CMMI® Current State and Future Plans

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Topics

• Current Status
• Appraisal Results
• Transition Status
• Product Suite V1.2 Improvements
• Summary
Current Status

– Version 1.2 was released on August 25, 2006.
– Version 1.2 upgrade training is available online.
– New policies announced and implemented for version 1.2 appraisals.
– CMMI adoption continues to grow worldwide.
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Appraisal Synopsis as of 6/30/06

- Based on SCAMPI v1.1 Class A appraisals conducted since April 2002 release through June 2006 and reported to the SEI by July 2006.
  - 1,581 appraisals
  - 1,377 organizations
  - 840 participating companies
  - 109 reappraised organizations
  - 6,001 projects
  - 63.8% non-USA organizations
- * Organizations previously appraised against CMMI v1.0 and who have not reappraised against v1.1 are not included in this report.

Please visit http://www.sei.cmu.edu/appraisal-program/profile/about.html, for additional information or to find answers to questions you may have about this briefing.
Organizational Type
Based on Primary Standard Industrial Classification (SIC) Code

Services 55.4%

Based on 505 organizations reporting SIC code. For more information visit: http://www.osha.gov/oshstats/sicser.html
Organizational Size
Based on total employees within area of appraised organization

Based on 1,348 organizations reporting size data
Reporting Organizational Types

- Commercial/In-house: 67.6%
- Contractor for Military/Government: 28.8%
- Military/Government Agency: 3.6%

Based on 1377 organizations
Disciplines Selected for Appraisals

For more information about Allowable Models & Combinations, visit: http://www.sei.cmu.edu/cmmi/background/aspec.html
Maturity Profile by All Reporting Organizations

Based on most recent appraisal of 1,377 organizations
Countries Where Appraisals Have Been Performed and Reported to the SEI

Argentina  Australia  Austria  Bahrain  Belarus  Belgium  Brazil  Canada  Chile  China  Colombia  Czech Republic  Denmark  Dominican Republic  Egypt  Finland  France  Germany  Hong Kong  India  Indonesia  Ireland  Israel  Italy  Japan  Korea, Republic of Latvia  Malaysia  Mauritius  Mexico  Morocco  Netherlands  New Zealand  Pakistan  Philippines  Portugal  Russia  Singapore  Slovakia  South Africa  Spain  Sweden  Switzerland  Taiwan  Thailand  Turkey  Ukraine  United Kingdom  United States  Vietnam

Red country name: New additions with this reporting
Maturity Profile by All Reporting USA and Non-USA Organizations

Based on 498 USA organizations and 879 Non-USA organizations
Number of Appraisals Conducted by Year, as of 10/31/06
Appraisal Results Summary

– 1,581 SCAMPI A appraisals have been reported to the SEI in 52 months; 744 of these were reported in the last 12 months.
– We believe that there are a significant number of non-SCAMPI appraisals being conducted.
– Commercial/In-House, Government/Military, and Government/Military Contractor organizations reporting appraisals are increasing at a stable and consistent rate.
– Comparing early reports of the SW-CMM maturity profile with early CMMI data reflects a more mature CMMI profile.
– CMMI adoption continues to grow worldwide.
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CMMI Transition Status, 10/31/06

• **Training**
  – Introduction to CMMI – 58,178
  – Intermediate CMMI – 2,280

• **Authorized**
  – Introduction to CMMI v1.1 Instructors – 404
  – SCAMPI v1.1 Lead Appraisers – 451

• **Partners**
  – Introduction to CMMI Training Services – 238
  – SCAMPI Appraisal Services – 259
Number of Lead Appraisers Authorized (Cumulative), 10/31/06
CMMI Adoption Trends, Web Page Views, as of 9/30/06

- **CMMI Web pages views in September 2006**
  - 360K/month
  - Exceeded 24K views on 27 September 2006

- **The following were the most downloaded files on the SEI Web site in September 2006:**
  - CMMI-DEV, V1.2
  - CMMI V1.2 Overview Presentation
  - “CMMI V1.2 Model Changes” Presentation
  - “Extreme Programming (XP), Six Sigma, & CMMI: How They Can Work Together” Presentation
  - Comparison of Version 1.2 PAs to Version 1.1 PAs
# Performance Results Summary -1

**as of 8/30/06**

<table>
<thead>
<tr>
<th>Improvements</th>
<th>Median</th>
<th># of data points</th>
<th>Low</th>
<th>High</th>
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<tbody>
<tr>
<td>Cost</td>
<td>34%</td>
<td>29</td>
<td>3%</td>
<td>87%</td>
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<tr>
<td>Schedule</td>
<td>50%</td>
<td>22</td>
<td>2%</td>
<td>95%</td>
</tr>
<tr>
<td>Productivity</td>
<td>61%</td>
<td>20</td>
<td>11%</td>
<td>329%</td>
</tr>
<tr>
<td>Quality</td>
<td>48%</td>
<td>34</td>
<td>2%</td>
<td>132%</td>
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<tr>
<td>Customer Satisfaction</td>
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<td>7</td>
<td>-4%</td>
<td>55%</td>
</tr>
<tr>
<td>Return on Investment</td>
<td>4.0 : 1</td>
<td>22</td>
<td>1.7 : 1</td>
<td>27.7 : 1</td>
</tr>
</tbody>
</table>

30 Organizations with results expressed as changes over time
For more information on CMMI performance results, see

- An August 2006 SEI technical report titled Performance Results of CMMI-Based Process Improvement (CMU/SEI-2006-TR-004)
  - It is available on the SEI Web site at http://www.sei.cmu.edu/publications/documents/06.reports/06tr004.html.
- The CMMI Performance Results Web site at http://www.sei.cmu.edu/cmmi/results.html
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- Current Status
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- Product Suite V1.2 Improvements
  - Identification of Issues
  - Resolution of Issues in V1.2
  - Summary of V1.2 Changes
  - Next Steps
- Summary
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 2006 Government Review and Assessment
  – Validated Workshop findings
  – Refined and augmented issues, developed recommended actions
  – Reported to CMMI SG and Sponsors

• Ongoing: DCMA data call on CMMI implementation. Initial assessment confirms problems
Issue Areas

• Issue Area 1: High Maturity/Level 4 & 5
  – Lack of agreement on what constitutes Levels 4 and 5
  – High-maturity practices are not consistently applied at the project level after contract award

• Issue Area 2: Integrity of Appraisal Results
  – Appraiser training, consistency, independence
  – Content of Appraisal Disclosure Statement (ADS) is not representative of CMMI appraisal data
  – Appraisal sampling inconsistent and influenced by appraised organization

• Issue Area 3: Organizational Commitment
  – Concern that new projects are not incorporating standard processes

• Issue Area 4: CMMI Guidance for Acquirers
  – Inadequate training and education for acquirers resulting in misrepresentation and misuse of CMMI
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### Issue Area Resolutions -a

**Issue Area 1: High Maturity/Level 4 & 5**

- Initial certification of high-maturity appraisers
  - July 06 workshop on high maturity training determined the requirements lead appraisers have to have in order to do high maturity appraisals
  - Application review and oral exam
- Body of Knowledge on leading appraisals will be available by October 2007
- Lead Appraisers must certify that level 4 and 5 appraised subprocesses map to organization’s business objectives
Issue Area Resolutions -b

- Issue Area 2: Integrity of Appraisal Results
  - CMMI v1.2 upgrade training, proctored exam, and face-to-face training
  - Eliminated “level for life”—now three-year limit
  - DCMA developed a survey related to CMMI appraisal ratings and program performance to begin to measure the problem
  - CMMI v1.2 updates to the ADS and to Sampling
Issue Area Resolutions -c

• Issue Area 2: Integrity of Appraisal Results - continued
  – Precise definition of the appraisal sampling
    • 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 Resolution -d

• Issue Area 2: Integrity of Appraisal Results - continued
  – 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 beginning after 1 November 2006 must use and fully populate ADS v1.2 (includes CMMI v1.1-based appraisals)
  • ADS for all DoD contractors will be posted (government Web site TBD) for Government acquirer review
Issue Area Resolutions -e

• **Issue Area 3: Organizational Commitment**
  – 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 Resolutions -f

• Issue Area 4: CMMI Guidance for Acquirers
  – CMMI Guidebook for Acquirers
    • Will address how CMMI should be used by acquirers, how to interpret appraisal results, how to treat CMMI throughout the lifecycle
    • Due out after the first of the year
  – Development of the CMMI-Acquisition Constellation
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Reduced Model Complexity & Size

- Eliminated the concepts of advanced practices and common features
- Incorporated ISM into SAM; eliminated Supplier Sourcing (SS) addition
- Consolidated and simplified the IPPD material; eliminated two process areas (OEI, IT)
- Consolidated all definitions in the glossary
- Adopted a single book approach
- Reduced size 15%
Increased Model Coverage

- *CMMI always covered hardware design, but the naming (CMMI-SE/SW/etc) didn’t reflect this*
- Added **hardware amplifications**
- Added two **work environment practices** (i.e., one in OPD and one in IPM)
- Added goal and two practices in OPF to emphasize importance of **project startup**
- Updated notes on **service development and acquisition of critical product elements**
- Updated name to **CMMI for Development (CMMI-DEV)** to reflect the expanded coverage
Appraisal Method Changes to Improve Integrity

• Method implementation clarifications
  – interviews in “virtual” organizations
  – practice characterization rules
  – organizational unit sampling options

• Appraisal Disclosure Statement (ADS) improvements
  – improve usability for sponsor and government
  – require sponsor’s signature on the ADS
  – require all team members to show agreement on findings via signature
  – *Both v1.1 and v1.2 ADS reflect these changes now*

• Appraisal team will have responsibility for determination of “applicability” for SAM; no other process area exceptions will be accepted for maturity level achievement
Appraiser Qualification Changes to Improve Integrity

• All v1.2 Lead Appraisers must do the following:
  – pass upgrade and refresher testing
  – attend “face-to-face” sessions on appraisal quality
  – pass an additional oral exam before conducting a high maturity (HiMat) appraisal

• All v1.2 Appraisal Team Members must accomplish upgrade training and be registered at SEI

• All v1.2 high maturity appraisals must be led by a certified high maturity Lead Appraiser
CMMI Training v1.2

• **Introduction to CMMI**
  – Updated for v1.2
  – Phased in this fall

• **Intermediate Concepts of CMMI**
  – Updated for v1.2
  – Will better prepare students for SCAMPI training

• **CMMI Instructor training**
  – Updated to reflect v1.2 changes

“Delta” training from v1.1 to 1.2
  – Available online for free
  – More extensive upgrade course for fee
    • Appraisal Team Members
    • Lead Appraisers, instructors, candidates
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CMMI V1.2 Schedule

- Version 1.2 CMMI Product Suite release
- Update material available
- Upgrade course available on-line
- First Lead Appraiser “face to face”
- V1.2 ADS required for all SCAMPIs (on-site starts)
- Last v1.1 Intro training
- First expiration of v1.1 appraisals (3 year validity)
- Last v1.1 appraisal (on-site starts)

- August 25, 2006
- August 25, 2006
- October 16, 2006
- November 1, 2006
- December 31, 2006
- August 25, 2007
- August 31, 2007
Sponsors and CMMI SG beginning discussions on CMMI v2.0

Plan on series of focused NDIA/SEI Workshops in 2007 to dialog strategies on both models and appraisal methods

- Need to see effects of v1.2 changes
- Need to see how we can improve efficiency and reduce CMMI adoption costs
- Need to determine if any better methods can be implemented
- Need to continue the analysis of CMMI integrity
Summary

• CMMI has clearly reached far more users than ever envisioned.
  – We need to be sensitive to this as we move forward
• CMMI Adopters are reporting increased performance.
• CMMI v1.2 has made substantial improvements to address integrity issues:
  – Model
  – Appraisal Method
  – Appraisal Reporting
  – We will continue to monitor the integrity-driven improvements for effectiveness, and react accordingly
• We welcome your feedback.