Errata

NOTE: The following errata only pertain to the **first printing** of the *PMBOK® Guide*—Fifth Edition. In order to verify the print run of your book (or PDF), refer to the bottom of the copyright page (which precedes the Notice page and Table of Contents). The last numeral in the string beginning "10 9 8" etc. denotes the printing of that particular copy.

Minor editorial changes have been made to the text and figures. Notable corrections are listed below.

Page	**Correction**
60	Section 3.9 (1st paragraph)—Corrected the Knowledge Areas listed to include Project Cost Management
133	Figure 5-15—Corrected the output for “8.3 Control Quality” to read “verified deliverables”
177	Figure 6-18—Added the following clarifying note to the figure: “This example uses the accepted convention of the project starting on day 1 for calculating calendar start and finish dates. There are other accepted conventions that may be used.”
317	Figure 11-4—Inserted the correct graphic for an example of a risk breakdown structure
320	Figure 11-6—Modified this figure to show that the “risk register” is also an input to the following processes: 6.4 Estimate Activity Resources, 6.5 Estimate Activity Durations, 6.6 Develop Schedule, and 7.3 Determine Budget
483	PMBOK Guide – Fifth Edition Core Committee—Corrected the listing to include the following members: George Jucan, MSc, PMP (Sections 9, 10, and 13 Lead); Clifford W. Sprague, PMP (Communications)
566	Included the definition for verified deliverables in the Glossary

3.9 Role of the Knowledge Areas

The 47 project management processes identified in the *PMBOK® Guide* are further grouped into ten separate Knowledge Areas. A Knowledge Area represents a complete set of concepts, terms, and activities that make up a professional field, project management field, or area of specialization. These ten Knowledge Areas are used on most projects most of the time. Project teams should utilize these ten Knowledge Areas and other Knowledge Areas, as appropriate, for their specific project. The Knowledge Areas are: Project Integration Management, Project Scope Management, Project Time Management, Project Cost Management, Project Quality Management, Project Human Resource Management, Project Communications Management, Project Risk Management, Project Procurement Management and Project Stakeholder Management. Each Knowledge Area within the *PMBOK® Guide* is contained in a separate section.

The *PMBOK® Guide* defines the important aspects of each Knowledge Area and how it integrates with the five Process Groups. As supporting elements, the Knowledge Areas provide a detailed description of the process inputs and outputs along with a descriptive explanation of tools and techniques most frequently used within the project management processes to produce each outcome. A data flow diagram is provided in each Knowledge Area (Sections 4 through 8). The data flow diagram is a summary level depiction of the process inputs and process outputs that flow down through all the processes within a specific Knowledge Area (see Figure 3-6 for data flow diagram legend). Although the processes are presented here as discrete elements with well-defined interfaces, in practice they are iterative and can overlap and interact in ways not detailed here.

Table 3-1 reflects the mapping of the 47 project management processes within the 5 Project Management Process Groups and the 10 Knowledge Areas.

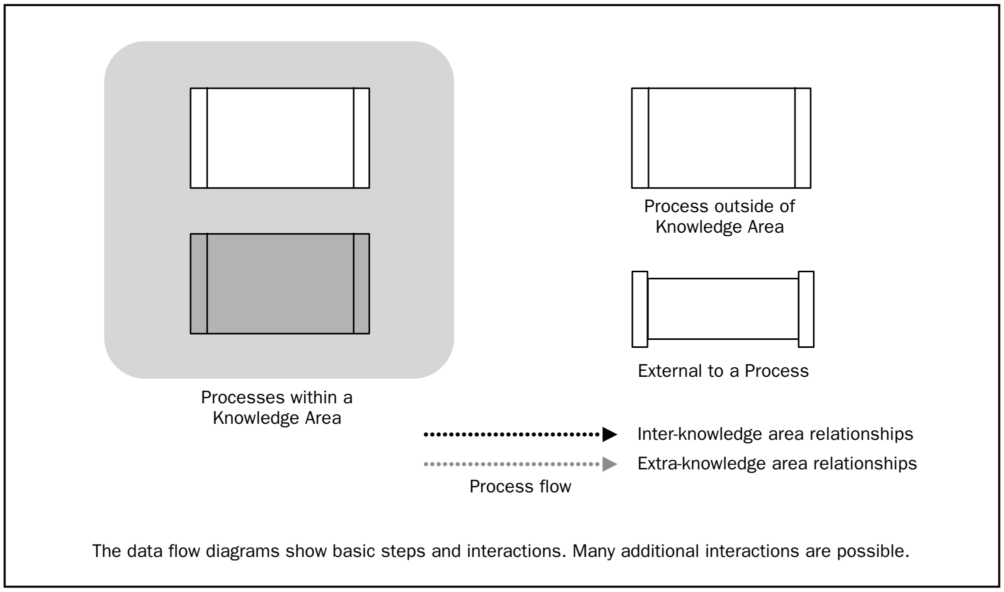

Figure 3-6. Data Flow Diagram Legend

5.5 Validate Scope

Validate Scope is the process of formalizing acceptance of the completed project deliverables. The key benefit of this process is that it brings objectivity to the acceptance process and increases the chance of final product, service, or result acceptance by validating each deliverable. The inputs, tools and techniques, and outputs of this process are depicted in Figure 5-14. Figure 5-15 depicts the data flow diagram of the process.

Inputs

.1 Project management plan
.2 Requirements documentation
.3 Requirements traceability matrix
.4 Verified deliverables
.5 Work performance data

Tools & Techniques

.1 Inspection
.2 Group decision-making techniques

Outputs

.1 Accepted deliverables
.2 Change requests
.3 Work performance information
.4 Project documents updates

Figure 5-14. Validate Scope: Inputs, Tools & Techniques, and Outputs

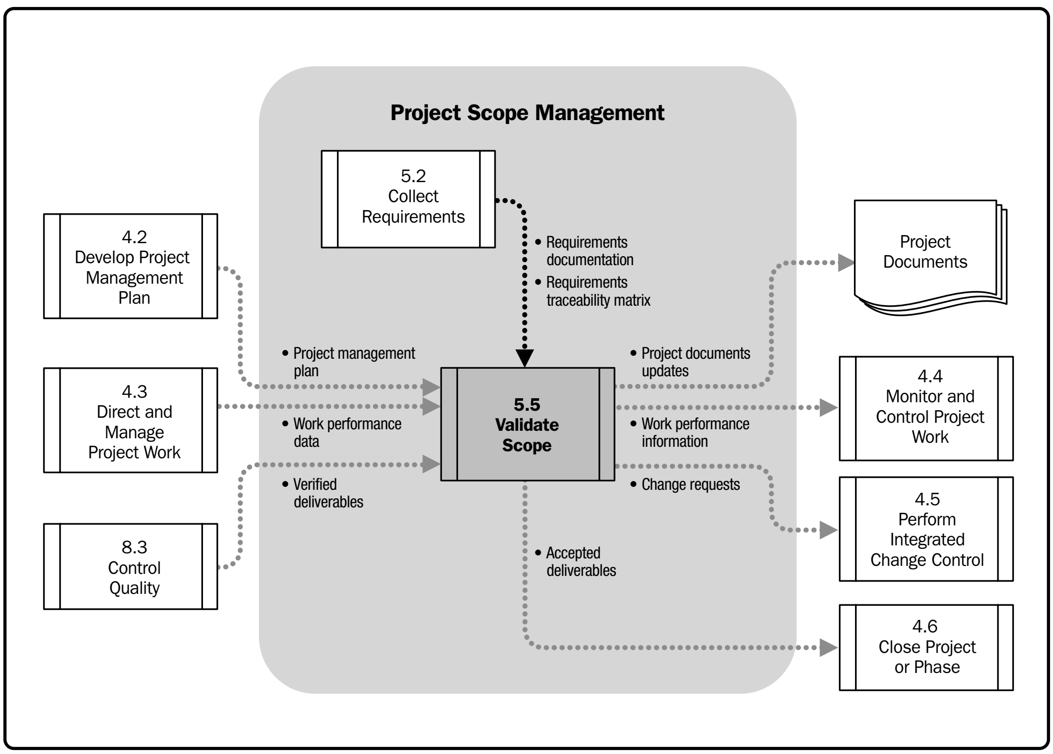

Figure 5-15. Validate Scope Data Flow Diagram

On any network path, the schedule flexibility is measured by the amount of time that a schedule activity can be delayed or extended from its early start date without delaying the project finish date or violating a schedule constraint, and is termed "total float." A CPM critical path is normally characterized by zero total float on the critical path. As implemented with PDM sequencing, critical paths may have positive, zero, or negative total float depending on constraints applied. Any activity on the critical path is called a critical path activity. Positive total float is caused when the backward pass is calculated from a schedule constraint that is later than the early finish date that has been calculated during forward pass calculation. Negative total float is caused when a constraint on the late dates is violated by duration and logic. Schedule networks may have multiple near-critical paths. Many software packages allow the user to define the parameters used to determine the critical path(s). Adjustments to activity durations (if more resources or less scope can be arranged), logical relationships (if the relationships were discretionary to begin with), leads and lags, or other schedule constraints may be necessary to produce network paths with a zero or positive total float. Once the total float for a network path has been calculated, then the free float—the amount of time that a schedule activity can be delayed without delaying the early start date of any successor or violating a schedule constraint—can also be determined. For example the free float for Activity B, in Figure 6-18, is 5 days.

6

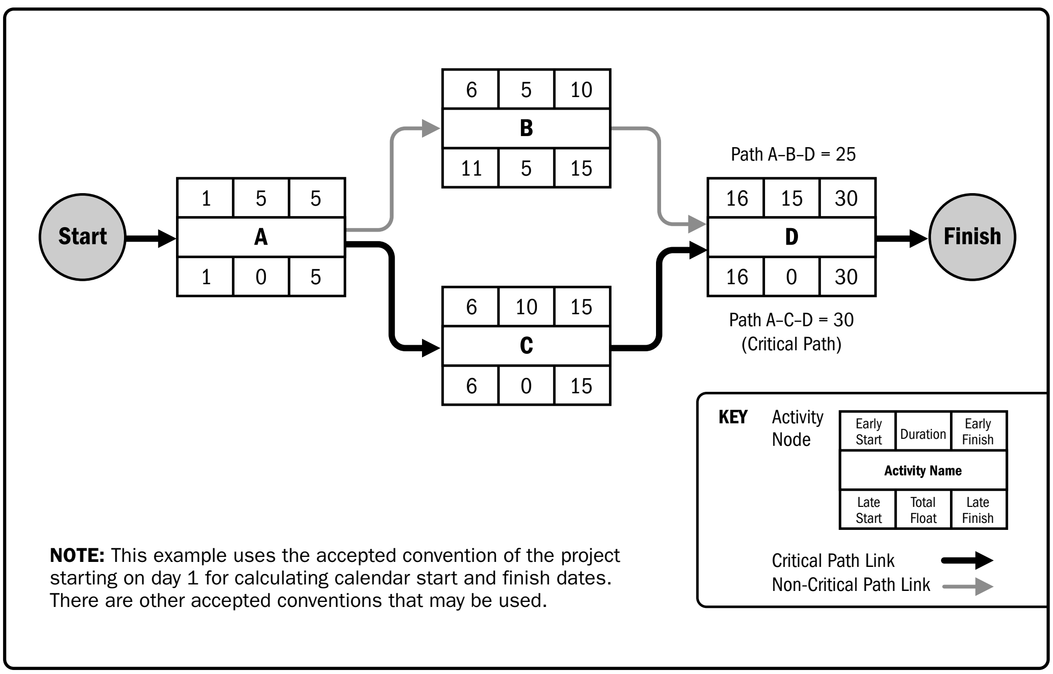

Figure 6-18. Example of Critical Path Method

- **Risk categories.** Provide a means for grouping potential causes of risk. Several approaches can be used, for example, a structure based on project objectives by category. A risk breakdown structure (RBS) helps the project team to look at many sources from which project risk may arise in a risk identification exercise. Different RBS structures will be appropriate for different types of projects. An organization can use a previously prepared custom categorization framework, which may take the form of a simple list of categories or may be structured into an RBS. The RBS is a hierarchical representation of risks according to their risk categories. An example is shown in Figure 11-4.

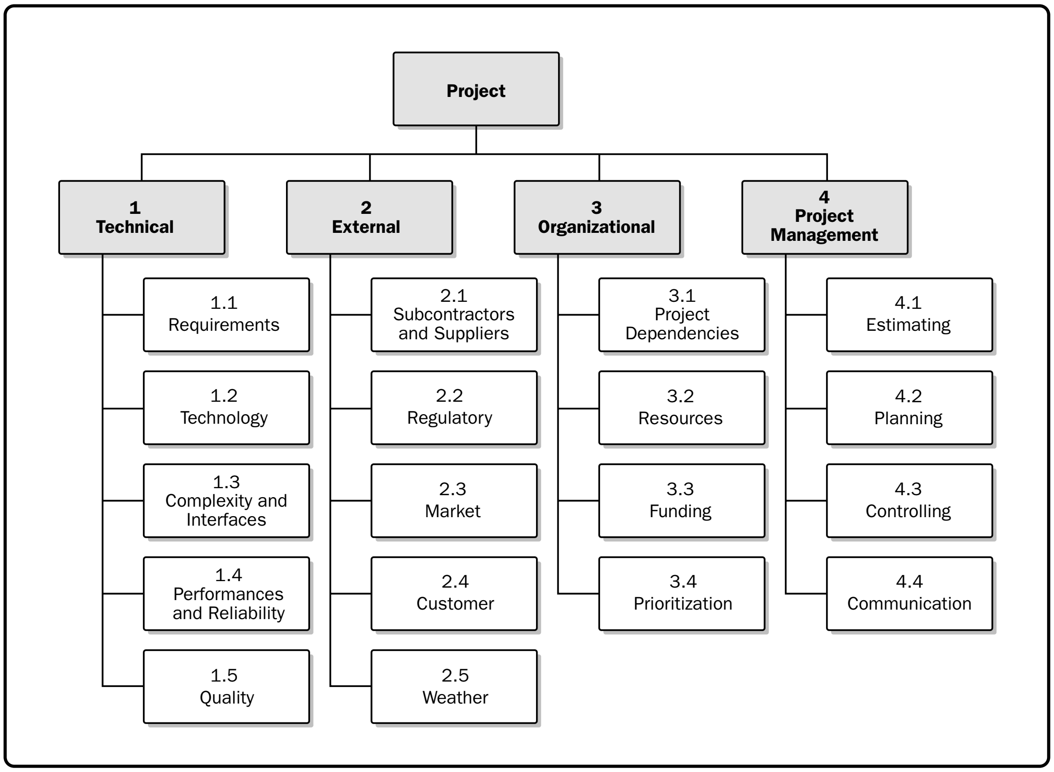

Figure 11-4. Example of a Risk Breakdown Structure (RBS)

- **Definitions of risk probability and impact.** The quality and credibility of the risk analysis requires that different levels of risk probability and impact be defined that are specific to the project context. General definitions of probability levels and impact levels are tailored to the individual project during the Plan Risk Management process for use in subsequent processes. Table 11-1 is an example of definitions of negative impacts that could be used in evaluating risk impacts related to four project objectives. (Similar tables may be established with a positive impact perspective). Table 11-1 illustrates both relative and numerical (in this case, nonlinear) approaches.

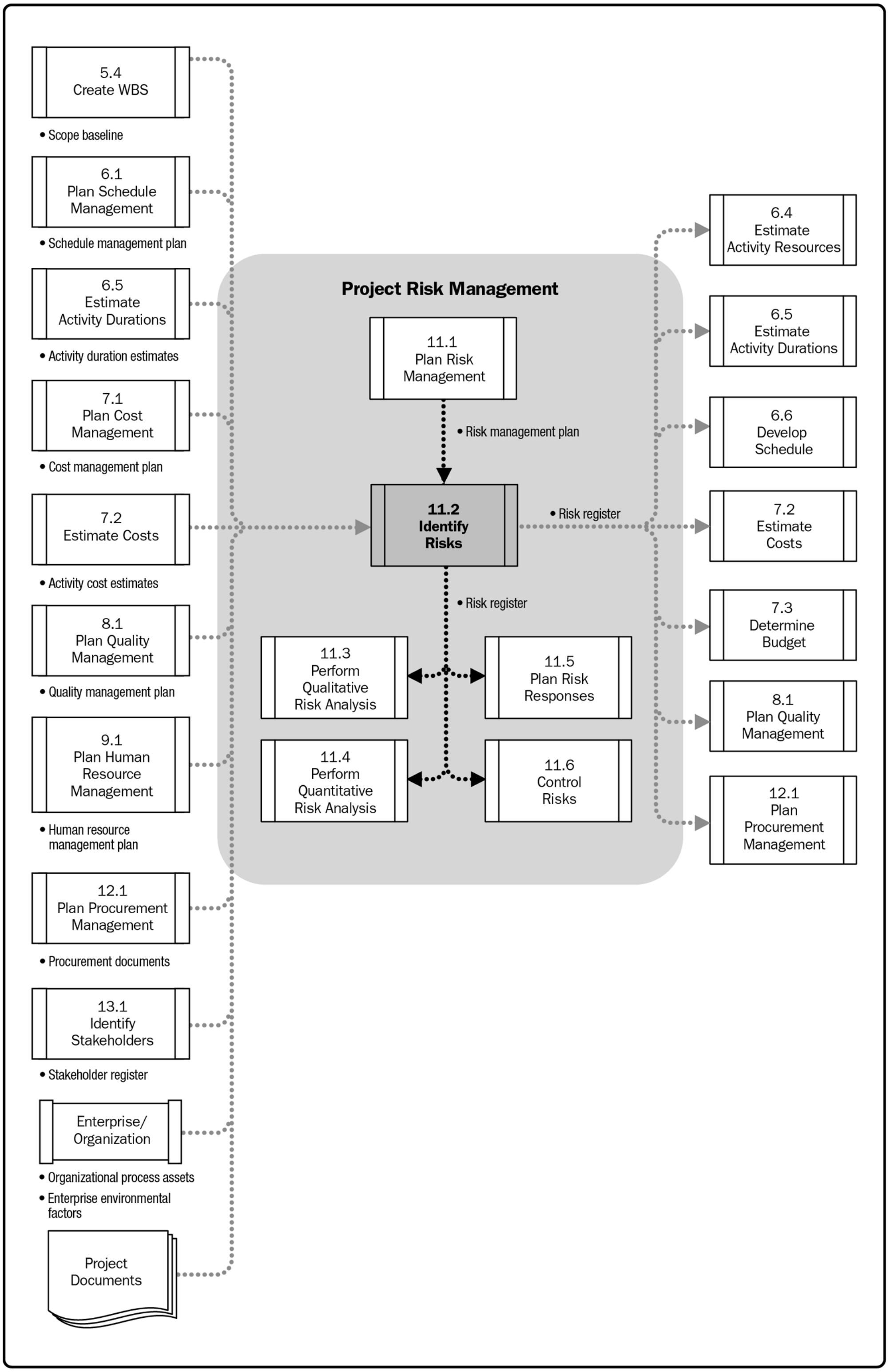

Figure 11-6. Identify Risks Data Flow Diagram

APPENDIX X2
CONTRIBUTORS AND REVIEWERS OF THE *PMBOK® GUIDE*—FIFTH EDITION:

PMI volunteers first attempted to codify the Project Management Body of Knowledge in the *Special Report on Ethics, Standards, and Accreditation*, published in 1983. Since that time, other volunteers have come forward to update and improve that original document and contribute to this globally recognized standard for project management, PMI's *A Guide to the Project Management Body of Knowledge* (*PMBOK® Guide*). This appendix lists, alphabetically within groupings, those individuals who have contributed to the development and production of the *PMBOK® Guide* – Fifth Edition. No simple list or even multiple lists can adequately portray all the contributions of those who have volunteered to develop the *PMBOK® Guide* – Fifth Edition.

The Project Management Institute is grateful to all of these individuals for their support and acknowledges their contributions to the project management profession.

X2.1 *PMBOK® Guide—Fifth Edition* Core Committee

The following individuals served as members, were contributors of text or concepts, and served as leaders within the Project Core Committee:

Dave Violette, MPM, PMP, Chair
Joseph W. Kestel, PMP, Vice Chair
Nick Clemens, PMP (Sections 3 and 4 Lead)
Dan Deakin, PMP (Sections 11 and 12 Lead)
Theofanis C. Giotis, PMP, PMI-ACP (Sections 1 and 2 Lead)
Marie A. Gunnerson, (Sections 6 and 7 Lead)
George Jucan, MSc, PMP (Sections 9, 10, and 13 Lead)
Vanina Mangano, PMP, PMI-RMP (Integrated Content and Change Control Lead)
Mercedes Martinez Sanz, PMP (Sections 5 and 8 Lead)
Carolina Gabriela Spindola, PMP, SSBB (Quality Control Lead)
Clifford W. Sprague, PMP (Communications)
Kristin L. Vitello, CAPM, Standards Project Specialist

Trend Analysis. An analytical technique that uses mathematical models to forecast future outcomes based on historical results. It is a method of determining the variance from a baseline of a budget, cost, schedule, or scope parameter by using prior progress reporting periods' data and projecting how much that parameter's variance from baseline might be at some future point in the project if no changes are made in executing the project.

Trigger Condition. An event or situation that indicates that a risk is about to occur.

Unanimity. Agreement by everyone in the group on a single course of action.

Validate Scope. The process of formalizing acceptance of the completed project deliverables.

Validation. The assurance that a product, service, or system meets the needs of the customer and other identified stakeholders. It often involves acceptance and suitability with external customers. Contrast with *verification*.

Value Engineering. An approach used to optimize project life cycle costs, save time, increase profits, improve quality, expand market share, solve problems, and/or use resources more effectively.

Variance. A quantifiable deviation, departure, or divergence away from a known baseline or expected value.

Variance Analysis. A technique for determining the cause and degree of difference between the baseline and actual performance.

Variance at Completion (VAC). A projection of the amount of budget deficit or surplus, expressed as the difference between the budget at completion and the estimate at completion.

Variation. An actual condition that is different from the expected condition that is contained in the baseline plan.

Velocity. A measure of a team's productivity rate at which the deliverables are produced, validated, and accepted within a predefined interval. Velocity is a capacity planning approach frequently used to forecast future project work.

Verification. The evaluation of whether or not a product, service, or system complies with a regulation, requirement, specification, or imposed condition. It is often an internal process. Contrast with *validation*.

Verified Deliverables. Completed project deliverables that have been checked and confirmed for correctness through the Control Quality process.

Voice of the Customer. A planning technique used to provide products, services, and results that truly reflect customer requirements by translating those customer requirements into the appropriate technical requirements for each phase of project product development.

