRAMEWORK

- **"Implementation, management, and oversight, by the designated Program Manager (PM), of all activities associated with the acquisition, development, production, fielding, sustainment, and disposal of a DOD system across its life cycle."** *(JCIDS Operation Manual)*

- **"The PM shall be the single point of accountability for accomplishment of program objectives for total life cycle systems management, including sustainment"** *(DoDD 5000.01, Para E1.29.)*

- **"The PM, as the life-cycle manager, is responsible for accomplishing program objectives across the life cycle, including the operating & support (O&S) phase."** *(DAG, Para 5.0.1)*

PM is responsible for system acquisition and follow-on sustainment objectives

WHY FOCUS ON PRODUCT SUPPORT?

Broken Equipment = Mission Failure

But it also impacts:

- **Affordability**
- **Availability**
- **Reliability**

Know your "one thing" metric

LIFE CYCLE MANAGEMENT POLICY

10 U.S.C. § 2337

Guidance on Life-Cycle Management. — The SecDef shall issue …comprehensive guidance on life-cycle management

- Maximize competition - best use of DoD and industry resources in PS strategies
- Provide best product support outcomes at the lowest operations and support cost.
- Each major weapon system be supported by a product support manager **(PSM)**

DoD 5000.02, Enclosure 6

- Affordable and Effective performance-based strategy
- Implement a reliability improvement program
- Maximize competition at prime and subcontract levels
- Employ a Should Cost management and analysis approach
- **PSM in Key Leadership Position**

LEGISLATIVE IMPERATIVES

- **Core - DoD must maintain core logistics capability to perform maintenance and support of mission-essential equipment (Title 10, Section 2464).**

- **50/50 - Not more than 50 percent of the funds available to a military DoD agency in a fiscal year for depot-level maintenance and repair workload may be used to contract for performance of this workload by nonfederal government personnel (Title 10, Section 2466).**

- **Competition - Existing depot-level maintenance or repair workload valued at $3 million or more must be neither contracted out nor moved to another depot-level activity without using public and private competition procedures or merit-based selection procedures (Title 10, Section 2469).**

TABLE DISCUSSIONS

- What realities within the acquisition process impede our ability to effectively conduct long-range product support/ sustainment planning to minimize TOC?
- When trades are made, how can we balance the immediate impacts on cost, schedule and performance vs. estimates of long-term operations and support cost?
- Given the extended lifetimes of many of our weapon systems, how can we deal with estimating uncertainty?
- When / how can you most impact achievement of the reliability, availability, cost, and down time sustainment metrics?

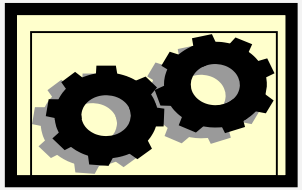
Is the anonymous PM correct who said, "Logistics is my only discretionary account…"?

PRODUCT SUPPORT STRATEGIES

Traditional Strategy

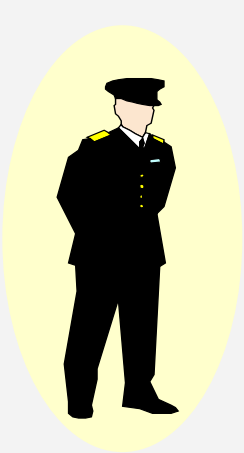
Transactions

REPAIRS



PARTS

ENGINEERING



DoD Manager

PBL Strategy

Outcomes

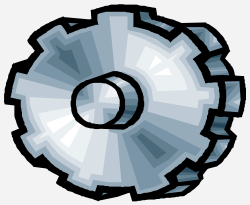
Reliability

Availability

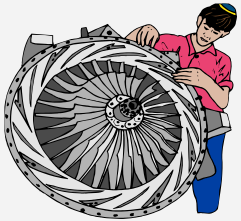
Mission Effectiveness

…at an affordable cost

TRADITIONAL PRODUCT SUPPORT



Parts



Repairs

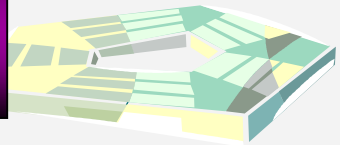
Technical Support

Provider

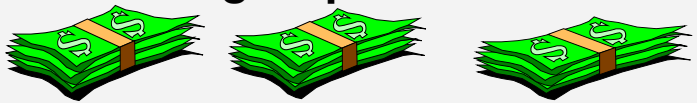
Expected to:

- ***Improve Reliability***
- ***Improve Repair Processes***

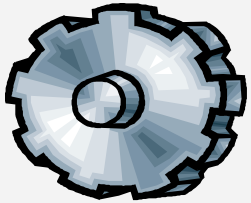
DoD



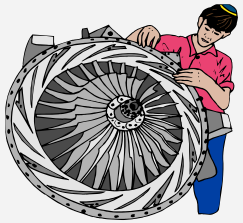
- **Specify performance outcomes**
- **Forecast requirements**
- **Specify buy/repair quantities**
- **Contract for each**
- **Assume all risk for:**
  - **right parts**
  - **right repairs**
  - **right time**
  - **right quantities**



PERFORMANCE BASED PRODUCT SUPPORT



Parts



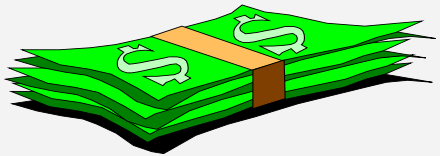
Repairs

Technical Support

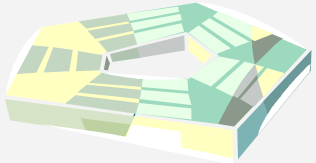
Motivated to:

- *Improve Reliability*
- *Improve Repair Processes*

- Forecast requirements
- Make buy/repair decisions
- Assume all risk for:
  - right parts
  - right repairs
  - right time
  - right quantities



DoD



- Specify performance outcomes and off ramps
- Overarching contract

WHAT IS NEEDED TO CREATE AN EFFECTIVE PBL?

- Usage Data
- Long Term Commitment
- Correct Incentives
- “Buy In” from key stakeholders
- Data Rights
- Effective Competition

Is a PBL always the best option? Why might it not be?

CONFIGURATION MANAGEMENT

- The primary purpose of the CM process:
  - Ensures the documentation used to describe our products precisely matches the physical products themselves
- The CM process:
  - Is the same for hardware or software, aircraft or vessel, weapon system or information system.
  - While each has unique requirements, the process used to document and maintain those requirements is the same

CONFIGURATION MANAGEMENT

- **Information tracked by CM covers a broad spectrum:**
  - **functional and performance requirements;**
  - **drawings and parts listings; specifications;**
  - **physical and functional characteristics;**
  - **nameplate data; technical and operators manuals;**
  - **failure data; test procedures and reports; and**
  - **documentation of all proposed and implemented changes**

- **This information drives logistics support decisions, such as:**
  - **corrective and preventive maintenance tasks and schedules;**
  - **unit spare and repair parts;**
  - **supply system stock;**
  - **training needed for unit and support personnel to both operate and maintain the system.**

Acquisition Reporting on Program Sustainment

Product Support Strategy

Sustainment Approach

- Current (initial CLS covering total system)
- Future (sub-system based PBL contracts)

Issues

- Shortfall in O&M funding in FYDP
- Reliability and availability estimates are below goals
- LCSP requires update before DAB

Resolution

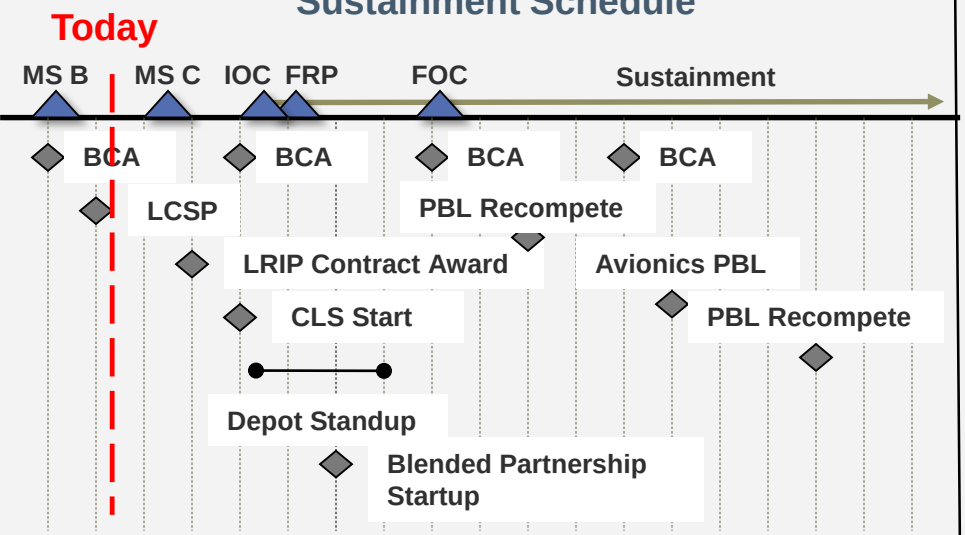
- POM request for O&M restoration submitted
- Reliability improvement plan with clear RAM goals up for final signature
- LCSP in draft

Metrics Data

Metric	Antecedent Actual	Original Goal	Current Goal	Current Estimate/ Actual
Materiel Availability	76%	80%	77%	71%
Materiel Reliability	37 hrs	50 hrs	50.5 hrs	48 hrs
Ownership Cost	245.6B	385.5B	395.1B	395.1B
Mean Down Time	12 hrs	20 hrs	18 hrs	15 hrs

* Test or fielding event data derived from _____

Sustainment Schedule



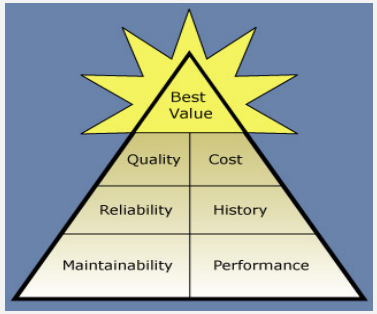
O&S Data

Cost Element	Antecedent Cost	ABC Original Baseline	ABC Current Cost
1.0 Unit-Level Manpower	3.952	5.144	5.750
2.0 Unit Operations	6.052	6.851	6.852
3.0 Maintenance	0.739	0.605	0.688
4.0 Sustaining Support	2.298	2.401	2.401
5.0 Continuing System Improvements	0.129	0.025	0.035
6.0 Indirect Support	1.846	1.925	1.956
Total	**15.046**	**16.951**	**17.682**

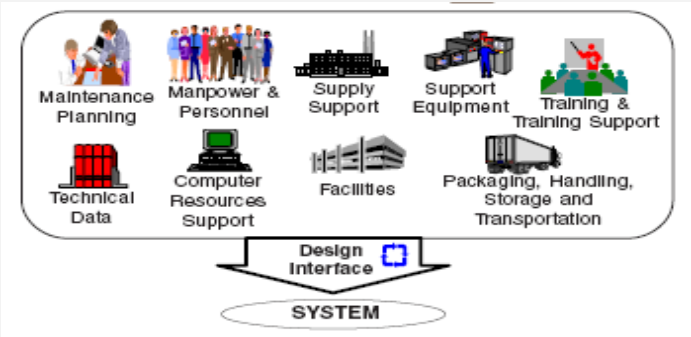
Cost based on average annual cost per squadron

Total O&S Costs	Antecedent	ABC
Base Year $M	102,995.2	184,011.9
Then Year $M	245,665.3	395,147.2

REVIEW – WHAT'S IMPORTANT TO YOU?



- Critical impact of Early Sustainment Planning
- Reliability (or lack thereof) is the biggest driver of future logistics costs
- Develop / Maintain a Life Cycle Focus
- PBL is an Approach/Method
- DoD Policy is continuously evolving
- Think (Very) Long Term - Best Value "Life of Program" Life Cycle Product Support
- Your challenge is process and culture change



TODAY’S CHALLENGES

- Parts obsolescence / diminishing manufacturing supply
- Counterfeit parts
- Software logistics
- Data rights / competition
- High tech / low volume articles

BETTER BUYING POWER 4.0

Meanwhile, while Kendall waits on Congress, he's working on the fourth iteration of his Better Buying Power initiative, BBP 4.0, to make the most of whatever funding the Pentagon does get. Whereas earlier BBP roll-outs focused on cost control, professionalism, and innovation, 4.0 will look specifically at service contracts and sustainment costs. The years or decades of operations, maintenance, and upgrades which dwarf the up-front costs of actually buying a weapon.

Breaking Defense, 7 Sep 16

So what would you advise him to pursue?

FINAL THOUGHTS

What does it take to succeed?

- Understand “logistics” is not a 4 letter word
- Realization that Sustainment Costs have become a focal point for DoD leadership
  - What interests my boss . . .
- Include RAM in of EVERY engineering / configuration / performance decision
  - Start on Day One of program
  - Systems Engineering Process INCLUDES Logistics!
- Do NOT hand the warfighter a sustainment IOU

No mistake is so stupid that it can’t be repeated

BACK UP MATERIALS

PRODUCT SUPPORT OBJECTIVES

A Program Manager should know how to …

- **Evaluate logistics support options to select initial product support strategy and maintenance concept**
  - Program level considerations
  - Service level and enterprise-wide considerations
  - Addressing support cost drivers
- **Describe and obtain approval of selected approach**
- **Ensure supportability is designed in …always!**
- **Monitor and control the product support provider for efficiency and effectiveness**

Use your Product Support Manager for advice -- a key member of your team from program inception.

PRODUCT SUPPORT STRATEGY OPTIONS

Configuration Strategy	Industry Capabilities	Partnerships	Organic Capabilities
Platform	Industry Centric Platform Strategy	Blended DoD-Industry Platform Strategy	DoD-Centric Platform Strategy
Subsystem	Industry-Centric Subsystem Strategy	Blended DoD-Industry Subsystem Strategy	DoD-Centric Subsystem Strategy
Component	Industry-Centric Component Strategy	Blended DoD-Industry Component Strategy	DoD-Centric Component Strategy

Support Strategy

One Size Does Not Fit All…

PRODUCT SUPPORT LAW/POLICY

10 U.S.C. § 2337

- "Package of support functions required to field and maintain the readiness and operational capability of major weapon systems, subsystems, and components, including all functions related to weapon system readiness"
- Guidance on Life-Cycle Management — The SecDef shall issue …comprehensive guidance on life-cycle management
  - Maximize competition - best use of DoD and industry resources in Product Support (PS) strategies
  - Provide best product support outcomes at the lowest operations and support cost.
  - Each major weapon system be supported by a product support manager (PSM)

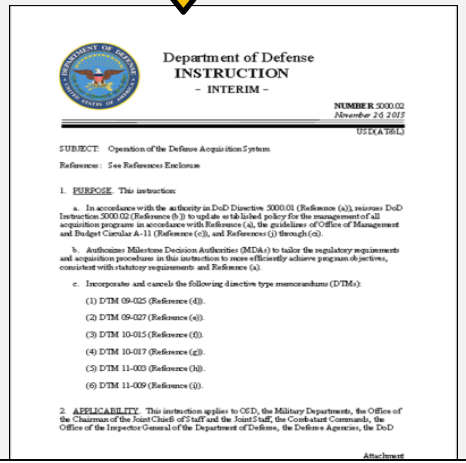
DODI 5000.02

ACQUISITION POLICY

10 U.S.C. § 2337

DODI 5000.02 Enclosures

1. Acquisition Program Categories & Compliance Requirements
2. Program Management
3. Systems Engineering
4. Developmental Test and Evaluation (DT&E)
5. Operational and Live Fire Test and Evaluation
6. **Life-Cycle Sustainment Planning**
7. Human Systems Integration (HSI)
8. Affordability Analysis and Investment Constraints
9. Analysis of Alternatives
10. Cost Estimating and Reporting
11. Requirements Applicable to All Programs Containing Information Technology (IT)
12. Defense Business Systems (DBS)
13. Rapid Acquisition of Urgent Needs



Department of Defense
INSTRUCTION
- INTERIM -

NUMBER 5000.02
November 26, 2015
USD(AT&L)

SUBJECT: Operation of the Defense Acquisition System

References: See References Enclosure

1. PURPOSE. This instruction:

a. In accordance with the authority in DoD Directive 5000.01 (Reference (a)), reissues DoD Instruction 5000.02 (Reference (b)) to update established policy for the management of all acquisition programs in accordance with Reference (a), the guidelines of Office of Management and Budget Circular A-11 (Reference (c)), and References (j) through (s).

b. Authorizes Milestone Decision Authorities (MDAs) to tailor the regulatory requirements and acquisition procedures in this instruction to more efficiently achieve program objectives, consistent with statutory requirements and Reference (a).

c. Incorporates and cancels the following directive type memorandums (DTMs):

(1) DTM 09-025 (Reference (d)).

(2) DTM 09-027 (Reference (e)).

(3) DTM 10-015 (Reference (f)).

(4) DTM 10-017 (Reference (g)).

(5) DTM 11-003 (Reference (h)).

(6) DTM 11-009 (Reference (i)).

2. APPLICABILITY. This instruction applies to OSD, the Military Departments, the Office of the Chairman of the Joint Chiefs of Staff and the Joint Staff, the Combatant Commands, the Office of the Inspector General of the Department of Defense, the Defense Agencies, the DoD

Attachment

DODI 5000.02

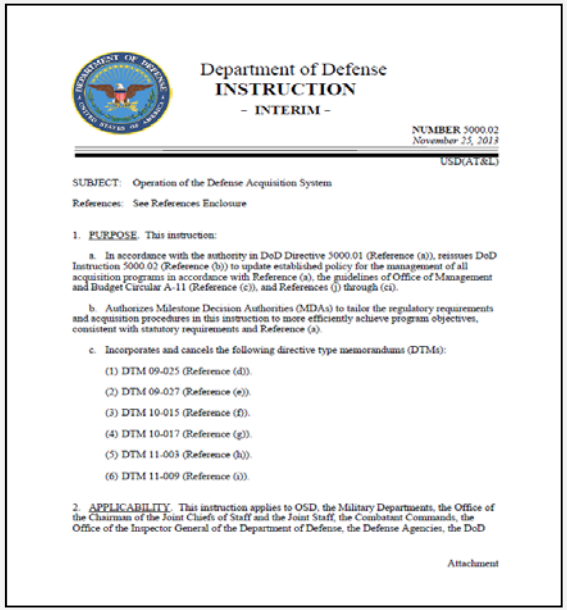
PRODUCT SUPPORT METRICS

(INTERIM DODI 5000.02, ENCLOSURE 6)

- **Sustainment Key Performance Parameter (Availability)** is as critical to a program's success as cost, schedule, and performance
  - **Materiel Availability *(Number of Operational End Items / Total Population)*:** Percentage of the total inventory of a system operationally capable of performing an assigned mission at a given time; Portion of Sustainment KPP based on entire system inventory and supported by:
    - **Materiel Reliability.** Probability that system will perform without failure over a specified interval. Design metric with most significant impact on program's operational availability and operating & support cost. ***MTBF = (Total Operating Hours / Total # of Failures)***
    - **Operating & Support Cost KSA**. Based on CAIG elements: unit operations, energy/POL, maintenance, sustaining support, continuing system improvements, regardless of funding source; R&M data from OT&E/DT&E and fielding informs estimates of operating & support costs. ***(O&S Costs Associated w/ Materiel Readiness)***
    - **Mean Down Time (MDT)**. Average Total Downtime required to restore an asset to full operational capabilities; Measures effectiveness of supply chain & support infrastructure (e.g., customer wait time, logistics response time, retrograde time) ***MDT = (Total Down Time for All Failures/ Total Number of Failures)***
    - **Other Metrics**. Outcome metrics to support sustainment elements included in capability requirements documentation or required to manage system development, product support package, and supply chain
  - **Operational Availability *(Uptime/(Uptime + Downtime))***: Percentage of time a system or group of systems within a unit are operationally capable of performing an assigned mission

<u>Supportability</u>: degree to which a system can be affordably supported. A function of inherent design characteristics and characteristics of the product support elements.

LIFE CYCLE SUSTAINMENT PLAN (LCSP)



Department of Defense
INSTRUCTION
- INTERIM -

NUMBER 5000.02
November 25, 2013

USD(AT&L)

SUBJECT: Operation of the Defense Acquisition System

References: See References Enclosure

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Attachment

DoDI 5000.02, Enclosure 6
DAG Chapter 5

- **PMs for all** programs develop and maintain an LCSP beginning at Milestone A.
- **AS** includes overview of **product support strategy** and sustainment-related contracts
- USD(AT&L) approves ACAT ID, ACAT IAM, & USD(AT&L)-designated special interest program LCSPs at each decision point.
- CAE or designee, approves LCSPs for ACAT IC, ACAT IAC, & ACAT II/III at each decision point after Materiel Development Decision
- LCSP updated at each decision point, reflects increased maturity of product support strategy, product support package changes, risks, & cost reduction activities

LCSP is the plan for formulating, implementing & executing your product support strategy

Further Information: https://acc.dau.mil/lcsp-outline

LCSP STRUCTURE

LCSP Annexes X 3

1. **Introduction:** **Purpose, scope, focus and objective**
2. **Product Support Performance**
   a. Table, list sustainment requirements
   b. Table, demonstrated sustainment performance
3. **Product Support Strategy**
   a. Design concept showing major subsystems and features (picture)
   b. Table, support strategy aligned to design concept
   c. Table/picture, showing sustainment concept
   d. Table, considerations and cost drivers impacting affordability of the product support strategy
   e. Figure, relationships between PSM and PSI
4. **Product Support Arrangements**
   a. Contracts--sustainment related (in place and planned)
   b. Performance agreements
5. **Product Support Package Status**
   a. List all program reviews along with issues and corrective actions
   b. Table, Product Support Element assessment
6. **Table, Regulatory/Statutory Requirements that Influence Sustainment Performance**
7. **Integrated Schedule:** **Sustainment related events (major plans, data development/delivery & site activations)**
8. **Table, Funding:** **Product Support Elements & spending plans**
9. **Management:**
   a. Organizational structure & staffing levels and management approach
   b. PSM role and responsibilities
   c. Sustainment risk management
10. **Supportability Analysis**
    a. Table, Design analysis, FMECA summary
    b. Table, Reliability Growth Plan issues
    c. Table, Completed/planned supportability trades
    d. Table, Technical reviews and focus areas
    e. Table, Product Support Element analysis methods and tools
11. **Additional Sustainment Planning Factors:** **Special topics related to sustainment, e.g., Critical Program Information (CPI)**