Capability Maturity Model® Integration (CMMI®): Current Status and Standardization Aspects

Agenda
- CMMI Project
- General Model and Methods
- Goals and Benefits
- Selection
- Transition Plan
- Status and Relation to Key International Standards

The CMMI Project
Sponsored by the DOD and the Renewal Defense Industrial Base (RIDI)
Collaborative partners:
- MITRE
- GTE Systems
- Software Engineering Institute (SEI)
- Over 100 people involved

The CMMI Development Team
U.S. Army MDAC, AT&T Bell Labs
Software Engineering Institute
Raytheon
GE
MCI
General Dynamics
IBM
The CMMI Design Goals
Incorporate the source model, eliminate inconsistencies, reduce duplication
Reduce the cost of implementing model-based processes
Improve understanding
- Common terminology
- Consistent data
- Uniform inspection rules
- Common components
- Achieve compatibility with ISO 15504
Be sensitive to impact on legacy efforts

The Frameworks Quagmire
CMMI Benefits
Efficient, effective measurement and improvement across multiple projects disciplines in an organization
Reduced training and assessment costs
A common, integrated vision of improvement for all elements of an organization
A means of representing, delivering, and maintaining improvement information in a consistent, proven process improvement control

CMMI Source Models

<table>
<thead>
<tr>
<th>Model Name</th>
<th>Level</th>
<th>Date</th>
<th>Metrics</th>
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<tbody>
<tr>
<td>Capability Maturity Model for Software V2, draft C (SW-CMMI V2C)</td>
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<tr>
<td>Integrated Product Development Capability Maturity Model, draft VDCM (IPCM)</td>
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Model Metrics

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<td>CMMI V1.3</td>
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CMMI Product Suite Status

August 2000
Released CMMI-SEGW V1.0 for initial use
Released CMMI-SEGW V1.0 for comprehensive review
Released management requirements for CMMI V2.0 for initial use
CMMI Suite Standard Development Method for Process Improvement V1.0 for initial use
Base to CMMI model (baseline) training based on CMMI model (continuous) training based on
Intermediate CMMI model training beta
Public CMMI-SEGW V1.2 for initial use

CMMI "Source" Assessment Methods

<table>
<thead>
<tr>
<th>Assessment Method</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>EIA-Std-731.1.2 Systems Engineering Capability Model Appraisal Method</td>
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</table>
**SCAMPI Lead Assessor Track**

SCAMPI Lead Assessor training will be added to the existing Lead Auditor Program.

**Authorization Process Overview**

Step 1: Gaining Admission

- Applicant meets specified criteria in the following areas:
  - Basic knowledge and skills requirements
  - Academic accomplishments
  - Code model training
  - Discipline experience and technical requirements
  - Experience as an assessment team member

- Applicant must receive approval from the CBA-IP Lead Auditor Program.

Step 2: Lead Assessor Training

- Approved applicants attend SCAMPI Lead Assessor Training at the SB in Pittsburgh, Pennsylvania.
- Training is conducted by a Candidate Lead Assessor.

Step 3: Observation

- A Candidate Lead Assessor must be observed by an authorized SCAMPI Lead Assessor for completing SCAMPI audits.
- Upon receipt of a successful Observation Report from the Observing Lead Assessor, the SB will issue a Lead Assessor and the Leading Lead Assessor may designate the observing Lead Assessor to complete the observing Lead Assessor proposed by the candidate Lead Assessor.

- Applicant must receive approval from the CBA-IP Lead Auditor Program.

Training Products

- Introduction to the Capability Maturity Model®
- Integrated Software Engineering
- SCAMPI Assessment Team Training
Conformancy with 15504

To the extent that CMMI software full conformance with 15504 will achieve a significant status relative to:

Conformance requires that a CMMI discipline model satisfy 15504 Model-view deployment requirements and that the assessment process satisfy 15504 assessment requirements.
### 15504 Timeline

- **1996**: All 15504 (TR-baseline) documents published and available for purchase.
- **1998**: SC7 approval for proposal to progress 15504 towards international standardization.
  - Requirements for IS
  - High-level design
  - Work in progress for designs for component documents.
- **(2002-3)**: Publication as full IS planned.

### Process Definition Issue

It is intended that the scope of 15504 will be all SC7 processes (which translate to service-oriented systems).
- SC7 has identified the need for 15504 to define a complete set of process definitions.
- What does that mean with the current set of process definitions?
- The proposed solution is to define a complete set of process definitions.
- The proposed solution is to define a complete set of process definitions.
- Constitutes an evolution of the Thinking supported by the US in Phoenesterg, South Africa in 1996.

### Evolution of 15504 Specificity

1st generation (pre-Phoenesterg): practices were HAND-WRITTEN into 15504 (as a normative component - BP).

2nd generation (BP - process definitions were HAND-WRITTEN into 15504 as a normative component - 15504-BP).

3rd generation (BP) - requirements for Process Framework (Hand-Written) HAND-WRITTEN into 15504 (as a normative component - 15504-BP).
- This will be externally specified (current proposed mechanism is international Standardized Proteus - ISP).
- ISP needs revision of the 15504 framework to be encompassing the various 15504 process definitions.

### Candidate Architecture for 15504
Implications for CMMI -1

CMMI product teams now choose which Process Improvement Models (PIMs) to map to. The 15504 baseline is the only baseline compatible with CMMI. It is also possible that one or more NEW PIMs could be created that are specifically developed around CMMI models.

If processes likely at this stage then the old 15504.6 will evolve into these tools computing to the level defined in the amendment to 15504.7 which is expected to be very much like the old 15504.6 baseline.

Implications for CMMI -2

For the near term, it is not clear how many of the 15504 model compliance requirements will be included in the 15504 baseline. It is also possible that one or more NEW PIMs could be created that are specifically developed around CMMI models.

Implications for CMMI -3

The UI needs to consider whether to focus on the 12997 and 12998 PIMs for the long run or to create one or more new PIMs.

CMMI stakeholders need to track the progress of work in 12994, 12997 and 12998 to ensure that their needs are being considered and adequately addressed.

For More Information About CMMI

Go to CMMI Website:

http://www.cmmi.iacmi.org

http://www.cmmi.iacmi.org/products_NCMMI.html

Contact CMMI for Other Information:

Customer Relations:

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