Supply Chain Management: Enterprise Architecture and Performance Measurement in Federal Civil Sector

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Agenda

- Federal Enterprise Architecture & Supply Chain Mgmt
- Performance Reference Model
- Performance Metrics Implementation Challenges
- Supply Chain Operations Reference (SCOR) Model
- Conclusions and Recommendations
SiloSmashers Corporate Overview

- Using a collaborative process, we work with clients to energize and focus their organizations to solve problems and eliminate barriers to success

- We provide:
  - Business transformation services
  - Program and project management support
  - Collaboration and meeting facilities and services

- We are different because SiloSmashers:
  - Has a personalized approach not readily available from larger consulting firms
  - Partners with our clients
  - Uses our proven approach to balance technology change with business and organizational change
  - Knows the value of collaboration and lives it every day
Our Offerings

PROJECT MANAGEMENT AND TECHNICAL ASSISTANCE

- e-Government
- Business Case and Capital Planning
- Enterprise Architecture
- Program Management Office Support
- Feasibility Studies & Alternatives Analysis
- Regulatory, Security and Governance Issue Assessments
- Acquisition Planning and Selective Sourcing
Information Architecture - Context

- **Enterprise Architecture (EA) - Traditional**
  - Organizational discipline for aligning IT investments with strategy and business needs
  - Arch-enemy of IT Project Sponsors and Managers
  - Characterized by multiple layers (business, information, functional, technology)
  - Implemented through “as-is”, “to-be” models and migration path to future state
  - “Regulatory function” - Agency and bureau CIO perspective

- **Federal Enterprise Architecture (FEA)**
  - Federal government viewed as single enterprise
  - Vehicle for consolidation and reuse of IT investments
  - Requires traditional EA initiatives but goes far beyond
  - Implemented through business case (OMB Exhibit 300) approvals
  - “Budgetary function” – Agency CFO/OMB perspective

- **Federal Enterprise Architecture Business-Oriented Models**
  - Business Reference Model
  - Performance Reference Model
FEA – Business Reference Model

Figure 1: The Revised Business Reference Model (BRM) Version 2.0

FEA BRM - Supply Chain Management

**Management of Government Resources Definition**

**Management of Government Resources** refers to the back office support activities that enable the government to operate effectively.

![Diagram](image-url)

**Figure 6: The “Management of Government Resources” Business Area**

FEA Implications for Supply Chain Management IT Investments

- Federal IT Investment Growth Driver is “Service to Citizens”
  - Self-service portals
  - Homeland security/intelligence sharing
  - Streamlined workflow
  - E-Everything

- Funds for Growth Must Shift from Other Sources
  - Support Delivery of Services
  - Management of Government Resources
  - Shared infrastructure

- Bottom Line: Transfer IT resources from SCM/Other Back Office

- Key Implications
  - Tightened scrutiny for new investments
  - No funding to replace old technology based on cost reductions
  - Investments now compete on real benefits and performance improvements
  - Can one SCM system serve the entire government?
FEA Revolution Part 2: Performance Reference Model

- Just published in September 2003 for FY 2005 Budget Formulation

- Integrates with other Key Management Initiatives
  - Government Performance and Results Act (GPRA)
  - Performance Assessment Rating Tool
  - OMB 300

- Links outcomes to process outputs to inputs

- BRM placed cross-agency investments together; PRM provides ability to determine best performance
FEA Revolution Part 2: Performance Reference Model (PRM)

• The PRM is a standardized framework to measure the performance of major IT initiatives and their contribution to program performance;
• Agencies can “operationalize” the PRM for their specific environment and IT initiatives;
• How agencies “operationalize” the PRM will define the actual contents of the model;
• The PRM can be used by agency-specific IT initiatives and by cross-agency IT initiatives;
• The PRM does not create new management processes, but rather reinforces and informs those that exist, including the strategic planning process, Program Assessment Rating Tool (PART), and IT budget process;
• Agencies will be required to use the PRM in their FY 2005 Exhibit 300s ONLY for major IT initiatives classified as new Development, Modernization, or Enhancement; and
• The PRM Version 1.0 is a starting point from which to evolve towards ever-improving performance measures for IT.

How do we “operationalize” PRM for a cross-cutting initiative like SCM?

Source: FEA PMO Performance Reference Model Version 1.0, September 2003
Strategic Outcomes

Mission and Business Results
- Services for Citizens
- Support Delivery of Services
- Management of Government Resources

Customer Results
- Customer Benefit
- Service Coverage
- Timeliness & Responsiveness
- Service Quality
- Service Accessibility

Processes and Activities
- Financial
- Productivity & Efficiency
- Cycle Time & Timeliness

Value

Technology
- Financial
- Quality
- Efficiency
- Information & Data
- Reliability & Availability
- Effectiveness

Other Fixed Assets

Key enablers measured through their contribution to outputs – and by extension outcomes

The direct effects of day-to-day activities and broader processes measured as driven by desired outcomes. Used to further define and measure the Mode of Delivery in the Business Reference Model.

Mission and business-critical results aligned with the Business Reference Model. Results measured from a customer perspective.

Source: FEA PMO Performance Reference Model Version 1.0, September 2003

Enterprise Integration Expo, 9/24/2003
Federal SCM Performance Measurement Challenges

- Monopolistic, regulation-bound cultures
  - Customers? They’ll get it when they get it!
  - Results? This is just the way we do things here!

- Data to measure not available
  - Cycle time
  - Satisfaction
  - Cost savings

- Cost savings improvements driven by staff reductions are anathema

- Link to “unique” mission of home agency (“This system procures gold-plated census forms every 10 years – no other system can do that and it can’t be measured!”)

- **Differing customer needs for their supply chains**
## Civilian Agency Supply Chain Needs

<table>
<thead>
<tr>
<th>Type of Need</th>
<th>Characteristics</th>
<th>SCM Provider Value Measured by</th>
</tr>
</thead>
<tbody>
<tr>
<td>Office Equipment &amp; Consumables</td>
<td>Recurring replacement &amp; modernization; “Commodity Purchase”</td>
<td>Low price with reliable delivery</td>
</tr>
<tr>
<td>Desktop PC and Network Outsource</td>
<td>Recurring operations; Assured Service Level Agreements; “Simple Service”</td>
<td>Price; Assured performance; Service Monitoring</td>
</tr>
<tr>
<td>Intelligence-sharing and analysis center</td>
<td>Highly-engineered; few sources; extensive project mgmt to deliver; “Complex Solution”</td>
<td>Precise specifications; Earned value systems; Incentive awards</td>
</tr>
</tbody>
</table>

**Conclusion:** All Supply Chains are not the same so their enabling systems can’t be measured the same.
Potential Solution: Supply Chain Operations Reference Model (SCOR)

- Model developed and supported by Industry Group (Supply Chain Council) of over 900 Enterprises Worldwide
- Effort started in 1996 and resulted in progressively more precise, comprehensive model (currently Version 6)
- Collaborative efforts recognize that supply chain improvement is an extended enterprise initiative that needs standard communications and measurement tools
- Reference Model provides powerful management tool
  - Process Model for as-is and to-be
  - Maps best practices
  - Benchmarks performance improvement targets per process
- Used by Department of Defense
SCOR is Based on Five Distinct Management Processes

Government Equivalent Supply Chain Members

Source: Supply Chain Council Version 6.0 Overview Booklet
Enterprise Integration Expo, 9/24/2003
# Level 1 Performance Metrics

Level 1 Metrics are primary, high level measures that may cross multiple SCOR processes. Level 1 Metrics do not necessarily relate to a SCOR Level 1 process (PLAN, SOURCE, MAKE, DELIVER, RETURN).

<table>
<thead>
<tr>
<th>Performance Attribute</th>
<th>Customer-Facing</th>
<th>Internal-Facing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delivery performance</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Fill Rate</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Perfect order fulfillment</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Order fulfillment lead time</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Supply-chain response time</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Production flexibility</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Supply chain management cost</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cost of goods sold</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Value-added productivity</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Warranty cost or returns processing cost</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Cash-to-cash cycle time</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Inventory days of supply</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Asset turns</td>
<td></td>
<td>✓</td>
</tr>
</tbody>
</table>

Source: Supply Chain Council Version 6.0 Overview Booklet

Enterprise Integration Expo, 9/24/2003
The real payoff: Level 3 Metrics Example

SCOR Level 3 Standard Process Element Definition, Performance Attributes and Accompanying Metrics

**Process Element: Schedule Product Deliveries**

**Process Element Definition**

Scheduling and managing the execution of the individual deliveries of product against an existing contract or purchase order. The requirements for product releases are determined based on the detailed sourcing plan or other types of product pull signals.

<table>
<thead>
<tr>
<th>Performance Attributes</th>
<th>Metric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reliability</td>
<td>% Schedules Generated within Supplier’s Lead Time</td>
</tr>
<tr>
<td></td>
<td>% Schedules Changed within Supplier’s Lead Time</td>
</tr>
<tr>
<td>Responsiveness</td>
<td>Average Release Cycle of Changes</td>
</tr>
<tr>
<td>Flexibility</td>
<td>Average Days per Schedule Change</td>
</tr>
<tr>
<td></td>
<td>Average Days per Engineering Change</td>
</tr>
<tr>
<td>Cost</td>
<td>Product Management and Planning Costs as a % of Product Acquisitions Costs</td>
</tr>
<tr>
<td>Assets</td>
<td>None Identified</td>
</tr>
</tbody>
</table>
## Relationship of Level 2 Processes to Civilian Agency Supply Chain Needs

<table>
<thead>
<tr>
<th>Level 2 Execution Process</th>
<th>Related Supply Chain Need</th>
<th>Typical IT Supply Chain Systems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Source, Make, Deliver Stock Products</td>
<td>Office Equipment and Furniture</td>
<td>Online catalog self-service (Amazon) with Inventory Mgmt App</td>
</tr>
<tr>
<td>Source, Make Deliver Make to Order</td>
<td>PC Desktop Outsourcing</td>
<td>Negotiated contracting workflow (Auto.com) with trusted payment mechanism</td>
</tr>
<tr>
<td>Source, Make, Deliver Engineer to Order</td>
<td>Information Analysis Data Center</td>
<td>Complex ERP system with project management, quality control, and custom invoicing and billing modules</td>
</tr>
</tbody>
</table>

Each IT investment is geared to a different supply chain and has correspondingly different value propositions and performance metrics
Conclusions and Recommendations

- PRM will significantly affect SCM (and all other) initiatives going forward

- Two components are currently missing
  - A more granular view of supply chain differences from customer’s point of view
  - A consistent set of performance measures aligned with the unique needs of these supply chains

- SCOR Model provides a framework for best practices and clear investment metrics

- FEA PMO and CIO Council should investigate how a cooperative effort with Supply Chain Council can be use to generate the next level of PRM