

A Practical Roadmap for Transitioning to CMMI v1.2

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Background

- **CMMI v1.2 represents a major improvement in the CMMI, responding to thousands of community change requests**
- **The new model is simpler and more straightforward in some ways, but more complex in others.**
- **Current users of CMMI v1.1 should carefully consider strategies in transitioning to the new model**

Agenda

- **Model changes and strategies for transition**
 - Model architecture
 - Supplier management
 - IPPD (even for those who don't currently use it!)
 - Process deployment
- **Appraisal changes and strategies for transition**
 - ADS
- **What does it all mean?**

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Key References

- <http://www.sei.cmu.edu/cmmi/adoption/cmmiv12-changes.html>
- “CMMI v1.2,” David Phillips, SEI (Monday tutorial)
- “CMMI V1.2 Overview,” David Phillips, SEI (Wednesday presentation)
- “SCAMPI 1.2 Updates,” Dr. Jack Ferguson, SEI (Wednesday presentation)

The screenshot shows the Carnegie Mellon Software Engineering Institute website. The main navigation bar includes links for Home, Search, Contact Us, Site Map, and What's New. A sidebar on the left lists various organizational categories. The main content area is titled "Comparison of Version 1.2 to Version 1.1" and includes a list of navigation links on the left and a central text block. The text block explains that the comparison files highlight differences between CMMI v1.1 and CMMI for Development v1.2, and lists the elements being compared: Process areas, Generic practices, and Glossary definitions. A CMMI logo is visible on the right side of the page.

MANAGEMENT

- [CMMI Main Page](#)
- [What Is CMMI?](#)
- [Models](#)
- [Adoption](#)
- [Training, Events, & Forums](#)
- [Performance Results](#)
- [Appraisals](#)
- [Frequently Asked Questions \(FAQs\)](#)
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Comparison of Version 1.2 to Version 1.1

To make it easier for you to see content changes to model material between CMMI v1.1 and CMMI for Development v1.2, the following comparison files are available. These comparison files highlight the differences between the following elements:

- [Process areas](#)
- [Generic practices](#)
- [Glossary definitions](#)

These comparison files were created using DeltaView® by Workshare®. This product creates

- redlines that highlight text that was deleted
- bluelines that highlight text that was added
- greenlines that highlight text that was moved

The screenshot shows the news@sei website. The header includes the news@sei logo and a search bar. The main content area is titled "COLUMNS V CMMI IN FOCUS" and features an article titled "CMMI-DEV Version 1.2: What Else Has Changed?" by Mike Phillips. The article text discusses improvements to the CMMI Product Suite and lists the items included in the CMMI V1.2 Product Suite. A CMMI logo is also visible on the page.

news@sei

THE ARCHITECT

What's New Features Columns

SEARCH [input type="text"] Go

COLUMNS V CMMI IN FOCUS

CMMI-DEV Version 1.2: What Else Has Changed?
MIKE PHILLIPS

CMMI for Development (CMMI-DEV), Version 1.2 includes improvements to all parts of the CMMI Product Suite in response to issues that have emerged in practice. The changes focus on improving the quality of CMMI products and the consistency of how they are applied.

The CMMI V1.2 Product Suite contains the following items:

- CMMI for Development (CMMI-DEV), V1.2 model
- Appraisal Requirements for CMMI (ARC), V1.2
- SCAMPI A V1.2: Method Definition Document
- Introduction to CMMI V1.2 course

This latest version of the model integrates bodies of knowledge that are essential for development and maintenance but that have been addressed separately in the past, such as software engineering, systems engineering, and others. CMMI V1.2 embodies the concept of CMMI constellations, in which a set of core components can be augmented by additional materials. CMMI-DEV is the first such constellation. Currently there are plans for three constellations supported by the V1.2 model framework: development, acquisition, and services.

What are the major changes to the model document?

In earlier columns, I described most of the intended improvements that would be considered for the CMMI V1.2 model. These changes included eliminating three process areas—ISM, OEI, and IT—while preserving coverage of these important practices. This change reduced the size of the model document by 15% and adds a number of the most important and best practices.

Model architecture changes

- A “constellation” approach was adopted for the family of CMMI models to be developed
 - CMMI for Development (CMMI-DEV) takes the place of the old CMMI v1.1
 - CMMI for Services (CMMI-SER) addresses services
 - CMMI for Acquisition ACQ (acquisition) addresses the acquisition of products and services
- Added hardware amplifications
- Eliminated advanced practices (little strategic impact)
- Eliminated common features (little strategic impact)

Strategy Implications

- Consider expanding the scope of your improvements to include hardware, services, acquisition
- New disciplines may struggle with basic adoption issues (e.g., Level 1 to 2)

Elimination of Integrated Supplier Management

V1.1

Supplier Agreement Management

- SP 1.1 Determine the type of acquisition for each product or product component to be acquired.
- SP 1.2 Select suppliers based on an evaluation of their ability to meet the specified requirements and established criteria.
- SP 1.3 Establish and maintain formal agreements with the supplier.
- ~~SP 2.1 Review candidate COTS products to ensure they satisfy the specified requirements that are covered under a supplier agreement.~~
- SP 2.2 Perform activities with the supplier as specified in the supplier agreement.

~~Integrated Supplier Management~~

- SP 2.1 Monitor and analyze selected processes used by the supplier.
- SP 2.2 For custom-made products, evaluate selected supplier work products.
- SP 2.3 Ensure that the supplier agreement is satisfied before accepting the acquired product.
- SP 2.4 Transition the acquired products from the supplier to the project.

V1.2

Supplier Agreement Management

- SP 1.1 Determine the type of acquisition for each product or product component to be acquired.
- SP 1.2 Select suppliers based on an evaluation of their ability to meet the specified requirements and established criteria.
- SP 1.3 Establish and maintain formal agreements with the supplier.
- SP 2.1 Perform activities with the supplier as specified in the supplier agreement.
- SP 2.2 Select, monitor, and analyze processes used by the supplier.
- SP 2.3 Select and evaluate, work products from the supplier of custom-made products.
- SP 2.4 Ensure that the supplier agreement is satisfied before accepting the acquired product.
- SP 2.5 Transition the acquired products from the supplier to the project.

Strategies for transitioning to the new Supplier Agreement Management

At the organizational level:

- **Classify the types of suppliers used within the organization**
 - True subcontractors (who follow their own processes to produce custom-made products)
 - Integrated suppliers (who follow our processes)
 - COTS vendors
 - In-house suppliers
 - Customers (GFE)
- **For each type, determine appropriate methods (and responsibilities) for projects to:**
 - Evaluate and select suppliers (SP 1.2)
 - Establish formal agreements (SP 1.3)
 - Work with the suppliers (SP 2.1)
 - Select key processes; monitor and analyze them (SP 2.2)
 - Select key work products; evaluate them (SP 2.3)
 - Ensure the agreement is satisfied (SP 2.4)
 - Transition the acquired product (SP 2.5)
- **Define acceptable variations of these methods**

At the project level:

- **Determine the type of acquisition for each product or product component to be acquired**
- **Define the methods (and variations) to be used**

Sample Organizational Guidance

	True subcontractors	COTS Vendors
Evaluate and select suppliers	RFP, process evaluation	Use pre-approved vendor
Establish formal agreements	Contract	Purchase Requisition
Work with the suppliers	Monthly status meetings, milestone reviews	NA
Select key processes Monitor and analyze	Req definition, testing Req Review, quantitative analysis of defects	NA
Select key work products Evaluate them	Specification, test plans Peer review	NA
Ensure the agreement is satisfied	Witness sub test	Inspection
Transition the acquired product	Tape transfer	FTP

IPPD changes

Project Management

Project Planning
Project Monitoring and Control
Supplier Agreement Management

~~Integrated Teaming*~~

~~Integrated Supplier Management**~~

Integrated Project Management (for IPPD*)
Risk Management
Quantitative Project Management

Engineering

Requirements Development
Requirements Management
Technical Solution
Product Integration
Verification
Validation

Support

Measurement and Analysis
Process and Product Quality Assurance
Configuration Management

~~Organizational Environment for Integration*~~

Causal Analysis and Resolution
Decision Analysis and Resolution

Process Management

Organizational Process Focus
Organizational Process Definition
Organizational Training
Organizational Process Performance
Organizational Innovation and Deployment

IPPD Changes

- Removed OEI, added to OPD
- Removed IT, added to IPM
- Moved “Enable IPPD Management” to OPD
- Moved “Apply IPPD Principles” to IPM
- Revised IPPD material to be consistent with the other model material

*IPPD extension in v1.1

**Supplier Sourcing extension in v1.1

IPPD Extension

Organizational Process Definition +IPPD

SG 2 Organizational rules and guidelines, which govern the operation of integrated teams, are provided.

SP 2.1 Establish and maintain empowerment mechanisms to enable timely decision making.

SP 2.2 Establish and maintain organizational rules and guidelines for structuring and forming integrated teams.

SP 2.3 Establish and maintain organizational guidelines to help team members balance their team and home organization responsibilities.

Integrated Project Management +IPPD

SG 3 The project is managed using IPPD principles.

SP 3.1 Establish and maintain a shared vision for the project.

SP 3.2 Establish and maintain the integrated team structure for the project.

SP 3.3 Allocate requirements, responsibilities, tasks, and interfaces to teams in the integrated team structure.

SP 3.4 Establish and maintain integrated teams in the structure.

SP 3.5 Ensure collaboration among interfacing teams.

Strategy Implications

- The resulting IPPD extension reflects good management
- These practices could be adopted on projects not organized around Integrated Product/Process Teams
- Organizations may wish to develop IPPD rules for deployment to some projects

Additions to the non-IPPD version of the model

Organizational Process Definition

SP 1.6 Establish and maintain work environment standards

Integrated Project Management

SP 1.3 Establish and maintain the project's work environment based on the organization's work environment standards.

Strategy Implications

- The environment (tools) is now considered part of the organization's standard process, and must be tailored by the projects

Process deployment changes

Organizational Process Focus

SG 3 The organizational process assets are deployed across the organization and process-related experiences are incorporated into the organizational process assets.

SP 3.1 Deploy organizational process assets across the organization.

SP 3.2 Deploy the organization's set of standard processes on projects at their startup and deploy changes to them as appropriate throughout the projects' lives.

SP 3.3 Monitor the implementation of the organization's set of standard processes and use of process assets on all projects.

SP 3.4 Incorporate process-related work products, measures, and improvement information derived from planning and performing the process into the organizational process assets.

Integrated Project Management

SP 3.1 Establish and maintain the project's defined process from project startup through the life of the project.

Strategy Implications

- The organization must define how changes to the standard processes will be redeployed to projects
 - This may suggest re-architecting the structure of the standard process, i.e., parts that change over time and parts that don't
 - Impacts on the tailoring process
- ALL projects should be using the standard processes and process assets
 - Gives appraisal teams the right to look at other than "focus projects" – should deter "cherry picking"
 - The monitoring of process assets use may require technology or procedures for the Process Asset Library

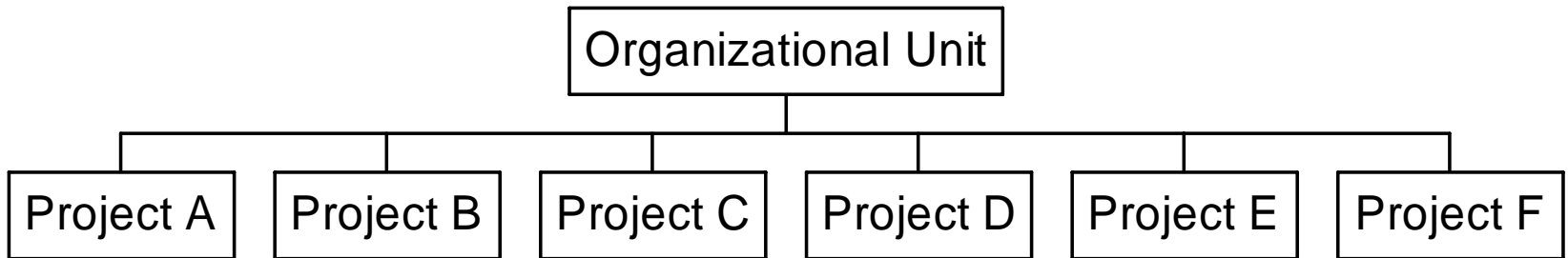
Appraisal changes

- **Rating changes**
 - Process areas outside of the model scope are rated as Out of Scope
 - Process areas that have insufficient data to be rated are rated as Not Rated
 - Process areas in the model scope, but outside the organizational scope are rated as Not Applicable
 - The only process area that can be Not Applicable is SAM (determined by the appraisal team)
- **Appraisals can now include better sampling approaches:**
 - Focus projects – all PAs
 - Non-focus projects – some PAs
- **The Appraisal Disclosure Statement (ADS) now requires:**
 - Organizational sampling criteria and decisions (e.g., projects included, projects excluded, percentage of organization represented)
 - Basis for maturity/capability level 4 and 5 appraisal results must be mapped to quality and process-performance objectives

Strategy Implications

- An organization that does not implement all processes can not get a ML rating
 - May require re-write of contractual requirements, which means educating the customer on model applicability
- Non-focus projects allow better sampling approaches
- Although the new ADS does not change the sampling process, it provides greater visibility
 - How will customers use this insight?

Appraisal Sampling Strategies



- **How many focus projects? Non-focus?**
- **Select focus projects by size? Importance? Typicality?**
- **How many process areas to sample in the non-focus projects?**
- **Which process areas to sample?**
- **Sample common process areas?**
- **Who sets sampling – Organizational Unit? Lead Appraiser?**

Northrop Grumman Mission Systems Process Deployment Approach

- **All projects perform process tailoring during proposals**
 - Without a defined process, it is impossible to bid accurately
 - Templates are used to generate plans consistent with the project's defined process*
- **All projects undergo a CMMI-based evidence review within the first 90 days**
 - Ensures that projects are implementing proven processes
- **All projects participate in our SCAMPI A appraisals**
 - Ensures that all projects benefit from mature processes
 - Send clear message that CMMI has value**

*" Project Implementation Strategies in the CMMI ," R. Hefner, CMMI Technology Conference and User Group, 2006 (Wednesday PM)

**" Sustaining CMMI Compliance," R. Hefner, CMMI Technology Conference and User Group, 2006 (Thursday AM)

Summary

- **CMMI v1.2 represents a major improvement in the CMMI, responding to thousands of community change requests**
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