Implementing A Life Cycle Management Framework

Presented to the

2009 LOGSA – CLEP
Life Cycle Logistics Tools Workshop & Users Group Conference
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Agenda

► Problem Statement

► Defining The Life Cycle Management Framework

► Implementation Activities / Status

► Path Ahead

► Conclusions & Recommendations
AT&L Integrated Framework Chart

Source: DAU 5000.02 Rapid Deployment Training

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What is the Problem?

Capabilities Are Not Being Delivered

► 96 of 144 MDAPs Exceed Baselines

- 22 Months Average Delay
- $296B in Estimated Acquisition Cost Growth
- 42% Change in Total R&D Costs
- 25% Change in Total Acquisition Cost

Reasons

- Unrealistic Cost Estimates / Budget Instability
- Optimistic Schedules And Assumptions
- Unstable Requirements / Immature Technology / Design

Warfighters Are Being Denied Needed Capabilities

- 25% Change in Total Acquisition Cost

What Could We Buy With The $296B?

- 2007
- 2008
- 2009

Potential Outcomes

- Program Restructuring / Cancellation
- Loss of Taxpayer Confidence
What is the Problem?
Suitability Is Decreasing

► Defense Science Board Task Force on Developmental Test & Evaluation

"Operational effectiveness is the overall degree of mission accomplishment of a system when used by representative personnel in the environment planned or expected for operational employment of the system considering organization, doctrine, survivability, tactics, vulnerability and threat.

"Operational suitability is the degree to which a system can be satisfactorily placed in field use, with consideration given to reliability, availability, compatibility, transportability, interoperability, wartime usage rates, maintainability, safety, human factors, manpower supportability, logistics supportability, documentation, training requirements, and natural environmental effects and impacts.

Cumulative IOT&E Results Thru CY2007

Total: 28% of Systems Not Suitable
CY2007: 50% of Systems Not Suitable
Unintended Consequences of Acquisition Reform

- COTS “Syndrome”
  “Someone’s already done the engineering.”
  “It’s COTS! What can we do about it?”
  “We Don’t Have MIL Standards Anymore”

Workforce Cuts in the 90’s due to the “Peace Dividend”

- Loss of Critical Manpower
- Loss of Critical RAM Skills

Poor Practices

- Lack Of Robust Systems Engineering Process
- Loss Of Focus On Reliability Growth Discipline
- Delayed Incorporation Of Fixes Due To Program Constraints

“We Took Our Eye Off The Ball”
What is the Problem?

Traditional Perspectives Are Entrenched

Traditional Acquisition Perspective

Life Cycle Management Perspective

65-80% of Life Cycle Costs are During the O&S Phase

70% of Total Ownership Cost is Designed in by Milestone B
DoD Initiatives and Policy

DODI 5000.02
Operation of the Defense Acquisition System

CJCSI 3170.01
Joint Capabilities Integration and Development System

USD(AT&L) Memo
Reliability, Availability and Maintainability (RAM) Policy

USD(AT&L) Memo
Implementing a Life Cycle Management Framework

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1. High-performing, Agile, and Ethical Workforce
2. Strategic and Tactical Acquisition Excellence
3. Focused Technology to Meet Warfighting Needs
4. Cost-Effective Joint Logistics Support for the Warfighter
5. Reliable and Cost-Effective Industrial Capabilities Sufficient to Meet Strategic Objectives
6. Improved Governance and Decision Processes
7. Capable, Efficient, and Cost-effective Installations
Goal 4 – Cost Effective Joint Logistics Support

TASK 4.1
The integration of Life Cycle Management Principles into DoD and Service Acquisition and Sustainment Processes

- Incorporation Of Readiness Requirements
- Outcome-based Performance
- Contract Provisions Into Life Cycle Standards
- Full Integration Into Acquisition Milestone Compliance starting with Milestone A
- Legacy (Post Production) Materiel Readiness Sustainment
Objective:
- Seamless Integration of Acquisition and Life Cycle Sustainment Policies

Strategy and Direction
- Reinforce Life Cycle Sustainment Metrics
- Align Resources to Readiness
- Track Performance Throughout the Life Cycle
- Implement Performance Based Life Cycle Product Support Strategies

Applicability
- All Major Defense Acquisition Programs (MDAP)
Reinforce Life Cycle Sustainment Metrics

- DoDI 5000.02 shall reflect Life Cycle Management (LCM) requirements and processes **DEC 08**

- Acquisition Strategy (AS) and Acquisition Program Baseline (APB) documents shall reflect a Life Cycle Management (LCM) focus
  
  • Inclusion of the Life Cycle Sustainment Plan (LCSP) within the Acquisition Strategy **FEB 10**

- Systems and Software Engineering (SSE) Processes and Plans shall be strengthened to reflect a LCM principles
  
  • Revised Systems Engineering Plan Prep Guide **AUG 08**
  
  • Revised Program Support Review (PSR) Process/Methodology **AUG 08**
  
  • Preparation of the Reliability, Availability Maintainability – Cost (RAM-C) Handbook **JUN 09**
Restructured Life Cycle Phases

Defense Acquisition Management Framework - 2003

- User Needs & Technology Opportunities
- Program Initiation
- IOC
- FOC

- Concept Refinement
  - Concept Decision
- Technology Development
- System Development & Demonstration
  - Design Readiness Review
- Production & Deployment
  - FRP Decision Review
- Operations & Support

Defense Acquisition Management System - 2008

- Concept Refinement
- Technology Development
- System Development & Demonstration
- Production & Deployment
- Operations & Support

Focus of major changes

Source: DAU 5000.02 Rapid Deployment Training
### Process Changes / Logistics Impacts

<table>
<thead>
<tr>
<th>Phase/Event</th>
<th>Activities</th>
<th>Impact on Logistics</th>
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</thead>
<tbody>
<tr>
<td>Materiel Development Decision</td>
<td>• Mandatory Entry Point for all Programs • AoA Guidance Approved</td>
<td>• Early Assessment of Design and Sustainment Characteristics</td>
</tr>
<tr>
<td>Technology Development</td>
<td>• AoA Plan / AoA Completed</td>
<td>Integrated into the Design Process</td>
</tr>
<tr>
<td>Engineering &amp; Manufacturing Development</td>
<td>• CDD / Acquisition Strategy / SEP / TEMP • Competitive Prototypes Demonstrated</td>
<td>• Sustainment KPP/KSAs quantified • Early Systems Engineering Studies</td>
</tr>
<tr>
<td>Engineering &amp; Manufacturing Development (EMD)</td>
<td>• Production Baseline Established • Manufacturing Processes Demonstrated • Production Representative Articles</td>
<td>• Enhanced Product Support Planning • Verification of System's Ability to Meet Sustainment Requirements • Assessment of Sustainment/Supportability Within SE Processes</td>
</tr>
<tr>
<td>Life Cycle Sustainment</td>
<td>• Approved CPD / LCSP • Performance Based Life Cycle Product Support</td>
<td>• Achieved Materiel Availability • Reduced Total Cost of Ownership</td>
</tr>
</tbody>
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**Increased Focus On the Systems Engineering (SE) Process**

**Inclusion of Sustainment/Supportability Within SE Processes**

**Integration of Sustainment Metric KPP/KSA into Requirements**
New Sustainment Requirements

Sustainment Key Performance Parameters (KPP) and Key System Attributes (KSA) Included in Critical Program Documentation/Activities

- Analysis of Alternatives (AoA) Plan/Guidance
- Acquisition Strategy / Acquisition Program Baseline
- Program Support Reviews
  - Integrated Logistics Assessment (ILA)
- Assessment of Operational Test Readiness (AOTR)
  - Logistics Readiness Review (LRR)

Integration of Sustainment Metric KPP/KSA into Requirements
New Sustainment Requirements

Documentation Required to Support Program Activities and Milestone Decisions

- Replaced System Sustainment Plan
- Life Cycle Sustainment Plan
- Data Management Strategy
- RAM Program Plan / Reliability Growth Plan
- Item Unique Identification (IUID) Implementation Plan
- Corrosion Plan
- Military Equipment Valuation
- Configuration Steering Boards
- Contracting for Operational Support Services
Align Resources to Readiness

- Pilot Programs shall be established to link financial resources to Sustainment Metric Performance **NOV 08**
- Modeling and Simulation (M&S) Tools shall be used to define and evaluate Sustainment Requirements **OCT 10**
## Materiel Availability
- **Original Baseline Goal**: 75.6% (Aug-08)
- **Current Baseline Goal**: 78.3% (Jan-09)
- **Current Estimate / Actual Data**: 74.8%

The Materiel Availability definition is calculated by taking the projected fleet total of F/A-XX aircraft and identifying the percentage of aircraft available to perform a mission at a given time.

## Materiel Reliability
- **Original Baseline Goal**: 55.0 hrs (Aug-08)
- **Current Baseline Goal**: 58.5 hrs (Jan-09)
- **Current Estimate / Actual Data**: 49.6 hrs

Materiel Reliability is derived from the total operating hours over failures resulting in a non-mission capable designation for the entire fleet during a year's time period.

## Ownership Cost
- **Original Baseline Goal**: $10.65B (Aug-08)
- **Current Baseline Goal**: $11.47B (Jan-09)
- **Current Estimate / Actual Data**: $11.32B

Ownership cost is calculated by totaling the specific cost elements from the CAIG O&S cost estimating structure across the entire lifecycle for the entire fleet.

## Mean Down Time
- **Original Baseline Goal**: 4.5 hrs (Aug-08)
- **Current Baseline Goal**: 4.0 hrs (Jan-09)
- **Current Estimate / Actual Data**: 6.2 hrs

Mean Down Time is the average time to restore an F/A-XX to fully operational status. It is derived by taking the total down time for all failures and dividing it by the total amount of failures.
Implement Performance-Based Life Cycle Product Support Strategies

- Strengthen discussion of PBL procedures in the Defense Acquisition Guide (DAG) **JUN 09**
- MDAPs reflect PBL approaches in sustainment planning
  - Assessment by L&MR as part of SSE Program Support Reviews **AUG 08**
- Product Support Assessment Team (PSAT) **SEP 09**
Track Performance Throughout the Life Cycle

- All MDAPs shall establish target goals for Sustainment Metrics **SEP 09**
- DAMIR will be the medium for Sustainment Metrics Reporting **FEB 10**
- MDAPs report against metrics at program reviews **FEB 10**
- Governance of Legacy systems shall include Post-IOC reviews **OCT 10**
Full Incorporation of LCM Principles Into The Mainstream Of “Big A” Acquisition And Sustainment Processes And Decisions

- Total Life Cycle Systems Management (TLCSM)
- Governance Processes Equating Cost, Schedule, Performance & Sustainment
- Full Inclusion of Sustainment into Requirements
- Revitalized Systems Engineering – Logistics Engineering Interface to Influence Design “Up-Front”
- Reduction in Total Cost of Ownership
Conclusions & Recommendations

► LOGSA’s Logistics Tools are an integral part of the Life Cycle Management Framework
  ▶ CASA
  ▶ COMPASS
  ▶ powerLOG-J,
  ▶ SYSPARS

► Defense Acquisition University – LOGSA Partnership
  ▶ LOG 210 – Supportability Manager’s Tools Course

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<thead>
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<td>Class 09-002</td>
<td>29 June - 1 Jul 09</td>
<td>DAU Southern Region Huntsville, AL</td>
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Q & A

“Implementing A Life Cycle Management Framework”

Thank You

For The Opportunity to Support The

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