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DEFINING THE FUTURE

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**

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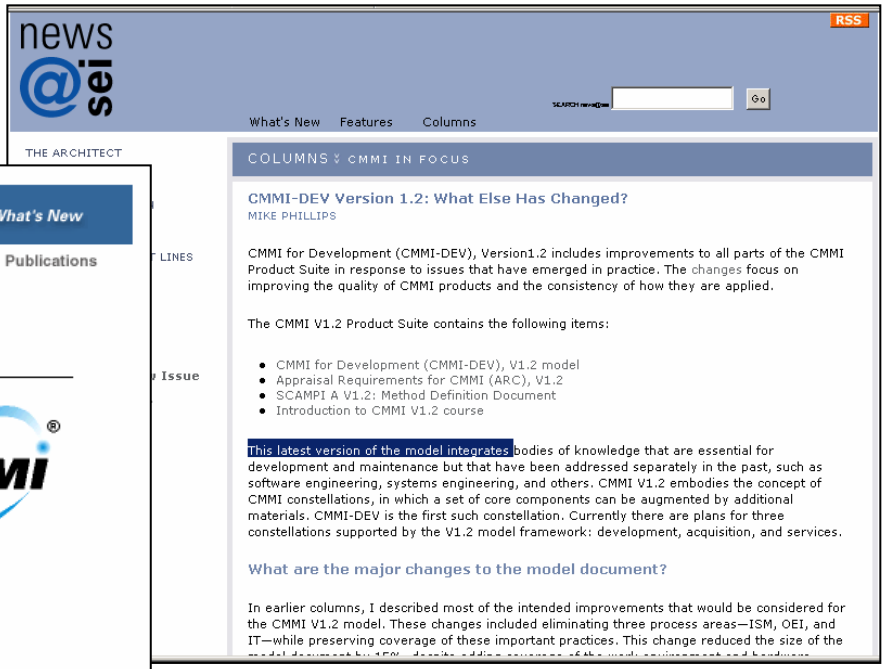
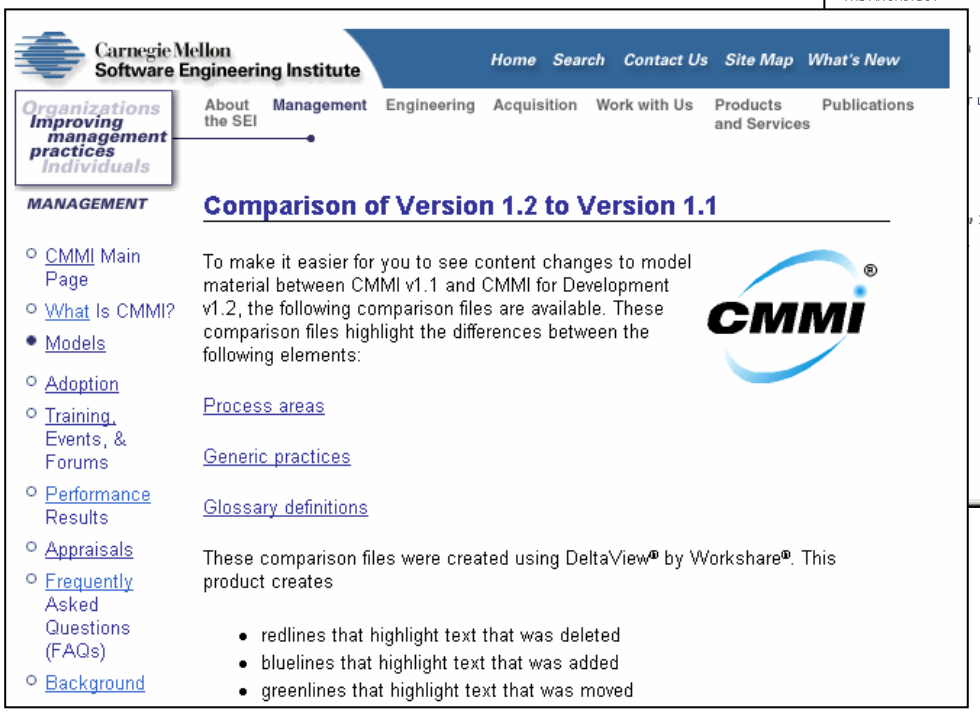
Agenda

- **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?**

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)





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)

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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.

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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**

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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

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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

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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

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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

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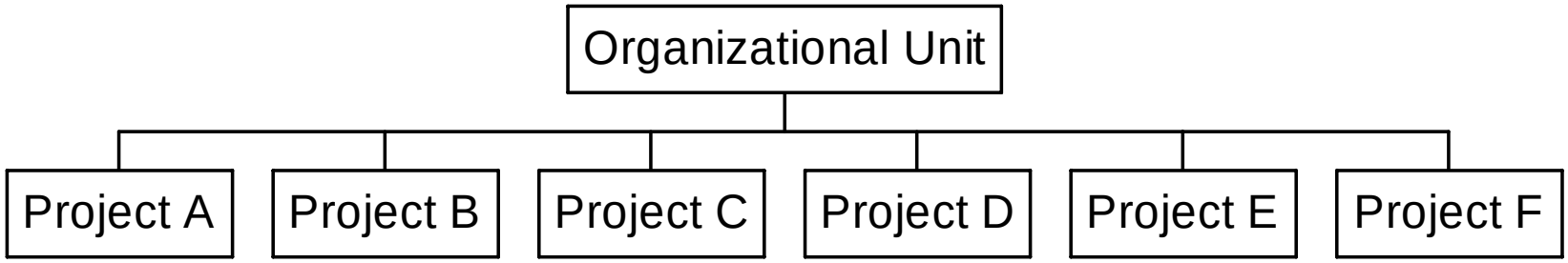
Appraisal changes

- **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?**

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Northrop Grumman Mission Systems Process Deployment Approach

- **<u>All</u> 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*
- **<u>All</u> projects undergo a CMMI-based evidence review within the first 90 days**
  - Ensures that projects are implementing proven processes
- **<u>All</u> 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)

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Summary

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