Evolution of DoD Support Strategies

From Outputs... To Outcomes...

1980s

Mil-Spec Functional Transactions

“What” & “How” defined at transaction level
• Limited life cycle focus
• Limited System level accountability
• Non-aligned resources & outputs

1990s

Performance Spec Functional Transactions

“What”, not “How” at transaction level
• Limited life cycle focus
• Still Limited System accountability
• Weak alignment of resources & outputs

Early 2000s

Performance Based Logistics & TLCSM

Partial movement to Outcomes
• PM Life Cycle focus
• Better System accountability
• Improved alignment of resources & outputs

Next...

Expanding the Performance Concept

Outcome-based Approach
• Enterprise-wide, Life Cycle focus
• Full System accountability
• Alignment of resources to Outcomes
Performance Outcomes

Moving to An Enterprise-Wide, Life Cycle Alignment of Resources and Outputs to Achieve Top-Down, Performance Objectives

“... Not Drive Lots of Activity, But Drive Outcomes.”

HON Kenneth Krieg
USD (AT&L)
October 4, 2006
Study Context
PDO in the LCM Environment

• Ongoing Reengineering Effort
  - Life cycle management policy
  - DAG
  - Supportability Guide
  - PBL & CPI Guidebooks
  - Sustainment KPP
  - Life Cycle Outcome Metrics

• A logical next step – PDO to provide a framework:
  - Describe and quantify weapons systems sustainment outcomes
  - Align, plan, and incentivize outcome achievement
  - Offer and describe enabling capabilities
Outline

• Project Tasking in Context
• Methodology
• Findings
• Implications for DoD
# Project Tasking in Context

## QDR Guidance

<table>
<thead>
<tr>
<th>Defense Enterprise Guidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undertake reforms to reduce redundancies and ensure the efficient flow of business processes</td>
</tr>
<tr>
<td>Be responsive to stakeholders</td>
</tr>
<tr>
<td>Provide info and analysis necessary to make timely and well-reasoned decisions</td>
</tr>
</tbody>
</table>

## AT&L Strategic Plan

<table>
<thead>
<tr>
<th>Management Principles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manage performance against standards</td>
</tr>
<tr>
<td>Increase agility by shortening cycle times and hedging against surprises</td>
</tr>
<tr>
<td>Adopt the customer’s view of success in terms of outcomes</td>
</tr>
<tr>
<td>Give best value to the taxpayers</td>
</tr>
<tr>
<td>Build and Operate within an environment that merits trust and confidence</td>
</tr>
<tr>
<td>Build data to drive decisions at the right level</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Goals and Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost Effective Joint Logistics Support for the War Fighter</td>
</tr>
<tr>
<td>Integrate Life Cycle Management Principles with outcome-based performance</td>
</tr>
<tr>
<td>Improved governance &amp; decision processes</td>
</tr>
<tr>
<td>Move from transaction based activity to enterprise-wide Life Cycle Performance-Driven Outcome strategy</td>
</tr>
</tbody>
</table>

## MR&MP

<table>
<thead>
<tr>
<th>Study Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assess DoD experience with implementing performance driven logistics support approaches</td>
</tr>
<tr>
<td>Benchmark private and public sector “Best Practices” in performance based management techniques</td>
</tr>
<tr>
<td>Obtain lessons learned on how successful programs have been implemented, managed, and integrated with other CPI initiatives</td>
</tr>
<tr>
<td>Develop practical recommendations for using lessons learned to improve enterprise wide performance based management</td>
</tr>
</tbody>
</table>
Methodology
Study Hypothesis

DoD can significantly increase the value to the taxpayer and warfighter of its annual expenditure for weapon system sustainment by:

– Adopting a broader view of materiel readiness, with success defined in terms of outcomes
– Adopting an outcome-oriented approach to weapon system sustainment
– Increasing value through performance improvement initiatives

To test this hypothesis we needed to:

– Identify best practices employed by high-performing organizations to achieve desired outcomes
– Compare management practices across DoD and industry to identify the best approach for DoD to successfully implement an outcome-focused performance environment for weapon system sustainment
Executive Steering Committee
Leverage CPI ESG membership

Industry Representatives – Describe methods in terms that relate to DoD organizations and major processes

Core SME Study Team

Military Service POCs - Relate findings to specific DoD organizations and major processes

Ad Hoc contributors and experts – provide specialized expertise in legislative, budgetary, financial and other technical areas

Methodology
Study Team Interfaces
Methodology
A Case Study Approach

- Constructed and validated case study research instrument (structured interview template)
- Identified **key performance areas** for successful product lines based on literature review and SME experiences
- Identified and selected industry companies
- Structured questions to assess **maturity** in key performance areas
- Finalized instrument after rigorous pre-test in industry and DoD
# Methodology

## Developed a Maturity Matrix

<table>
<thead>
<tr>
<th>Performance Characteristics</th>
<th>Stage of Maturity</th>
<th>Less Mature</th>
<th>More Mature</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Performance Definition</strong></td>
<td></td>
<td>Strategy not clearly defined</td>
<td>Clear, customer focused strategy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Performance goals weakly linked to desired outcomes</td>
<td>Externally focused, balanced performance goals are quantitatively linked to desired outcomes</td>
</tr>
<tr>
<td><strong>Performance Achievement</strong></td>
<td></td>
<td>Single, output focused metric</td>
<td>Balances, outcome focused metrics with external perspective</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No instituted performance review cycle</td>
<td>Organizational support for corrective actions</td>
</tr>
<tr>
<td><strong>Organizational Mechanics</strong></td>
<td></td>
<td>Loosely structured organization</td>
<td>Matrixed organizational structure</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Multiple chains of command</td>
<td>Senior leadership driven</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Few organizational controls in place</td>
<td>Employees empowered with clear bounds and controls</td>
</tr>
<tr>
<td><strong>Information Management</strong></td>
<td></td>
<td>Focus on information systems</td>
<td>Focus on information flows</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Functional systems with minimal integration and significant external processing</td>
<td>Integrated systems</td>
</tr>
<tr>
<td><strong>Value Chain Integration</strong></td>
<td></td>
<td>Value chain not defined</td>
<td>Value chain clearly defined several tiers up and down stream</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tactical supplier and customer relationships</td>
<td>Value chain managed via partnerships</td>
</tr>
<tr>
<td><strong>Process Innovation</strong></td>
<td></td>
<td>Process innovation is ad hoc</td>
<td>Formal process innovation programs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Process improvement focused on fixing “pain points”</td>
<td>Process innovation targets the value chain</td>
</tr>
<tr>
<td><strong>Product Improvement</strong></td>
<td></td>
<td>Ad hoc product improvement programs</td>
<td>Formal product improvement programs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Product improvement tied to outputs</td>
<td>Product improvements tied to outcomes</td>
</tr>
<tr>
<td><strong>Critical Capability</strong></td>
<td></td>
<td>No awareness of critical capabilities</td>
<td>Active protection of critical capabilities</td>
</tr>
<tr>
<td><strong>Management</strong></td>
<td></td>
<td>No formal critical capability management program</td>
<td>Critical capabilities used as strategic advantage</td>
</tr>
<tr>
<td><strong>Financial Management</strong></td>
<td></td>
<td>Little understanding of organizational cost drivers</td>
<td>Clear understanding of value chain cost drivers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Infrequently updated financial measures used by managers</td>
<td>Frequently updated leading and lagging measures used by managers</td>
</tr>
</tbody>
</table>
## Methodology

### Site Selection

<table>
<thead>
<tr>
<th><strong>Industry</strong></th>
<th><strong>DoD Activities</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Boeing Military Aircraft</td>
<td>Joint Program</td>
</tr>
<tr>
<td><em>personal computer manufacturer</em></td>
<td>Joint Strike Fighter (JSF)</td>
</tr>
<tr>
<td>Siemens Energy and Automation</td>
<td>Army</td>
</tr>
<tr>
<td>Sikorsky Aircraft</td>
<td>Shadow TUAV</td>
</tr>
<tr>
<td>United Parcel Service</td>
<td>Navy</td>
</tr>
<tr>
<td>West Marine</td>
<td>F/A-18</td>
</tr>
<tr>
<td></td>
<td>NAVICP Common Avionics IWST</td>
</tr>
<tr>
<td></td>
<td>T-45</td>
</tr>
<tr>
<td></td>
<td>Air Force</td>
</tr>
<tr>
<td></td>
<td>C-17</td>
</tr>
<tr>
<td></td>
<td>F-15</td>
</tr>
<tr>
<td></td>
<td>J-STARS</td>
</tr>
<tr>
<td></td>
<td>Marine Corps</td>
</tr>
<tr>
<td></td>
<td>Global Combat Support System (GCSS)</td>
</tr>
<tr>
<td></td>
<td>Combat Operations Center (COC)</td>
</tr>
</tbody>
</table>
Methodology
Integrated Analysis

- Interviewed sites to document practices and enablers
- Populated maturity matrix for all organizations
- Used PD & PA as “dependent variables” to identify top performers
- Assessed cause and effect relationships across performance characteristics
- Identified common themes that contributed to their success
- Performed gap analysis to identify most salient elements for DoD performance-driven advancements
Findings
Overview

• Outcome-Focused Sustainment Value Chains Already Exist in DoD

• “Trigger Event” Compelled Top Performers To Become Outcome-Focused

• Common Themes - Framework For Outcome-Focused Performance
  – **Best Practices For Success** – Maturity in Performance Definition, Performance Achievement, Organizational Mechanics, and Information Management form foundation for outcome focus
  – ‘**Best Practices For Success’ Enable Broader Foundation For Value Creation** – Maturity in Value Chain Integration, Process Innovation, and Product Improvement allow for greater value creation
  – **Disparate Maturity Limits DoD’s Ability To Increase Value** - Lack of maturity in the areas of Critical Capability Management and Financial Management limits DoD’s ability to fully achieve an outcome-focused performance environment
Findings

Best Practices for Success - Foundation for Outcome Focus

- Define outcomes with the range and depth needed to describe success in tangible terms
- Balance external (customer-oriented) and internal (financial - or asset-oriented) outcomes
- Articulate distinct outcomes by customer segment, mission profile, location
- Develop formal governance model to align elements based on the criticality of participation or engagement in outcome achievement
- Enable governance and decision processes with standard displays of performance-to-plan
- Define sufficiency in information transparency, content, standard data methods, and timeliness before addressing the technology used
Findings
Foundation For Value Creation

- Maturity was the natural result of, or occurred in step with maturity in ‘best practices’
- Provider-customer relationship understood, categorized, and managed based on characteristics of that relationship
- Full alignment of provider community focused all elements on increasing value at outcome level, and not simply managing the inputs and outputs
- Integrated chains magnified value creation of innovation efforts by applying the expertise and resources from across the chain, not just from a single activity
- Exploited relationships to identify, approve, continue, or end initiatives based on their impact on outcome achievement and the creation and realization of value
Findings
Disparate Maturity Limits DoD

Critical Capability Management
• Industry sought technical, process, and decision-making superiority through capability maturity and process modularity
  – Product-related capabilities evaluated based on risks associated with level of technology, impact on quality, or availability in the open market
  – Process-related capabilities based on factors of process wholeness or integration, impact on time-definite delivery, and cost posture
  – Industry maintained a level of internal maturity appropriate for effective decision making
• DoD respondents addressed those functions directed by law, higher authority, or policy, little indication these were considered critical in addition to being required
Findings

Disparate Maturity Limits DoD (cont)

Financial Management – DoD consistently lagged Industry in ability to:

- Define specific and tangible financial indicators as critical to outcome achievement
- Integrate and drive the resource and investment machines in the creation of value
- Focus accountability for financial achievement
- Measure cost of operations, goods sold, assets, and inventory for product lines
- Develop techniques to transform the role of resource managers to a more strategic, analytical, and participatory role
Implications For DoD

Build on Maturity Analysis and Assessment of Best Practices

- **Expand and Enhance the Body of Knowledge** - Flesh out concepts, develop techniques and tools, and devise ways to align the processes that enable the value chain

- **Proceed Deliberately** - Select programs, or value chains, to test prototype applications; showcase successful techniques

- **Enable the Community** - Provide the tools, training, and policy environment needed for the community to transform
Implications for DoD

Expand and Enhance the Body of Knowledge

- **Clarify What Really Matters.** Describe and quantify a broader view of materiel readiness. *Define dimensions for Ready, Flexible, Reliable, Resilient, and Rational (cost of Operations and Assets)*

- **Create Governance And Accountability.** Create a product-centric enterprise. *Address Impact of Common Providers and Operational Units (Field-Level Support)*

- **Link Inputs And Outputs To Outcomes.** Determine and optimize the logical links among resources, activities, and outputs of the sustainment enterprise

- **Devise And Apply A Value Creation Model.** Identify, integrate, and align existing capabilities to ensure they are sufficient to create and realize value throughout the product-centric enterprise
Implications for DoD
Proceed Deliberately

Translate an enhanced body of knowledge into practical and manageable steps through:

- Focused and directed workshops targeted at learning more about top performers and refining practical steps to implementation
- Pilot programs to demonstrate the applicability and suitability of alternative strategies
- Leveraging ongoing CPI initiatives
A Way Ahead

| Clarify What Really Matters | • Describe how services relate readiness outcomes to measures of success  
|                           | • Determine what measures are used  
|                           | • Determine if new KPPs policy is being implemented  
| Link Inputs And Outputs to Outcomes | • Assess capabilities to establish cause & effect relationships  
|                                   | • Assess ability to present BCA for entire logistics chain  
|                                   | • Identify readiness modeling tools available/used  
| Create Governance and Accountability | • Analyze attributes of successful PSI  
|                                     | • Document organizational, technology & policy enablers  
|                                     | • Identify actions to empower organic PSI  
| Devise and Apply a Value Creation Model | • Best determine VOC  
|                                         | • Site visits and assessments of DoD activities & capabilities  
|                                         | • Recommend CPI policy changes  |
DoD Directive 5000.1 – 12 May 03

E1.17. Performance-Based Logistics. PMs shall develop and implement performance-based logistics strategies that optimize total system availability while minimizing cost and logistics footprint. . . Sustainment strategies shall include the best use of public and private sector capabilities through government/industry partnering initiatives, in accordance with statutory requirements.
Life Cycle Metrics

• **CJCSI 3170.01 – 1 May 07:**
  – Established KPP/KSAs as Mandatory JCS Metrics
    • *Materiel Availability (KPP)*
      – Measures the percentage of the total inventory of a system that is operationally capable of performing an assigned mission
    • *Materiel Reliability (KSA)*
      – Measures the probability that the system will perform without failure over a specified interval
    • *Ownership Cost (KSA)*
      – Provides balance to the sustainment solution by ensuring that the Operations and Support (O&S) costs associated with Materiel Readiness are considered in making program decisions

• **DUSD(L&MR) Memo - 10 Mar 07:**
  – Accepted KPP/KSAs and Added Mean Down Time as DoD Life Cycle Outcome Metrics
    • *Mean Down Time (MDT)*
      – Measures the length of time that an asset will not be available due to any reason
Future Direction

System of Systems

Integrated Materiel Availability

Stakeholder Communities:
- Contracts
- Finance
- Operations
- Intelligence
- Medical

Engineering
- Logistics
- Transportation
- Supply
- Maintenance

Weapon Systems Materiel Availability

Lower Level Outcomes

Weapon System A

Weapon System B

Weapon System C

Weapon System D

Subsystem Materiel Availability

Outputs

Subsystem PBL

Subsystem Non-PBL

System Level PBL

Traditional Support Organic/CLS mix

Warfighter Capability

Top-Down Driven

Bottom-Up Aligned
• Back up
Implications for DoD
Near Term Objectives/Initiatives

• Reassess use of traditional readiness measures in resource decisions
  – Review methods for Setting Aircraft Availability and Mission Capability Goals
  – Evaluate Implications of outcome measures on current Sparing, Readiness, and Manpower models

• Develop Strategic Approach to Value Creation – a value proposition
  – Policy to guide current capability development and employment (RCM, CBM, PBL, Partnering, etc)

• Explicitly recognize attributes and limitations of existing governance models
  – Close the gaps in responsibility, authority, and accountability
  – Address creation of governance in remaining weapon systems
### Methodology

#### Core Study Team

<table>
<thead>
<tr>
<th>Name</th>
<th>Title/Position</th>
<th>Contributions</th>
</tr>
</thead>
</table>
| Dennis Virag, SAE ARi – President, Automotive Consulting Group | - Assisted Toyota development of North American supplier sourcing strategy  
- Performed benchmark analysis to evaluate Ford’s ability to develop and implement new technology in cooperation with leading suppliers |                                                                                                                                               |
| Joseph Francis, PCOR - Chief Technology Officer, Supply Chain Council | - Former supply chain manager, HP/Compaq  
- Former chair of Supply Chain Council board |                                                                                                                                             |
| Taylor Wilkerson, LMI – Research Fellow, Supply Chain Management, Supply Chain Council certified SCOR trainer | - Contributor to Returns and Best Practices development in SCOR Model  
- Six years experience with supply chain performance management |                                                                                                                                               |
| Dr. Nick Avdellas, LMI - Research Fellow, PhD Public Administration and Policy, Lean Six Sigma Black Belt. | - Working supply chain and process improvement tasks with the US DoD and Siemens Corp.  
- Previous consulting experience with IBM and performance improvement in DoD supply and maintenance activities |                                                                                                                                               |
| Jerry Cothran, Supply Chain Visions/DAC | - Extensive PBL experience at DAU |                                                                                                                                               |
| Jerry Bapst, LMI - Research Fellow, Lean Six Sigma Black Belt, CFPIM, CIRM, Jonah | - Completed transformational supply chain tasks with Amtrak & Siemens Corp.  
- Previous consulting with GE, Lockheed Martin, Sikorsky  
- J&J Company’s Director of operations & material management. |                                                                                                                                               |
| Dr. Steve Brady, Penn State University - Assistant Professor, Operations and Supply Chain Management | - Extensive research in DoD and private industry performance improvement initiatives  
- Director of Certification, SOLE--The International Society of Logistics |                                                                                                                                               |
### Value of Money

<table>
<thead>
<tr>
<th>Focus</th>
<th>Cost</th>
<th>Inputs</th>
<th>Processes</th>
<th>Outputs</th>
<th>Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Expenses incurred using the inputs</td>
<td>Resources available to the activity</td>
<td>Actions or services that produce outputs</td>
<td>Products and services produced or acquired</td>
<td>Intended result of the value chain</td>
</tr>
<tr>
<td>DoD Implication</td>
<td>Appropriations and expenditures that benefit the weapon system outcome achievement</td>
<td>Military and civilian manpower, equipment, and materiel.</td>
<td>Maintenance, acquisition, supply, distribution, engineering, etc.</td>
<td>Components repaired, depot events, spares procured, materiel shipped, modifications designed, etc.</td>
<td>Material readiness (units that are ready for use in terms defined by the warfighter)</td>
</tr>
</tbody>
</table>

#### Efficiency

#### Effectiveness
ESG Functions and Communication

- Validate study methodology
- Provide analogous/applicable experience with successful performance based management
- Collaborative interface with core study team and service representatives
- Meeting waypoints
- Study update communication
- Guidebook review
Observations and Critiques from Many Sources

- Enhance Warfighter Representation
- Enhance Data Capture
- Link Outputs to Higher Level System Outcomes
- Empower Across Support Orgs
- Balance PBL with Title 10
- Enhance Focus to Entire Value Chain
- Link Incentives to Planned Outcomes
- Enhance Accountability Across Support Providers
- Use Outcomes to Drive Resource Engine
- Enable Verification and Tracking
- Expand Organic PBA’s
- Integrate Requirements & Support
- Implement and Oversight
- Financial Enablers
- Accomplish Contracts
- Business Case Analysis
- Establish PBAs
- Select PSI
- Workload Allocation Strategy
- SCM Strategy

Figure 3-1: PBL Implementation Model
Total Support Strategy Providers

- Field-Level
  - Integrated support
  - Long term agreements
  - Performance Monitoring
  - Performance Incentives
  - “Bottom line” Value creation
  - Clear accountability

- Common Organic Providers
  - Few Agreements
  - Few Incentives
  - Local Oversight
  - Local value creation
  - Disparate accountability
  - “Best Effort”

- Commercial PBL
  - Few Agreements
  - Few Incentives
  - Local Oversight
  - Local value creation
  - Disparate accountability
  - “Best Effort”
Implications for DoD
Enable the Community

• Develop a Guidebook
  – Integrate other transformational guidebooks - Enhance PBL and CPI guidance
  – Create an outcome-focused self-assessment
  – Incorporate the methods, practices, and tools developed and tested

• Identify and Provide Required Training
  – Modify existing Defense Acquisition University learning modules as required