



Software
Division

Workshop: How to Use the CMMI to Improve Processes

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Learning Objectives

- **Learn how to apply CMMI concepts in familiar product development processes**
- **Learn how to use the required, expected, and supportive components of the CMMI**
- **Learn how to set reasonable process objectives**
- **Learn acceptable implementations of CMMI process requirements**



Brief Workshop Kickoff

- CMMI Overview
- Comparing CMMI & How It Works
- Using the CMMI Effectively
- Workshop Instructions
- Example: Requirements Management
- Exercise: Document Interpretation for One CMMI Process Area
- Book Drawings



CMMI Overview

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- Background
- CMMI Framework
- CMMI Product Suite
- Global Success



SEI Maturity Models

- CMM for Software
- CMM for Systems Engineering
- CMM for Acquisition
- CMM for People
- CMM for Integrated Product Development
- CMMI for Software, Systems Engineering and Integrated Product Development
- Constellations:
 - CMMI-Development
 - CMMI-Acquisition
 - CMMI-Services



Purpose of CMMI Models

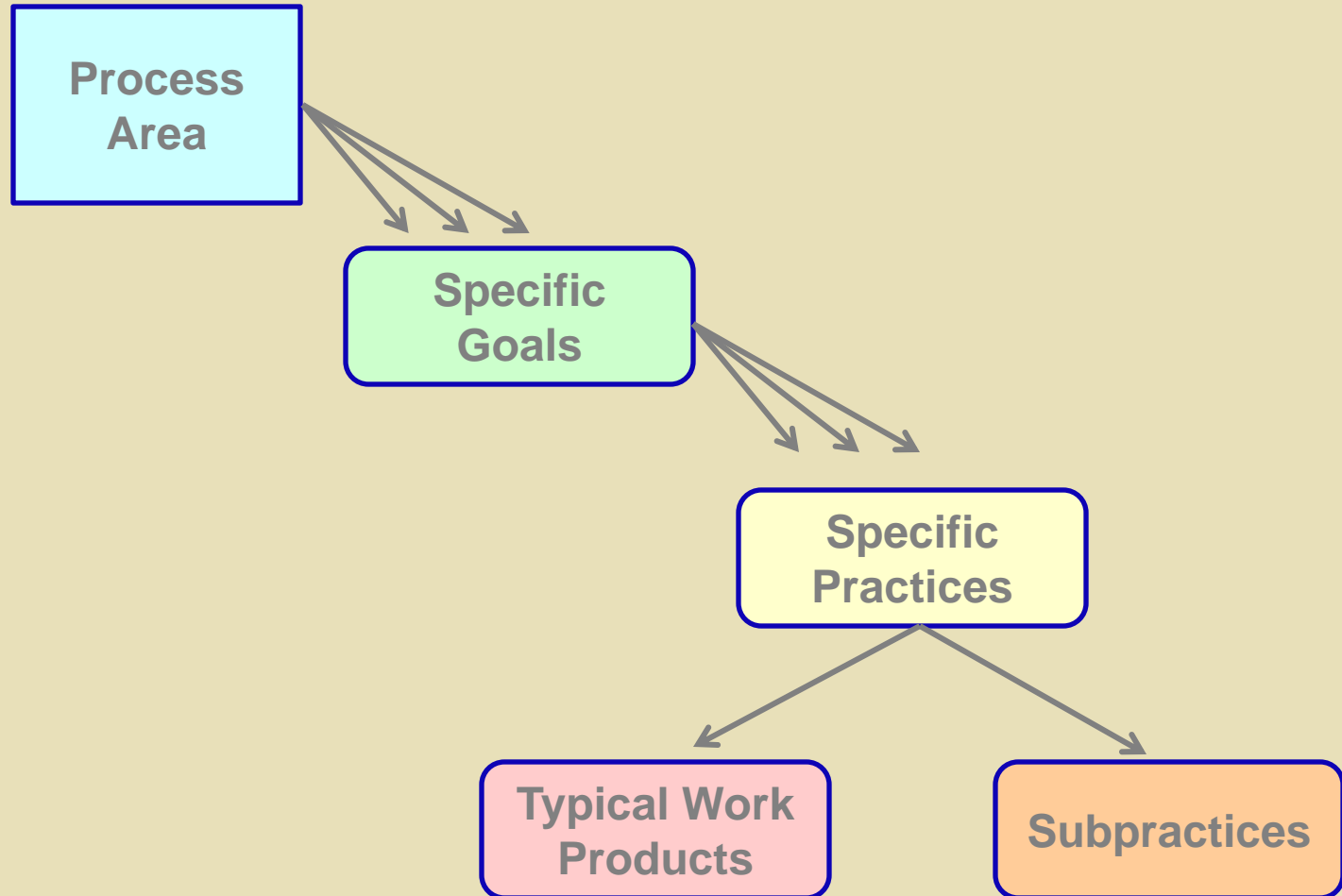
- To provide a prioritized roadmap for business process improvement
- To enable an assessment mechanism for organizational process maturity:
 - For driving internal process improvement
 - For awarding contracts
- To define a method and maturity rating for benchmarking
- To form a body of knowledge based on industry best practices that may be used to drive training for both workers and managers



CMMI Features Address Common Issues

| CMMI Feature | Description and Examples |
|---|---|
| Results Oriented | <ul style="list-style-type: none">• Industry best practices for project planning and execution• Performance-driven measures for consistent outcomes |
| Priorities Based on Business Value | <ul style="list-style-type: none">• Investments and maturity prioritized to align with business goals• Appraisals relative to model to set direction (“map and compass”) |
| Customer Focus | <ul style="list-style-type: none">• Validation of customer needs across the project life cycle• Manage product/service quality (verification, validation, reviews) |
| Proactive Management | <ul style="list-style-type: none">• Forward-looking measurement, monitoring, risks, corrective action• Management decisions based on plans, data, alternatives |
| Flexibility | <ul style="list-style-type: none">• Adaptable to a variety of businesses (domain, size, products)• Non-prescriptive (required, expected, informative components) |
| Business Process Integration | <ul style="list-style-type: none">• Cross-functional stakeholder involvement• Coordinate various improvement strategies and methods (Lean, Six Sigma, ISO, Agile, etc.) |
| Continuous Learning | <ul style="list-style-type: none">• Standardized assets tailored for project characteristics• Leverage experience and history across projects |

Architecture of the CMMI





CMMI Process Areas

| Level | Focus | Process Areas |
|--------------------------|---------------------------------------|---|
| 5 Optimizing | <i>Continuous Process Improvement</i> | Organizational Innovation and Deployment Causal Analysis and Resolution |
| 4 Quantitatively Managed | <i>Quantitative Management</i> | Organizational Process Performance Quantitative Project Management |
| 3 Defined | <i>Process Standardization</i> | Requirements Development Technical Solution Product Integration Verification Validation Organizational Process Focus Organizational Process Definition +IPPD Organizational Training Integrated Project Management +IPPD Risk Management Decision Analysis and Resolution |
| 2 Managed | <i>Basic Project Management</i> | Requirements Management Project Planning Project Monitoring and Control Supplier Agreement Management Measurement and Analysis Process and Product Quality Assurance Configuration Management |
| 1 Initial | | |



CMMI Appraisals

- Compare organization and project processes against CMMI models to determine improvement priorities
- Senior management's role in appraisals:
 - Provide sponsorship and resources
 - Set appraisal scope and objectives
 - Ensure follow-through on appraisal findings and prioritized improvement actions
- CMMI provides a family of appraisal methods
 - SCAMPI C (Quick Look, Approach)
 - SCAMPI B (Deployment, Institutionalization)
 - SCAMPI A (Maturity Rating)
- Licensed SEI partners deliver SCAMPISM appraisal services
 - <http://www.sei.cmu.edu/partners/directory/organization/index.cfm>
- Other internal company methods can also be used



Comparing CMMI

- Free Download: www.sei.cmu.edu
- Staged & Continuous Representations
- ISO 9001, AS9100, ISO 13485
- ITIL & SPICE
- CMMI and Agile are VERY Compatible
- CMMI Focus on Problem Areas
- CMMI Product Suite (model, training, appraisals)



Global Adoption

- Used Globally – 60 Countries
- Over 100,000 Trained
- ROI In The 4 : 1 Range



Using the CMMI Effectively

- CMMI tells us what, now how
- Train experts on CMMI / Train the team on the Business Process
- See General Hints for Success at www.davidwalkerspcs.com/downloads



Workshop Instructions

1. Write down a problem in your work environment you would like to fix
2. Define Improvement Goals
3. Select a CMMI Process Area and PA Round Table
4. Complete the Interpretation Matrix
5. Raise hand to ask questions
6. Breaks as needed



Example: Requirements Management

Problem Definition

Requirements Management Example

Exercise

- Document an Interpretation of One CMMI Process area for your Organization
 - Problem Definition Handout
 - Summarize a Problem
 - Set Goals
 - Select a CMMI Process Area
 - CMMI Interpretation Matrix
 - Minimum 2 SPs, 2GPs



Questions?

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