



CMMI—Next Steps

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Overview

- Identification of Issues
- Resolutions Implemented for v. 1.2*
- Next Steps
 - What's next for Process Improvement?
 - Development of CMMI-ACQ
- Questions/Comments

* This briefing summarizes a significant effort by Government and Industry to assess CMMI issues and determine appropriate action.



Identification of Issues



Surfacing of Problems with Use of CMMI Ratings

- Problems presented by OSD at the 2004 NDIA CMMI Technology Conference
 - When achieving a level replaces the focus on continuous improvement, we've lost sight of the goal
 - We created “level-mania” instead of continuous improvement
- NDIA Workshop and Summit on CMMI Use in DoD Programs, Sept 2005
 - Explored issues, and identified a set of recommendations
- Spring '06 Government Review and Assessment
 - Validated Workshop findings
 - Refined and augmented issues, developed recommended actions
 - Reported to CMMI SG and Sponsors
- Ongoing: DCMA data call. Initial assessment confirms problems



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?



CMMI Government Assessment: 8 Major Issue Areas

ISSUE AREA	DESCRIPTION
1. High Maturity/ Levels 4 and 5	Lack of consistency in what constitutes Levels 4 and 5, and what constitutes granting of an Equivalent Stage
2. Integrity – if certified, how can programs be performing at a lower level?	Appraisal Sampling - What defines the organizational unit - Lead appraiser authority for selection of sample
	Appraiser Quality - Consistency, adequacy of training
	Appraisal Disclosure - Process area profiles - More details on organizational unit
	Appraisal Life – “Level for life”
3. Accounting for Organizational Commitment	How to ensure the appraisal addresses organizational commitment and ability to quickly implement processes on new projects



CMMI Government Assessment: 8 Major Issue Areas

ISSUE	DESCRIPTION
4. Education for users (acquirers)	Develop guidebook, training, for using CMMI in acquisition
5. Two Representations	Consider the need for different representations <ul style="list-style-type: none">- Define why we need both a maturity level and a capability level- Should we eliminate levels?
6. Lean the model	Is it possible to make the model more streamlined?
7. Constellation Implementation	Development and usage of Core Model Develop strategy to ensure constellations do not result in stovepiped domains
8. CMMI Usage	Should CMMI be used for source selection? What is the “next generation“ goal for CMMI?



Resolutions Implemented for v. 1.2



Issue Area 1: High Maturity/Level 4 & 5

- Issues:
 - Lack of agreement on what constitutes Levels 4 and 5
 - High-maturity practices are not consistently applied at the project level after contract award
- Resolution:
 - Certification of high-maturity appraisers is now in place
 - July 06 workshop on high maturity training determined the requirements for which the lead appraisers have to provide evidence in order to do high maturity appraisals
 - Previous courses, oral questions, etc.
 - Body of Knowledge on high maturity will be developed and available by October 2007
 - Lead Appraisers must certify that level 4 and 5 appraised subprocesses map to organization's business objectives



Issue Area 2: Integrity – Programs Execute at Lower Levels than Achieved and Advertised

- Findings that lead to Integrity Issue:
 - Issues with appraiser quality – training, consistency, independence
 - Content of Appraisal Disclosure Statements (ADS) lacking
 - Appraisal sampling inconsistent, and influenced by appraised organization
- Resolutions:
 - CMMI v1.2 training upgrade: face-to-face training with focus on integrity
 - Eliminated “level for life”— now 3 year limit
 - DCMA developing a survey related to CMMI appraisal ratings and program performance to begin to measure the problem
 - CMMI v1.2 updates to the ADS (separate chart)
 - CMMI v1.2 updates to Sampling (separate chart)



Issue Area 2: Integrity - continued

- Issue
 - Appraisal sampling inconsistent, and influenced by appraised organization
 - Appraisal sampling representation of the organizational unit
- Resolutions:
 - Precise definition of the sample
 - Organizational scope: name, type, location
 - Organizational Unit Coverage: size, application domain, geographical breadth, project type expressed in percentages of total organizational unit
 - Projects excluded and rationale
 - Lead Appraiser certification that focus and non-focus projects are representative of organization
 - Lead Appraisers must come from an organization other than the business unit being appraised



Issue Area 2: Integrity - continued

- Issue:
 - Content of Appraisal Disclosure Statement (ADS) is not representative of CMMI appraisal data
- Resolution: v1.2 ADS requires improved level of detail
 - Provides details on appraisal sample
 - Organizational unit, projects, domains
 - Provides Lead Appraiser certifications
 - Project sampling is representative
 - Level 4/5 certifications are based upon practices that represent organizational business goals
 - All appraisals performed after 28 Nov 2006 must use ADS v1.2 (includes CMMI v1.1 appraisals)
 - DoD contractor ADS's will be posted (website tbd) for Government acquirer review



Issue Area 3: Organizational Commitment

- Issue:
 - How to ensure new projects will incorporate CMMI processes
- Solution:
 - Added new goal and two practices to Operational Process Focus (OPF) PA to stress deployment of processes to projects.
 - Added text in Integrated Project Management (IPM) PA to emphasize having a defined process at project start-up
 - CMMI Guidebook for Acquirers will discuss need to address project level implementation with developers



Issue Area 4: CMMI Guidance for Acquirers

- Issues
 - Inadequate training and education for acquirers resulting in misrepresentation and misuse of CMMI
- Solution
 - *CMMI Guidebook for Acquirers*
 - Due out after the first of the year
 - Will address how CMMI should be used by acquirers, how to interpret appraisal results, how to treat CMMI throughout the lifecycle
 - Development of the CMMI-Acquisition Constellation



Issue Areas 5-8

What's Next for CMMI?

- Questions for V2.0 and beyond
 - Should there be two representations – continuous and staged?
 - Should CMMI be used for source selection?
 - Is the Level 4 & 5 construct correct?
 - Can we “lean the model”?
 - How can constellations be implemented and continue to have full integration
 - And more...
- What does Next Generation Process Improvement look like?



Next Steps:

CMMI-Acquisition

CMMI Moving Forward

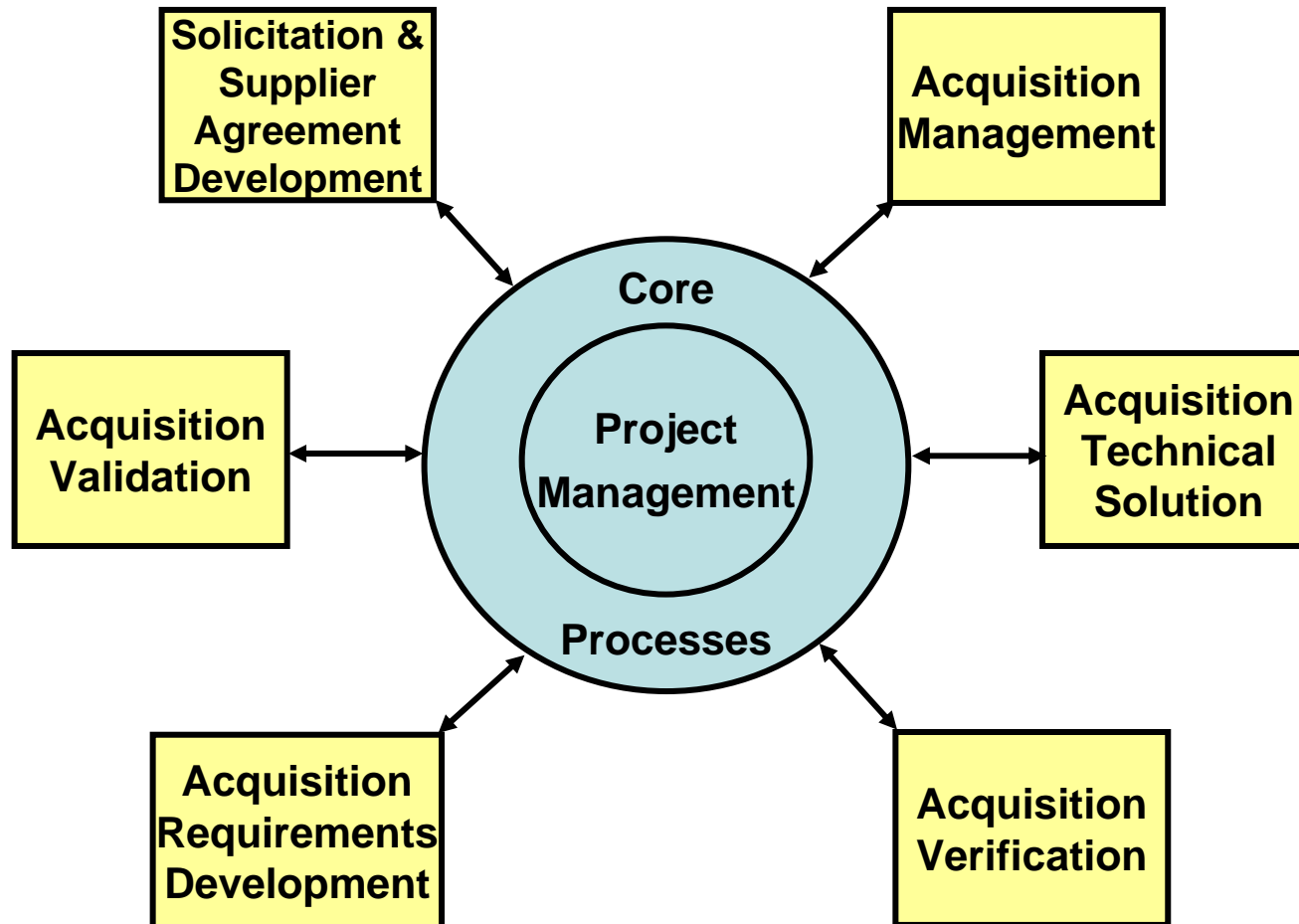


CMMI-ACQ Development Strategy

- General Motors and the SEI developed the initial CMMI-ACQ model
 - Considered CMMI Acquisition Module (CMMI-AM) in its development
 - Involved industry and government agencies in developing and reviewing the initial draft model
 - Special report at <http://www.sei.cmu.edu/cmmi/models/initial-cmmi-acq-release.html>
- Additional requirements solicited by piloting
 - Assures Service/Agency/Industry acquirer needs are addressed
 - Enhances acquiring organization understanding of process improvement
- CMMI-ACQ Model Team will propose improvements to the initial model based upon findings from the pilots
- Advisory Board will vet changes
 - Key reviewers identified for stakeholder review
- Steering Group will endorse final update



Initial CMMI-ACQ Key Acquisition Processes





CMMI-ACQ Pilots

- CMMI planned/proposed pilot efforts for FY07
 - Australian DMO (complete)
 - General Motors – Warren, MI (in progress)
 - Army – Picatinny Arsenal
 - USAF – Space & Missile Center; Electronic Systems Command
 - NAVAIR – (tbd)
 - Missile Defense Agency (tbd)
 - DHS – “US Visit” Program
 - HUD – (tbd)
- UK MoD interest being explored
- GAO and others are piloting as opportunities arise



Summary Improvements in v1.2

- New material added to CMMI v1.2 to ensure processes used at project start-up
- Appraisal Disclosure Statement (ADS) improved
- Sampling rules improved
- High maturity appraiser certification instituted
- Guidebook and model being developed for acquirers



Moving Forward

- Ensure constellations don't become stovepipes
- 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
- Capture the right knowledge in the CMMI Guidebook for Acquirers

CMMI continues to evolve and improve



Additional Improvement Opportunities

- Lack of agreement on what constitutes Levels 4 and 5
- Lean the Model
 - Convene 6-sigma team to analyze
 - Eliminate cumbersome material included for legacy reasons
 - Opportunities for streamlining where appropriate
 - Assess convergence to a single representation?
- Next Generation Process Improvement (PI)
 - Develop a strategy for how we will take PI to the next level
 - Do we need something else with CMMI for high maturity?
 - Given worldwide adoption, is the CMMI Governance Structure appropriate?

Need your ideas and participation



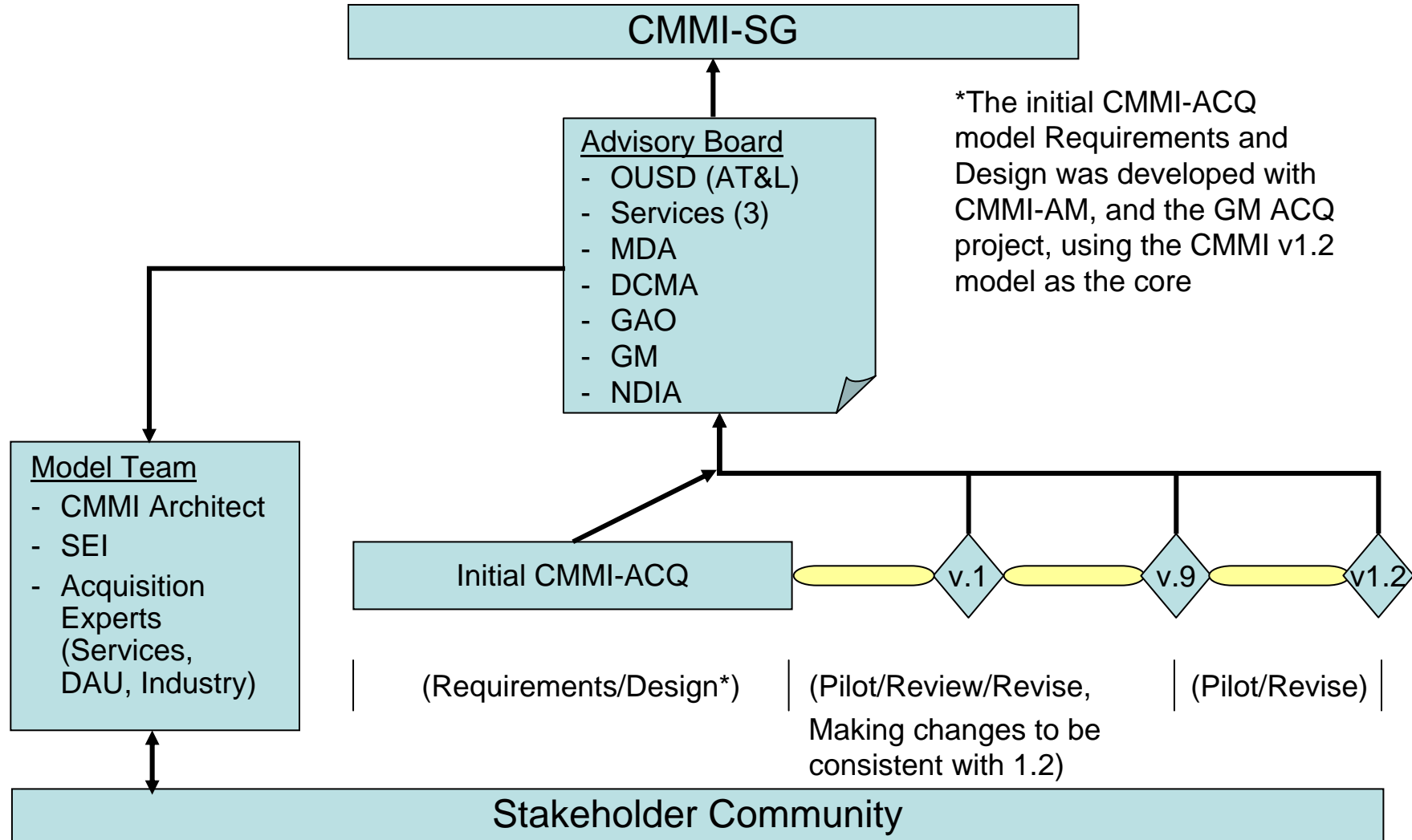
Questions/Comments?



BACKUP SLIDES



CMMI-ACQ Operational Concept





Advisory Board Functions

- Representatives from major acquisition community stakeholders
 - OUSD (AT&L)
 - Services/Agencies
 - Industry (GM, NDIA)
 - Government Agencies (GAO)
- Develops requirements and rules for changes to the baseline
 - Ensures CMMI-ACQ considers stakeholder needs and is relevant
- Oversees the pilots
- Coordinates the model within their organizations
- Actively monitors progress of and vets/contributes to products from all CMMI-ACQ teams (pilot teams, model team)
- Reports CMMI-ACQ status and recommendations to CMMI Steering Group for approval



DCMA CMMI/CMM Data Call on Process Adherence*

- Sent out in response to OUSD (AT&L) request to answer “How well do suppliers maintain their CMMI/CMM assessed levels during contract execution?”
- Included
 - Suppliers with ACAT I and II programs and,
 - Suppliers claiming a CMM/CMMI maturity level or capability level rating
 - Ratings came from independent third parties and internal teams
- Adherence ratings given by DCMA
 - Ratings based on routine process reviews of the rated processes to determine compliance during contract execution
- Data from 108 Supplier Organizational Units (after data scrub)

*DCMA, 14 Aug 06



DCMA Data Call on Process Adherence Results

- 44% of the suppliers have major non-compliance issues with implementing their appraised processes
- Only 6% of the suppliers are strictly following their appraised processes
- The suppliers that have a CMM rating have a higher percentage of non-compliance than CMMI-rated suppliers
- The highest percentage of adherence with minor non-conformances are the CMMI Maturity Level 5 suppliers
- Additional study is needed to determine the relevance of this information



CMMI: Next Steps

- Implementing changes to the CMMI v1.2 product suite to ensure:
 - Integrity of appraisals
 - Quality of the product suite
 - Education of acquirers
 - Opportunities for streamlining where appropriate
- Developing a CMMI model for Acquirer process improvement
 - Partnership with General Motors
 - Stakeholders cross DoD, Govt Agencies and Industry

CMMI continues to evolve and improve



New CMMI Architecture Concept of Constellations

- “A collection of components that are used to construct models, training materials and appraisal materials in an area of interest”
 - Development Constellation
 - Acquisition Constellation
 - Services Constellation
- CMMI-DEV v. 1.2 published 28 Sept along with appraisal and training materials
 - Available at <http://www.sei.cmu.edu/news-at-sei/whats-new/cmmi-v12.htm>
- The model for the Acquisition Constellation will be called CMMI for Acquisition, CMMI-ACQ