CMMI—Next Steps

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Overview

- History of CMMI product suite improvement efforts

- CMMI-DEV Guidebook for Acquirers

- CMMI for Acquisition (CMMI-ACQ)

- CMMI Workshops: Beyond v1.2

- CMMI for Services

- CMMI Extensions

- Questions/Comments

CMMI Issues
DoD Sponsor Report, SSTC – May 2006

- Programs execute at lower maturity levels than their organizations have achieved and advertised
- High-maturity practices are not consistently applied at the project level after contract award
- How to ensure new projects will incorporate CMMI processes
- Appraisal sampling procedures – how to ensure adequate coverage of the organizational unit
- Appraiser quality – training, consistency
- Lack of agreement on what constitutes Levels 4 and 5
- Need to converge to a single representation
- Content of appraisal disclosure statements is lacking
- Inadequate training and education for acquirers
- Should CMMI be used for source selection

What is the resolution of these issues?

Some Issues Addressed in v1.2 CMMI-DEV and Appraisal Method

- Issues addressed
  - High-maturity practices are not consistently applied at the project level after contract award
  - How to ensure new projects will incorporate CMMI processes
  - Appraisal sampling procedures – how to ensure adequate coverage of the organizational unit
  - Appraiser quality – training, consistency
  - Lack of agreement on what constitutes Levels 4 and 5
  - Content of appraisal disclosure statements is lacking
- CMMI-DEV v1.2 Model
  - New material added to ensure processes used at project start-up
- V1.2 Appraisal Method
  - Appraisal Disclosure Statement (ADS) improved
  - Sampling rules improved
  - Public posting of appraisal results for organizations that claim a level in proposals or advertising
- High maturity appraiser training and certification instituted

Some Issues Addressed for the Acquirer

- Issues addressed
  - Inadequate training and education for acquirers
  - Should CMMI be used for source selection?
- Guidebook and model being developed for acquirers
  - *Understanding and Leveraging a Supplier's CMMI Efforts: A Guidebook for Acquirers* published
  - CMMI for Acquisition (CMMI-ACQ) in development and review

Remaining Issues: What's Next for CMMI?

- Remaining issues (some partially addressed)
  - Revisit Levels 4 and 5
  - Lean the Model and the Appraisal Method
  - Evaluate Constellation strategy
  - Assess next generation process improvement
- CMMI Workshops: Beyond v1.2 ongoing to provide input to v2.0 solution
- Business Rules for Extensions
- Services sector applications

What does Next Generation Process Improvement look like?

Understanding and Leveraging a Supplier's CMMI Efforts:
A Guidebook for Acquirers

Issues Using CMMI-DEV in an Acquisition Environment

Intended Use: CMMI-DEV is designed for use within development organizations for internal process improvement, not from acquirer's perspective

Size: CMMI-DEV is a comprehensive process model that exceeds 700 pages. Just another tome the PM must have knowledge on how to implement

Training: CMMI training focuses on the use of CMMI-DEV for process improvement, not leveraging the activities from an acquirer's perspective

Marketing: "level-mania" too often has defeated desired behavior of deploying standard processes and process improvement at program startup and throughout the development life cycle

Guidance in the effective use of CMMI-DEV by Acquirers did not exist

Acquirer Difficulties Resulting from these Issues

- Understanding what specific benefits CMMI provides for the acquiring program office
- Understanding how CMMI-DEV reduces program risk
- Determining what to ask for regarding process capability
- Interpreting developer's claims regarding maturity level ratings
- Discriminating between the process capability of competing suppliers
- Separating the "practitioners in the marketing department" from the "practitioners on the shop floor"
- Monitoring developer's process capability and their implementation as applied to current programs
- Understanding how broadly the rating applies to the organization of interest to the acquirer

Belief in the myth that CMMI is the "silver bullet"

Guidebook Demystifies CMMI Terminology and Expectations

- Provides the basic information that acquirers need in order to understand CMMI-DEV use by suppliers
  - Explanations of capability and maturity levels
  - Differences between continuous and staged model representations
  - High maturity/capability levels (levels 4 & 5)
  - Addresses obscure elements of CMMI, such as equivalent staging
- Cautions that high capability and maturity level ratings do not of themselves guarantee program success
- Intends to help clarify what high capability and maturity ratings can and cannot do for a program

Guidebook Format and Future

- Readable (small) 40 pages for the Program Manager
  - Additional material in appendices designed for implementation
    - Hyperlinks provided in digital version
  - Available at http://www.sei.cmu.edu/publications/documents/07.reports/07tr004.html

- Part of the CMMI Product Suite
  - Change requests and comments can be submitted to cmmi-comments@sei.cmu.edu.
  - Will be updated with learning and experience

- Will be made into a Continuous Learning Module for acquirer training with the Defense Acquisition University

Guidebook Bottom Line

- DoD does not place significant emphasis on capability level or maturity level ratings, but rather promotes CMMI as a tool for internal process improvement

- This lack of emphasis on ratings is prudent in the light of findings that not all suppliers are exhibiting behavior consistent with their attained CMMI maturity level rating

- The CMMI provides a set of best practices to be employed by the supplier. It is essential that DoD and industry use this capability in the right manner, with appropriate measure, in order to realize this benefit.

CMMI for Acquisition
CMMI-ACQ

CMMI-ACQ
Development Strategy

- General Motors and the SEI developed the initial CMMI-ACQ model
  - Source models included CMMI Acquisition Module (CMMI-AM) and Software Acquisition Capability Maturity Model (SA-CMM)
  - Incorporated attempts by several acquisition organizations to adapt the CMMI-DEV to their organization
  - Best practices contained in the initial CMMI-ACQ went through an extensive review process with over 60 reviewers from 24 industry and government organizations
- Change requests on the initial model solicited by piloting
  - Assured Service/Agency/Industry acquirer needs were addressed
  - Enhanced acquiring organization understanding of process improvement
  - SCAMPI-C (Approach focused) pilots were used for most to identify strengths and needed improvements
  - SCAMPI-B was used at GM to confirm classic appraisal approach
- Final change requests for v1.2 solicited through workshop of stakeholders
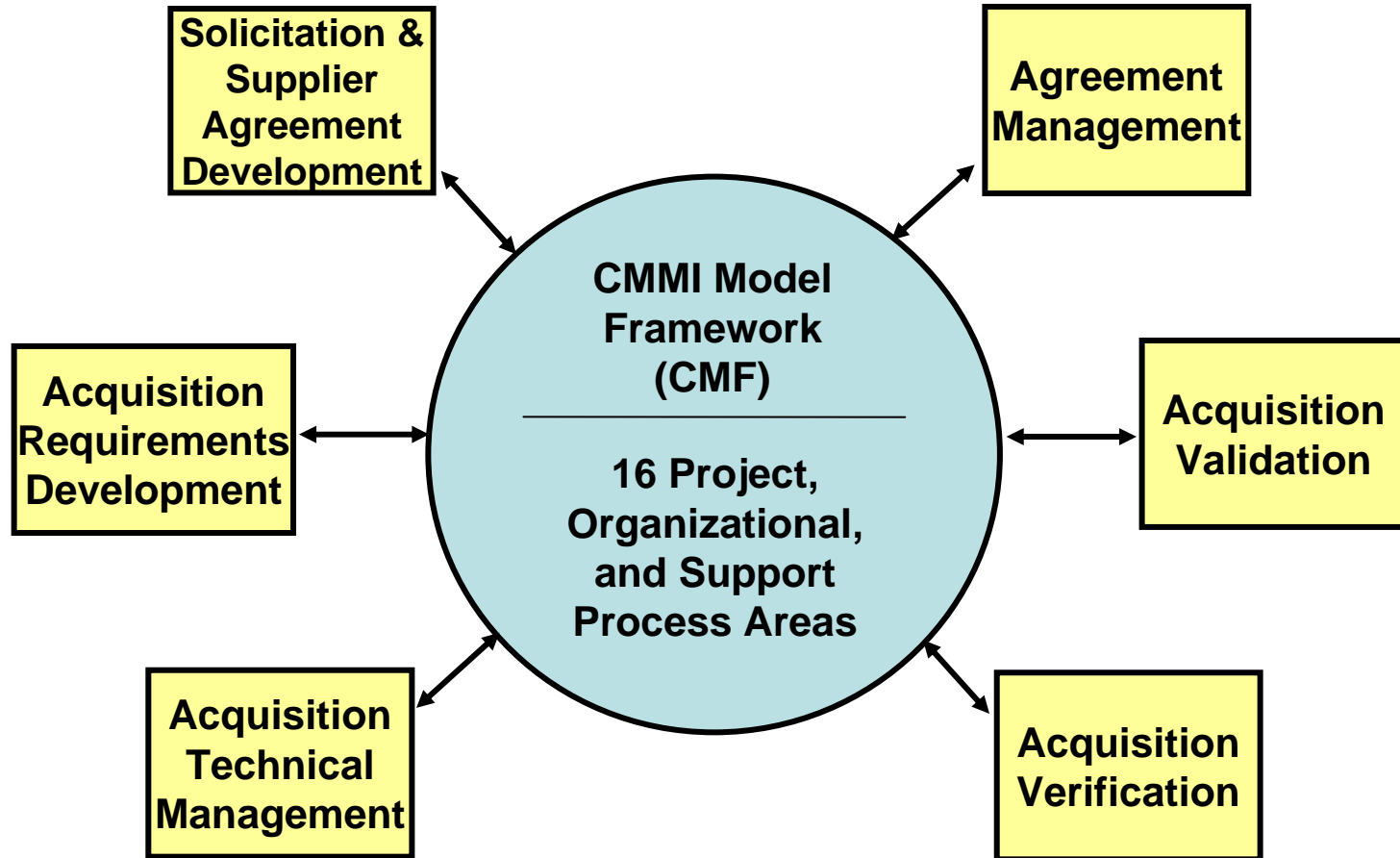
CMMI-ACQ Development Challenges

- Model had to explicitly apply to the acquisition of both products and services
  - From IT outsourcing to DoD acquisition of a weapon system
  - Applicable internationally-recognized references and glossary terms added, e.g., service level measurement
- Model had to apply to acquisition organizations from commercial industry to government agencies, both large and small

CMMI-ACQ v1.2
Acquisition Category Process Areas

Solicitation & Supplier Agreement Development

Agreement Management

CMMI Model Framework (CMF)

16 Project, Organizational, and Support Process Areas

Acquisition Requirements Development

Acquisition Validation

Acquisition Technical Management

Acquisition Verification

ACQ PAs seamlessly interact with all CMF PAs through ACQ-specific material added to CMF PAs

Acquisition Specific-Practice Enhancements to CMF PAs

- Measurement and Analysis
  - Includes earned value management material
  - Consistency across the model in measurement terms
- Project Planning
  - Includes establishment and maintenance of a project's acquisition strategy
- Project Planning and Project Monitoring and Control
  - Includes important specific practices on transition to operations and support
- Integrated Project Management and Organizational Process Development
  - Includes expected material on integrated teaming
  - Crucial to stakeholder involvement for acquisitions in a system of system environment

Acquisition Category PAs

- Solicitation and Supplier Agreement Development (SSAD) and Agreement Management (AM)
  - Covers both legal contracts and other forms of supplier and customer agreements such as interagency MOAs
- Acquisition Requirements Development
  - At maturity level 2 due to its importance in acquisition

Acquisition Category PAs, concluded

- Acquisition Technical Management
  - Emphasizes technical reviews and technical performance measurement for technical oversight of the supplier
  - Interface Management included to complement the other kinds of technical management process areas (e.g., Risk Management, Requirements Management)

- Acquisition Verification and Acquisition Validation
  - Applies to both acquirer and supplier activities, similar to CMMI-DEV Verification and Validation

CMMI-ACQ Schedule

- Review of the redline of the baseline for 0.9 version approval by Advisory Board
  - July
- Review of 0.9 version by stakeholders and final version by Steering Group
  - Aug
- Final Quality Assurance check by SEI
  - Sep-Oct
- Publication to SEI website
  - November 1, 2007

CMMI-ACQ Plan for V2.0

- V1.2 concentrated on the project-, or program-level acquisition best practices
- V2.0 will add more of the enterprise/ organization level best practices for acquisition
  - Address enterprise level acquisition strategies
    - Preferred supplier strategies
  - Address the Program Executive Office level
  - Address incorporation of lessons learned from acquisition project into acquisition management practices
- V2.0 will also benefit from change requests issued from lessons learned using the model globally

CMMI Workshops:
Beyond v1.2

Purpose of the Workshops

- Sponsored by the CMMI Steering Group
  - Conducted by the National Defense Industrial Association (NDIA) Systems Engineering Division and the SEI
- Explore issues for v2.0 of the models and appraisal method
  - Do we need something different or additional to define High Maturity (i.e. CMMI Level 4 & 5)?
  - How can we apply Lean techniques to CMMI models? Appraisal methods?
  - Can we eliminate the Staged representation?
  - Is the CMMI v1.2 Constellation Strategy the right approach?
  - Can we identify "next-generation" process improvement methodology?
  - Can CMMI be harmonized with other continuous process improvement efforts?
  - Can repeatability, consistency and overall model and appraisal methodology be improved?
  - Are there "breakthrough" concepts that we can apply to overall process improvement?

Workshop Information

- Locations
  - May 8-11, San Francisco CA
  - May 22-25, Washington DC
  - July 10-13, Montreal Canada
  - October 1-4, London, UK
  - Nov 26-29, Sydney Australia
- Registration for the Montreal workshop
  - http://www.ndia.org/Template.cfm?Section=711Gand711H&Template=/ContentManagement/ContentDisplay.cfm&ContentID=17835
- Everyone is welcome to submit comments to be considered for CMMI v2.0, whether they attend the workshop or not
  - See http://www.sei.cmu.edu/news-at-sei/whats-new/cmmi-workshops.htm

Need your ideas and participation

Workshop Results

- Output from all the workshops will be consolidated by a team under the CMMI-SG

- We will have a more comprehensive briefing of emerging ideas at the fall CMMI Technical Conference in Denver

- Your input at these workshops and at the Denver conference is important in guiding CMMI v2.0

CMMI Services,
CMMI Extensions,
and
Moving Forward

CMMI for the Service Sector: Some Questions to be Addressed

- What is the requirement/problem to be solved?

- What distinguishes CMMI-SVC from CMMI-DEV and ACQ? Other models?

- What are the characteristics of Service providers?

- Is there known benefit from Service-specific process improvement?

- Can the broad spectrum of Services be governed by a single model?

➢ Then we must assess the correct way forward for the CMMI Product Suite

CMMI Extensions:
Emerging Business Rules

- The CMMI Project has sought many ways to extend the understanding and adoption of CMMI.
- CMMI extensions provide a means of augmenting an Acquisition or Development environment with specialty practices.
- Users of CMMI add extension best practices to their organizational process improvement activities as appropriate, in order to tailor their processes to specialty areas.
- But we must govern the use of these extensions to prevent their misuse and misrepresentation:
  - CMMI extensions must be vetted and approved as additions to the product suite
  - CMMI extensions should not be appraisable – no levels

CMMI SG is working to codify these rules

Moving Forward

- Evaluate changes to the CMMI v1.2 product suite to ensure improvement goals are really being met
  - Integrity of appraisals
  - Quality of the product suite
  - Education of acquirers
- Continue to capture knowledge in the CMMI Guidebook for Acquirers
- Determine the right way ahead for CMMI v2.0

CMMI continues to evolve and improve

Questions/Comments?