

Appendix 6.1 CMMI Process Areas Details

(Taken from https://www.tutorialspoint.com/cmmi/cmmi_process_areas.htm)

The CMMI contains 22 process areas indicating the aspects of product development that are to be covered by company processes.

1. Causal Analysis and Resolution

- It is a support process area at Maturity Level 5.

Purpose

The purpose of Causal Analysis and Resolution (CAR) is to identify causes of defects and other problems and take action to prevent them from occurring in the future.

Specific Practices by Goal

- SG 1 Determine Causes of Defects
 - SP 1.1 Select Defect Data for Analysis
 - SP 1.2 Analyze Causes
- SG 2 Address Causes of Defects
 - SP 2.1 Implement the Action Proposals
 - SP 2.2 Evaluate the Effect of Changes
 - SP 2.3 Record Data

2. Configuration Management

- It is a support process area at Maturity Level 2.

Purpose

The purpose of Configuration Management (CM) is to establish and maintain the integrity of work products using configuration identification, configuration control, configuration status accounting, and configuration audits.

Specific Practices by Goal

- SG 1 Establish Baselines
 - SP 1.1 Identify Configuration Items
 - SP 1.2 Establish a Configuration Management System
 - SP 1.3 Create or Release Baselines
- SG 2 Track and Control Changes
 - SP 2.1 Track Change Requests
 - SP 2.2 Control Configuration Items
- SG 3 Establish Integrity
 - SP 3.1 Establish Configuration Management Records
 - SP 3.2 Perform Configuration Audits

3. Decision Analysis and Resolution

- It is a support process area at Maturity Level 3.

Purpose

The purpose of Decision Analysis and Resolution (DAR) is to analyze possible decisions

using a formal evaluation process that evaluates identified alternatives against established criteria.

Specific Practices by Goal

- SG 1 Evaluate Alternatives
 - SP 1.1 Establish Guidelines for Decision Analysis
 - SP 1.2 Establish Evaluation Criteria
 - SP 1.3 Identify Alternative Solutions
 - SP 1.4 Select Evaluation Methods
 - SP 1.5 Evaluate Alternatives
 - SP 1.6 Select Solutions

4. Integrated Project Management + IPPD

- It is a Project Management process area at Maturity Level 3.

Purpose

The purpose of Integrated Project Management + IPPD (IPM) is to establish and manage the project and the involvement of the relevant stakeholders according to an integrated and defined process that is tailored from the organization's set of standard processes.

Specific Practices by Goal

- SG 1 Use the Project's Defined Process
 - SP 1.1 Establish the Project's Defined Process
 - SP 1.2 Use Organizational Process Assets for Planning Project Activities
 - SP 1.3 Establish the Project's Work Environment
 - SP 1.4 Integrate Plans
 - SP 1.5 Manage the Project Using the Integrated Plans
 - SP 1.6 Contribute to the Organizational Process Assets
- SG 2 Coordinate and Collaborate with Relevant Stakeholders
 - SP 2.1 Manage Stakeholder Involvement
 - SP 2.2 Manage Dependencies
 - SP 2.3 Resolve Coordination Issues

IPPD Addition –

- SG 3 Apply IPPD Principles
 - SP 3.1 Establish the Project's Shared Vision
 - SP 3.2 Establish the Integrated Team Structure
 - SP 3.3 Allocate Requirements to Integrated Teams
 - SP 3.4 Establish Integrated Teams
 - SP 3.5 Ensure Collaboration among Interfacing Teams

5. Measurement and Analysis

It is a support process area at Maturity Level 2.

Purpose

The purpose of Measurement and Analysis (MA) is to develop and sustain a measurement

capability that is used to support management information needs.

Specific Practices by Goal

- SG 1 Align Measurement and Analysis Activities
 - SP 1.1 Establish Measurement Objectives
 - SP 1.2 Specify Measures
 - SP 1.3 Specify Data Collection and Storage Procedures
 - SP 1.4 Specify Analysis Procedures
- SG 2 Provide Measurement Results
 - SP 2.1 Collect Measurement Data
 - SP 2.2 Analyze Measurement Data
 - SP 2.3 Store Data and Results
 - SP 2.4 Communicate Results

6. Organizational Innovation and Deployment

It is a Process Management process area at Maturity Level 5.

Purpose

The purpose of Organizational Innovation and Deployment (OID) is to select and deploy incremental and innovative improvements that measurably improve the organization's processes and technologies. The improvements support the organization's quality and process-performance objectives as derived from the organization's business objectives.

Specific Practices by Goal

- SG 1 Select Improvements
 - SP 1.1 Collect and Analyze Improvement Proposals
 - SP 1.2 Identify and Analyze Innovations
 - SP 1.3 Pilot Improvements
 - SP 1.4 Select Improvements for Deployment
- SG 2 Deploy Improvements
 - SP 2.1 Plan the Deployment areas
 - SP 2.2 Manage the Deployment
 - SP 2.3 Measure Improvement Effects

7. Organizational Process Definition + IPPD (OPD)

It is a Process Management process area at Maturity Level 3.

Purpose

The purpose of Organizational Process Definition + IPPD (OPD) is to establish and maintain a usable set of organizational process assets.

Specific Practices by Goal

- SG 1 Establish Organizational Process Assets
 - SP 1.1 Establish Standard Processes
 - SP 1.2 Establish Life-Cycle Model Descriptions
 - SP 1.3 Establish Tailoring Criteria and Guidelines
 - SP 1.4 Establish the Organization's Measurement Repository

- SP 1.5 Establish the Organization's Process Asset Library

IPPD Addition –

- SG 2 Enable IPPD Management
 - SP 2.1 Establish Empowerment Mechanisms
 - SP 2.2 Establish Rules and Guidelines for Integrated Teams
 - SP 2.3 Balance Team and Home Organization Responsibilities

8. Organizational Process Focus

It is a Process Management process area at Maturity Level 3.

Purpose

The purpose of Organizational Process Focus (OPF) is to plan and implement organizational process improvement based on a thorough understanding of the current strengths and weaknesses of the organization's processes and process assets.

Specific Practices by Goal

- SG 1 Determine Process Improvement Opportunities
 - SP 1.1 Establish Organizational Process Needs
 - SP 1.2 Appraise the Organization's Processes
 - SP 1.3 Identify the Organization's Process Improvements
- SG 2 Plan and Implement Process Improvement Activities
 - SP 2.1 Establish Process Action Plans
 - SP 2.2 Implement Process Action Plans
- SG 3 Deploy Organizational Process Assets and Incorporate Lessons Learned
 - SP 3.1 Deploy Organizational Process Assets
 - SP 3.2 Deploy Standard Processes
 - SP 3.3 Monitor Implementation
 - SP 3.4 Incorporate Process-Related Experiences into the Organizational Process Assets

9. Organizational Process Performance

It is a Process Management process area at Maturity Level 4.

Purpose

The purpose of Organizational Process Performance (OPP) is to establish and maintain a quantitative understanding of the performance of the organization's set of standard processes in support of quality and process-performance objectives, and to provide the process performance data, baselines, and models to quantitatively manage the organization's projects.

Specific Practices by Goal

- SG 1 Establish Performance Baselines and Models
 - SP 1.1 Select Processes
 - SP 1.2 Establish Process Performance Measures
 - SP 1.3 Establish Quality and Process Performance Objectives

- SP 1.4 Establish Process Performance Baselines
- SP 1.5 Establish Process Performance Models

10. Organizational Training

It is a Process Management process area at Maturity Level 3.

Purpose

The purpose of Organizational Training (OT) is to develop the skills and knowledge of people so they can perform their roles effectively and efficiently.

Specific Practices by Goal

- SG 1 Establish an Organizational Training Capability
 - SP 1.1 Establish the Strategic Training Needs
 - SP 1.2 Determine Which Training Needs Are the Responsibility of the Organization
 - SP 1.3 Establish an Organizational Training Tactical Plan
 - SP 1.4 Establish Training Capability
- SG 2 Provide Necessary Training
 - SP 2.1 Deliver Training
 - SP 2.2 Establish Training Records
 - SP 2.3 Assess Training Effectiveness

11. Product Integration

It is an Engineering process area at Maturity Level 3.

Purpose

The purpose of Product Integration (PI) is to assemble the product from the product components, ensure that the product, as integrated, functions properly, and deliver the product.

Specific Practices by Goal

- SG 1 Prepare for Product Integration
 - SP 1.1 Determine Integration Sequence
 - SP 1.2 Establish the Product Integration Environment
 - SP 1.3 Establish Product Integration Procedures and Criteria
- SG 2 Ensure Interface Compatibility
 - SP 2.1 Review Interface Descriptions for Completeness
 - SP 2.2 Manage Interfaces
- SG 3 Assemble Product Components and Deliver the Product
 - SP 3.1 Confirm Readiness of Product Components for Integration
 - SP 3.2 Assemble Product Components
 - SP 3.3 Evaluate Assembled Product Components
 - SP 3.4 Package and Deliver the Product or Product Component

12. Project Monitoring and Control

It is a Project Management process area at Maturity Level 2.

Purpose

The purpose of Project Monitoring and Control (PMC) is to provide an understanding of the project's progress so that appropriate corrective actions can be taken when the project's performance deviates significantly from the plan.

Specific Practices by Goal

- SG 1 Monitor Project Against Plan
 - SP 1.1 Monitor Project Planning Parameters
 - SP 1.2 Monitor Commitments
 - SP 1.3 Monitor Project Risks
 - SP 1.4 Monitor Data Management
 - SP 1.5 Monitor Stakeholder Involvement
 - SP 1.6 Conduct Progress Reviews
 - SP 1.7 Conduct Milestone Reviews
- SG 2 Manage Corrective Action to Closure
 - SP 2.1 Analyze Issues
 - SP 2.2 Take Corrective Action
 - SP 2.3 Manage Corrective Action

13. Project Planning

It is a Project Management process area at Maturity Level 2.

Purpose

The purpose of Project Planning (PP) is to establish and maintain plans that define project activities.

Specific Practices by Goal

- SG 1 Establish Estimates
 - SP 1.1 Estimate the Scope of the Project
 - SP 1.2 Establish Estimates of Work Product and Task Attributes
 - SP 1.3 Define Project Life Cycle
 - SP 1.4 Determine Estimates of Effort and Cost
- SG 2 Develop a Project Plan
 - SP 2.1 Establish the Budget and Schedule
 - SP 2.2 Identify Project Risks
 - SP 2.3 Plan for Data Management
 - SP 2.4 Plan for Project Resources
 - SP 2.5 Plan for Needed Knowledge and Skills
 - SP 2.6 Plan Stakeholder Involvement
 - SP 2.7 Establish the Project Plan
- SG 3 Obtain Commitment to the Plan
 - SP 3.1 Review Plans that Affect the Project
 - SP 3.2 Reconcile Work and Resource Levels
 - SP 3.3 Obtain Plan Commitment

14. Process and Product Quality Assurance

It is a support process area at Maturity Level 2.

Purpose

The purpose of Process and Product Quality Assurance (PPQA) is to provide staff and management with objective insight into processes and associated work products.

Specific Practices by Goal

- SG 1 Objectively Evaluate Processes and Work Products
 - SP 1.1 Objectively Evaluate Processes
 - SP 1.2 Objectively Evaluate Work Products and Services
- SG 2 Provide Objective Insight
 - SP 2.1 Communicate and Ensure Resolution of Noncompliance Issues
 - SP 2.2 Establish Records

15. Quantitative Project Management

It is a Project Management process area at Maturity Level 4.

Purpose

The purpose of the Quantitative Project Management (QPM) process area is to quantitatively manage the project's defined process to achieve the project's established quality and process-performance objectives.

Specific Practices by Goal

- SG 1 Quantitatively Manage the Project
 - SP 1.1 Establish the Project's Objectives
 - SP 1.2 Compose the Defined Processes
 - SP 1.3 Select the Sub-processes that Will Be Statistically Managed
 - SP 1.4 Manage Project Performance
- SG 2 Statistically Manage Sub-process Performance
 - SP 2.1 Select Measures and Analytic Techniques
 - SP 2.2 Apply Statistical Methods to Understand Variation
 - SP 2.3 Monitor Performance of the Selected Sub-processes
 - SP 2.4 Record Statistical Management Data

16. Requirements Development

It is an Engineering process area at Maturity Level 3.

Purpose

The purpose of Requirements Development (RD) is to produce and analyze customer, product, and product-component requirements.

Specific Practices by Goal

- SG 1 Develop Customer Requirements
 - SP 1.1 Elicit Needs
 - SP 1.2 Develop the Customer Requirements

- SG 2 Develop Product Requirements
 - SP 2.1 Establish Product and Product-Component Requirements
 - SP 2.2 Allocate Product-Component Requirements
 - SP 2.3 Identify Interface Requirements
- SG 3 Analyze and Validate Requirements
 - SP 3.1 Establish Operational Concepts and Scenarios
 - SP 3.2 Establish a Definition of Required Functionality
 - SP 3.3 Analyze Requirements
 - SP 3.4 Analyze Requirements to Achieve Balance
 - SP 3.5 Validate Requirements

17. Requirements Management

It is an Engineering process area at Maturity Level 2.

Purpose

The purpose of Requirements Management (REQM) is to manage the requirements of the project's products and product components and to identify inconsistencies between those requirements and the project's plans and work products.

Specific Practices by Goal

- SG 1 Manage Requirements
 - SP 1.1 Obtain an Understanding of Requirements
 - SP 1.2 Obtain Commitment to Requirements
 - SP 1.3 Manage Requirements Changes
 - SP 1.4 Maintain Bidirectional Traceability of Requirements
 - SP 1.5 Identify Inconsistencies between Project Work and Requirements

18. Risk Management

It is a Project Management process area at Maturity Level 3.

Purpose

The purpose of Risk Management (RSKM) is to identify potential problems before they occur so that risk-handling activities can be planned and invoked as needed across the life of the product or project to mitigate adverse impacts on achieving objectives.

Specific Practices by Goal

- SG 1 Prepare for Risk Management
 - SP 1.1 Determine Risk Sources and Categories
 - SP 1.2 Define Risk Parameters
 - SP 1.3 Establish a Risk Management Strategy
- SG 2 Identify and Analyze Risks
 - SP 2.1 Identify Risks
 - SP 2.2 Evaluate, Categorize, and Prioritize Risks
- SG 3 Mitigate Risks
 - SP 3.1 Develop Risk Mitigation Plans
 - SP 3.2 Implement Risk Mitigation Plans

19. Supplier Agreement Management

It is a Project Management process area at Maturity Level 2.

Purpose

The purpose of Supplier Agreement Management (SAM) is to manage the acquisition of products from suppliers for which there exists a formal agreement.

Specific Practices by Goal

- SG 1 Establish Supplier AgreementsM
 - SP 1.1 Determine Acquisition Type
 - SP 1.2 Select Suppliers
 - SP 1.3 Establish Supplier Agreements
- SG 2 Satisfy Supplier Agreements
 - SP 2.1 Execute the Supplier Agreement
 - SP 2.2 Monitor Selected Supplier Processes
 - SP 2.3 Evaluate Selected Supplier Work Products
 - SP 2.4 Accept the Acquired Product
 - SP 2.5 Transition Products

20. Technical Solution

It is an Engineering process area at Maturity Level 3.

Purpose

The purpose of Technical Solution (TS) is to design, develop, and implement solutions to requirements. Solutions, designs, and implementations encompass products, product components, and product-related life-cycle processes either single or in combination as appropriate.

Specific Practices by Goal

- SG 1 Select Product-Component Solutions
 - SP 1.1 Develop Alternative Solutions and Selection Criteria
 - SP 1.2 Select Product Component Solutions
- SG 2 Develop the Design
 - SP 2.1 Design the Product or Product Component
 - SP 2.2 Establish a Technical Data Package
 - SP 2.3 Design Interfaces Using Criteria
 - SP 2.4 Perform Make, Buy, or Reuse Analysis
- SG 3 Implement the Product Design
 - SP 3.1 Implement the Design
 - SP 3.2 Develop Product Support Documentation

21. Validation

It is an Engineering process area at Maturity Level 3.

Purpose

The purpose of Validation (VAL) is to demonstrate that a product or product component

fulfills its intended use when placed in its intended environment.

Specific Practices by Goal

- SG 1 Prepare for Validation
 - SP 1.1 Select Products for Validation
 - SP 1.2 Establish the Validation Environment
 - SP 1.3 Establish Validation Procedures and Criteria
- SG 2 Validate Product or Product Components
 - SP 2.1 Perform Validation
 - SP 2.2 Analyze Validation Results.

22. Verification

It is an Engineering process area at Maturity Level 3.

Purpose

The purpose of Verification (VER) is to ensure that selected work products meet their specified requirements.

Specific Practices by Goal

- SG 1 Prepare for Verification
 - SP 1.1 Select Work Products for Verification
 - SP 1.2 Establish the Verification Environment
 - SP 1.3 Establish Verification Procedures and Criteria
- SG 2 Perform Peer Reviews
 - SP 2.1 Prepare for Peer Reviews
 - SP 2.2 Conduct Peer Reviews
 - SP 2.3 Analyze Peer Review Data
- SG 3 Verify Selected Work Products
 - SP 3.1 Perform Verification
 - SP 3.2 Analyze Verification Results