

ERRATA

A Guide to the Project Management Body of Knowledge (PMBOK® Guide)—Eighth Edition **(Second Printing)**

NOTE: This errata contains a list of the notable corrections that have been made since the *first printing* of the *PMBOK® Guide—Eighth Edition*. In order to verify the print run of your book (or PDF), refer to the bottom of the copyright page. The last numeral in the string beginning with “10 9 8” etc., denotes the printing of that particular copy.

Page	Correction
40	Guide portion: Figure 2-14. Added “Quality management plan” as a sub-bullet to the Outputs listed under the Project management plan updates.
46	Guide portion: Table 2-6. The two equations listed in Table 2-6 have inverted variables. The equations should appear as: Scope Creep (%) = (Unplanned Deliverables / Total Deliverables) x 100 and Requirements Stability (%) = (Unchanged Requirements / Total Requirements) x 100
185	Section 5 – Tools and Techniques Start to Finish description has inverted explanation for successor and predecessor activities. This has been corrected as: Start-to-finish (SF). A logical relationship in which a SUCCESSOR activity cannot finish until a PREDECESSOR activity has started
157	Updated the description for “contingent response strategies,” original publication had a duplicate description of “strategies for opportunities.
	Contingent response strategies. These risk strategies are intentionally designed for implementation only if one or more specific trigger conditions occur. Examples include an audit response process activating only after an audit is requested, or planning to engage an alternate supplier only if and when the preferred supplier cannot perform against requirements. This approach allows the project team to avoid exerting effort and resources against a risk until they are needed. Moreover, the focus can now shift away from the risk impact to the triggering event itself. These are also sometimes called contingency plans or fallback plans.
170	Updated Estimation Technique description to remove bullet: Relative Size Estimation from the list.

- **Develop Scope Structure.** The process of subdividing project deliverables and project work into smaller, more manageable components. In agile projects, this effort corresponds to the decomposition of the product backlog (product backlog breakdown), where work items can be broken down into epics, features, and user stories.
- **Monitor and Control Scope.** The process of monitoring the status of the project and product scope, managing changes to the scope baseline, measuring the quality of the deliverables, and ensuring fulfillment of the required standards.
- **Validate Scope.** The process of formalizing acceptance of the completed project deliverables.

2.2.2.1 Plan Scope Management

The objective of this process is to create a scope management plan. This process defines how the project will be delivered by establishing all of the work required to complete the project and eliminating or removing unnecessary work that will not add value to the project. The scope management plan should be defined, developed, monitored, validated, and controlled based on the project life cycle. While the objective of scope management—ensuring value delivery—remains the same, the process is approached differently in adaptive projects, if compared to predictive projects, as it is more iterative and collaborative. The key benefit of this process is that guidance on scope management is provided to ensure that value is delivered to stakeholders (see Figure 2-14).

2.2.2.2 Elicit and Analyze Requirements

The objective of this process is to define and document the stakeholders' needs associated with the features and functions required in the product, service, or result to assure quality and value will be

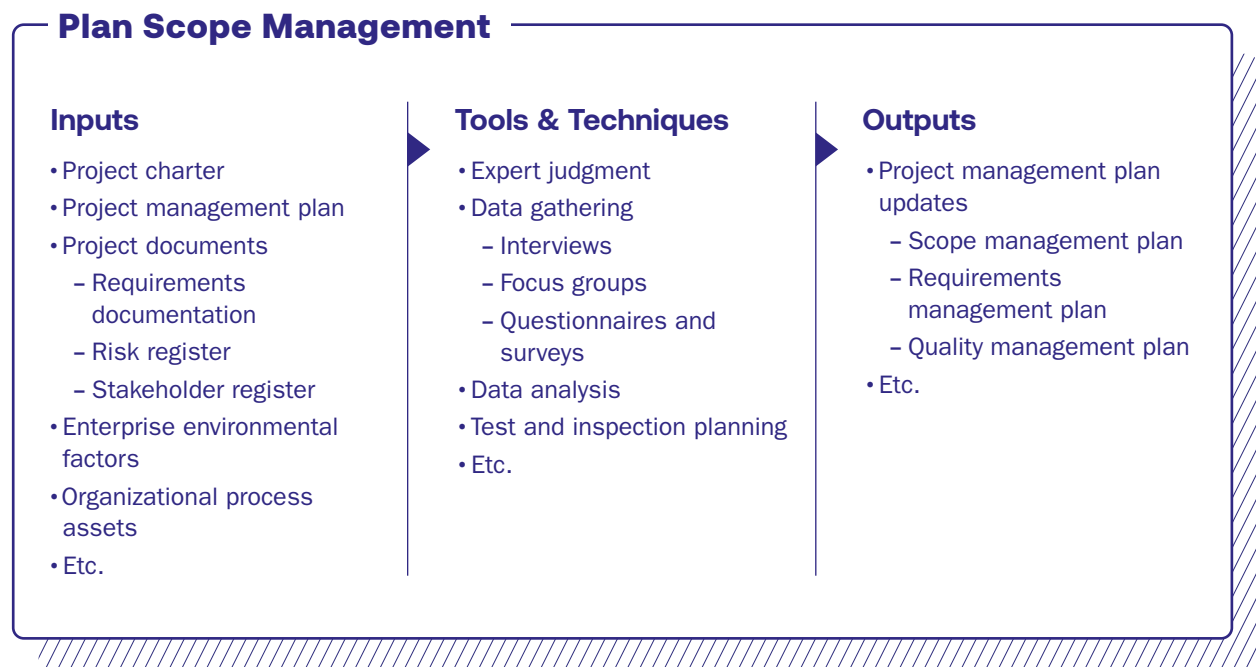


Figure 2-14. Plan Scope Management Inputs, Tools and Techniques, and Outputs

Finally, managing risk is intrinsic to managing scope, as risks can significantly alter a project's trajectory. Comprehensive risk analysis is crucial to understanding potential impacts on the project scope. Rescoping may be employed as a strategy to mitigate, avoid, or transfer risks.

2.2.5 Check Results

Activities within the Scope performance domain should be considered successful only if they contribute to specific outcomes. Table 2-6 shows a set of sample target outcomes, along with a potential check to confirm whether those outcomes are met.

Table 2-6. Check Outcomes—Scope Performance Domain

Outcome	Check
The project employs effective change management.	Projects using a predictive approach have a change log that demonstrates changes, taking into consideration the impact on the Scope, Schedule, Finance, Stakeholders, Resources, and Risk performance domains. Projects employing an adaptive approach use a backlog to manage scope, showing the rate of accomplishing the scope, the rate of adding new scope, and the prioritization and inclusion of stakeholder feedback.
There is a clear understanding of requirements.	In predictive development, fewer changes in the initial requirements may reflect understanding. In projects where requirements are evolving, each iteration provides a clear and well-defined understanding of short-term requirements, enabling a rolling wave approach to uncovering and refining longer-term requirements progressively.
The project is aligned with business objectives and strategy.	The business case and the organization's strategic plan, along with the project-authorizing documents, demonstrate that the project deliverables and business objectives are aligned.
Stakeholders accept and are satisfied with deliverables.	Interviews, observation, and end-user feedback indicate stakeholder satisfaction with the deliverables. Levels of complaints and returns may also be used to indicate satisfaction.
Scope items are clearly defined in the project scope statement in percentages.	The scope definition accuracy is measured as: $\text{Scope Definition Accuracy (\%)} = (\text{Planned Scope Items Correctly Delivered} / \text{Total Planned Scope Items}) \times 100$
Scope creep is measured in percentages.	Scope creep, as a percentage, is measured as: $\text{Scope Creep (\%)} = (\text{Unplanned Deliverables} / \text{Total Deliverables}) \times 100$
The stability of requirements is measured in percentages.	The stability of requirements, as a percentage, is measured as: $\text{Requirements Stability (\%)} = (\text{Unchanged Requirements} / \text{Total Requirements}) \times 100$
Sustainability is considered in the project scope.	The WBS or backlog should include activities to manage sustainability (e.g., assess and manage CO ₂ emissions due to project activity, or manage the impact of project execution on local biodiversity in case of a significant impact).

This technique can produce higher levels of accuracy depending on the sophistication and underlying data built into the model. Parametric schedule estimates can be applied to a total project or to segments of a project, in conjunction with other estimating methods.

Performance reviews. Performance reviews measure, compare, and analyze actual performance of work in progress on the project against the schedule baseline, such as actual start and finish dates, percent complete, and remaining duration for work in progress.

Political awareness. Political awareness helps project managers to plan communications based on the project environment as well as their organization's political environment. Political awareness concerns the recognition of formal and informal power relationships and the willingness to operate within these structures. Aspects of political awareness include the following:

- Understanding the strategies of the organization,
- Knowing who wields power and influence in this arena, and
- Developing an ability to communicate with these stakeholders.

Preassignment. When physical or team resources for a project are determined in advance, they are considered preassigned. This situation can occur if the project is the result of specific resources being identified as part of a competitive proposal or if the project is dependent upon the expertise of particular persons. Preassignment might also include the team members who have already been assigned in Initiating or in other processes before the initial resource management plan has been completed.

Precedence diagramming method. Precedence diagramming method is a technique used for constructing a schedule model in which activities are represented by nodes and are graphically linked by one or more logical relationships to show the sequence in which the activities are to be performed.

Precedence diagramming method includes four types of dependencies or logical relationships. A predecessor activity is an activity that logically comes before a dependent activity in a schedule. A successor activity is a dependent activity that logically comes after another activity in a schedule. These relationships are as follows and are illustrated in Figure 5-13:

- **Finish-to-start (FS).** A logical relationship in which a successor activity cannot start until a predecessor activity has finished. For example, installing the operating system on a PC (successor) cannot start until the PC hardware is assembled (predecessor).
- **Finish-to-finish (FF).** A logical relationship in which a successor activity cannot finish until a predecessor activity has finished. For example, writing a document (predecessor) is required to finish before editing the document (successor) can finish.
- **Start-to-start (SS).** A logical relationship in which a successor activity cannot start until a predecessor activity has started. For example, leveling concrete (successor) cannot begin until pouring the foundation (predecessor) begins.
- **Start-to-finish (SF).** A logical relationship in which a successor activity cannot finish until a predecessor activity has started.

- Importance and intensity of the conflict,
- Time pressure for resolving the conflict,
- Relative power of the people involved in the conflict,
- Importance of maintaining a good relationship, and
- Motivation to resolve conflict on a long-term or short-term basis.

There are five general techniques for resolving conflict. Each technique has its place and use:

- **Withdraw/avoid.** Retreating from an actual or potential conflict situation; postponing the issue to be better prepared or to be resolved by others.
- **Smooth/accommodate.** Emphasizing areas of agreement rather than areas of difference; conceding one's position to the needs of others to maintain harmony and relationships.
- **Compromise/reconcile.** Searching for solutions that bring some degree of satisfaction to all parties in order to temporarily or partially resolve the conflict. This approach occasionally results in a lose-lose situation.
- **Force/direct.** Pushing one's viewpoint at the expense of others; offering only win-lose solutions, usually enforced through a power position to resolve an emergency. This approach often results in a win-lose situation.
- **Collaborate/problem-solve.** Incorporating multiple viewpoints and insights from differing perspectives; requires a cooperative attitude and open dialogue that typically leads to consensus and commitment. This approach can result in a win-win situation.

Constructive cost model (COCOMO). A constructive cost model is a cost-estimation model for effort, time, and cost, usually associated with software development projects. The source lines of code or function points and adjustment factors are usually used as inputs and help to predict the software development cost.

Contingent response strategies. These risk strategies are intentionally designed for implementation only if one or more specific trigger conditions occur. Examples include an audit response process activating only after an audit is requested, or planning to engage an alternate supplier only if and when the preferred supplier cannot perform against requirements. This approach allows the project team to avoid exerting effort and resources against a risk until they are needed. Moreover, the focus can now shift away from the risk impact to the triggering event itself. These strategies are also sometimes called contingency plans or fallback plans.

A project manager should invest in their personal emotional intelligence by improving inbound (e.g., self-management and self-awareness) and outbound (e.g., relationship management) competencies. Research suggests that project teams that succeed in developing team emotional intelligence or become an emotionally competent group are more effective. Additionally, there is usually a reduction in staff turnover. See also *leadership*.

Estimation techniques. Estimating is a process of determining the time and resources needed to complete the project. Estimation techniques involve various methods for forecasting variables. Estimating techniques can be qualitative or quantitative. Qualitative estimating techniques involve estimates based on understanding processes, behaviors, and conditions that individuals or groups perceive. Qualitative estimating techniques can be used together with quantitative methods. Quantitative estimating techniques include numerical estimates of effort, duration, or cost. The most common estimation techniques include the following:

- Expert judgment (see *expert judgment*),
- Analogous estimating (see *analogous estimating*),
- Bottom-up estimating (see *bottom-up estimating*),
- Multipoint estimating (see *multipoint estimating*), and
- Parametric estimating (see *parametric estimating*).

Expert judgment. Expert judgment is judgment provided based upon expertise in an application area, discipline, industry, etc., as appropriate for the activity being performed. Such expertise may be provided by any group or person with specialized education, knowledge, skill, experience, or training.

Facilitation. Facilitation is the ability to effectively guide a group event to a successful decision, solution, or conclusion. A facilitator helps ensure the following:

- There is effective participation,
- Participants achieve a mutual understanding,
- All contributions are considered,
- Conclusions or results have full buy-in according to the decision process established for the project, and
- Actions and agreements that are achieved are appropriately dealt with afterward.

Feedback. Feedback is information about reactions to communications, a deliverable, or a situation. Feedback supports interactive communication among the project manager, project team, and all other project stakeholders. Examples include coaching, mentoring, and negotiating.

Financing. Financing entails acquiring funding for projects. It is common for long-term infrastructure, industrial, and public services projects to seek external sources of funds. If a project is funded externally, the funding entity may have certain requirements that must be met.

Flowchart. Flowcharts are visual representations that map out the sequence of steps and branching possibilities within a process. They are also known as process maps and are used to transform one or more inputs into one or more outputs. Flowcharts are instrumental in illustrating the activities,