

Appendix B

Summary of CMMI-SE / SW / IPPD Models

Summary of Staged Representation

Note: Specific practices that are included in the staged model for information only are not included in the following summaries

Maturity Level: 2

REQUIREMENTS MANAGEMENT

Manage the requirements of the project's products and product components and identify inconsistencies between those requirements and the project's plans and work products.

Requirements are managed and inconsistencies with project plans and work products are identified. SG 1

Develop an understanding with the requirements providers on the meaning of the requirements. SP 1.1

Obtain commitment to the requirements from the project participants. SP 1.2

Manage changes to the requirements as they evolve during the project. SP 1.3

Maintain bi-directional traceability among the requirements and the project plans and work products. SP 1.4

Identify inconsistencies between the project plans and work products and the requirements. SP 1.5

The process is institutionalized as a managed process. GG 2

Commitment to Perform

Establish and maintain an organizational policy for planning and performing the *requirements management* process. GP 2.1 (CO 1)

Ability to Perform

Establish and maintain the requirements and objectives, and plans for performing the *requirements management* process. GP 2.2 (AB 1)

Provide adequate resources for performing the *requirements management* process, developing the work products and providing the services of the process. GP 2.3 (AB 2)

Assign responsibility and authority for performing the process, developing the work products, and providing the services of the *requirements management* process. GP 2.4 (AB 3)

Train the people performing or supporting the *requirements management* process as needed. GP 2.5 (AB 4)

Directing Implementation

Place designated work products of the requirements management process under appropriate levels of configuration management. GP 2.6 (DI 1)

Identify and involve the relevant stakeholders of the *requirements management* process as planned. GP 2.7 (DI 2)

Monitor and control the *requirements management* process against the plan and take appropriate corrective action. GP 2.8 (DI 3)

Verifying Implementation

Objectively evaluate adherence of the *requirements management* process and the work products and services of the process to the

applicable requirements, objectives, and standards, and address noncompliance. GP 2.9 (VE 1)

Review the activities, status, and results of the *requirements management* process with higher-level management and resolve issues. GP 2.10 (VE 2)

PROJECT PLANNING

Establish and maintain plans that define project activities.

Estimates of project planning parameters are established and maintained. SG 1

Establish and maintain a top-level work breakdown structure (WBS) to estimate of the scope of the project. SP 1.1

Establish and document estimates of the attributes of the work products and tasks. SP 1.2

Define the project life-cycle phases upon which to scope the planning effort. SP 1.3

Estimate the project effort and cost for the attributes of the work products and tasks based on estimation rationale. SP 1.4

A project plan is established and maintained as the basis for managing the project. SG 2

Establish and maintain the project's budget and schedule. SP 2.1

Identify and analyze project risks. SP 2.2

Plan for the management of project data. SP 2.3

Plan for necessary resources to perform the project. SP 2.4

Plan for knowledge and skills needed to perform the project. SP 2.5

Plan the involvement with identified stakeholders. SP 2.6

Establish and maintain the overall project plan content. SP 2.7

Commitments to the project plan are established and maintained. SG 3

Review subordinate plans to understand project commitments. SP 3.1

Reconcile the project plan to reflect available and projected resources. SP 3.2

Obtain commitment from relevant stakeholders responsible for performing and supporting plan execution. SP 3.3

The process is institutionalized as a managed process. GG 2

Commitment to Perform

Establish and maintain an organizational policy for planning and performing the *project planning* process. GP 2.1 (CO 1)

Ability to Perform

Establish and maintain the requirements and objectives, and plans for performing the *project planning* process. GP 2.2 (AB 1)

Provide adequate resources for performing the *project planning* process, developing the work products and providing the services of the process. GP 2.3 (AB 2)

Assign responsibility and authority for performing the process, developing the work products, and providing the services of the *project planning* process. GP 2.4 (AB 3)

Train the people performing or supporting the *project planning* process as needed. GP 2.5 (AB 4)

Directing Implementation

Place designated work products of the *project planning* process under appropriate levels of configuration management. GP 2.6 (DI 1)

Identify and involve the relevant stakeholders of the *project planning* process as planned. GP 2.7 (DI 2)

Monitor and control the *project planning* process against the plan and take appropriate corrective action. GP 2.8 (DI 3)

Verifying Implementation

Objectively evaluate adherence of the *project planning* process and the work products and services of the process to the applicable requirements, objectives, and standards, and address noncompliance. GP 2.9 (VE 1)

Review the activities, status, and results of the *project planning* process with higher-level management and resolve issues. GP 2.10 (VE 2)

PROJECT MONITORING AND CONTROL

Provide understanding into the project's progress so that appropriate corrective actions can be taken when the project's performance deviates significantly from the plan.

Actual performance and progress of the project is monitored against the project plan. SG 1

Monitor the actual values of the project planning parameters against the project plan. SP 1.1

Monitor commitments against those identified in the project plan. SP 1.2

Monitor risks against those identified in the project plan. SP 1.3

Monitor the management of project data. SP 1.4

Monitor stakeholder involvement against the project plan. SP 1.5

Periodically review the project's progress, performance, and issues. SP 1.6

Review the accomplishments and results of the project at selected project milestones. SP 1.7

Corrective actions are managed to closure when the project's performance or results deviate significantly from the plan. SG 2

Collect and analyze the issues and determine the corrective actions necessary to address the issues. SP 2.1

Take corrective action on identified issues. SP 2.2

Manage corrective actions to closure. SP 2.3

The process is institutionalized as a managed process. GG 2***Commitment to Perform***

Establish and maintain an organizational policy for planning and performing the *project monitoring and control* process. GP 2.1 (CO 1)

Ability to Perform

Establish and maintain the requirements and objectives, and plans for performing the *project monitoring and control* process. GP 2.2 (AB 1)

Provide adequate resources for performing the *project monitoring and control* process, developing the work products and providing the services of the process. GP 2.3 (AB 2)

Assign responsibility and authority for performing the process, developing the work products, and providing the services of the *project monitoring and control* process. GP 2.4 (AB 3)

Train the people performing or supporting the *project monitoring and control* process as needed. GP 2.5 (AB 4)

Directing Implementation

Place designated work products of the *project monitoring and control* process under appropriate levels of configuration management. GP 2.6 (DI 1)

Identify and involve the relevant stakeholders of the *project monitoring and control* process as planned. GP 2.7 (DI 2)

Monitor and control the *project monitoring and control* process against the plan and take appropriate corrective action. GP 2.8 (DI 3)

Verifying Implementation

Objectively evaluate adherence of the *project monitoring and control* process and the work products and services of the process to the applicable requirements, objectives, and standards, and address noncompliance. GP 2.9 (VE 1)

Review the activities, status, and results of the *project monitoring and control* process with higher-level management and resolve issues. GP 2.10 (VE 2)

SUPPLIER AGREEMENT MANAGEMENT

Manage the acquisition of products and services from suppliers external to the project for which there exists a formal agreement.

Agreements with the suppliers are established and maintained. SG 1

Analyze the project's needs and requirements that will be fulfilled by sources outside the project to determine how the needs and requirements will be satisfied. SP 1.1

Select suppliers based on an evaluation of their ability to meet the specified requirements and established criteria. SP 1.2

Establish and maintain formal agreements with the supplier. SP 1.3

Agreements with the suppliers are satisfied by both the project and the supplier. SG 2

Acquire COTS products to satisfy the specified requirements that are covered under a supplier agreement. SP 2.1

Perform activities with the supplier as specified in the supplier agreement. SP 2.2

Ensure that the supplier agreement is satisfied before accepting the acquired product. SP 2.3

Transition the acquired products from the supplier to the project. SP 2.4

The process is institutionalized as a managed process. GG 2*Commitment to Perform*

Establish and maintain an organizational policy for planning and performing the *supplier agreement management* process. GP 2.1 (CO 1)

Ability to Perform

Establish and maintain the requirements and objectives, and plans for performing the *supplier agreement management* process. GP 2.2 (AB 1)

Provide adequate resources for performing the *supplier agreement management* process, developing the work products and providing the services of the process. GP 2.3 (AB 2)

Assign responsibility and authority for performing the process, developing the work products, and providing the services of the *supplier agreement management* process. GP 2.4 (AB 3)

Train the people performing or supporting the *supplier agreement management* process as needed. GP 2.5 (AB 4)

Directing Implementation

Place designated work products of the *supplier agreement management* process under appropriate levels of configuration management. GP 2.6 (DI 1)

Identify and involve the relevant stakeholders of the *supplier agreement management* process as planned. GP 2.7 (DI 2)

Monitor and control the *supplier agreement management* process against the plan and take appropriate corrective action. GP 2.8 (DI 3)

Verifying Implementation

Objectively evaluate adherence of the *supplier agreement management* process and the work products and services of the process to the applicable requirements, objectives, and standards, and address noncompliance. GP 2.9 (VE 1)

Review the activities, status, and results of the *supplier agreement management* process with higher-level management and resolve issues. GP 2.10 (VE 2)

MEASUREMENT AND ANALYSIS

Develop and sustain a measurement capability that is used to support management information needs.

Measurement objectives and practices are aligned with identified information needs and objectives. SG 1

Establish and maintain measurement objectives that are derived from identified information needs and objectives. SP 1.1

Specify measures to address the measurement objectives. SP 1.2

Specify how measurement data will be obtained and stored. SP 1.3

Specify how measurement data will be analyzed and reported. SP 1.4

Measurement results that address identified information needs and objectives are provided. SG 2

Obtain specified measurement data. SP 2.1

Analyze and interpret measurement data. SP 2.2

Manage and store measurement data, measurement specifications, and analysis results. SP 2.3

Report results of measurement and analysis activities to all affected stakeholders. SP 2.4

The process is institutionalized as a managed process. GG 2

Commitment to Perform

Establish and maintain an organizational policy for planning and performing the *measurement and analysis* process. GP 2.1 (CO 1)

Ability to Perform

Establish and maintain the requirements and objectives, and plans for performing the *measurement and analysis* process. GP 2.2 (AB 1)

Provide adequate resources for performing the *measurement and analysis* process, developing the work products and providing the services of the process. GP 2.3 (AB 2)

Assign responsibility and authority for performing the process, developing the work products, and providing the services of the *measurement and analysis* process. GP 2.4 (AB 3)

Train the people performing or supporting the *measurement and analysis* process as needed. GP 2.5 (AB 4)

Directing Implementation

Place designated work products of the *measurement and analysis* process under appropriate levels of configuration management. GP 2.6 (DI 1)

Identify and involve the relevant stakeholders of the *measurement and analysis* process as planned. GP 2.7 (DI 2)

Monitor and control the *measurement and analysis* process against the plan and take appropriate corrective action. GP 2.8 (DI 3)

Verifying Implementation

Objectively evaluate adherence of the *measurement and analysis* process and the work products and services of the process to the applicable requirements, objectives, and standards, and address noncompliance. GP 2.9 (VE 1)

Review the activities, status, and results of the *measurement and analysis* process with higher-level management and resolve issues. GP 2.10 (VE 2)

PROCESS AND PRODUCT QUALITY ASSURANCE

Provide staff and management with objective insight into the processes and associated work products.

Adherence of the performed process and associated work products and services to applicable process descriptions, standards and procedures is objectively evaluated. SG 1

Objectively evaluate the designated performed processes against the applicable process descriptions, standards and procedures. SP 1.1

Objectively evaluate the designated work products and services against the applicable process descriptions, standards, and procedures. SP 1.2

Noncompliance issues are objectively tracked and communicated, and resolution is ensured. SG 2

Communicate quality issues and ensure resolution of noncompliance issues with the staff and managers. SP 2.1

Establish and maintain records of the quality assurance activities. SP 2.2

The process is institutionalized as a managed process. GG 2

Commitment to Perform

Establish and maintain an organizational policy for planning and performing *the process and product quality assurance* process. GP 2.1 (CO 1)

Ability to Perform

Establish and maintain the requirements and objectives, and plans for performing the *process and product quality assurance* process. GP 2.2 (AB 1)

Provide adequate resources for performing the *process and product quality assurance* process, developing the work products and providing the services of the process. GP 2.3 (AB 2)

Assign responsibility and authority for performing the process, developing the work products, and providing the services of the *process and product quality assurance* process. GP 2.4 (AB 3)

Train the people performing or supporting the *process and product quality assurance* process as needed. GP 2.5 (AB 4)

Directing Implementation

Place designated work products of the *process and product quality assurance* process under appropriate levels of configuration management. GP 2.6 (DI 1)

Identify and involve the relevant stakeholders of the *process and product quality assurance* process as planned. GP 2.7 (DI 2)

Monitor and control the *process and product quality assurance* process against the plan and take appropriate corrective action. GP 2.8 (DI 3)

Verifying Implementation

Objectively evaluate adherence of the *process and product quality assurance* process and the work products and services of the process to the applicable requirements, objectives, and standards, and address non-compliance. GP 2.9 (VE 1)

Review the activities, status, and results of the *process and product quality assurance* process with higher-level management and resolve issues. GP 2.10 (VE 2)

CONFIGURATION MANAGEMENT

Establish and maintain the integrity of work products using configuration identification, configuration control, configuration status accounting, and configuration audits.

Baselines of identified work products are established and maintained. SG 1

Identify the configuration items, components, and related work products that will be placed under configuration management. SP 1.1

Establish and maintain a configuration management and change management system for controlling work products. SP 1.2

Create or release baselines for internal use and for delivery to the customer. SP 1.3

Changes to the work products under configuration management are tracked and controlled. SG 2

Track change requests for the configuration items. SP 2.1

Control changes to the content of configuration items. SP 2.2

Integrity of baselines is established and maintained. SG 3

Establish and maintain records describing configuration items. SP 3.1

Perform configuration audits to maintain integrity of the configuration baselines. SP 3.2

The process is institutionalized as a managed process. GG 2*Commitment to Perform*

Establish and maintain an organizational policy for planning and performing the *configuration management* process. GP 2.1 (CO 1)

Ability to Perform

Establish and maintain the requirements and objectives, and plans for performing the *configuration management* process. GP 2.2 (AB 1)

Provide adequate resources for performing the *configuration management* process, developing the work products and providing the services of the process. GP 2.3 (AB 2)

Assign responsibility and authority for performing the process, developing the work products, and providing the services of the *configuration management* process. GP 2.4 (AB 3)

Train the people performing or supporting the *configuration management* process as needed. GP 2.5 (AB 4)

Directing Implementation

Place designated work products of the *configuration management* process under appropriate levels of configuration management. GP 2.6 (DI 1)

Identify and involve the relevant stakeholders of the *configuration management* process as planned. GP 2.7 (DI 2)

Monitor and control the *configuration management* process against the plan and take appropriate corrective action. GP 2.8 (DI 3)

Verifying Implementation

Objectively evaluate adherence of the *configuration management* process and the work products and services of the process to the applicable requirements, objectives, and standards, and address non-compliance. GP 2.9 (VE 1)

Review the activities, status, and results of the *configuration management* process with higher-level management and resolve issues. GP 2.10 (VE 2)

Maturity Level: 3

REQUIREMENTS DEVELOPMENT

Produce and analyze customer, product, and product component requirements.

Stakeholder needs, expectations, constraints, and interfaces are collected and translated into customer requirements. SG 1

Elicit stakeholder needs, expectations, constraints, and interfaces for all phases of the product's life cycle. SP 1.1

Transform stakeholder needs, expectations, constraints, and interfaces into customer requirements. SP 1.2

Customer requirements are refined and elaborated to develop product and product component requirements for the product life cycle. SG 2

Establish and maintain, from the customer requirements, product and product component requirements essential to product and product component effectiveness and affordability. SP 2.1

Allocate the requirements for each product component. SP 2.2

Identify interface requirements. SP 2.3

The requirements are analyzed and validated, and a definition of required functionality is developed. SG 3

Establish and maintain operational concepts and scenarios. SP 3.1

Establish and maintain a definition of required functionality. SP 3.2

Analyze derived requirements to ensure that they are necessary and sufficient. SP 3.3

Analyze requirements with the purpose of reducing the life-cycle cost, schedule and risk of product development. SP 3.4

Validate requirements to ensure the resulting product will perform as intended in the user's environment using multiple techniques as appropriate. SP 3.5

The process is institutionalized as a defined process. GG 3*Commitment to Perform*

Establish and maintain an organizational policy for planning and performing the *requirements development* process. GP 2.1 (CO 1)

Ability to Perform

Establish and maintain the description of a defined *requirements development* process. GP 3.1 (AB 1)

Establish and maintain the requirements and objectives, and plans for performing the *requirements development* process. GP 2.2 (AB 2)

Provide adequate resources for performing the *requirements development* process, developing the work products and providing the services of the process. GP 2.3 (AB 3)

Assign responsibility and authority for performing the process, developing the work products, and providing the services of the *requirements development* process. GP 2.4 (AB 4)

Train the people performing or supporting the *requirements development* process as needed. GP 2.5 (AB 5)

Directing Implementation

Place designated work products of the *requirements development* process under appropriate levels of configuration management. GP 2.6 (DI 1)

Identify and involve the relevant stakeholders of the *requirements development* process as planned. GP 2.7 (DI 2)

Monitor and control the *requirements development* process against the plan and take appropriate corrective action. GP 2.8 (DI 3)

Collect work products, measures, measurement results, and improvement information derived from planning and performing the *requirements development* process to support the future use and improvement of the organization's processes and process assets. GP 3.2 (DI 4)

Verifying Implementation

Objectively evaluate adherence of the *requirements development* process and the work products and services of the process to the applicable requirements, objectives, and standards, and address noncompliance. GP 2.9 (VE 1)

Review the activities, status, and results of the *requirements development* process with higher-level management and resolve issues. GP 2.10 (VE 2)

TECHNICAL SOLUTION

Develop, design, and implement solutions to requirements. Solutions, designs and implementations encompass products, product components, and product related processes either singly or in combinations as appropriate.

Product or product component solutions, including applicable product related processes, are selected from alternative solutions. SG 1

Develop detailed alternative solutions and selection criteria. SP 1.1

Evolve the operational concept, scenarios, and environments to describe the conditions, operating modes, and operating states specific to each product component. SP 1.2

Select the product component solutions that best satisfy the criteria established. SP 1.3

Product or product component designs are developed. SG 2

Establish and use effective design methods. SP 2.1

Establish and maintain a complete technical data package. SP 2.2

Design product component interfaces in terms of established and maintained criteria. SP 2.3

Evaluate whether the product components should be developed, purchased, or reused based on established criteria. SP 2.4

Product components, and associated support documentation, are implemented from their designs. SG 3

Implement the designs of the product components. SP 3.1

Establish and maintain the end-use documentation. SP 3.2

The process is institutionalized as a defined process. GG 3

Commitment to Perform

Establish and maintain an organizational policy for planning and performing the *technical solution* process. GP 2.1 (CO 1)

Ability to Perform

Establish and maintain the description of a defined *technical solution* process. GP 3.1 (AB 1)

Establish and maintain the requirements and objectives, and plans for performing the *technical solution* process. GP 2.2 (AB 2)

Provide adequate resources for performing the *technical solution* process, developing the work products and providing the services of the process. GP 2.3 (AB 3)

Assign responsibility and authority for performing the process, developing the work products, and providing the services of the *technical solution* process. GP 2.4 (AB 4)

Train the people performing or supporting the *technical solution* process as needed. GP 2.5 (AB 5)

Directing Implementation

Place designated work products of the *technical solution* process under appropriate levels of configuration management. GP 2.6 (DI 1)

Identify and involve the relevant stakeholders of the *technical solution* process as planned. GP 2.7 (DI 2)

Monitor and control the *technical solution* process against the plan and take appropriate corrective action. GP 2.8 (DI 3)

Collect work products, measures, measurement results, and improvement information derived from planning and performing the *technical solution* process to support the future use and improvement of the organization's processes and process assets. GP 3.2 (DI 4)

Verifying Implementation

Objectively evaluate adherence of the *technical solution* process and the work products and services of the process to the applicable requirements, objectives, and standards, and address noncompliance. GP 2.9 (VE 1)

Review the activities, status, and results of the *technical solution* process with higher-level management and resolve issues. GP 2.10 (VE 2)

PRODUCT INTEGRATION

Assemble the product from the product components, ensure that the product, as integrated, functions properly, and deliver the product.

The strategy for conducting product integration is established and maintained. SG 1

Establish and maintain a strategy for integration of the product components. SP 1.1

Establish and maintain the environment needed to support the integration of the product components. SP 1.2

Define detailed procedures and criteria for integration of the product components. SP 1.3

The product component interfaces, both internal and external, are compatible. SG 2

Review interface descriptions for coverage and completeness. SP 2.1

Manage internal and external interface definitions, designs, and changes for products and product components. SP 2.2

Verified product components are assembled and the integrated, verified, and validated product is delivered. SG 3

Confirm, prior to assembly, that each product component required to assemble the product has been properly identified, functions according to its description, and that the product component interfaces comply with the interface descriptions. SP 3.1

Assemble product components according to the product integration strategy. SP 3.2

Checkout an assembly of product components. SP 3.3

Package the assembled product or product component and deliver it to the appropriate customer. SP 3.4

The process is institutionalized as a defined process. GG 3*Commitment to Perform*

Establish and maintain an organizational policy for planning and performing the *product integration* process. GP 2.1 (CO 1)

Ability to Perform

Establish and maintain the description of a defined *product integration* process. GP 3.1 (AB 1)

Establish and maintain the requirements and objectives, and plans for performing the *product integration* process. GP 2.2 (AB 2)

Provide adequate resources for performing the *product integration* process, developing the work products and providing the services of the process. GP 2.3 (AB 3)

Assign responsibility and authority for performing the process, developing the work products, and providing the services of the *product integration* process. GP 2.4 (AB 4)

Train the people performing or supporting the *product integration* process as needed. GP 2.5 (AB 5)

Directing Implementation

Place designated work products of the *product integration* process under appropriate levels of configuration management. GP 2.6 (DI 1)

Identify and involve the relevant stakeholders of the *product integration* process as planned. GP 2.7 (DI 2)

Monitor and control the *product integration* process against the plan and take appropriate corrective action. GP 2.8 (DI 3)

Collect work products, measures, measurement results, and improvement information derived from planning and performing the *product integration* process to support the future use and improvement of the organization's processes and process assets. GP 3.2 (DI 4)

Verifying Implementation

Objectively evaluate adherence of the *product integration* process and the work products and services of the process to the applicable requirements, objectives, and standards, and address noncompliance. GP 2.9 (VE 1)

Review the activities, status, and results of the *product integration* process with higher-level management and resolve issues. GP 2.10 (VE 2)

VERIFICATION

Assure that selected work products meet their specified requirements.

Preparation for verification is conducted. SG 1

Establish and maintain a verification strategy for selected work products. SP 1.1

Establish and maintain the environment needed to support verification. SP 1.2

Establish and maintain detailed verification plans for selected work products. SP 1.3

Peer reviews are performed on selected work products. SG 2

Prepare for peer reviews of selected work products. SP 2.1

Conduct peer reviews on selected work products and identify issues resulting from the peer review. SP 2.2

Analyze data about preparation, conduct, and results of the peer reviews. SP 2.3

Selected work products are verified against their specified requirements. SG 3

Perform verification according to the verification strategy. SP 3.1

Analyze the results of all verification activities and identify corrective action. SP 3.2

Perform re-verification of corrected work products and ensure that work products have not been negatively impacted. SP 3.3

The process is institutionalized as a defined process. GG 3*Commitment to Perform*

Establish and maintain an organizational policy for planning and performing the *verification* process. GP 2.1 (CO 1)

Ability to Perform

Establish and maintain the description of a defined *verification* process. GP 3.1 (AB 1)

Establish and maintain the requirements and objectives, and plans for performing the *verification* process. GP 2.2 (AB 2)

Provide adequate resources for performing the *verification* process, developing the work products and providing the services of the process. GP 2.3 (AB 3)

Assign responsibility and authority for performing the process, developing the work products, and providing the services of the *verification* process. GP 2.4 (AB 4)

Train the people performing or supporting the *verification* process as needed. GP 2.5 (AB 5)

Directing Implementation

Place designated work products of the *verification* process under appropriate levels of configuration management. GP 2.6 (DI 1)

Identify and involve the relevant stakeholders of the *verification* process as planned. GP 2.7 (DI 2)

Monitor and control the *verification* process against the plan and take appropriate corrective action. GP 2.8 (DI 3)

Collect work products, measures, measurement results, and improvement information derived from planning and performing the *verification* process to support the future use and improvement of the organization's processes and process assets. GP 3.2 (DI 4)

Verifying Implementation

Objectively evaluate adherence of the *verification* process and the work products and services of the process to the applicable requirements, objectives, and standards, and address noncompliance. GP 2.9 (VE 1)

Review the activities, status, and results of the *verification* process with higher-level management and resolve issues. GP 2.10 (VE 2)

VALIDATION

Demonstrate that a product or product component fulfills its intended use when placed in its intended environment.

Preparation for validation is conducted. SG 1

Establish and maintain a validation strategy. SP 1.1

Establish and maintain the environment needed to support validation. SP 1.2

Define detailed procedures and criteria for validation. SP 1.3

The product or product components are validated to ensure that they are suitable for use in their intended operating environment. SG 2

Perform validation according to the validation strategy. SP 2.1

Capture and analyze the results of the validation activities and identify issues. SP 2.2

The process is institutionalized as a defined process. GG 3

Commitment to Perform

Establish and maintain an organizational policy for planning and performing the *validation* process. GP 2.1 (CO 1)

Ability to Perform

Establish and maintain the description of a defined *validation* process. GP 3.1 (AB 1)

Establish and maintain the requirements and objectives, and plans for performing the *validation* process. GP 2.2 (AB 2)

Provide adequate resources for performing the *validation* process, developing the work products and providing the services of the process. GP 2.3 (AB 3)

Assign responsibility and authority for performing the process, developing the work products, and providing the services of the *validation* process. GP 2.4 (AB 4)

Train the people performing or supporting the *validation* process as needed. GP 2.5 (AB 5)

Directing Implementation

Place designated work products of the *validation* process under appropriate levels of configuration management. GP 2.6 (DI 1)

Identify and involve the relevant stakeholders of the *validation* process as planned. GP 2.7 (DI 2)

Monitor and control the *validation* process against the plan and take appropriate corrective action. GP 2.8 (DI 3)

Collect work products, measures, measurement results, and improvement information derived from planning and performing the *validation* process to support the future use and improvement of the organization's processes and process assets. GP 3.2 (DI 4)

Verifying Implementation

Objectively evaluate adherence of the *validation* process and the work products and services of the process to the applicable requirements, objectives, and standards, and address noncompliance. GP 2.9 (VE 1)

Review the activities, status, and results of the *validation* process with higher-level management and resolve issues. GP 2.10 (VE 2)

ORGANIZATIONAL PROCESS FOCUS

Establish and maintain an understanding of the organization's processes and process assets, and identify, plan, and implement the organization's process improvement activities.

Strengths, weaknesses, and improvement opportunities for the organization's processes are identified periodically and as needed. SG 1

Establish and maintain the description of the process needs and objectives for the organization. SP 1.1

Assess the processes of the organization periodically and as needed to maintain an understanding of their strengths and weaknesses. SP 1.2

Identify improvements to the organization's processes and related process assets. SP 1.3

Improvements are planned and implemented, process assets are deployed, and process-related experiences are incorporated into the organization's process assets. SG 2

Establish and maintain process action plans to address improvements to the organization's processes and related process assets. SP 2.1

Implement process action plans across the organization. SP 2.2

Deploy the process and related process assets across the organization. SP 2.3

Incorporate process-related work products, measures, and improvement information derived from planning and performing the process into the organization's process assets. SP 2.4

The process is institutionalized as a defined process. GG 3*Commitment to Perform*

Establish and maintain an organizational policy for planning and performing the *organizational process focus* process. GP 2.1 (CO 1)

Ability to Perform

Establish and maintain the description of a defined *organizational process focus* process. GP 3.1 (AB 1)

Establish and maintain the requirements and objectives, and plans for performing the *organizational process focus* process. GP 2.2 (AB 2)

Provide adequate resources for performing the *organizational process focus* process, developing the work products and providing the services of the process. GP 2.3 (AB 3)

Assign responsibility and authority for performing the process, developing the work products, and providing the services of the *organizational process focus* process. GP 2.4 (AB 4)

Train the people performing or supporting the *organizational process focus* process as needed. GP 2.5 (AB 5)

Directing Implementation

Place designated work products of the *organizational process focus* process under appropriate levels of configuration management. GP 2.6 (DI 1)

Identify and involve the relevant stakeholders of the *organizational process focus* process as planned. GP 2.7 (DI 2)

Monitor and control the *organizational process focus* process against the plan and take appropriate corrective action. GP 2.8 (DI 3)

Collect work products, measures, measurement results, and improvement information derived from planning and performing the *organizational process focus* process to support the future use and improvement of the organization's processes and process assets. GP 3.2 (DI 4)

Verifying Implementation

Objectively evaluate adherence of the *organizational process focus* process and the work products and services of the process to the applicable requirements, objectives, and standards, and address noncompliance. GP 2.9 (VE 1)

Review the activities, status, and results of the *organizational process focus* process with higher-level management and resolve issues. GP 2.10 (VE 2)

ORGANIZATIONAL PROCESS DEFINITION

Establish and maintain a usable set of organizational process assets.

A set of organizational process assets is available. SG 1

Establish and maintain the organization's set of standard processes. SP 1.1

Establish and maintain descriptions of the life-cycle process models approved for use in the organization. SP 1.2

Establish and maintain the tailoring criteria and guidelines for the organization's set of standard processes. SP 1.3

Process assets that support the use of the organization's set of standard processes are available. SG 2

Establish and maintain an organizational measurement repository SP 2.1

Establish and maintain the organization's library of process-related assets. SP 2.2

The process is institutionalized as a defined process. GG 3*Commitment to Perform*

Establish and maintain an organizational policy for planning and performing the *organizational process definition* process. GP 2.1 (CO 1)

Ability to Perform

Establish and maintain the description of a defined *organizational process definition* process. GP 3.1 (AB 1)

Establish and maintain the requirements and objectives, and plans for performing the *organizational process definition* process. GP 2.2 (AB 2)

Provide adequate resources for performing the *organizational process definition* process, developing the work products and providing the services of the process. GP 2.3 (AB 3)

Assign responsibility and authority for performing the process, developing the work products, and providing the services of the *organizational process definition* process. GP 2.4 (AB 4)

Train the people performing or supporting the *organizational process definition* process as needed. GP 2.5 (AB 5)

Directing Implementation

Place designated work products of the *organizational process definition* process under appropriate levels of configuration management. GP 2.6 (DI 1)

Identify and involve the relevant stakeholders of the *organizational process definition* process as planned. GP 2.7 (DI 2)

Monitor and control the *organizational process definition* process against the plan and take appropriate corrective action. GP 2.8 (DI 3)

Collect work products, measures, measurement results, and improvement information derived from planning and performing the *organizational process definition* process to support the future use and improvement of the organization's processes and process assets. GP 3.2 (DI 4)

Verifying Implementation

Objectively evaluate adherence of the *organizational process definition* process and the work products and services of the process to the applicable requirements, objectives, and standards, and address noncompliance. GP 2.9 (VE 1)

Review the activities, status, and results of the *organizational process definition* process with higher-level management and resolve issues. GP 2.10 (VE 2)

ORGANIZATIONAL TRAINING

Develop the skills and knowledge of people so they can perform their roles effectively and efficiently.

Training to support the organization's management and technical roles is identified and made available. SG 1

Establish and maintain the strategic training needs of the organization. SP 1.1

Determine which training needs are the responsibility of the organization and which will be left to the individual project or support group. SP 1.2

Establish and maintain an organizational training tactical plan. SP 1.3

Establish and maintain training capability to address organizational training needs. SP 1.4

Training necessary for individuals to perform their roles effectively is provided. SG 2

Deliver the training following an organizational training plan. SP 2.1

Establish and maintain records of the organizational training. SP 2.2

Assess the effectiveness of the organization's training program. SP 2.3

The process is institutionalized as a defined process. GG 3

Commitment to Perform

Establish and maintain an organizational policy for planning and performing the *organizational training* process. GP 2.1 (CO 1)

Ability to Perform

Establish and maintain the description of a defined *organizational training* process. GP 3.1 (AB 1)

Establish and maintain the requirements and objectives, and plans for performing the *organizational training* process. GP 2.2 (AB 2)

Provide adequate resources for performing the *organizational training* process, developing the work products and providing the services of the process. GP 2.3 (AB 3)

Assign responsibility and authority for performing the process, developing the work products, and providing the services of the *organizational training* process. GP 2.4 (AB 4)

Train the people performing or supporting the *organizational training* process as needed. GP 2.5 (AB 5)

Directing Implementation

Place designated work products of the *organizational training* process under appropriate levels of configuration management. GP 2.6 (DI 1)

Identify and involve the relevant stakeholders of the *organizational training* process as planned. GP 2.7 (DI 2)

Monitor and control the *organizational training* process against the plan and take appropriate corrective action. GP 2.8 (DI 3)

Collect work products, measures, measurement results, and improvement information derived from planning and performing the *organizational training* process to support the future use and improvement of the organization's processes and process assets. GP 3.2 (DI 4)

Verifying Implementation

Objectively evaluate adherence of the *organizational training* process and the work products and services of the process to the applicable requirements, objectives, and standards, and address noncompliance. GP 2.9 (VE 1)

Review the activities, status, and results of the *organizational training* process with higher-level management and resolve issues. GP 2.10 (VE 2)

INTEGRATED PROJECT MANAGEMENT (IPPD)

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. Establish a shared vision for the project and a team structure for integrated teams that will carry out the objectives of the project.

The project is conducted using a defined process that is tailored from the organization's set of standard processes. SG 1

Establish and maintain the project's defined process. SP 1.1

Use the organization's process assets and measurement repository for estimating and planning the project's activities. SP 1.2

Integrate the project plan and the subordinate plans to describe the project's defined process. SP 1.3

Manage the project using the project plan, the subordinate plans, and the project's defined process. SP 1.4

Contribute work products, measures, and documented experiences to the organization's process assets. SP 1.5

Coordination and collaboration of the project with relevant stakeholders is conducted. SG 2

Manage the involvement of the relevant stakeholders in the project. SP 2.1

Participate with relevant stakeholders to identify, negotiate, and track critical dependencies. SP 2.2

Resolve issues with relevant stakeholders. SP 2.3

The project is conducted using the project's shared vision. SG 3

Identify expectations, constraints, interfaces, and operational conditions applicable to the project's shared vision. SP 3.1

Establish and maintain a shared vision for the project. SP 3.2

The integrated teams needed to execute the project are identified, defined, structured, and tasked. SG 4

Determine the integrated team structure that will best meet the project objectives and constraints. SP 4.1

Develop a preliminary distribution of requirements, responsibilities, authorities, tasks, and interfaces to teams in the selected integrated team structure. SP 4.2

Establish and maintain teams in the integrated team structure. SP 4.3

The process is institutionalized as a defined process. GG 3

Commitment to Perform

Establish and maintain an organizational policy for planning and performing the *integrated project management* process. GP 2.1 (CO 1)

Ability to Perform

Establish and maintain the description of a defined *integrated project management* process. GP 3.1 (AB 1)

Establish and maintain the requirements and objectives, and plans for performing the *integrated project management* process. GP 2.2 (AB 2)

Provide adequate resources for performing the *integrated project management* process, developing the work products and providing the services of the process. GP 2.3 (AB 3)

Assign responsibility and authority for performing the process, developing the work products, and providing the services of the *integrated project management* process. GP 2.4 (AB 4)

Train the people performing or supporting the *integrated project management* process as needed. GP 2.5 (AB 5)

Directing Implementation

Place designated work products of the *integrated project management* process under appropriate levels of configuration management. GP 2.6 (DI 1)

Identify and involve the relevant stakeholders of the *integrated project management* process as planned. GP 2.7 (DI 2)

Monitor and control the *integrated project management* process against the plan and take appropriate corrective action. GP 2.8 (DI 3)

Collect work products, measures, measurement results, and improvement information derived from planning and performing the *integrated project management* process to support the future use and improvement of the organization's processes and process assets. GP 3.2 (DI 4)

Verifying Implementation

Objectively evaluate adherence of the *integrated project management* process and the work products and services of the process to the applicable requirements, objectives, and standards, and address noncompliance. GP 2.9 (VE 1)

Review the activities, status, and results of the *integrated project management* process with higher-level management and resolve issues. GP 2.10 (VE 2)

RISK MANAGEMENT

Identify potential problems before they occur, so that risk-handling activities may be planned and invoked as needed across the life cycle to mitigate adverse impacts on achieving objectives.

Preparation for risk management is conducted. SG 1

Determine risk sources and categories. SP 1.1

Define the parameters used to analyze and classify risks, and the parameters used to control the risk management effort. SP 1.2

Establish and maintain the strategy and methods to be used for risk management. SP 1.3

Risks are identified and analyzed to determine their relative importance. SG 2

Identify and document the risks. SP 2.1

Evaluate and classify each identified risk using the defined risk categories and parameters, and determine its relative priority. SP 2.2

Risks are handled and mitigated, where appropriate, to reduce adverse impacts on achieving objectives. SG 3

Develop a risk mitigation plan for the most important risks to the project, as defined by the risk management strategy. SP 3.1

Monitor the status of each risk periodically and implement the risk mitigation plan as appropriate. SP 3.2

The process is institutionalized as a defined process. GG 3

Commitment to Perform

Establish and maintain an organizational policy for planning and performing the *risk management* process. GP 2.1 (CO 1)

Ability to Perform

Establish and maintain the description of a defined *risk management* process. GP 3.1 (AB 1)

Establish and maintain the requirements and objectives, and plans for performing the *risk management* process. GP 2.2 (AB 2)

Provide adequate resources for performing the *risk management* process, developing the work products and providing the services of the process. GP 2.3 (AB 3)

Assign responsibility and authority for performing the process, developing the work products, and providing the services of the *risk management* process. GP 2.4 (AB 4)

Train the people performing or supporting the *risk management* process as needed. GP 2.5 (AB 5)

Directing Implementation

Place designated work products of the *risk management* process under appropriate levels of configuration management. GP 2.6 (DI 1)

Identify and involve the relevant stakeholders of the *risk management* process as planned. GP 2.7 (DI 2)

Monitor and control the *risk management* process against the plan and take appropriate corrective action. GP 2.8 (DI 3)

Collect work products, measures, measurement results, and improvement information derived from planning and performing the *risk management* process to support the future use and improvement of the organization's processes and process assets. GP 3.2 (DI 4)

Verifying Implementation

Objectively evaluate adherence of the *risk management* process and the work products and services of the process to the applicable requirements, objectives, and standards, and address noncompliance. GP 2.9 (VE 1)

Review the activities, status, and results of the *risk management* process with higher-level management and resolve issues. GP 2.10 (VE 2)

INTEGRATED TEAMING

Form and sustain an integrated team for the development of work products.

Team composition that provides the knowledge and skills required to deliver the team's product is established and maintained. SG 1

Identify and define the team's specific internal tasks to generate the team's expected output. SP 1.1

Identify the knowledge, skills, and functional expertise needed to perform team tasks. SP 1.2

Assign the appropriate personnel to be team members based on required knowledge and skills. SP 1.3

Operation of the integrated team is governed according to established principles. SG 2

Establish and maintain a shared vision for the integrated team that is aligned with any overarching or higher-level vision. SP 2.1

Establish and maintain a team charter based on the integrated team's shared vision and overall team objectives. SP 2.2

Clearly define and maintain each team member's roles and responsibilities. SP 2.3

Establish and maintain integrated team operating procedures. SP 2.4

Establish and maintain collaboration among interfacing teams. SP 2.5

The process is institutionalized as a defined process. GG 3*Commitment to Perform*

Establish and maintain an organizational policy for planning and performing the *integrated teaming* process. GP 2.1 (CO 1)

Ability to Perform

Establish and maintain the description of a defined *integrated teaming* process. GP 3.1 (AB 1)

Establish and maintain the requirements and objectives, and plans for performing the *integrated teaming* process. GP 2.2 (AB 2)

Provide adequate resources for performing the *integrated teaming* process, developing the work products and providing the services of the process. GP 2.3 (AB 3)

Assign responsibility and authority for performing the process, developing the work products, and providing the services of the *integrated teaming* process. GP 2.4 (AB 4)

Train the people performing or supporting the *integrated teaming* process as needed. GP 2.5 (AB 5)

Directing Implementation

Place designated work products of the *integrated teaming* process under appropriate levels of configuration management. GP 2.6 (DI 1)

Identify and involve the relevant stakeholders of the *integrated teaming* process as planned. GP 2.7 (DI 2)

Monitor and control the *integrated teaming* process against the plan and take appropriate corrective action. GP 2.8 (DI 3)

Collect work products, measures, measurement results, and improvement information derived from planning and performing the *integrated teaming* process to support the future use and improvement of the organization's processes and process assets. GP 3.2 (DI 4)

Verifying Implementation

Objectively evaluate adherence of the *integrated teaming* process and the work products and services of the process to the applicable requirements, objectives, and standards, and address noncompliance. GP 2.9 (VE 1)

Review the activities, status, and results of the *integrated teaming* process with higher-level management and resolve issues. GP 2.10 (VE 2)

DECISION ANALYSIS AND RESOLUTION

Make decisions using a structured approach that evaluates identified alternatives against established criteria.

Decisions are based on an evaluation of alternatives using established criteria. SG 1

Establish and use guidelines to determine which issues are subject to a structured decision analysis and resolution process. SP 1.1

Select the decision-making techniques. SP 1.2

Establish the evaluation criteria and their relative ranking. SP 1.3

Identify alternative solutions to issues. SP 1.4

Evaluate alternative solutions using the documented criteria. SP 1.5

Select solutions from the alternatives based on the evaluation criteria. SP 1.6

The process is institutionalized as a defined process. GG 3

Commitment to Perform

Establish and maintain an organizational policy for planning and performing the *decision analysis and resolution* process. GP 2.1 (CO 1)

Ability to Perform

Establish and maintain the description of a defined *decision analysis and resolution* process. GP 3.1 (AB 1)

Establish and maintain the requirements and objectives, and plans for performing the *decision analysis and resolution* process. GP 2.2 (AB 2)

Provide adequate resources for performing the *decision analysis and resolution* process, developing the work products and providing the services of the process. GP 2.3 (AB 3)

Assign responsibility and authority for performing the process, developing the work products, and providing the services of the *decision analysis and resolution* process. GP 2.4 (AB 4)

Train the people performing or supporting the *decision analysis and resolution* process as needed. GP 2.5 (AB 5)

Directing Implementation

Place designated work products of the *decision analysis and resolution* process under appropriate levels of configuration management. GP 2.6 (DI 1)

Identify and involve the relevant stakeholders of the *decision analysis and resolution* process as planned. GP 2.7 (DI 2)

Monitor and control the *decision analysis and resolution* process against the plan and take appropriate corrective action. GP 2.8 (DI 3)

Collect work products, measures, measurement results, and improvement information derived from planning and performing the *decision analysis and resolution* process to support the future use and improvement of the organization's processes and process assets. GP 3.2 (DI 4)

Verifying Implementation

Objectively evaluate adherence of the *decision analysis and resolution* process and the work products and services of the process to the applicable requirements, objectives, and standards, and address noncompliance. GP 2.9 (VE 1)

Review the activities, status, and results of the *decision analysis and resolution* process with higher-level management and resolve issues. GP 2.10 (VE 2)

ORGANIZATIONAL ENVIRONMENT FOR INTEGRATION

Provide an IPPD infrastructure and manage people for integration.

An infrastructure that maximizes the productivity of people and effects the collaboration necessary for integration is provided. SG 1

Establish and maintain a shared vision for the organization. SP 1.1

Establish and maintain an integrated work environment that supports IPPD by enabling collaboration and concurrent development.
SP 1.2

Identify the unique skills needed to support the IPPD environment.
SP 1.3

People are managed to nurture the integrative and collaborative behaviors of an IPPD environment. SG 2

Establish and maintain leadership mechanisms to enable timely collaboration. SP 2.1

Establish and maintain incentives for adopting and demonstrating integrative and collaborative behaviors at all levels of the organization. SP 2.2

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

The process is institutionalized as a defined process. GG 3

Commitment to Perform

Establish and maintain an organizational policy for planning and performing the *organizational environment for integration* process. GP 2.1 (CO 1)

Ability to Perform

Establish and maintain the description of a defined *organizational environment for integration* process. GP 3.1 (AB 1)

Establish and maintain the requirements and objectives, and plans for performing the *organizational environment for integration* process. GP 2.2 (AB 2)

Provide adequate resources for performing the *organizational environment for integration* process, developing the work products and providing the services of the process. GP 2.3 (AB 3)

Assign responsibility and authority for performing the process, developing the work products, and providing the services of the *organizational environment for integration* process. GP 2.4 (AB 4)

Train the people performing or supporting the *organizational environment for integration* process as needed. GP 2.5 (AB 5)

Directing Implementation

Place designated work products of the *organizational environment for integration* process under appropriate levels of configuration management. GP 2.6 (DI 1)

Identify and involve the relevant stakeholders of the *organizational environment for integration* process as planned. GP 2.7 (DI 2)

Monitor and control the *organizational environment for integration* process against the plan and take appropriate corrective action. GP 2.8 (DI 3)

Collect work products, measures, measurement results, and improvement information derived from planning and performing the *organizational environment for integration* process to support the future use and improvement of the organization's processes and process assets. GP 3.2 (DI 4)

Verifying Implementation

Objectively evaluate adherence of the *organizational environment for integration* process and the work products and services of the process to the applicable requirements, objectives, and standards, and address noncompliance. GP 2.9 (VE 1)

Review the activities, status, and results of the *organizational environment for integration* process with higher-level management and resolve issues. GP 2.10 (VE 2)

Maturity Level: 4

ORGANIZATIONAL PROCESS PERFORMANCE

Establish and maintain a quantitative understanding of the performance of the organization's set of standard processes, and provide the process performance data, baselines, and models to quantitatively manage the organization's projects.

Baselines and models that characterize the expected process performance of the organization's set of standard processes are established and maintained. SG 1

Select the processes or process elements in the organization's set of standard processes that are to be included in the organization's process performance analyses. SP 1.1

Establish and maintain definitions of the measures that are to be included in the organization's process performance analyses. SP 1.2

Establish and maintain quantitative objectives for quality and process performance for the organization. SP 1.3

Establish and maintain the organization's process performance baselines. SP 1.4

Establish and maintain the process performance models for the organization's set of standard processes. SP 1.5

The process is institutionalized as a defined process. GG 3

Commitment to Perform

Establish and maintain an organizational policy for planning and performing the *organizational process performance* process. GP 2.1 (CO 1)

Ability to Perform

Establish and maintain the description of a defined *organizational process performance* process. GP 3.1 (AB 1)

Establish and maintain the requirements and objectives, and plans for performing the *organizational process performance* process. GP 2.2 (AB 2)

Provide adequate resources for performing the *organizational process performance* process, developing the work products and providing the services of the process. GP 2.3 (AB 3)

Assign responsibility and authority for performing the process, developing the work products, and providing the services of the *organizational process performance* process. GP 2.4 (AB 4)

Train the people performing or supporting the *organizational process performance* process as needed. GP 2.5 (AB 5)

Directing Implementation

Place designated work products of the *organizational process performance* process under appropriate levels of configuration management. GP 2.6 (DI 1)

Identify and involve the relevant stakeholders of the *organizational process performance* process as planned. GP 2.7 (DI 2)

Monitor and control the *organizational process performance* process against the plan and take appropriate corrective action. GP 2.8 (DI 3)

Collect work products, measures, measurement results, and improvement information derived from planning and performing the *organizational process performance* process to support the future use and improvement of the organization's processes and process assets. GP 3.2 (DI 4)

Verifying Implementation

Objectively evaluate adherence of the *organizational process performance* process and the work products and services of the process to the applicable requirements, objectives, and standards, and address noncompliance. GP 2.9 (VE 1)

Review the activities, status, and results of the *organizational process performance* process with higher-level management and resolve issues. GP 2.10 (VE 2)

QUANTITATIVE PROJECT MANAGEMENT

Quantitatively manage the project's defined process to achieve the project's established quality and process performance objectives.

The project is quantitatively managed using quality and process performance objectives. SG 1

Establish and maintain the project's quality and process performance objectives. SP 1.1

Select the processes and process elements that comprise the project's defined process based on historical stability and capability data. SP 1.2

Select the subprocesses of the project's defined process that will be statistically managed SP 1.3

Monitor the project to determine whether the project's objectives for quality and process performance will be satisfied, and take corrective action as appropriate. SP 1.4

The performance of selected subprocesses within the project's defined process is statistically managed. SG 2

Select the measures and analytic techniques to be used in statistically managing the selected subprocesses. SP 2.1

Establish and maintain an understanding of the variance of the selected subprocesses using the selected measures and analytic techniques. SP 2.2

Monitor the performance of the selected subprocesses to determine their capability to satisfy their quality and process performance objectives, and take corrective action as necessary. SP 2.3

Record statistical and quality management data in the organization's measurement repository. SP 2.4

The process is institutionalized as a defined process. GG 3

Commitment to Perform

Establish and maintain an organizational policy for planning and performing the *quantitative project management* process. GP 2.1 (CO 1)

Ability to Perform

Establish and maintain the description of a defined *quantitative project management* process. GP 3.1 (AB 1)

Establish and maintain the requirements and objectives, and plans for performing the *quantitative project management* process. GP 2.2 (AB 2)

Provide adequate resources for performing the *quantitative project management* process, developing the work products and providing the services of the process. GP 2.3 (AB 3)

Assign responsibility and authority for performing the process, developing the work products, and providing the services of the *quantitative project management* process. GP 2.4 (AB 4)

Train the people performing or supporting the *quantitative project management* process as needed. GP 2.5 (AB 5)

Directing Implementation

Place designated work products of the *quantitative project management* process under appropriate levels of configuration management. GP 2.6 (DI 1)

Identify and involve the relevant stakeholders of the *quantitative project management* process as planned. GP 2.7 (DI 2)

Monitor and control the *quantitative project management* process against the plan and take appropriate corrective action. GP 2.8 (DI 3)

Collect work products, measures, measurement results, and improvement information derived from planning and performing the *quantitative project management* process to support the future use and improvement of the organization's processes and process assets. GP 3.2 (DI 4)

Verifying Implementation

Objectively evaluate adherence of the *quantitative project management* process and the work products and services of the process to the applicable requirements, objectives, and standards, and address non-compliance. GP 2.9 (VE 1)

Review the activities, status, and results of the *quantitative project management* process with higher-level management and resolve issues. GP 2.10 (VE 2)

Maturity Level: 5

ORGANIZATIONAL INNOVATION AND DEPLOYMENT

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.

Process and technology improvements that contribute to meeting quality and process performance objectives are selected. SG 1

Collect and analyze process and technology improvement proposals. SP 1.1

Identify innovative improvements that would increase the organization's quality and process performance. SP 1.2

Pilot process and technology improvements to select which ones to implement. SP 1.3

Select process and technology improvement proposals for deployment across the organization. SP 1.4

Measurable improvements to the organization's processes and technologies are continually and systematically deployed. SG 2

Establish and maintain the plans for deploying the selected process and technology improvements. SP 2.1

Manage the deployment of the selected process and technology improvements. SP 2.2

Measure the effects of the deployed process and technology improvements. SP 2.3

The process is institutionalized as a defined process. GG 3

Commitment to Perform

Establish and maintain an organizational policy for planning and performing the *organizational innovation and deployment* process. GP 2.1 (CO 1)

Ability to Perform

Establish and maintain the description of a defined *organizational innovation and deployment* process. GP 3.1 (AB 1)

Establish and maintain the requirements and objectives, and plans for performing the *organizational innovation and deployment* process. GP 2.2 (AB 2)

Provide adequate resources for performing the *organizational innovation and deployment* process, developing the work products and providing the services of the process. GP 2.3 (AB 3)

Assign responsibility and authority for performing the process, developing the work products, and providing the services of the *organizational innovation and deployment* process. GP 2.4 (AB 4)

Train the people performing or supporting the *organizational innovation and deployment* process as needed. GP 2.5 (AB 5)

Directing Implementation

Place designated work products of the *organizational innovation and deployment* process under appropriate levels of configuration management. GP 2.6 (DI 1)

Identify and involve the relevant stakeholders of the *organizational innovation and deployment* process as planned. GP 2.7 (DI 2)

Monitor and control the *organizational innovation and deployment* process against the plan and take appropriate corrective action. GP 2.8 (DI 3)

Collect work products, measures, measurement results, and improvement information derived from planning and performing the *organizational innovation and deployment* process to support the future use and improvement of the organization's processes and process assets. GP 3.2 (DI 4)

Verifying Implementation

Objectively evaluate adherence of the *organizational innovation and deployment* process and the work products and services of the process to the applicable requirements, objectives, and standards, and address noncompliance. GP 2.9 (VE 1)

Review the activities, status, and results of the *organizational innovation and deployment* process with higher-level management and resolve issues. GP 2.10 (VE 2)

CAUSAL ANALYSIS AND RESOLUTION

Identify causes of defects and other problems and take action to prevent them from occurring in the future.

Root causes of defects and other problems are systematically determined. SG 1

Select the defects and other problems for analysis. SP 1.1

Perform causal analysis of selected defects and other problems and propose actions to address them. SP 1.2

Root causes of defects and other problems are systematically addressed to prevent their future occurrence. SG 2

Implement the selected action proposals that were developed in causal analysis. SP 2.1

Evaluate the effect of changes on process performance. SP 2.2

Record causal analysis and resolution data for use across the project and organization. SP 2.3

The process is institutionalized as a defined process. GG 3

Commitment to Perform

Establish and maintain an organizational policy for planning and performing the *causal analysis and resolution* process. GP 2.1 (CO 1)

Ability to Perform

Establish and maintain the description of a defined *causal analysis and resolution* process. GP 3.1 (AB 1)

Establish and maintain the requirements and objectives, and plans for performing the *causal analysis and resolution* process. GP 2.2 (AB 2)

Provide adequate resources for performing the *causal analysis and resolution* process, developing the work products and providing the services of the process. GP 2.3 (AB 3)

Assign responsibility and authority for performing the process, developing the work products, and providing the services of the *causal analysis and resolution* process. GP 2.4 (AB 4)

Train the people performing or supporting the *causal analysis and resolution* process as needed. GP 2.5 (AB 5)

Directing Implementation

Place designated work products of the *causal analysis and resolution* process under appropriate levels of configuration management.

GP 2.6 (DI 1)

Identify and involve the relevant stakeholders of the *causal analysis and resolution* process as planned. GP 2.7 (DI 2)

Monitor and control the *causal analysis and resolution* process against the plan and take appropriate corrective action. GP 2.8 (DI 3)

Collect work products, measures, measurement results, and improvement information derived from planning and performing the *causal analysis and resolution* process to support the future use and improvement of the organization's processes and process assets.

GP 3.2 (DI 4)

Verifying Implementation

Objectively evaluate adherence of the *causal analysis and resolution* process and the work products and services of the process to the applicable requirements, objectives, and standards, and address noncompliance. GP 2.9 (VE 1)

Review the activities, status, and results of the *causal analysis and resolution* process with higher-level management and resolve issues.

GP 2.10 (VE 2)