

Deleted: Development

Deleted: +IPPD

INTEGRATED PROJECT MANAGEMENT

A Project Management Process Area at Maturity Level 3

Purpose

The purpose of Integrated Project Management (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.

Introductory Notes

Integrated Project Management involves the following activities:

- Establishing the project's defined process at project startup by tailoring the organization's set of standard processes
- Managing the project using the project's defined process
- Establishing the work environment for the project based on the organization's work environment standards
- Establishing integrated teams that are tasked to accomplish project objectives
- Using and contributing to organizational process assets
- Enabling relevant stakeholders' concerns to be identified, considered, and, when appropriate, addressed during the development of the product
- Ensuring that relevant stakeholders perform their tasks in a coordinated and timely manner (1) to address product and product component requirements, plans, objectives, problems, and risks; (2) to fulfill their commitments; and (3) to identify, track, and resolve coordination issues

Deleted: IPPD Addition¶

For IPPD, Integrated Project Management +IPPD also covers the establishment of a shared vision for the project and the establishment of integrated teams that will carry out objectives of the project.¶

Deleted: organization's

Deleted: the

Deleted: the

The integrated and defined process that is tailored from the organization's set of standard processes is called the project's defined process.

Managing the project's effort, cost, schedule, staffing, risks, and other factors is tied to the tasks of the project's defined process. The implementation and management of the project's defined process are typically described in the project plan. Certain activities may be covered in other plans that affect the project, such as the quality assurance plan, risk management strategy, and the configuration management plan.

Since the defined process for each project is tailored from the organization's set of standard processes, variability among projects is typically reduced and projects can more easily share process assets, data, and lessons learned.

Deleted: ¶

IPPD Addition¶

Integrated Project Management +IPPD also involves the following:¶

<#>Establishing a shared vision for the project¶

<#>Establishing integrated teams that are tasked to accomplish project objectives¶

Deleted: +IPPD

Deleted: +IPPD

Integrated Project Management (IPM)

Deleted: Development

This process area also addresses the coordination of all activities associated with the project such as the following:

- Development activities (e.g., requirements development, design, and verification)
- Service activities (e.g., delivery, help desk, operations, and customer contact)
- Acquisition activities (e.g., solicitation, agreement monitoring, and transition to operations)
- Support activities (e.g., configuration management, documentation, marketing, and training)

Deleted: contract

The working interfaces and interactions among relevant stakeholders internal and external to the project are planned and managed to ensure the quality and integrity of the entire product. Relevant stakeholders participate, as appropriate, in defining the project's defined process and the project plan. Reviews and exchanges are regularly conducted with relevant stakeholders to ensure that coordination issues receive appropriate attention and everyone involved with the project is appropriately aware of status, plans, and activities. (See the definition of "relevant stakeholder" in the glossary.) In defining the project's defined process, formal interfaces are created as necessary to ensure that appropriate coordination and collaboration occurs.

Deleted: the

Deleted: the

The acquirer must involve and integrate all relevant acquisition, technical, support, and operational stakeholders. Depending on the scope and risk of the project, coordination efforts with the supplier can be significant.

Formal interfaces among relevant stakeholders take the form of memorandums of understanding, memorandums of agreement, contractual commitments, associated supplier agreements, and similar documents, depending on the nature of the interfaces and involved stakeholders.

This process area applies in any organizational structure, including projects that are structured as line organizations, matrix organizations, or integrated teams. The terminology should be appropriately interpreted for the organizational structure in place.

Related Process Areas

Refer to the Project Planning process area for more information about planning the project, which includes identifying relevant stakeholders and their appropriate involvement in the project.

Refer to the Project Monitoring and Control process area for more information about monitoring and controlling the project.

Refer to the Organizational Process Definition process area for more information about organizational process assets and work environment standards.

Deleted: Refer to the Verification process area for more information about peer reviews.¶

Deleted: +IPPD

Deleted: +IPPD

Integrated Project Management (IPM)

Deleted: Development

Refer to the Measurement and Analysis process area for more information about defining a process for measuring and analyzing processes.

Refer to the Agreement Management process area for more information about managing supplier agreements.

Deleted: IPPD Addition¶

Deleted: Organizational Process Definition +IPPD

Deleted: creating the organizational rules and guidelines for IPPD

Specific Goal and Practice Summary

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 Integrated Plans
- SP 1.6 Establish Integrated Teams
- SP 1.7 Contribute to Organizational Process Assets

Deleted: Project's

Deleted: the

Deleted: the

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

Specific Practices by Goal

SG 1 Use the Project's Defined Process

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

The project's defined process must include those processes from the organization's set of standard processes that address all processes necessary to acquire or develop and maintain the product. The product-related lifecycle processes, such as manufacturing and support processes, are developed concurrently with the product.

Deleted: ¶
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 ... [1]

Deleted: that is

Deleted: organization's

Deleted: the

SP 1.1 Establish the Project's Defined Process

Establish and maintain the project's defined process from project startup through the life of the project.

Refer to the Organizational Process Definition process area for more information about organizational process assets.

Refer to the Organizational Process Focus process area for more information about organizational process needs and objectives and deploying the organization's set of standard processes on projects.

The project's defined process consists of defined processes that form an integrated, coherent lifecycle for the project.

The project's defined process logically sequences acquirer activities and supplier deliverables (as identified in the supplier agreement) to deliver a product that meets the requirements. The acquirer may require the supplier to align selected processes with the acquirer's defined process.

Deleted: project's

Deleted: the

Deleted: ¶

IPPD Addition¶

Deleted: supports IPPD with processes that¶

Make

Deleted: integrated project management environment more amenable

Deleted: collocated or distributed teams¶

Select

Deleted: project's integrated team structure

Deleted: +IPPD

Deleted: +IPPD

The project's defined process should satisfy the project's contractual requirements, operational needs, opportunities, and constraints. It is designed to provide a best fit for project needs.

A project's defined process is based on the following factors:

- Customer requirements
- Product and product component requirements
- Commitments
- Organizational process needs and objectives

The organization's set of standard processes and tailoring guidelines

- The operational environment
- The business environment

Establishing the project's defined process at project startup helps to ensure that project staff and stakeholders implement a set of activities needed to efficiently establish an initial set of requirements and plans for the project. As the project progresses, the description of the project's defined process is elaborated and revised to better meet project requirements and the organization's process needs and objectives. Also, as the organization's set of standard processes changes, the project's defined process may need to be revised.

The project's defined process is driven by the acquisition strategy. The acquirer's defined process is affected, for example, by whether the acquisition strategy is to introduce new technology to the organization or to consolidate acquired products or services in use by the acquirer.

Typical Work Products

1. The project's defined process

Typical Supplier Deliverables

1. Tailored supplier processes that interface with the acquirer's defined process

Subpractices

1. Select a lifecycle model from those available in organizational process assets.

Examples of project characteristics that could affect the selection of lifecycle models include the following:

- Size of the project
- Experience and familiarity of staff with implementing the process
- Constraints such as cycle time and acceptable defect levels

2. Select standard processes from the organization's set of standard processes that best fit the needs of the project.

3. Tailor the organization's set of standard processes and other organizational process assets according to tailoring guidelines to produce the project's defined process.

Integrated Project Management (IPM)

Deleted: Development

Deleted: <#>Allocate limited personnel resources¶
<#>Implement cross-integrated team communication¶

Deleted: project's

Deleted: project's

Deleted: and

Deleted: the project's

Deleted:

Deleted: project's

Deleted: -----Page Break-----
Organization's

Deleted: Operational

Deleted: Business

Deleted: the project's

Deleted: from the

Deleted: in

Deleted: the

Deleted: organization's

Deleted: the

Deleted: +IPPD

Deleted: +IPPD

Deleted: Development

Sometimes the available lifecycle models and standard processes are inadequate to meet project needs. Sometimes the project is unable to produce required work products or measures. In such circumstances, the project must seek approval to deviate from what is required by the organization. Waivers are provided for this purpose.

Deleted: a specific project's

Deleted: will be

Deleted: will need to

- 4. Use other artifacts from the organization's process asset library, as appropriate.

Deleted: organization's

Other artifacts may include the following:

Deleted: -----Page Break-----

- Lessons-learned documents
- Templates
- Example documents
- Estimating models

- 5. Document the project's defined process.

Deleted: project's

- 6. Conduct peer reviews of the project's defined process.

- 7. Revise the project's defined process as necessary.

Deleted: The project's defined process covers all of the activities for the project and its interfaces to relevant stakeholders.¶

Deleted: Examples of project activities include the following:¶

Deleted: <#>Project planning¶

Deleted: <#>Project monitoring¶

Deleted: <#>Requirements development¶

Deleted: <#>Requirements management¶

Deleted: <#>Supplier management¶

Deleted: <#>Configuration management¶

Deleted: <#>Quality assurance¶

Deleted: <#>Risk management¶

Deleted: <#>Decision analysis and resolution¶

Deleted: <#>Product development and support¶

Deleted: <#>Solicitation¶

Deleted: ¶

Deleted: project's

Deleted: Refer to the Verification process area for more information about conducting peer reviews.¶

Deleted: project's

Deleted: the

Deleted: the project's

Deleted: project's

Deleted: the project's

Deleted: the various

Deleted: project's

Deleted: ,

Deleted: the

Deleted: ,

Deleted: +IPPD

Deleted: +IPPD

SP 1.2 Use Organizational Process Assets for Planning Project Activities

Use organizational process assets and the measurement repository for estimating and planning project activities.

Refer to the Organizational Process Definition process area for more information about organizational process assets and the organization's measurement repository.

When available, use results of previous planning and execution activities as predictors of the relative scope and risk of the effort being estimated for the current acquisition.

Typical Work Products

- 1. Project estimates
- 2. Project plans

Subpractices

- 1. Use the tasks and work products of the project's defined process as a basis for estimating and planning project activities.

An understanding of the relationships among tasks and work products of the project's defined process and of the roles to be performed by relevant stakeholders is a basis for developing a realistic plan.

- 2. Use the organization's measurement repository in estimating the project's planning parameters.

Deleted: Development

- This estimate typically includes the following:
- Using appropriate historical data from this project or similar projects
 - Accounting for and recording similarities and differences between the current project and those projects whose historical data will be used
 - Ensuring historical data are valid
 - Recording the reasoning, assumptions, and rationale used to select historical data

Deleted: Independently validating the

Deleted: the

- Deleted: Examples of parameters that are considered for similarities and differences include the following:¶
- <#>Work product and task attributes¶
 - <#>Application domain¶
 - <#>Design approach¶
 - <#>Operational environment¶
 - <#>Experience of the people¶

SP 1.3 Establish the Project's Work Environment

Establish and maintain the project's work environment based on the organization's work environment standards.

An appropriate work environment for a project comprises an infrastructure of facilities, tools, and equipment that people need to perform their jobs effectively in support of business and project objectives. The work environment and its components are maintained at a level of performance and reliability indicated by organizational work environment standards. As required, the project's work environment or some of its components can be developed internally or acquired from external sources.

- ¶ Examples of data contained in the organization's measurement repository include the following:¶
- <#>Size of work products or other work product attributes¶
 - <#>Effort¶
 - <#>Cost¶
 - <#>Schedule¶
 - <#>Staffing¶
 - <#>Defects¶
 - <#>Response time¶
 - <#>Service capacity¶
 - <#>Supplier performance¶

The supplier's work environment should be compatible with the acquirer's work environment to enable efficient and effective transfer of work products.

Deleted: Project's

Deleted: project's

Deleted: organization's

The work environment might encompass environments for both verification and validation or these might be separate environments.

Deleted: the

Refer to the Establish Work Environment Standards specific practice in the Organizational Process Definition process area for more information about work environment standards.

Deleted: ¶

IPPD Addition¶

An effective work environment helps projects employing IPPD to conduct work using collocated or distributed integrated teams. Two-way communications media should be readily accessible by all relevant stakeholders in the project.¶

Typical Work Products

1. Equipment and tools for the project
2. Installation, operation, and maintenance manuals for the project work environment
3. User surveys and results
4. Usage, performance, and maintenance records
5. Support services for the project's work environment

¶ The project's

Deleted: product integration,

Deleted: ,

Deleted: they

Subpractices

1. Plan, design, and install a work environment for the project.
The critical aspects of the project work environment are, like any other product, requirements driven. Work environment functionality and operations are explored with the same rigor as is done for any other product development.

Deleted: Refer to the Establish the Product Integration Environment specific practice of the Product Integration process area for more information about establishing and maintaining the product integration environment for the project.¶
Refer to the Establish the Verification Environment specific practice of the Verification process area for more information about establishing (... [2]

Deleted: +IPPD

Deleted: +IPPD

Deleted: Development

It may be necessary to make tradeoffs among performance, costs, and risks. The following are examples of each:

- Performance considerations may include timely interoperable communication, safety, security, and maintainability.
- Costs may include capital outlays, training, a support structure, disassembly and disposal of existing environments, and the operation and maintenance of the environment.
- Risks may include workflow and project disruptions.

Deleted: s

Examples of equipment and tools include the following:

- Office software
- Decision support software
- Project management tools
- Requirements management tools and design tools
- Configuration management tools
- Evaluation tools
- Test and evaluation equipment

Deleted: ,

Deleted: /or

2. Provide ongoing maintenance and operational support for the project's work environment.

Maintenance and support of the work environment can be accomplished either with capabilities found inside the organization or hired from outside the organization.

Examples of maintenance and support approaches include the following:

- Hiring people to perform maintenance and support
- Training people to perform maintenance and support
- Contracting maintenance and support
- Developing expert users for selected tools

Deleted: the

Deleted: the

Deleted: the

3. Maintain the qualification of components of the project's work environment.

Components include software, databases, hardware, tools, test equipment, and appropriate documentation. Qualification of software includes appropriate certifications. Hardware and test equipment qualification includes calibration and adjustment records and traceability to calibration standards.

Deleted: the

4. Periodically review how well the work environment is meeting project needs and supporting collaboration, and take action, as appropriate.

Deleted: the project's

Deleted: Examples of actions that might be taken include the following:

- <#>Adding new tools
- <#>Acquiring additional networks, equipment, training, and support

SP 1.4 Integrate Plans

Integrate the project plan and other plans that affect the project to describe the project's defined process.

Refer to the Project Planning process area for more information about establishing and maintaining a project plan.

Deleted: the

Deleted: +IPPD

Deleted: +IPPD

Refer to the Organizational Process Definition process area for more information about organizational process assets and, in particular, the organization's measurement repository.

Refer to the Organizational Process Focus process area for more information about organizational process needs and objectives.

Deleted: Refer to the Measurement and Analysis process area for more information about defining measures and measurement activities and using analytic techniques.¶
Refer to the Risk Management process area for more information about identifying and analyzing risks.¶

This specific practice extends the specific practices for establishing and maintaining a project plan to address additional planning activities such as incorporating the project's defined process, coordinating with relevant stakeholders, using organizational process assets, incorporating plans for peer reviews, and establishing objective entry and exit criteria for tasks.

The development of the project plan should account for current and projected needs, objectives, and requirements of the organization, customer, suppliers, and end users, as appropriate.

Typical Work Products

1. Integrated plans

Typical Supplier Deliverables

1. Supplier plans

Subpractices

1. Integrate other plans that affect the project with the project plan.

Other plans that affect the project plan may include the following:

- Quality assurance plans
- Configuration management plans
- Risk management strategy
- Documentation plans

Deleted: ¶
IPPD Addition¶
The plans of the integrated teams are included in this integration. Developing a complete project plan and the project's defined process may require an iterative effort if a complex, multi-layered, integrated team structure is being deployed.¶

2. Incorporate into the project plan the definitions of measures and measurement activities for managing the project.

Refer to the Measurement and Analysis process area for more information about defining measures and measurement activities and analyzing measurement data.

Deleted: Examples of measures that would be incorporated include the following:¶
<#>Organization's common set of measures¶
<#>Additional project-specific measures¶

3. Identify and analyze product and project interface risks.

Refer to the Risk Management process area for more information about identifying and analyzing risks.

Deleted: Examples of product and project interface risks include the following:¶
<#>Incomplete interface descriptions¶
<#>Unavailability of tools or test equipment¶
<#>Availability of COTS components¶
<#>Inadequate or ineffective team interfaces¶

4. Schedule tasks in a sequence that accounts for critical development factors and project risks.

Deleted: the
Deleted: +IPPD
Deleted: +IPPD

Examples of factors considered in scheduling include the following:

- Size and complexity of tasks
- Needs of the customer and end users
- Availability of critical resources
- Availability of key personnel

Deleted: Development

Deleted: the

Deleted: <#>Integration and test issues

5. Incorporate plans for performing peer reviews on work products of the project's defined process.

Deleted: the

Deleted: the

6. Incorporate the training needed to perform the project's defined process in the project's training plans.

Deleted: project's

7. Establish objective entry and exit criteria to authorize the initiation and completion of tasks described in the work breakdown structure (WBS).

Deleted: ¶
Refer to the Verification process area for more information about peer reviews.

Refer to the Project Planning process area for more information about the WBS.

Deleted: This task typically involves negotiating with the organizational training group the support they will provide.

Deleted: the

8. Ensure that the project plan is appropriately compatible with the plans of relevant stakeholders.

9. Identify how conflicts will be resolved that arise among relevant stakeholders.

Deleted: Typically the plan and changes to the plan will be reviewed for compatibility.

Refer to the Agreement Management process area for more information about resolving supplier agreement issues.

SP 1.5 Manage the Project Using Integrated Plans

Deleted: the

Manage the project using the project plan, other plans that affect the project, and the project's defined process.

Deleted: the

Refer to the Organizational Process Definition process area for more information about organizational process assets.

Deleted: the

Refer to the Organizational Process Focus process area for more information about organizational process needs and objectives and coordinating process improvement activities with the rest of the organization.

Refer to the Risk Management process area for more information about managing risks.

Refer to the Project Monitoring and Control process area for more information about monitoring and controlling the project.

Typical Work Products

1. Work products created by performing the project's defined process

Deleted: "

2. Collected measures (i.e., actuals) and progress records or reports

Deleted: "

3. Revised requirements, plans, and commitments

4. Integrated plans

Deleted: +IPPD

Deleted: +IPPD

Typical Supplier Deliverables

1. Supplier project progress and performance reports

Subpractices

- 1. Implement the project's defined process using the **organization's** process asset library.

Deleted: organization's

This task typically includes the following **activities**:

- Incorporating artifacts from the organization's process asset library into the project, as appropriate
- Using lessons learned from the organization's process asset library to manage the project

- 2. Monitor and control the project's activities and work products using the project's defined process, project plan, and other plans that affect the project.

This task typically includes the following **activities**:

- Using the defined entry and exit criteria to authorize the initiation and determine the completion of tasks
- Monitoring activities that could significantly affect actual values of the project's planning parameters
- Tracking project planning parameters using measurable thresholds that will trigger investigation and appropriate actions
- Monitoring product and project interface risks
- Managing external and internal commitments based on plans for tasks and work products of the project's defined process

Deleted: the

Deleted: the

Deleted: the

Deleted: the project's

Deleted: the

Deleted: the

An understanding of the relationships among tasks and work products of the project's defined process, and of the roles to be performed by relevant stakeholders, along with well-defined control mechanisms (e.g., peer reviews), achieves better visibility into project performance and better control of the project.

Deleted: the various

Deleted: ,

Deleted: the

Deleted:)

- 3. Obtain and analyze selected measures to manage the project and support **organization** needs.

Deleted: the project's

Deleted: the

Deleted: the organization's

Deleted: defining a process for

Refer to the Measurement and Analysis process area for more information about obtaining and analyzing measures.

- 4. Periodically review and align the project's performance with current and anticipated needs, objectives, and requirements of the organization, customer, and end users, as appropriate.

Deleted: the

This review includes alignment with organizational process needs and objectives.

Deleted: the

Examples of actions that achieve alignment include the following:

- Accelerating the schedule, with appropriate adjustments to other planning parameters and project risks
- Changing requirements in response to a change in market opportunities or customer and end-user needs
- Terminating the project

Deleted: the

Deleted: the

Deleted: +IPPD

Deleted: +IPPD

Deleted: Development

Deleted: SP 1.6 Contribute to

SP 1.6 Establish Integrated Teams

Establish and maintain integrated teams.

The project is managed using integrated teams that reflect the organizational rules and guidelines for team structuring and forming. The project's shared vision is established prior to establishing the team structure, which may be based on the WBS. For small acquirer organizations, the whole organization and relevant external stakeholders can be treated as an integrated team.

Refer to the Establish Rules and Guidelines for Integrated Teams specific practice in the Organizational Process Definition process area for more information about establishing organizational rules and guidelines for structuring and forming integrated teams.

Deleted: Assets

One of the best ways to ensure coordination and collaboration with relevant stakeholders, specific goal 2 of this process area, is to include them on an integrated team. For projects within a system of systems framework, the most important integrated team may be with stakeholders representing other systems.

Typical Work Products

1. Documented shared vision
2. List of team members assigned to each integrated team
3. Integrated team charters
4. Periodic integrated team status reports

Subpractices

1. Establish and maintain the project's shared vision.

When creating a shared vision, it is critical to understand the interfaces between the project and stakeholders external to the project. The vision should be shared among relevant stakeholders through their agreement and commitment.

2. Establish and maintain the integrated team structure.

Cost, schedule, project risks, resources, interfaces, the project's defined process, and organizational guidelines are evaluated to establish the basis for defining integrated teams and their responsibilities, authorities, and interrelationships.

3. Establish and maintain each integrated team.

Establishing and maintaining integrated teams encompasses choosing team leaders and team members and establishing team charters for each team. It also involves providing resources required to accomplish tasks assigned to the team.

4. Periodically evaluate the integrated team structure and composition.

Deleted: +IPPD

Deleted: +IPPD

Deleted: Development

Integrated teams should be monitored to detect malfunctions, mismanaged interfaces, and mismatches of tasks to team members. Take corrective action when performance does not meet expectations.

SP 1.7 Contribute to Organizational Process Assets

Contribute work products, measures, and documented experiences to organizational process assets.

Deleted: the

Refer to the Organizational Process Focus process area for more information about process improvement proposals.

Refer to the Organizational Process Definition process area for more information about organizational process assets, the organization's measurement repository, and the organization's process asset library.

Deleted: the

This specific practice addresses collecting information from processes in the project's defined process.

Typical Work Products

Deleted: the

- Proposed improvements to organizational process assets
- Actual process and product measures collected from the project
- Documentation (e.g., exemplary process descriptions, plans, training modules, checklists, and lessons learned)
- Process artifacts associated with tailoring and implementing the organization's set of standard processes on the project

Subpractices

- Propose improvements to organizational process assets.
- Store process and product measures in the organization's measurement repository.

Deleted: the

Deleted: Project Monitoring

Deleted: Control

Deleted: measures. ¶
This typically includes the following: ¶
Planning

Refer to the Project Planning process area for more information about recording planning and replanning data.

Refer to the Measurement and Analysis process area for more information about recording measurement data.

- Submit documentation for possible inclusion in the organization's process asset library.

Deleted: <#>Replanning data ¶
<#>Measures ¶

Examples of data recorded by the project include the following: ¶
<#>Task descriptions ¶

<#>Assumptions ¶

<#>Estimates ¶

<#>Revised estimates ¶

<#>Definitions of recorded data and measures ¶
<#>Measures ¶

<#>Context information that relates the measures to the activities performed and work products produced ¶

<#>Associated information needed to reconstruct the estimates, assess their reasonableness, and derive estimates for new work ¶
¶

Examples of documentation include the following:

- Exemplary process descriptions
- Training modules
- Exemplary plans
- Checklists

- Document lessons learned from the project for inclusion in the organization's process asset library.

Deleted: organization's

Deleted: organization's

Deleted: +IPPD

Deleted: +IPPD

Deleted: Development

- 5. Provide process artifacts associated with tailoring and implementing the organization's set of standard processes in support of the organization's process monitoring activities.

Refer to the Monitor *the Implementation* specific practice of the *Organizational Process Focus* process area for more information about *monitoring the implementation of the organization's set of standard processes and use of process assets on all projects.*

- Deleted: Organization
- Deleted: activities to understand the extent of deployment
- Deleted: on new
- Deleted: existing
- Deleted: of
- Deleted: with
- Deleted: is
- Deleted: the

SG 2 Coordinate and Collaborate with Relevant Stakeholders

Coordination and collaboration between the project and relevant stakeholders are conducted.

SP 2.1 Manage Stakeholder Involvement

Manage the involvement of relevant stakeholders in the project.

Stakeholder involvement is managed according to the project's integrated and defined process.

The supplier agreement provides the basis for managing supplier involvement in the project. Supplier agreements (e.g., interagency and intercompany agreements, memorandums of understanding, memorandums of agreement) that the acquirer makes with stakeholder organizations, which may be product or service providers or recipients, provide the basis for their involvement. These agreements are particularly important when the acquirer's project produces a system that must be integrated into a larger system of systems.

Refer to the Project Planning process area for more information about identifying stakeholders and their appropriate involvement and about establishing and maintaining commitments.

Typical Work Products

- 1. Agendas and schedules for collaborative activities
- 2. Documented issues
- 3. Recommendations for resolving relevant stakeholder issues

Subpractices

- 1. Coordinate with relevant stakeholders who should participate in project activities.
- 2. Ensure work products that are produced to satisfy commitments meet the requirements of the recipients.
- 3. Develop recommendations and coordinate actions to resolve misunderstandings and problems with requirements.

- Deleted: (e.g., issues with customer requirements, product and product component requirements, product architecture, and product design)
- Deleted: the
- Deleted: the project's
- Deleted: The relevant stakeholders should already be identified in the project plan.¶
- Deleted: that
- Deleted: recipient projects
- Deleted: Refer to the Verification process area for more information about verifying work products against their requirements.¶ This task typically includes the following:¶ <#>Reviewing, demonstrating, or testing, as appropriate, each work product produced by relevant stakeholders¶ <#>Reviewing, demonstrating, or testing, as appropriate, each work product produced by the project for other projects with representatives of the projects receiving the work product¶ <#>Resolving issues related to the acceptance of the work products¶
- Deleted: the
- Deleted: the product and product component
- Deleted: , product and product component architecture, and product and product component design
- Deleted: +IPPD
- Deleted: +IPPD

SP 2.2 Manage Dependencies

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

Refer to the Project Planning process area for more information about identifying stakeholders and their appropriate involvement and about establishing and maintaining commitments.

Typical Work Products

1. Defects, issues, and action items resulting from reviews with relevant stakeholders
2. Critical dependencies
3. Commitments to address critical dependencies
4. Status of critical dependencies

Typical Supplier Deliverables

1. Status of critical dependencies

Subpractices

1. Conduct reviews with relevant stakeholders.

It is particularly important that acquirers or owners of systems that interact with the project in a system of systems be involved in these reviews to manage critical dependencies these types of systems create.

2. Identify each critical dependency.
3. Establish need dates and plan dates for each critical dependency based on the project schedule.

4. Review and get agreement on commitments to address each critical dependency with those responsible for providing the work product and those receiving the work product.

5. Document critical dependencies and commitments.

The acquirer documents supplier commitments to meet critical dependencies in the supplier agreement. Supplier dependencies and acquirer dependencies are documented in an integrated plan.

6. Track critical dependencies and commitments and take corrective action, as appropriate.

Refer to the Project Monitoring and Control process area for more information about tracking commitments.

Tracking critical dependencies typically includes the following:

- Evaluating the effects of late and early completion for impacts on future activities and milestones
- Resolving actual and potential problems with responsible parties whenever possible
- Escalating to the appropriate party the actual and potential problems not resolvable by the responsible individual or group

Deleted: the

Deleted: the people

Deleted: the people

Deleted: the

Deleted: Documentation of

Deleted: typically includes the following:
<#>Describing the commitment!
<#>Identifying who made the commitment!
<#>Identifying who is responsible for satisfying the commitment!
<#>Specifying when the commitment will be satisfied!
<#>Specifying the criteria for determining if the commitment has been satisfied!
6. Track the

Deleted: Page Break

Deleted: the

Deleted: the

Deleted: people

Deleted: managers

Deleted: with

Deleted: people

SP 2.3 Resolve Coordination Issues

Resolve issues with relevant stakeholders.

Deleted: +IPPD

Deleted: +IPPD

Deleted: Development

Examples of coordination issues include the following:

- Late critical dependencies and commitments
- Product-level problems
- Unavailability of critical resources or personnel
- Incomplete customer requirements
- Unresolved defects

Deleted: <#>Product and product component requirements and design defects!

Typical Work Products

1. Relevant stakeholder coordination issues
2. Status of relevant stakeholder coordination issues

Subpractices

1. Identify and document issues.
2. Communicate issues to relevant stakeholders.
3. Resolve issues with relevant stakeholders.
4. Escalate to appropriate managers those issues not resolvable with relevant stakeholders.
5. Track issues to closure.
6. Communicate with relevant stakeholders on the status and resolution of issues.

Deleted: the

Deleted: the

Deleted: the

Deleted: the

Deleted: the

Deleted: the

Deleted: the

Deleted: ¶
IPPD Addition

... [3]

Deleted: +IPPD

Deleted: +IPPD

Deleted: Development

Integrated Project Management (IPM)

Deleted: +IPPD

Deleted: +IPPD

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

Refer to the Establish the Product Integration Environment specific practice of the Product Integration process area for more information about establishing and maintaining the product integration environment for the project.

Refer to the Establish the Verification Environment specific practice of the Verification process area for more information about establishing and maintaining the verification environment for the project.

Refer to the Establish the Validation Environment specific practice of the Validation process area for more information about establishing and maintaining the validation environment for the project.

IPPD Addition**SG 3 Apply IPPD Principles*****The project is managed using IPPD principles.***

The purpose of this specific goal and its practices is to create an IPPD environment that enables integrated teams to efficiently meet the project's requirements and produce a quality product.

SP 3.1 Establish the Project's Shared Vision***Establish and maintain a shared vision for the project.***

A project does not operate in isolation. Understanding organizational mission, goals, expectations and constraints allows the project to align its direction, activities, and shared vision with the organization and helps create a common purpose within which project activities can be coordinated. To enable this, it is critical to understand the interfaces between the project and stakeholders external to the project and the objectives and expectations of all relevant stakeholders (internal and external).

IPPD Addition

When creating a shared vision, consider:

- external stakeholder expectations and requirements
- the aspirations and expectations of the project leader, team leaders, and team members
- the project's objectives
- the conditions and outcomes the project will create
- interfaces the project needs to maintain
- the visions created by interfacing groups
- the constraints imposed by outside authorities (e.g., environmental regulations)
- project operation while working to achieve its objectives (both principles and behaviors)

When creating a shared vision, all people in the project should be invited to participate. Although there may be a draft proposal, the larger population must have an opportunity to speak and be heard about what really matters to them. The shared vision is articulated in terms of both the core ideology (values, principles, and behaviors) and the desired future to which each member of the project can commit.

An effective communications strategy is key to implementing and focusing the shared vision throughout the project. Promulgation of the shared vision is a public declaration of the commitment of the project to their shared vision and provides the opportunity for others to examine, understand, and align their activities in a common direction. The shared vision should be communicated, and agreement and commitment of the relevant stakeholders should be obtained.

Effective communications are also especially important when incorporating new project members. New members of the project often need more or special attention to ensure that they understand the shared vision, have a stake in it, and are prepared to follow it in doing their work.

Typical Work Products

1. Documented shared vision
2. Communications strategy
3. Published principles, shared vision statement, mission statement, and objectives (e.g., posters, wallet cards, and presentations)

Subpractices

1. Articulate the project's shared vision in terms of purpose or mission, vision, values, and objectives.

IPPD Addition

2. Reach consensus on the project's shared vision.
3. Establish a strategy to communicate the project's shared vision both externally and internally.
4. Create presentations suitable for the various audiences that need to be informed about the project's shared vision.
5. Ensure that project and individual activities and tasks are aligned with the project's shared vision.

SP 3.2 Establish the Integrated Team Structure

Establish and maintain the integrated team structure for the project.

Product requirements, cost, schedule, risk, resource projections, business processes, the project's defined process, and organizational guidelines are evaluated to establish the basis for defining integrated teams and their responsibilities, authorities, and interrelationships.

A typical integrated team structure may be based on the product-oriented hierarchy found in the WBS. More complex structuring occurs when the WBS is not product oriented, product risks are not uniform, and resources are constrained.

The integrated team structure is a dynamic entity that is adjusted to changes in people, requirements, and the nature of tasks, and to tackle many difficulties. For small projects, the integrated team structure can treat the whole project as an integrated team. The integrated team structure should be continuously monitored to detect malfunctions, mismanaged interfaces, and mismatches of the work to the staff. Corrective action should be taken when performance does not meet expectations.

Refer to the Establish Rules and Guidelines for Integrated Teams specific practice in the Organizational Process Definition +IPPD process area for more information about establishing organizational rules and guidelines for structuring and forming integrated teams.

Typical Work Products

1. Assessments of the product and product architectures, including risk and complexity
2. Integrated team structure

Subpractices

1. Establish an integrated team structure.

An integrated team structure is dependent on:

An assessment of product risk and complexity

IPPD Addition

Location and types of risks

Integration risks, including product component interfaces and inter-team communication

Resources, including availability of appropriately skilled people

Limitations on team size for effective collaboration

Need for team membership of stakeholders external to the project

Business processes

Organizational structure

The integrated team structure should be based on an understanding of the project's defined process and shared vision, the organization's standard processes, and the organizational process assets applicable to teams and team structures.

2. Periodically evaluate and modify the integrated team structure to best meet project needs.

Changes to the product requirements or architecture could affect the team structure.

Continuously monitor the integrated team structure to detect problems such as mismanaged interfaces, and mismatches between the work assigned and the staff performing the work. Take corrective action, including assessing the deployed teams and structures, when performance does not meet expectations.

Changes in team structure can include the following:

Retiring a team for a period of time (e.g., while long-duration manufacturing or verifications are done)

Disbanding a team when it is no longer cost effective in serving the project

Combining teams to achieve operating efficiencies

Adding teams as new product components are identified for development

SP 3.3 Allocate Requirements to Integrated Teams

Allocate requirements, responsibilities, tasks, and interfaces to teams in the integrated team structure.

This allocation of requirements to integrated teams is done before any teams are formed to verify that the integrated team structure is workable and covers all the necessary requirements, responsibilities, authorities, tasks, and interfaces. Once the structure is confirmed, integrated team sponsors are chosen to establish the individual teams in the structure.

Typical Work Products

1. Responsibilities allocated to each integrated team

IPPD Addition

2. Work product requirements, technical interfaces, and business (e.g., cost accounting and project management) interfaces each integrated team will be responsible for satisfying
3. List of integrated team sponsors

Subpractices

1. Allocate the tasks, responsibilities, and work products to be delivered, and the associated requirements and interfaces to the appropriate integrated teams.

Business, management, and other nontechnical responsibilities and authorities for each integrated team are necessary elements to proper team function. Integrated team responsibilities and authorities are normally developed by the project and are consistent with established organization practices.

Example responsibilities and authorities, include the following:

Authority of teams to pick their own leader

Authority of teams to implement subteams (e.g., a product team forming an integration subteam)

Reporting chains

Reporting requirements (cost, schedule, and performance status)

Progress reporting measures and methods

2. Check that the distribution of requirements and interfaces covers all specified product requirements and other requirements.

In the event that complete coverage of requirements is not achieved, corrective action should be taken to redistribute requirements or to alter the integrated team structure.

3. Designate the sponsor for each integrated team.

An integrated team sponsor is a manager (individual or team) who is responsible for establishing and providing resources to an integrated team, monitoring its activities and progress, and taking corrective action when needed. A sponsor may manage one or many teams. Team sponsors can be project managers.

SP 3.4 Establish Integrated Teams

Establish and maintain integrated teams in the structure.

The integrated teams within the integrated team structure are established by the team sponsors. This process encompasses choosing team leaders and team members, and establishing the team charter for each integrated team based on the allocation of requirements. It also involves providing the resources required to accomplish the tasks assigned to the team.

IPPD Addition

Refer to the Establish Rules and Guidelines for Integrated Teams specific practice in the Organizational Process Definition +IPPD process area for more information about establishing organizational rules and guidelines for structuring and forming integrated teams.

Typical Work Products

1. List of team leaders
2. List of team members assigned to each integrated team
3. Integrated team charters
4. Measures for evaluating the performance of integrated teams
5. Periodic integrated team status reports

Subpractices

1. Choose a leader for each integrated team.

The extent of organizational and project direction in selecting the leader is often a function of product risk and complexity or an organization's need to "grow" new leaders. Team sponsors may select the team leader or team members may vote on a leader from within the team, depending on organizational policies.

2. Allocate resources to each integrated team.

The people and other resources are allocated to each integrated team. These items are discussed with the team to ensure that the resources are adequate and that the people are adequate to carry out the tasks and are compatible with other members of the team.

3. Charter each integrated team.

The team charter is the contract among the team members and between the team and its sponsor for the expected work and level of performance. Charters establish the rights, guarantees, privileges, and permissions for organizing and performing the team's assigned requirements and interfaces, responsibilities and tasks. The integrated team and its sponsor develop the team charter as a negotiation activity. When both approve it, the team charter constitutes a recognized agreement with management authority.

Charters can include the following aspects:

- How assignments are accepted
- How resources and input are accessed
- How work gets done
- Who checks and reviews work
- How work is approved
- How work is delivered and communicated

4. Review the composition of an integrated team and its place in the integrated team structure when its team leader changes or another significant change of membership occurs.

IPPD Addition

A change of this kind may significantly affect the ability of the team to accomplish its objectives. A review of the match between the new composition and the current responsibilities should be made. If the match is not satisfactory, the team composition should be changed or the team's responsibility should be modified.

5. Review the composition of a team and its tasking when a change in team responsibility occurs.

Changes in responsibilities often occur as the project moves from one phase to the next. For example, less design expertise on teams may be needed when detailed design is completed and fabrication and integration of product components begins.

6. Manage the overall performance of the teams.

The charter should specify how both team and individual performance will be measured and should include the critical success factors for the team within the project.

SP 3.5 Ensure Collaboration among Interfacing Teams

Ensure collaboration among interfacing teams.

The success of an integrated team-based project is a function of how effectively and successfully the integrated teams collaborate with one another to achieve project objectives. This collaboration may be accomplished using interface control working groups.

See the Coordinate and Collaborate with Relevant Stakeholders specific goal of this process area for more information about managing stakeholder involvement, critical dependencies, and resolving coordination issues.

Refer to the Establish Rules and Guidelines for Integrated Teams specific practice in the Organizational Process Definition +IPPD process area for more information about establishing organizational expectations and rules that will guide how the integrated teams work collectively.

Typical Work Products

1. Work product ownership agreements
2. Team work plans
3. Commitment lists

Subpractices

1. Establish and maintain the boundaries of work product ownership among interfacing teams within the project or organization.
2. Establish and maintain interfaces and processes among interfacing teams for the exchange of inputs, outputs, or work products.
3. Develop, communicate, and distribute among interfacing teams the

IPPD Addition

commitment lists and work plans that are related to work product or team interfaces.

Generic Practices by Goal

Continuous Only

GG 1 Achieve Specific Goals

The process supports and enables achievement of the specific goals of the process area by transforming identifiable input work products to produce identifiable output work products.

GP 1.1 Perform Specific Practices

Perform the specific practices of the integrated project management process to develop work products and provide services to achieve the specific goals of the process area.

GG 2 Institutionalize a Managed Process

The process is institutionalized as a managed process.

Staged Only

GG 3 Institutionalize a Defined Process

The process is institutionalized as a defined process.

This generic goal's appearance here reflects its location in the staged representation.

GP 2.1 Establish an Organizational Policy

Establish and maintain an organizational policy for planning and performing the integrated project management process.

Elaboration:

This policy establishes organizational expectations for establishing and maintaining the project's defined process from project startup through the life of the project, using the project's defined process in

managing the project, and coordinating and collaborating with relevant stakeholders.

IPPD Addition

This policy also establishes organizational expectations for applying IPPD principles.

GP 2.2 Plan the Process

Establish and maintain the plan for performing the integrated project management process.

Elaboration:

This plan for the integrated project management process unites the planning for the project planning and monitor and control processes. The planning for performing the planning-related practices in Integrated Project Management is addressed as part of planning the project planning process. This plan for performing the monitor-and-control-related practices in Integrated Project Management can be included in (or referenced by) the project plan, which is described in the Project Planning process area.

Refer to Table 6.2 on page 95 in Generic Goals and Generic Practices for more information about the relationship between generic practice 2.2 and project planning processes.

GP 2.3 Provide Resources

Provide adequate resources for performing the integrated project management process, developing the work products, and providing the services of the process.

Elaboration:

Examples of resources provided include the following tools:

- Problem-tracking and trouble-reporting packages
- Groupware
- Video conferencing
- Integrated decision database
- Integrated product support environments

GP 2.4 Assign Responsibility

Assign responsibility and authority for performing the process, developing the work products, and providing the services of the integrated project management process.

GP 2.5 Train People

Train the people performing or supporting the integrated project management process as needed.

Elaboration:

Examples of training topics include the following:

- Tailoring the organization's set of standard processes to meet the needs of the project
- Procedures for managing the project based on the project's defined process
- Using the organization's measurement repository
- Using the organizational process assets
- Integrated management
- Intergroup coordination
- Group problem solving

IPPD Addition

Examples of training topics also include the following:

- Building the project's shared vision
- Team building

GP 2.6 Manage Configurations

Place designated work products of the integrated project management process under appropriate levels of control.

Elaboration:

Examples of work products placed under control include the following:

- The project's defined process
- Project plans
- Other plans that affect the project
- Integrated plans
- Actual process and product measures collected from the project

IPPD Addition

Examples of work products placed under control also include the following:

- Project's shared vision

Integrated team structure
Integrated team charters

GP 2.7 Identify and Involve Relevant Stakeholders

Identify and involve the relevant stakeholders of the integrated project management process as planned.

Elaboration:

Refer to Table 6.2 on page 95 in Generic Goals and Generic Practices for more information about the relationship between generic practice 2.7 and the Manage Stakeholder Involvement practice in this process area.

Examples of activities for stakeholder involvement include the following:

- Resolving issues about the tailoring of the organizational process assets
- Resolving issues among the project plan and the other plans that affect the project
- Reviewing project performance to align with current and projected needs, objectives, and requirements

IPPD Addition

Examples of activities for stakeholder involvement also include the following:

- Creating the project's shared vision
- Defining the integrated team structure for the project
- Populating the integrated teams

GP 2.8 Monitor and Control the Process

Monitor and control the integrated project management process against the plan for performing the process and take appropriate corrective action.

Elaboration:

Examples of measures and work products used in monitoring and controlling include the following:

- Number of changes to the project's defined process
- Schedule and effort to tailor the organization's set of standard processes
- Interface coordination issue trends (i.e., number identified and number closed)
- Schedule for project tailoring activities

IPPD Addition

Examples of measures and work products used in monitoring and controlling also include the following:

- Project's shared vision usage and effectiveness
- Integrated team-structure usage and effectiveness
- Integrated team charters usage and effectiveness

GP 2.9 Objectively Evaluate Adherence

Objectively evaluate adherence of the integrated project management process against its process description, standards, and procedures, and address noncompliance.

Elaboration:

Examples of activities reviewed include the following:

- Establishing, maintaining, and using the project's defined process
- Coordinating and collaborating with relevant stakeholders

IPPD Addition

Examples of activities reviewed also include the following:

- Using the project's shared vision
- Organizing integrated teams

Examples of work products reviewed include the following:

- Project's defined process
- Project plans
- Other plans that affect the project

IPPD Addition

Examples of work products reviewed also include the following:

- Integrated team structure
- Integrated team charters
- Shared vision statements

GP 2.10 Review Status with Higher Level Management

Review the activities, status, and results of the integrated project management process with higher level management and resolve issues.

Continuous Only

GG 3 Institutionalize a Defined Process

The process is institutionalized as a defined process.

This generic goal's appearance here reflects its location in the continuous representation.

GP 3.1 Establish a Defined Process

Establish and maintain the description of a defined integrated project management process.

Elaboration:

Refer to Table 6.2 on page 95 in Generic Goals and Generic Practices for more information about the relationship between generic practice 3.1 and the Integrated Project Management process area.

GP 3.2 Collect Improvement Information

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.

Elaboration:

Refer to Table 6.2 on page 95 in Generic Goals and Generic Practices for more information about the relationship between generic practice 3.2 and the Integrated Project Management process area.

Examples of work products, measures, measurement results, and improvement information include the following:

- Project's defined process
- Number of tailoring options exercised by the project to create its defined process
- Interface coordination issue trends (i.e., number identified and number closed)
- Number of times the PAL is accessed for assets related to project planning by project personnel
- Records of expenses related to holding face-to-face meetings versus holding meetings using collaborative equipment such as teleconferencing and videoconferencing

IPPD Addition

Examples of work products, measures, measurement results, and improvement information also include the following:

- Integrated team charters
- Project shared vision

Continuous Only

GG 4 Institutionalize a Quantitatively Managed Process

The process is institutionalized as a quantitatively managed process.

GP 4.1 Establish Quantitative Objectives for the Process

Establish and maintain quantitative objectives for the integrated project management process, which address quality and process performance, based on customer needs and business objectives.

GP 4.2 Stabilize Subprocess Performance

Stabilize the performance of one or more subprocesses to determine the ability of the integrated project management process to achieve the established quantitative quality and process-performance objectives.

GG 5 Institutionalize an Optimizing Process

The process is institutionalized as an optimizing process.

GP 5.1 Ensure Continuous Process Improvement

Ensure continuous improvement of the integrated project management process in fulfilling the relevant business

Continuous Only

objectives of the organization.

GP 5.2 Correct Root Causes of Problems

Identify and correct the root causes of defects and other problems in the integrated project management process.