



CMMI—Update and Next Steps

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Outline

- CMMI-DEV Guidebook for Acquirers
- CMMI for Acquisition (CMM-ACQ)
- CMMI Next Steps Beyond v1.2
- CMMI Constellations, Focus Topics and Moving Forward



CMMI: Implementation Issues

- Developers execute at lower maturity levels than their organizations have achieved and advertised
- Assurance that new projects will incorporate CMMI processes
- Appraiser quality – training, consistency
- Lack of agreement on what constitutes Levels 4 and 5
 - Requirements for demonstrated behavior
 - Definition of Levels 4 and 5 themselves
- Appraisal disclosure statement content
 - Coverage of the organization appraised
 - Performance on individual process areas
- Training and education for acquirers
- CMMI misuse in source selection

Proper use of CMMI requires knowledge of these issues



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



CMMI Acquirer's Guidebook

- Designed to help an acquirer benefit from a supplier's use of CMMI-DEV while avoiding the pitfalls associated with unrealistic expectations related to CMMI level ratings
- Readable (small) 40 pages for the Program Manager
 - 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



Key Tips in the Guidebook

- Do not ask for CMMI maturity levels in RFPs
 - Ask for capability in processes that are key to the success of your program
- Read the Appraisal Disclosure Statement (ADS)
 - Determine what part of the organization was actually appraised and how it relates to your program
 - For high maturity (levels 4 and 5), determine what processes were actually improved
 - Ask for clarification, appraisal findings if needed
- Recognize that levels are a result of appraisals that cost money
 - Can achieve results using other assessment techniques
 - Can do post-award checks to ensure your project is implementing its promised processes

***High capability and maturity level ratings
do not of themselves guarantee program success***



Guidebook Bottom Line

- DoD does not place significant emphasis on capability level or maturity level ratings
 - Promotes CMMI as a tool for internal process improvement
- Lack of emphasis on ratings is prudent
 - Findings that not all suppliers are exhibiting behavior consistent with their attained CMMI maturity level rating
- Essential that DoD and industry use CMMI capability in the right manner, with appropriate measure, in order to realize benefits
 - CMMI-DEV provides a set of best practices to be employed by the supplier



***CMMI for Acquisition
1 Nov 07 release***



CMMI-ACQ Development Strategy

- General Motors and the SEI developed the initial draft model
 - Source models included CMMI Acquisition Module (CMMI-AM) and Software Acquisition Capability Maturity Model (SA-CMM)
 - Incorporated lessons from several acquisition organizations to adapt the CMMI-DEV to their organization
 - Pilots from several acquisition organizations (DHS, GAO, Army, GM, others)
- Model Team dispositioned over 700 change requests from stakeholder review and workshop to develop and peer review recommended changes to initial draft
- Advisory Board of government and industry stakeholders established as change control board
- v0.9 piloted at one defense agency and one commercial company
- Steering Group endorsed final product as part of the v1.2 product suite
- Will be published on 1 November, available at <http://www.sei.cmu.edu/cmmi/models/index.html>



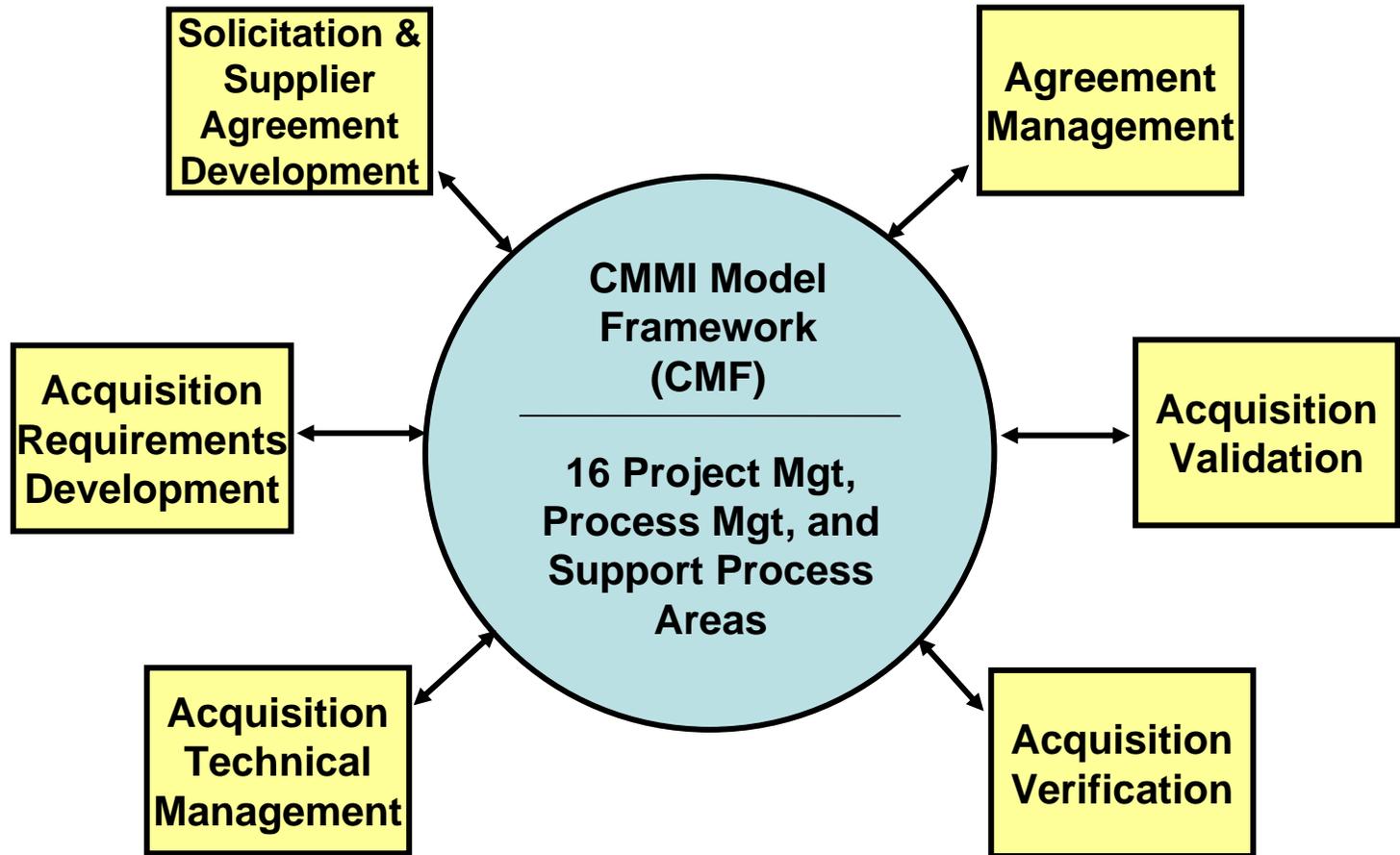
CMMI-ACQ Development Challenges

- 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 spectrum of acquisition organizations from commercial industry to government agencies, both large and small



CMMI-ACQ v1.2

Acquisition Category Process Areas



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 material on integrated teaming
 - Crucial to stakeholder involvement for acquisitions in a system of system environment



Highlights of Acquisition PAs

- Solicitation and Supplier Agreement Development (SSAD) and Agreement Management (AM)
 - Similar to Supplier Agreement Management in CMMI-DEV but greatly expanded into 2 PAs
 - Covers both legal contracts and other forms of supplier agreements such as interagency MOAs
- Acquisition Requirements Development
 - Similar to Requirements Development in CMMI-DEV, but develops customer and contractual requirements
 - At maturity level 2 due to its importance in acquisition



Highlights of Acquisition PAs

- Acquisition Technical Management
 - Emphasizes technical reviews and technical performance measurement for 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
 - Similar to CMMI-DEV Verification and Validation PAs but enhanced for the acquirer



CMMI Next Steps: Beyond v1.2



Questions 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?



Excerpts from Next Gen PI Workshops

- Leaning the model
 - Can we lean for small projects? Can the model have some scalability according to various factors (e.g., project size, PoP, organization size)?
 - Consider options for packaging (remove redundancy or repackage)
 - Consider fundamental, intermediate and advanced volumes
 - Consider architectural views for appropriate for the different using communities
- Levels 4-5
 - Combine levels 4 and 5 into one level because of their close tie
 - 4 and 5 are not adequately elaborated for implementation - may need more detail to drive proper behavior
 - Consider maturity levels within PAs (e.g., project management PAs for each level)
- Constellations – the right approach?
 - Alternative approach: Start with a CMMI Model Framework (CMF) and add where you need to, expand scope (+ concept)
 - Instead of creating constellations, encourage projects to do what makes sense with respect to what they are doing using the parent model



Excerpts, continued

- Next Gen PI ideas
 - Consider better interfacing approaches with other methodologies (e.g., six sigma for high maturity)
 - Consider how CMMI could interface with other process improvement methodologies (e.g. Lean, PMBOK, theory of constraints, next generation IDEAL)
 - Consider an emphasis on process performance effectiveness and efficiency, (e.g., effectiveness 6 sigma, efficiency LEAN)
- Leaning Appraisals
 - Consider notion of visits or interim steps (like ISO surveillance audits)
 - Focus on correlation between results and performance (process reviews)
 - Make some assumptions that some processes are in place (e.g., assume project planning has happened, but don't look at PP specifically unless you see something out of place in PMC; similarly, could start with IPM for a level 3, or QPM for a level 4)



***Next Steps:
CMMI Constellations and
Focus Topics***



Dealing with Two Constellations in the Product Suite

- The following questions need to be considered
 - How does an organization that does both development and acquisition use both models effectively?
 - How does an organization that uses both models have efficient appraisals?
 - How to keep the CMF consistent
 - CMMI-ACQ identified changes needed in the CMF shared material
 - There is now a mismatch with CMMI-DEV v1.2
 - How to ensure appraiser and instructor qualifications for the new model?
 - How do we accomplish training?



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 process models?
- What are the characteristics of Service providers?
- Is there known benefit from Service-specific process improvement? From Service-specific practices?
- Can the broad spectrum of Services be governed by a single model?
- How should Service Sector needs be incorporated into the CMMI product suite?

We are currently evaluating these questions



CMMI Focus Topics: Business Rules

What is a Focus Topic?

- Focus Topics provide additional guidance for the development of CMMI-based internal processes within an area of interest
- Examples of Focus Topics: SoS, Safety, Security, COTS

Business Rules for Focus Topics:

- They provide a “thread” through existing process areas to augment or highlight a specialty area of importance to an acquirer or developer
- They do not introduce new process areas or specific goals
- Documented as Technical Notes (TNs)
- Appraisals shall not include reference to Focus Topics as part of the appraisal ratings
 - Progress against Focus Topics can be included in appraisal findings for the purpose of identifying strengths and weaknesses.
- Shall adhere to the CMMI Architecture Document
- Steering Group and Sponsors informed of the possible Focus Topic TN and its proposed development plan before work is begun by the SEI
- SEI publishes the TN after a suitable set of reviews have been completed and comments have been dispositioned and accepted

Ensure all parts of the product suite are consistent and managed



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
 - Opportunities for streamlining where appropriate
- Re-look levels 4 and 5
 - Consistent definition and appraisal
 - Relationship to other models (e.g. 6 sigma)
 - Appraiser and implementer training and understanding
- Monitor Cost Impacts and Return on Investment
 - All changes to the suite have impacts on industry and government, direct and indirect
 - Need cost impact data from you!!



Questions/Comments?

Guidebook:

<http://www.sei.cmu.edu/publications/documents/07.reports/07tr004.html>

CMMI-ACQ Model:

<http://www.sei.cmu.edu/cmmi/models/index.html>

CMMI-AM Module:

<http://www.sei.cmu.edu/publications/documents/05.reports/05tr011.html>

Ideas for Next Gen PI:

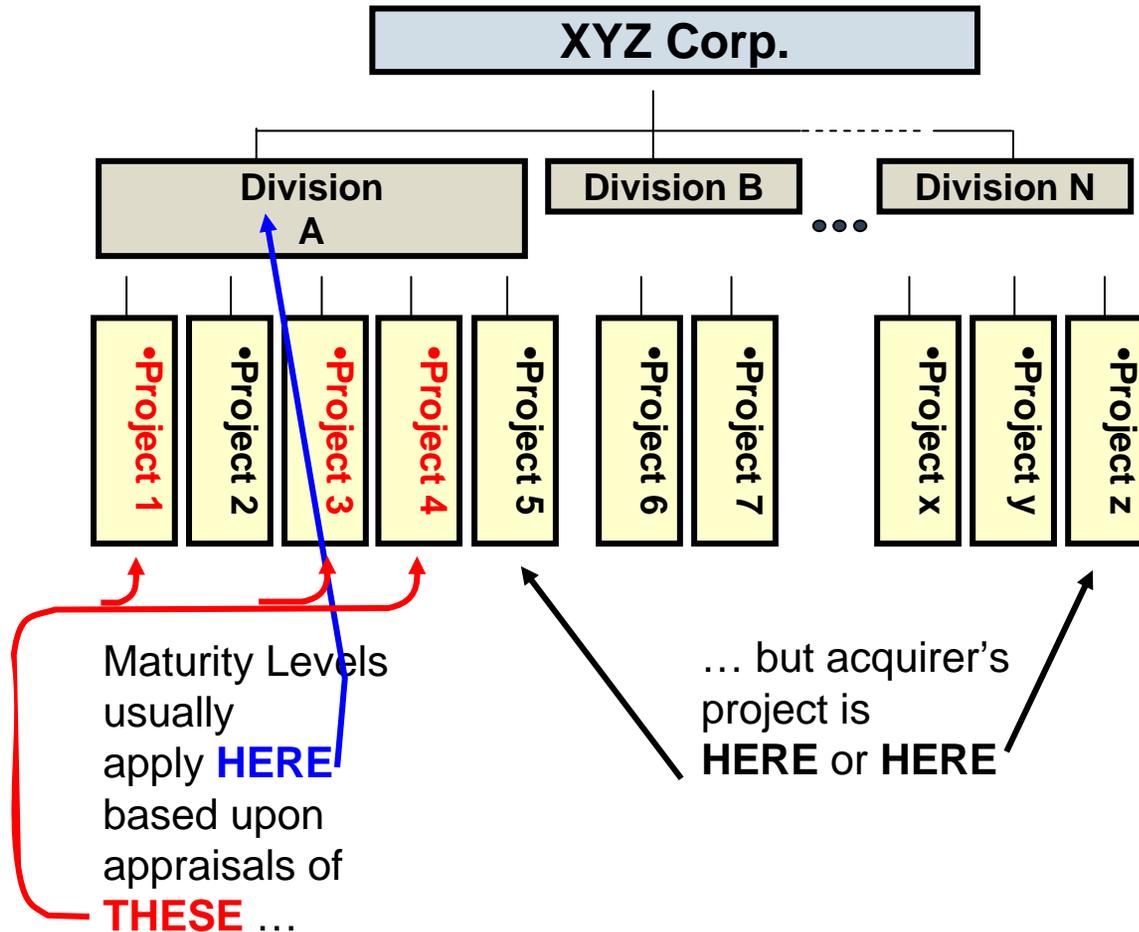
Comment forms available on SEI website



BACKUP



Example: Published maturity levels may be based on a single location





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
- V2.0 will also benefit from change requests issued from lessons learned using the model globally