Deployment of the CMMI-Acquisition Module within the DoD

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November 17, 2004

Agenda

- Background
- CMMI–AM Deployment Plan
- Phase I Activities and Results
- Phase II Activities and Results
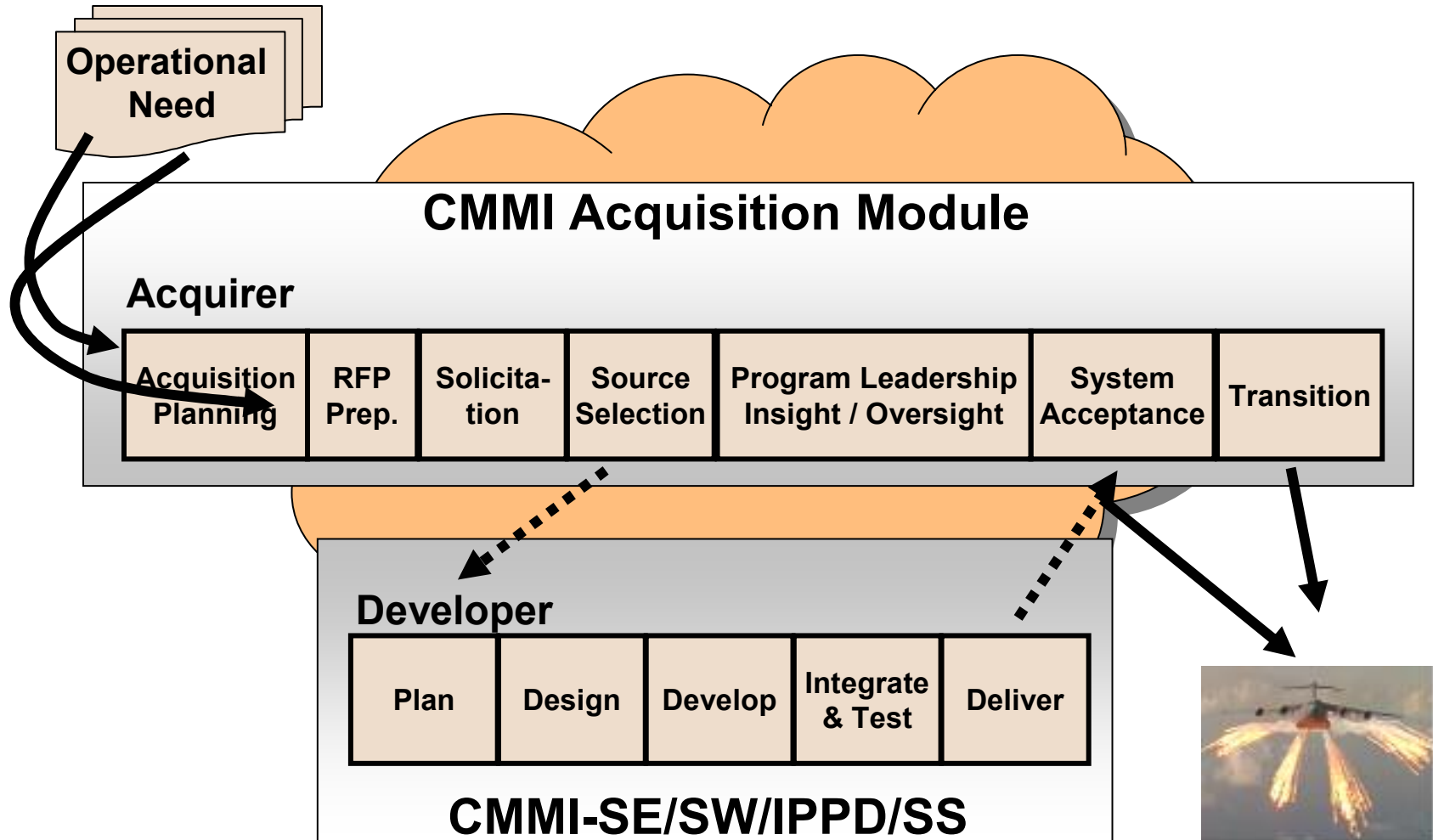- Phase III Activities and Results
- Next Steps

CMMI Module for Acquisition

- Focuses on effective acquisition activities and practices that are implemented by first-level acquisition projects (e.g., System Project Office/Program Manager/Program Management Office)

- Acquisition practices drawn and summarized from existing sources of best practices:
    - Software Acquisition Capability Maturity Model (SA CMM)
    - Capability Maturity Model Integration (CMMI)
    - FAA Integrated Capability Maturity Model (iCMM)
    - Section 804

- Intended to be used in conjunction with the CMMI as an acquisition "lens" for interpreting the CMMI in acquisition environments

Focus on Acquisition

Operational Need

CMMI Acquisition Module

Acquirer

Acquisition Planning	RFP Prep.	Solicita-tion	Source Selection	Program Leadership Insight / Oversight	System Acceptance	Transition

Developer

Plan	Design	Develop	Integrate & Test	Deliver

CMMI-SE/SW/IPPD/SS

CMMI Module for Acquisition

CMMI Module for Acquisition

Project Management

- Project Planning
- Project Monitor and Control
- Integrated Project Management
- Risk Management
- Integrated Teaming
- Solicitation and Contract Monitoring

Engineering

- Requirements Management
- Requirements Development
- Verification
- Validation

Support

- Configuration Management
- Process and Product Quality Assurance
- Measurement and Analysis
- Decision Analysis and Resolution
- Transition to Operations and Support
- Organizational Environment for Integration

CMMI Acquisition Module:
Deployment Activities

- **PHASE I** – fact-finding (SA CMM historical adoption issues)
  - ✓ Meet with SA CMM practitioners to characterize how it is being applied, and capture lessons learned

- PHASE II – Plan pilot strategy using Section 804 framework
  - ✓ Socialize CMMI Acquisition Module with Acquisition Executives
  - ✓ Offer CMMI Acquisition Module as a "tool" to achieve 804 compliance
  - ✓ Select candidate programs from each Service/Agency as "Pilots"

- PHASE III – conduct Pilot assessments
  - ✓ Workshop (awareness training) for PM Staff
  - ✓ Gap Analysis to identify opportunities for process improvement and program risk reduction

- PHASE IV – Make necessary modifications
  - Analyze Pilot results and Fact Finding lessons learned

- PHASE V – full release of CMMI Acquisition Module
  - Sunset the SA-CMM

Phase I Goals

- Capture lessons learned and experiences on the use of the SA CMM from users of the model
  - Strengths
  - Weaknesses
- Capture opinions of SA CMM users on replacing SA CMM

Phase I Activities - 1

- SEI prepared a list of 17 known users of SA CMM
    - 8 DoD
    - 5 Other Federal agencies
    - 3 Commercial companies
    - 1 Foreign agency
- Selected 8 to interview
    - 4 DoD
    - 1 Congressional oversight program
    - 2 US Civil Agencies
    - 1 Industry

Phase I Activities - 2

- Prepared list of questions for interviews
- Distributed questions to interviewees prior to interview
- Conducted interviews
- Synthesized the results

Phase I Results:
The SA CMM Model

- Model has "common-sense" orientation

- Model helped to resolve issues within the organization

- Use of model helped change the organizational culture, clarify roles and responsibilities, and develop and implement the use of consistent terminology

- Informal and formal training is necessary to apply model

Phase I Results:
Transition to CMMI-AM Considerations

- Organizations want a comprehensive model that meets their needs

- Model/module needs

    – System focus, not just software focus

    – Transition to operations and support

    – Practices to gauge project performance (metrics)

    – More explicit reference to integrated teaming and configuration management

- Organizations willing to move to CMMI-AM provided

    – Replacement is as good as SA CMM

    – There is a planned transition approach

CMMI Acquisition Module: Deployment Activities

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Phase II Activities

- Met with component acquisition executives to discuss CMMI–AM

  - Benefits

  - Call for programs to volunteer as pilot programs for assessments using CMMI–AM

  - Input to deployment process

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Phase III Activities

- 8 pilot program assessments completed
- Draft report prepared by OUSD; reviewed by assessment team members who had participated on more than one assessment (10 people)
- Final Report, including assessment team recommendations, delivered to OUSD management and CMMI–AM authors
- Author Team to present final recommendations to CMMI Steering Group and Sponsor at November meeting

Pilot Program Characteristics

Program	Attribute				
	Life Cycle Phase	*ACAT*	*Size*	*Applications*	*System of Systems*
1	Insight/Oversight	I AM	150 people	ERP	No
2	Spiral Development; Block 2 (RDT&E)	I AM	$4B approx 250 People	Missile Defense System	Yes
3	Sustainment	I C	$1.6B approx. 250 people*	Globemaster III	No
4	Spiral development; Block 2	I D	$5B 150 people	Weapons/ Battle Management	Yes
5	Pre Milestone III but Deployment with waivers	I D	>$100M >100 people	Battle Management	No
6	Replan	III A	12 people	IT	No
7	Spiral Development: Source Selection and Insight/Oversight	IV D/AAP	7 people	IT	No
8	Sustainment	AAP	$0.6B 6 people	GOTS/IT	No

*Does not include $2B for aircraft purchase

General Results-Positive

- No show stoppers to prevent immediate use when accompanied with training

- Applicable to all life cycle phases, applications, and program size within pilot study with appropriate interpretation

- Strongest process areas: Project Planning, Project Monitoring and Control, Risk Management, Requirements Management, and Requirements Development

General Results-Module Issues

- PMOs believe Acquisition Module is
  - A benchmark
  - A process improvement tool
  - A stand alone document
  - Strongly tied to the CMMI
- PMOs believe the AM has implied maturity levels
- Definition of organization
- Confusion regarding internal (PMO) products/processes vs. external one (vendor)
  - Some process areas apply to both; others to internal processes/products only.

General Results-Module Issues

- Overlap of practices within different process areas

- Addition of specific practices to some process areas, e.g., Solicitation and Contract Monitoring and Transition to Operations

- Insufficient guidance

  - More informative material specific to an acquisition organization

  - More examples

- As written, difficult to use without training

Pilot Assessment Module Result
Organization vs. Program Issue

- "Organization" appears to be used with different implied definitions

- Relates to intended use of module: benchmark, process improvement tool, assessment tool

- Implies definition in AM not adequate

- Impacts application of multiple specific practices, especially those in Organizational Environment for Integration, and Generic Practice 1 (organizational policy), GP 11 (defined process), and GP 12 (use & improvement of organizational assets)

Pilot Assessment Module Result
Internal vs. External Products Issue

- Several programs misinterpreted the intent of some practices that referenced work products. They assumed the practice was referring to the products developed by the vendor when the products referenced are those actually produced by the PMO

- Components especially affected are the Process and Product Quality Assurance, and Configuration Management Process Areas as well as GP 6 (CM of process work products)

- Requirements Management appears to address external (customer) work product requirements that are passed on to the vendor

Pilot Assessment Module Results
Overlap Issue

- Several programs felt that specific practices within CM, PPQA, and M&A were redundant with GP 6 (CM of process work products), GP 9 (adherence to process & procedures), and GP 12 (measurement)
- Relationship between M&A to PMC and, to a lesser extent, PP is not clear
- PMOs felt that GP 8 (monitor and control process) and GP 9 (evaluate adherence to process) overlapped considerably and did not know how to distinguish between them
- PMOs were confused about the relationship of OEI SP 1.1 (organization shared vision), IPM Goal 3 (project shared vision), and IT SP 2.1 (integrated team shared vision)

Pilot Assessment Module Results
Missing Practices Issue

Solicitation and Contract Monitoring

- Interpreted as a one-time activity (RFP process).

- Most programs doing sole source task orders, engineering changes, or contract modifications after initial award and did not know how to apply PA in that type if environment.

- Few practices on 'monitoring."

Pilot Assessment Module Results
Missing Practices Issue

Transition to Operations

- Some programs felt sustainment activities are not adequately addressed by the practices in this PA

- Some programs felt that TOS is performed after development and test. Felt practices need to emphasize that this "readiness to undergo transition" is evaluated throughout the life cycle

- Some programs questioned whether the maintenance of the development environment is addressed in the practice statements

Next Steps (Phase IV)

CMMI Steering Group to

- Receive and evaluate recommendations from the author team

- Determine what changes, if any, are to be made to V1.0 of the Acquisition Module

- Establish schedule for changes

Thanks!

- Brian Gallagher of the SEI for hours of discussion and participation on the assessment teams.

- SEI for providing logistics support

- OUSD, CSC, Defense Logistics Agency, Missile Defense Agency, MITRE, SEI, STSC (Hill AFB), US Army Air & Missile Command, and USAF ASC/EN (WP AFB) for providing personnel to serve as assessment team members.