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CMMI Level 2 Definition for Planit

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VERSION HISTORY

Version #	Implemented By	Revision Date	Approve d By	Approval Date	Reason
1.0	Ryan Tan	29/10/2021	Xue Yao	29/10/2021	Initial CMMI draft

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Executive summary

Purpose

This document called CMMI can be used to guide process improvement across a project, division, or an entire organization. CMMI defines the following maturity levels for processes: Initial, Managed, Defined, Quantitatively Managed, and Optimizing.

Summary of definition

The project must be Process dependent on individuals.

Description

Capability Maturity Model Integration (CMMI) is a model used to give appraisals to the organisations and companies which allows third-parties to see the maturity level of their development processes. It can also be used by organisations and companies to improve on their processes.

In the CMMI model, there consists five maturity levels which are:

- Maturity Level 1: Initial
- Maturity Level 2: Managed
- Maturity Level 3: Defined
- Maturity Level 4: Quantitatively Managed
- Maturity Level 5: Optimizing

Each maturity level has a set of key process areas associated with it. If an organization or company is rated to be at a given level, it must have achieved all the key process areas in that level and prior.

For this project, we will look into the following four process areas that is found in Maturity Level 2 that is:

1. Requirements Management
2. Project Planning
3. Software Quality Assurance
4. Software Configuration Management

Level 2 KPAs

Requirement Management (REQM)

The purpose of Requirement Measurement (REQM) is to manage requirements of the project's products and product components and to ensure alignment between those requirements and the project's plan and work products.

Project Planning (PP)

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

Project Monitoring and Control (PMC)

To establish adequate visibility of actual progress so that management can take effective actions when the software project's performance deviates significantly from the software plans. Management of the project is based on the software development plan.

Process and Product Quality Assurance (PPQA)

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

Configuration Management (CM)

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.

Measurement and Analysis (MA)

The purpose of Measurement and Analysis (MA) is to develop and sustain a measurement capability that is used to support management information needs.

Supplier Agreement Management (SAM)

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

Generic goals and practices

- **<u>Commitment to Perform:</u> Commitment to Perform describes the actions the organization must take to ensure that the process is established and will endure.**

  <u>Generic practices :</u> Establishing organizational policies and senior management sponsorship.

- **<u>Ability to Perform:</u> Ability to Perform describes the preconditions that must exist in the project or organization to implement the software process competently.**

  Generic practices: Involves arranging for resources, organizational structures, and providing adequate training.

- **<u>Activities Performed:</u> Activities Performed describes the roles and procedures necessary to implement a key process area.**

  Generic Practices: Establishing plans and procedures, performing the work, tracking it, and taking corrective actions as necessary.

- **<u>Measurement and Analysis:</u> Measurement and Analysis describes the need to measure the process and analyze the measurements.**

  Generic practices: Include examples of the measurements that could be taken to determine the status and effectiveness of the Activities Performed.

- **<u>Verifying Implementation: V</u>erifying Implementation describes the steps to ensure that the activities are performed in compliance with the process that has been established.**

  Generic Practices: Keeping reviews and audits by management and software quality assurance.

Specific Goals and Practices

For each key process area identified and explained in the section of “Level 2 KPAs”, define your specific goals and your corresponding key practices. [You may choose a few KPAs to illustrate your goals and practices.]

Requirement Management (REQM)

- Specific goal
    - SG 1 Manage requirements
- Specific practices
    - SP 1.1 Understand 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 Ensure Alignment Between Project Work and Requirements

Project Planning (PP)

- Specific goal
    - SG 1 Establish Estimates
    - SG 2 Develop a Project Plan
    - SG 3 Obtain Commitment to the Plan

- Specific practices
    - 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 Lifecycle Phases
    - SP 1.4 Estimate Effort and Cost
    - SP 2.1 Establish the Budget and Schedule
    - SP 2.2 Identify Project Risks
    - SP 2.3 Plan Data Management
    - SP 2.4 Plan the Project's Resources
    - SP 2.5 Plan Needed Knowledge and Skills
    - SP 2.6 Plan Stakeholder Involvement
    - SP 2.7 Establish the Project Plan
    - SP 3.1 Review Plans that Affect the Project
    - SP 3.2 Reconcile Work and Resource Levels
    - SP 3.3 Obtain Plan Commitment

Project Monitoring and Control (PMC)

- Specific goal
    - SG 1 Monitor the Project Against the Plan
    - SG 2 Manage Corrective Action to Closure
- Specific practices
    - 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
    - SP 2.1 Analyze Issues
    - SP 2.2 Take Corrective Action
    - SP 2.3 Manage Corrective Actions

Process and Product Quality Assurance (PPQA)

- Specific goal
    - SG 1 Objectively Evaluate Processes and Work Products
    - SG 2 Provide Objective Insight
- Specific practices
    - SP 1.1 Objectively Evaluate Processes
    - SP 1.2 Objectively Evaluate Work Products
        - SP 2.1 Communicate and Resolve Noncompliance Issues
    - SP 2.2 Establish Records

Configuration Management (CM)

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

Measurement and Analysis (MA)

- Specific goal
    - SG 1 Align Measurement and Analysis Activities
    - SG 2 Provide Measurement Results
- Specific practices
    - SP 1.1 Establish Measurement Objectives
        - Resources,People,Facilities and Techniques.
    - SP 1.2 Specify Measures
        - Information Needs Document,Guidance,Reference and Reporting.
    - SP 1.3 Specify Data Collection and Storage Procedures
        - Sources,Methods,Frequency and Owners.
    - SP 1.4 Specify Analysis Procedures
        - Rules,Alarms,SPC and Variance.
    - SP 2.1 Obtain Measurement Data
        - Actual,Plan,Automatic and Manual.
    - SP 2.2 Analyze Measurement Data
        - Evaluate,Drill Down,RCA.
    - SP 2.3 Store Data and Results
        - Store,Secure,Accessible,History and Evidence.
    - SP 2.4 Communicate Results
        - Information Sharing,Dashboards,Up to Date,Simple and Interpret.

Supplier Agreement Management (SAM)

- Specific goal
    - SG 1 Establish Supplier Agreements
    - SG 2 Satisfy Supplier Agreements
- Specific practices
    - SP 1.1 Determine Acquisition Type
    - SP 1.2 Select Suppliers
    - SP 1.3 Establish Supplier Agreements
    - SP 2.1 Execute the Supplier Agreement
    - SP 2.2 Accept the Acquired Product
    - SP 2.3 Ensure Transition of Products

CMMI Audit Checklist

KPAs	Specific Goal	Specific Practice	Tick
Process Area Requirements Management	Manage Requirements	SP 1.1 Understand 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 Ensure Alignment Between Project Work and Requirements	✓
Project Planning	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 Lifecycle Phases SP 1.4 Estimate Effort and Cost	✓
	Develop a Project Plan	SP 2.1 Establish the Budget and Schedule SP 2.2 Identify Project Risks SP 2.3 Plan Data Management SP 2.4 Plan the Project's Resources SP 2.5 Plan Needed Knowledge and Skills SP 2.6 Plan Stakeholder Involvement SP 2.7 Establish the Project Plan	✓

	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	✓
Project Monitoring and Control	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	✓
	Manage Corrective Action to Closure	SP 2.1 Analyze Issues SP 2.2 Take Corrective Action SP 2.3 Manage Corrective Actions	✓
Process and Product Quality Assurance (PPQA)	Objectively Evaluate Processes and Work Products	SP 1.1 Objectively Evaluate Processes SP 1.2 Objectively Evaluate Work Products	✓
	Provide Objective Insight	SP 2.1 Communicate and Resolve Noncompliance Issues SP 2.2 Establish Records	✓
Configuration Management (CM)	Establish Baselines	SP 1.1 Identify Configuration Items SP 1.2 Establish a Configuration Management System SP 1.3 Create or Release Baselines	✓

	Track and Control Changes	SP 2.1 Track Change Requests SP 2.2 Control Configuration Items	✓
	Establish Integrity	SP 3.1 Establish Configuration Management Records SP 3.2 Perform Configuration Au Establish Measurement Objectives	✓
Measurement and Analysis (MA)	Align Measurement and Analysis Activities	SP 1.1 Resources,People,Facilities and Techniques. SP 1.2 Specify Measures SP 1.3 Specify Data Collection and Storage Procedures SP 1.4 Specify Analysis Procedures	✓
	Provide Measurement Results	SP 2.1 Obtain Measurement Data SP 2.2 Analyze Measurement Data SP 2.3 Store Data and Results SP 2.4 Communicate Results	✓
Supplier Agreement Management (SAM)	Establish Supplier Agreements	SP 1.1 Determine Acquisition Type SP 1.2 Select Suppliers SP 1.3 Establish Supplier Agreements	✓

	Satisfy Supplier Agreements	SP 2.1 Execute the Supplier Agreement SP 2.2 Accept the Acquired Product SP 2.3 Ensure Transition of Products	✓