Adapting CMMI for Acquisition Organizations: A Preliminary Report

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2004 Sales: $193 Billion
Product Sales: In 200 countries
Manufacturing Operations: In 32 countries
2004 Vehicle Production: 9.1 million units
Dealers: 14,000
Average # Parts / Vehicle: 5,000
Supply Chain - Daily: 180 M lbs of material from 12,000 sources “Just in Time”
Information Technology: Multi-vendor environment approx. $3 Billion/year
GM Information Technology: Outsourcing Journey

First Generation: Single Source

Pre-1984

In-house delivered IT services

1984

GM purchases EDS: all IT employees transferred to EDS business unit

1996

Second Generation: Multi-Supplier

1997

• EDS business unit spin off
• GM IT formed

2002

Third Generation: Standard Enterprise Management

2006

• Multi-Supplier environment

• Multiple IT Suppliers introduced
• Business Process Outsourcing
Challenges and Inhibitors of Using Today’s CMMI for Acquisition Organizations

- **CMMI does not effectively address acquirer needs**
  - Some elements of CMMI are not executed by the acquirer
    - Example: implementing the design
  - Some required elements are not addressed
    - Example: acquisition strategy and contract development

- **CMMI Acquisition Module (CMM-AM) partially addresses acquirer needs**
  - Some required elements are not addressed
    - Example: architecture, quantitative management
  - Elements lack precise definition of the acquirer-supplier relationship
    - Example: acquirer sub-practices, typical supplier work products
  - CMMI-AM does not support appraisals using SCAMPI A
Moving Towards a CMMI for Acquisition Organizations: Long Term Goals

- **Lean CMMI Model for Acquisition (CMMI-A) usable by any acquirer**
  - Clearly delineate the minimum practices that an acquirer must perform to be successful
  - Clarify typical supplier work products in a successful acquirer-supplier relationship
- **Complete model (not a module) with similar structure as CMMI**
- **Staged representation and appraisable using SCAMPI A**
- **Approved by CMMI Steering Group and Industry**
Key Acquirer Roles*

- Business analysis/relationship management (incl. requirements)
- Contract development & supplier management
- Program ownership / project management
- Technical architecture, standards, security

Key Supplier Roles

- Application Design/Development
- System Maintenance
- Desktop / Service / Help Desk
- Hosting
- Data center / mainframe

* Based on Forrester, “Functions to Retain when Outsourcing” (July 2004)
Acquisition Life Cycle

CMMI for Acquisition

Acquirer*

- Acquisition & Project Planning
- Analyze & Architect Solution
- Supplier Evaluation & Selection
- Project Oversight / Supplier Management
- System Acceptance
- Transition Mgmt

Suppliier

- Plan
- Design
- Develop
- Integrate & Test
- Deliver & Maintain

CMMI for Development

Acquisition Life Cycle

CMMI for Acquisition

Acquirer & Supplier Contractual Touch Points
Examples of Supplier Work Products

- Supplier Project Plan
- Detailed Requirements
- Requirements Traceability Matrix
- Product Design
- Executable Code
- Test Plans & Results
- Operations Readiness Report
- Training Plans & Material

Metrics Data & Analysis Reports reflect progress, product, process compliance:
Maturity Levels for Acquirers

1. Initial
   - Unpredictable, poor communications, and reactive project execution

2. Managed
   - Basic Project and Acquisition Management

3. Defined
   - Standard processes & standard contracts across a portfolio of projects

4. Quantitatively Managed
   - Projects, suppliers, solutions quantitatively measured and controlled

5. Optimizing
   - Focus on integrated supply chain
Project Execution: Acquisition Life Cycle and Roles

<table>
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<tr>
<th>Life Cycle / Roles</th>
<th>Acquisition &amp; Project Planning</th>
<th>Analyze &amp; Architect Solution</th>
<th>Supplier Evaluation &amp; Selection</th>
<th>Project Oversight / Supplier Mgmt</th>
<th>System Acceptance</th>
<th>Transition Mgmt</th>
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<tbody>
<tr>
<td>Supplier Management</td>
<td>Solicitation &amp; Contract Development</td>
<td>Supplier Agreement Management</td>
<td>Integrated Supplier Management</td>
<td>Quantitative Supplier Management</td>
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<td>Requirements / Validation</td>
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<td>Verification &amp; Validation</td>
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<td>Architecture</td>
<td>Technical Solution</td>
<td>Transition to Operations</td>
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* Process management and support processes are also required.
**Supplier Base Data** – Common measures from all suppliers will provide a metric foundation based on industry standards.

**Enterprise Level** - Enterprise level measures based on quantitative roll-up and drill-down capability provide business value analysis.

**Group Level** - Group Performance measures to monitor process capability and operational performance at an aggregate level.

**Project Level** - Standard project performance measures derived from supplier and acquirer base data.

**Touch Points** – Suppliers report standard indices of base data to monitor project progress as defined in the contract.

* Stronger Management Practices are needed to Improve DoD’s Software Intensive Weapons Acquisitions, GAO-04-393 (March 2004)
Next Steps

- Conduct pilots with General Motors Information Technology and its strategic suppliers
- Join CMMI for Acquisition (CMMI-A) requirements development team
- Publish special report about “Adapting CMMI for Acquisition Organizations: A Preliminary Report”
- Implement the new CMMI for Acquisition Organizations within General Motors
- Pilot GM internal appraisals against the new CMMI for Acquisition Organizations
- Present keynote at the SEPG 2006
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