Project Management Institute

GLOBAL STANDARD

A Guide to the Project Management Body of Knowledge

PMBOK® GUIDE

Seventh Edition

AND The Standard for Project Management

ANSI/PMI 99-001-2021

THE STANDARD FOR PROJECT MANAGEMENT

and

A GUIDE TO THE PROJECT MANAGEMENT BODY OF KNOWLEDGE

(PMBOK® GUIDE)
Seventh Edition

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Preface

Each time work begins on a new edition of *The Standard for Project Management* and the *PMBOK® Guide*, there is an opportunity to consider global perspectives on changes in project management and the approaches used for realizing benefits and value from project outputs. In the time between every edition, a world of change has occurred. Some organizations have ceased to exist, and new organizations have emerged. Older technologies have reached end of life while technologies offering completely new capabilities have evolved. People who continue in the workforce have advanced their thinking, skills, and capabilities as new entrants focus on quickly understanding their professional language, building their skills, developing their business acumen, and contributing to the objectives of their employers.

Even in the midst of such changes, though, there are fundamental concepts and constructs that remain in place. The understanding that collective thinking produces more holistic solutions than the thoughts of one individual continues. And the fact that organizations use projects as a vehicle for delivering a unique result or output endures.

CUSTOMER- AND END-USER-CENTERED DESIGN

While the Sixth Edition of the *PMBOK® Guide* was under development and throughout development of this Seventh Edition, PMI has actively engaged with a broad range of global stakeholders on their experiences with using *The Standard for Project Management* and the *PMBOK® Guide*. These engagements have included:

- Online surveys to representative samples of PMI stakeholders;
- Focus groups with PMO leaders, project managers, agile practitioners, project team members, and educators and trainers; and
- Interactive workshops with practitioners at various PMI events around the globe.

The feedback and inputs collectively emphasized four key points:

- Maintain and enhance the credibility and relevance of the *PMBOK® Guide*.
- Improve the readability and usefulness of the *PMBOK® Guide* while avoiding overstuffing it with new content.
- Sense stakeholder information and content needs and provide vetted supplemental content supporting practical application.
- Recognize that there is continued value for some stakeholders in the structure and content of previous editions so that any shifts enhance without negating that value.

SUSTAINING THE RELEVANCE OF THE *PMBOK® GUIDE*

Since its inception as the *Project Management Body of Knowledge (PMBOK)* in 1987, *A Guide to the Project Management Body of Knowledge (PMBOK® Guide)* has evolved while recognizing that fundamental elements of project management endure. Its evolution has not just involved an increase in the page count, it has also involved significant and substantive changes in the nature of the content. A sampling of some of those key changes is reflected in the following table:

Evolution of Key Changes in the *PMBOK® Guide*

PMBOK® Guide Edition	Key Evolutionary Changes
1996	• Distinguished as "a guide to the body of knowledge," rather than the body of knowledge for project management. • Reflected the subset of the project management body of knowledge that is "generally accepted," meaning applicable to most projects most of the time with widespread consensus that practices have value and usefulness. • Defined project management as "the application of knowledge, skills, tools, and techniques to project activities **in order to meet or exceed stakeholder needs and expectations** [emphasis added] from a project." • Specific decision to shift to a process-based standard driven by a desire to show interactions among Knowledge Areas; create a robust and flexible structure; and recognize that ISO and other standards organizations were establishing process-based standards.
Third (2004)	• First edition to incorporate the "ANSI Standard" logo on the cover. • First edition to formally designate *The Standard for Project Management of a Project* separate and distinct from the Project Management Framework and Body of Knowledge. • Included material "generally recognized as good practice on most projects most of the time." • Defined project management as "the application of knowledge, skills, tools, and techniques to project activities **to meet the project requirements**."
Sixth (2017)	• First edition to make a distinct separation between the ANSI standard and the guide. • First time "agile" content is incorporated into the text, not just referenced in examples. • Expansion of Knowledge Area front material, including key concepts, trends and emerging practices, tailoring considerations, and considerations for agile/adaptive environments.

Like previous editions of *The Standard for Project Management* and the *PMBOK® Guide*, this edition recognizes that the project management landscape continues to evolve and adapt. Over the past 10 years alone, the advancement of software into all types of products, services, and solutions has grown exponentially. What software can enable continues to change as artificial intelligence, cloud-based capabilities, and new business models drive innovation and new ways of working. Transformed organizational models have yielded new project work and team structures, the need for a broad range of approaches to project and product delivery, and a stronger focus on outcomes rather than deliverables. Individual contributors can join project teams from anywhere in the world, serve in a broader array of roles, and enable new ways of thinking and working collaboratively. These changes and more have created this opportunity to reconsider perspectives to support the continued evolution of *The Standard for Project Management* and the *PMBOK® Guide*.

SUMMARY OF CHANGES

Since 1987, *The Standard for Project Management* has represented a process-based standard. *The Standard for Project Management* included in the *PMBOK® Guide* aligned the project management discipline and function around a collection of business processes. Those business processes enabled consistent and predictable practices:

- That could be documented;
- Through which performance against the processes could be assessed; and
- Through which improvements to the process could be made to maximize efficiency and minimize threats.

While effective in supporting good practice, process-based standards are prescriptive by their very nature. With project management evolving more rapidly than ever before, the process-based orientation of past editions cannot be maintained in a manner conducive to reflecting the full value delivery landscape. Therefore, this edition shifts to a principles-based standard to support effective project management and to focus more on intended outcomes rather than deliverables.

A global community of practitioners from different industries and organizations, in different roles, and working on different types of projects have developed and/or provided feedback on drafts of the standard as it has evolved for this edition. In addition, the *PMBOK® Guide* – Seventh Edition coleaders and staff reviewed other bodies of knowledge and works focused on project management to identify principle concepts embedded in those texts. These combined efforts showed strong alignment and supported the validation that the guiding principles in this edition of the standard apply across the spectrum of project management.

To date, the global project management community has embraced the shift of this standard toward a set of principle statements. The principle statements capture and summarize generally accepted objectives for the practice of project management and its core functions. The principle statements provide broad parameters within which project teams can operate and offer many ways to remain aligned with the intent of the principles.

Using these principle statements, PMI can reflect effective management of projects across the full value delivery landscape: predictive to adaptive and everything in between. This principles-based approach is also consistent with the evolution of *The Standard for Program Management* (Third and Fourth Editions) and *The Standard for Portfolio Management* – Fourth Edition. *The Standard for Risk Management in Portfolios, Programs, and Projects* and *Benefits Realization Management: A Practice Guide* represent new standard products intentionally developed with a principles-based focus by global teams of subject matter experts.

Nothing in this edition of *The Standard for Project Management* or *A Guide to the Project Management Body of Knowledge* negates alignment with the process-based approach of past editions. Many organizations and practitioners continue to find that approach useful for guiding their project management capabilities, aligning their methodologies, and evaluating their project management capabilities. That approach remains relevant in the context of this new edition.

Another significant change with this edition of the *PMBOK® Guide* is a systems view of project management. This shift begins with a systems view of value delivery as part of *The Standard for Project Management* and continues with the presentation of the *PMBOK® Guide* content. A systems focus for value delivery changes the perspective from one of governing portfolios, programs, and projects to focusing on the value chain that links those and other business capabilities to advancing organizational strategy, value, and business objectives. In the context of project management, *The Standard for Project Management* and the *PMBOK® Guide* emphasize that projects do not simply produce outputs, but more importantly, enable those outputs to drive outcomes that ultimately deliver value to the organization and its stakeholders.

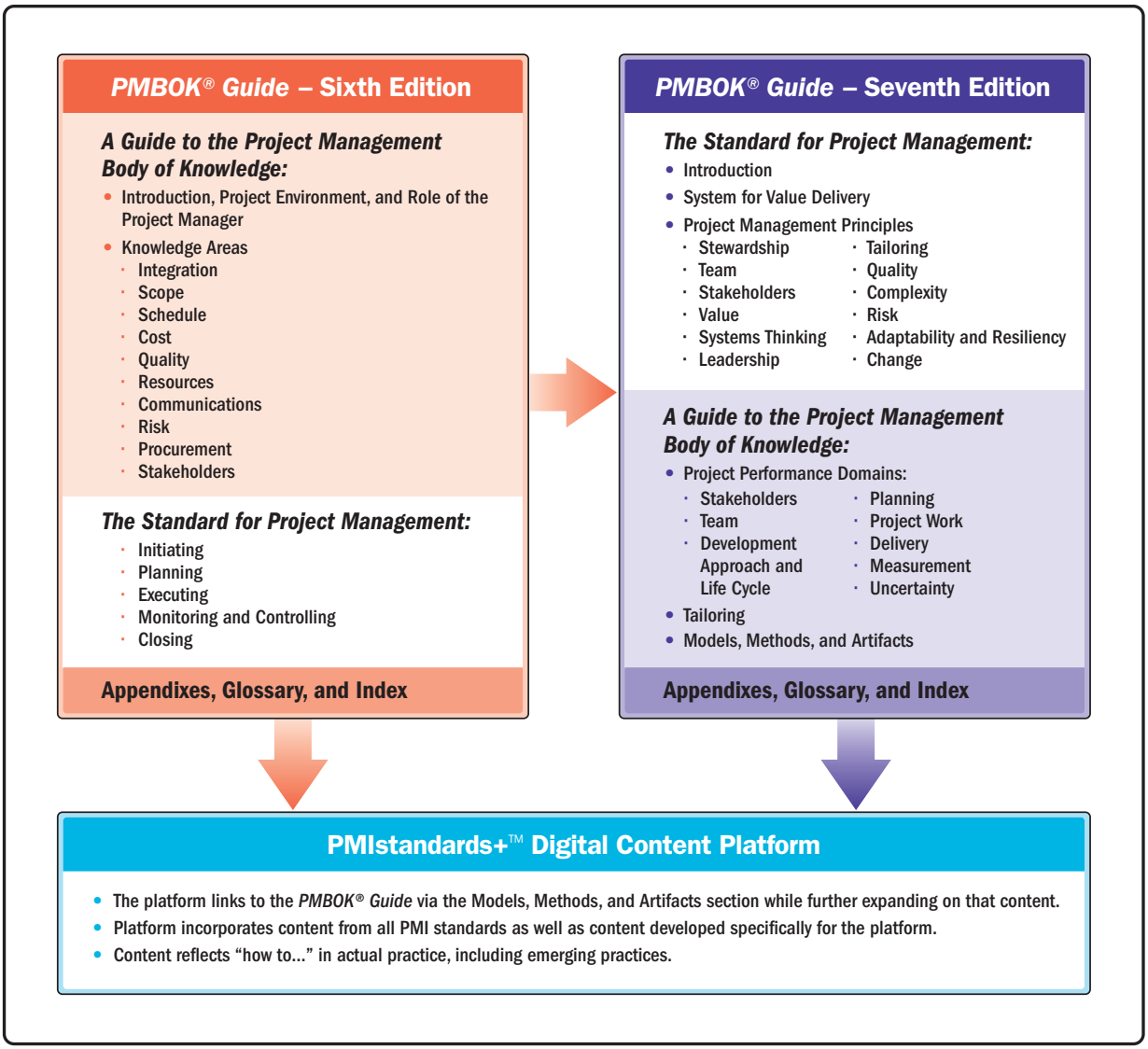
This systems view reflects a shift from the Knowledge Areas in past editions of the *PMBOK® Guide* to eight project performance domains. A performance domain is a group of related activities that are critical for the effective delivery of project outcomes. Collectively, the performance domains represent a project management system of interactive, interrelated, and interdependent management capabilities that work in unison to achieve desired project outcomes. As the performance domains interact and react to each other, change occurs. Project teams continuously review, discuss, adapt, and respond to such changes with the whole system in mind—not just the specific performance domain in which the change occurred. Aligned with the concept of a system for value delivery in *The Standard for Project Management*, teams evaluate effective performance in each performance domain through outcomes-focused measures, rather than through adherence to processes or the production of artifacts, plans, etc.

Previous editions of the *PMBOK® Guide* emphasized the importance of tailoring the project management approach to the unique characteristics of each project and its context. The Sixth Edition specifically incorporated considerations to help project teams think about how to tailor their approach to project management. That content was included in the front matter of each of the Knowledge Areas and provided considerations for all types of project environments. This edition further expands upon that work with a dedicated section on Tailoring in the *PMBOK® Guide*.

A new section on Models, Methods, and Artifacts provides a high-level grouping of models, methods, and artifacts that support project management. This section maintains linkages to tools, techniques, and outputs from previous editions that support project management without prescribing when, how, or which tools teams should use.

The final change reflects the most significant advancement in the *PMBOK® Guide's* history—the creation of PMIstandards+™, an interactive digital platform that incorporates current, emerging, and future practices, methods, artifacts, and other useful information. The digital content better reflects the dynamic nature of a body of knowledge. PMIstandards+ provides project practitioners and other stakeholders with access to a richer and broader range of information and resources that can more quickly accommodate advances and changes in project management. The content explains how specific practices, methods, or artifacts apply to projects based on industry segments, project types, or other characteristics. Starting with the inputs, tools and techniques, and outputs from the *PMBOK® Guide* – Sixth Edition, PMIstandards+ will continue to incorporate new resources that support continued evolution in project management. Going forward, users of *The Standard for Project Management* and the *PMBOK® Guide* can find information in PMIstandards+ that will supplement the information included in the printed publication.

The following figure illustrates the revision to *The Standard for Project Management* and migration from the Sixth to the Seventh Edition of the *PMBOK® Guide*, along with the connection to the PMIstandards+ digital platform.



Revision to *The Standard for Project Management* and Migration from the Sixth Edition to the Seventh Edition of the *PMBOK® Guide* and the PMIstandards+™ Digital Content Platform

CONCLUSION

The Standard for Project Management and the *PMBOK® Guide* – Seventh Edition respond to all four elements that stakeholders have emphasized in their feedback. The revision maintains and enhances the credibility and relevance of the *PMBOK® Guide*. It improves the readability and usefulness of the *PMBOK® Guide*. It recognizes that there is continued value for some stakeholders in the structure and content of previous editions and enhances the content in this edition without negating that value. Most importantly, it links with the PMIstandards+ digital content platform to respond to stakeholders' needs with vetted supplemental content that supports practical application.

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THE STANDARD FOR PROJECT MANAGEMENT

1

Introduction

The Standard for Project Management identifies project management principles that guide the behaviors and actions of project professionals and other stakeholders who work on or are engaged with projects.

This introductory section describes the purpose of this standard, defines key terms and concepts, and identifies the audience for the standard.

The Standard for Project Management consists of the following sections:

- **Section 1 Introduction**
- **Section 2 A System for Value Delivery**
- **Section 3 Project Management Principles**

1.1 PURPOSE OF *THE STANDARD FOR PROJECT MANAGEMENT*

The Standard for Project Management provides a basis for understanding project management and how it enables intended outcomes. This standard applies regardless of industry, location, size, or delivery approach, for example, predictive, hybrid, or adaptive. It describes the system within which projects operate, including governance, possible functions, the project environment, and considerations for the relationship between project management and product management.

1.2 KEY TERMS AND CONCEPTS

The Standard for Project Management reflects the progression of the profession. Organizations expect projects to deliver outcomes in addition to outputs and artifacts. Project managers are expected to deliver projects that create value for the organization and stakeholders within the organization's system for value delivery. The following terms are defined to provide context for the content in this standard.

- **Outcome.** An end result or consequence of a process or project. Outcomes can include outputs and artifacts, but have a broader intent by focusing on the benefits and value that the project was undertaken to deliver.
- **Portfolio.** Projects, programs, subsidiary portfolios, and operations managed as a group to achieve strategic objectives.
- **Product.** An artifact that is produced, is quantifiable, and can be either an end item in itself or a component item.
- **Program.** Related projects, subsidiary programs, and program activities that are managed in a coordinated manner to obtain benefits not available from managing them individually.
- **Project.** A temporary endeavor undertaken to create a unique product, service, or result. The temporary nature of projects indicates a beginning and an end to the project work or a phase of the project work. Projects can stand alone or be part of a program or portfolio.
- **Project management.** The application of knowledge, skills, tools, and techniques to project activities to meet project requirements. Project management refers to guiding the project work to deliver the intended outcomes. Project teams can achieve the outcomes using a broad range of approaches (e.g., predictive, hybrid, and adaptive).
- **Project manager.** The person assigned by the performing organization to lead the project team that is responsible for achieving the project objectives. Project managers perform a variety of functions, such as facilitating the project team work to achieve the outcomes and managing the processes to deliver intended outcomes. Additional functions are identified in Section 2.3.

- **Project team.** A set of individuals performing the work of the project to achieve its objectives.
- **System for value delivery.** A collection of strategic business activities aimed at building, sustaining, and/or advancing an organization. Portfolios, programs, projects, products, and operations can all be part of an organization's system for value delivery.
- **Value.** The worth, importance, or usefulness of something. Different stakeholders perceive value in different ways. Customers can define value as the ability to use specific features or functions of a product. Organizations can focus on business value as determined with financial metrics, such as the benefits less the cost of achieving those benefits. Societal value can include the contribution to groups of people, communities, or the environment.

For other terms used in this standard, refer to the Glossary and the *PMI Lexicon of Project Management Terms* [1].[1]

1.3 AUDIENCE FOR THIS STANDARD

This standard provides a foundational reference for stakeholders participating in a project. This includes, but is not limited to, project practitioners, consultants, educators, students, sponsors, stakeholders, and vendors who:

- Are responsible or accountable for delivering project outcomes;
- Work on projects full or part time;
- Work in portfolio, program, or project management offices (PMOs);
- Are involved in project sponsorship, product ownership, product management, executive leadership, or project governance;
- Are involved with portfolio or program management;
- Provide resources for project work;
- Focus on value delivery for portfolios, programs, and projects;
- Teach or study project management; and
- Are involved in any aspect of the project value delivery chain.

[1] The numbers in brackets refer to the list of references at the end of this standard.

2

A System for Value Delivery

The information in this section provides a context for value delivery, governance, project functions, the project environment, and product management.

- **Section 2.1 Creating Value.** This section describes how projects operate within a system to produce value for organizations and their stakeholders.
- **Section 2.2 Organizational Governance Systems.** This section describes how governance supports a system for value delivery.
- **Section 2.3 Functions Associated with Projects.** This section identifies the functions that support projects.
- **Section 2.4 The Project Environment.** This section identifies internal and external factors that influence projects and the delivery of value.
- **Section 2.5 Product Management Considerations.** This section identifies the ways portfolios, programs, projects, and products relate.

2.1 CREATING VALUE

Projects exist within a larger system, such as a governmental agency, organization, or contractual arrangement. For the sake of brevity, this standard uses the term *organization* when referring to government agencies, enterprises, contractual arrangements, joint ventures, and other arrangements. Organizations create value for stakeholders. Examples of ways that projects produce value include, but are not limited to:

- Creating a new product, service, or result that meets the needs of customers or end users;
- Creating positive social or environmental contributions;
- Improving efficiency, productivity, effectiveness, or responsiveness;
- Enabling the changes needed to facilitate organizational transition to its desired future state; and
- Sustaining benefits enabled by previous programs, projects, or business operations.

2.1.1 VALUE DELIVERY COMPONENTS

There are various components, such as portfolios, programs, projects, products, and operations, that can be used individually and collectively to create value. Working together, these components comprise a system for delivering value that is aligned with the organization's strategy. Figure 2-1 shows an example of a system to deliver value that has two portfolios comprised of programs and projects. It also shows a stand-alone program with projects and stand-alone projects not associated with portfolios or programs. Any of the projects or programs could include products. Operations can directly support and influence portfolios, programs, and projects, as well as other business functions, such as payroll, supply chain management, and so forth. Portfolios, programs, and projects influence each other as well as operations.

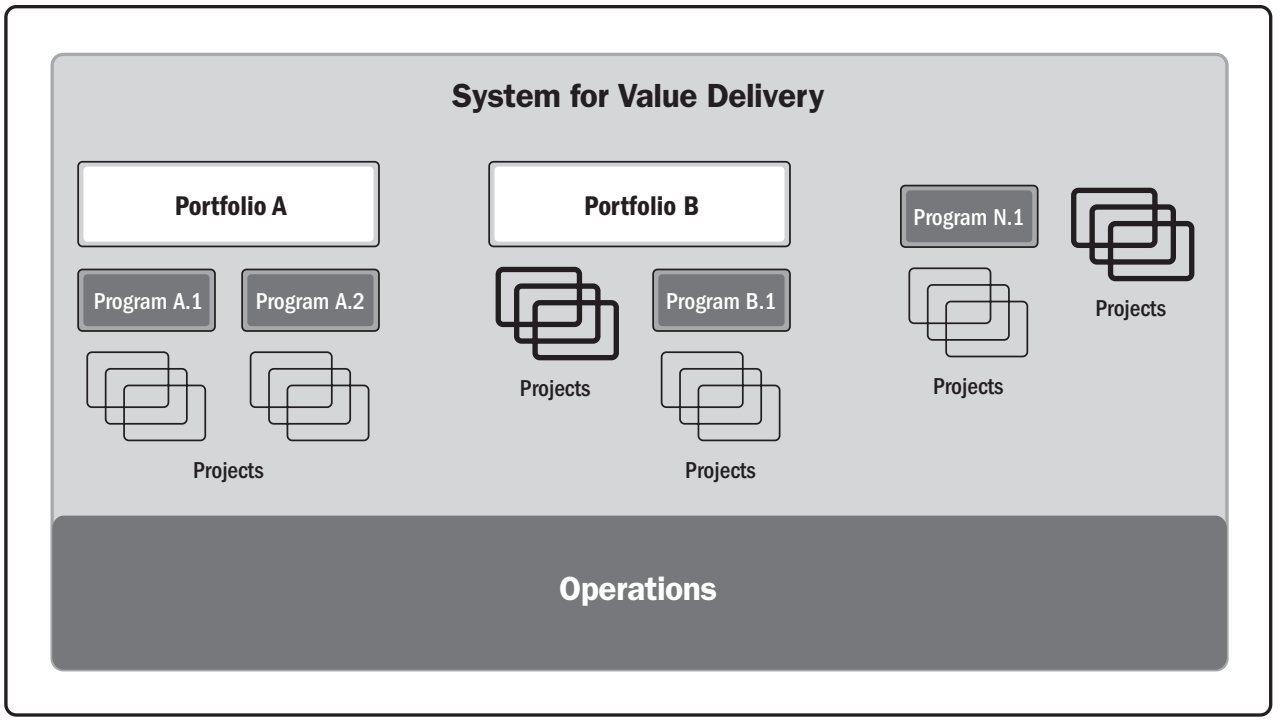

Figure 2-1. Example of a System for Value Delivery

As shown in Figure 2-2, a system for value delivery is part of an organization's internal environment that is subject to policies, procedures, methodologies, frameworks, governance structures, and so forth. That internal environment exists within the larger external environment, which includes the economy, the competitive environment, legislative constraints, etc. Section 2.4 provides more detail on internal and external environments.

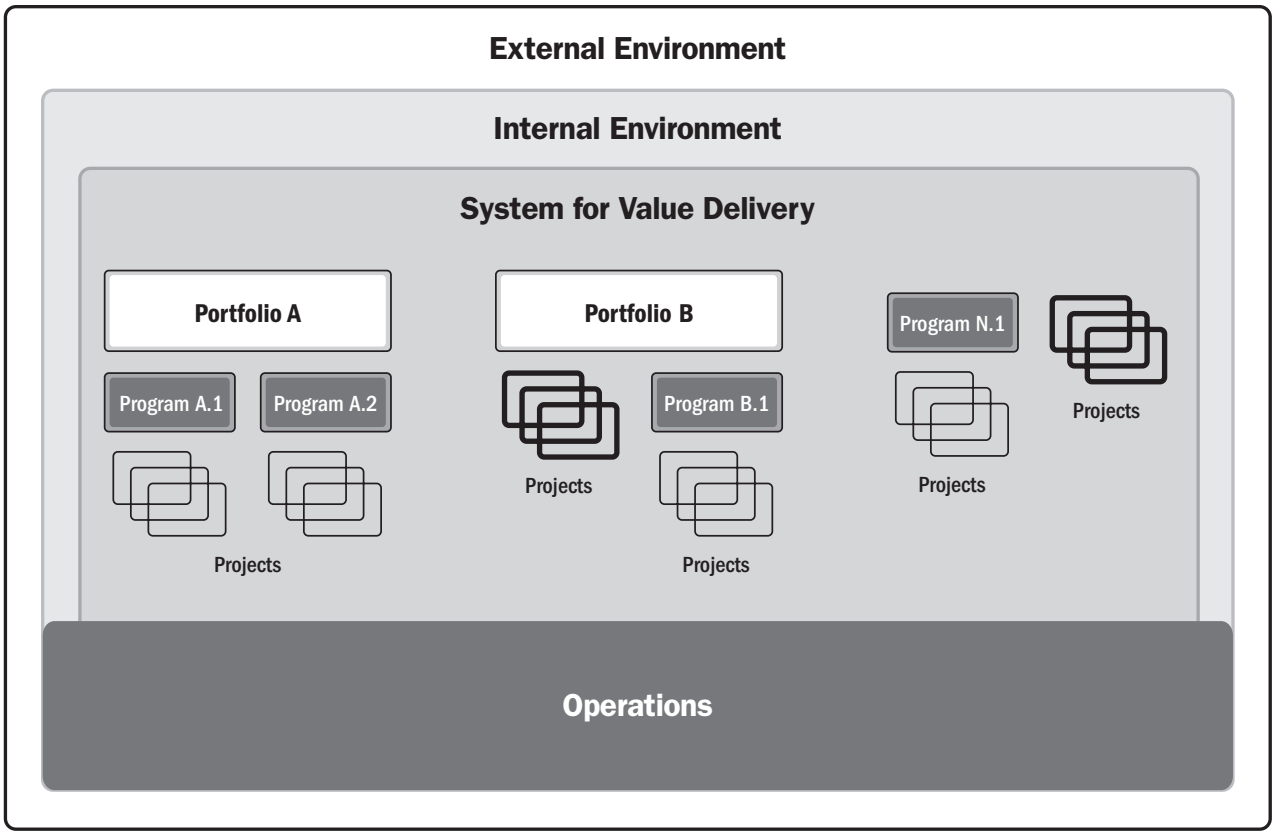

Figure 2-2. Components of a Sample System for Value Delivery

The components in a value delivery system create deliverables used to produce outcomes. An outcome is the end result or consequence of a process or a project. Focusing on outcomes, choices, and decisions emphasizes the long-range performance of the project. The outcomes create benefits, which are gains realized by the organization. Benefits, in turn, create value, which is something of worth, importance, or usefulness.

2.1.2 INFORMATION FLOW

A value delivery system works most effectively when information and feedback are shared consistently among all components, keeping the system aligned with strategy and attuned to the environment.

Figure 2-3 shows a model of the flow of information where black arrows represent information from senior leadership to portfolios, portfolios to programs and projects, and then to operations. Senior leadership shares strategic information with portfolios. Portfolios share the desired outcomes, benefits, and value with programs and projects. Deliverables from programs and projects are passed on to operations along with information on support and maintenance for the deliverables.

The light gray arrows in Figure 2-3 represent the reverse flow of information. Information from operations to programs and projects suggests adjustments, fixes, and updates to deliverables. Programs and projects provide performance information and progress on achieving the desired outcomes, benefits, and value to portfolios. Portfolios provide evaluations on portfolio performance with senior leadership. Additionally, operations provide information on how well the organization's strategy is advancing.

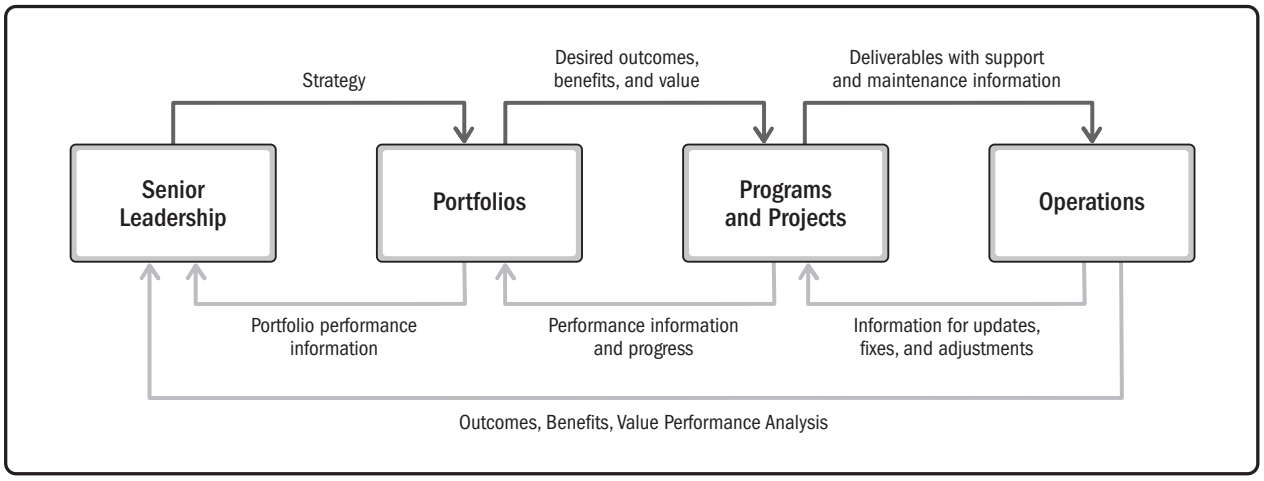

Figure 2-3. Example of Information Flow

2.2 ORGANIZATIONAL GOVERNANCE SYSTEMS

The governance system works alongside the value delivery system to enable smooth workflows, manage issues, and support decision making. Governance systems provide a framework with functions and processes that guide activities. A governance framework can include elements of oversight, control, value assessment, integration among components, and decision-making capabilities.

Governance systems provide an integrated structure for evaluating changes, issues, and risks associated with the environment and any component in the value delivery system. This includes portfolio objectives, program benefits, and deliverables produced by projects.

Projects can operate within a program or portfolio or as a stand-alone activity. In some organizations, a project management office might support programs and projects within a portfolio. Project governance includes defining the authority to approve changes and make other business decisions related to the project. Project governance is aligned with program and/or organizational governance.

2.3 FUNCTIONS ASSOCIATED WITH PROJECTS

People drive project delivery. They do so by fulfilling functions necessary for the project to run effectively and efficiently. Functions related to the project can be fulfilled by one person, by a group of people, or combined into defined roles.

Coordinating a collective work effort is extremely important to the success of any project. There are different types of coordination suitable for different contexts. Some projects benefit from decentralized coordination in which project team members self-organize and self-manage. Other projects benefit from centralized coordination with the leadership and guidance of a designated project manager or similar role. Some projects with centralized coordination can also benefit from including self-organized project teams for portions of the work. Regardless of how coordination takes place, supportive leadership models and meaningful, continuous engagements between project teams and other stakeholders underpin successful outcomes.

Regardless of how projects are coordinated, the collective effort of the project team delivers the outcomes, benefits, and value. The project team may be supported by additional functions depending on the deliverables, industry, organization, and other variables. Sections 2.3.1 through 2.3.8 provide examples of functions that are often found on projects, though these are not a comprehensive list. In addition to these functions, other functions may be necessary to enable project deliverables that produce the desired outcomes. The needs of the project, organization, and environment influence which functions are used on a project and how those functions are carried out.

2.3.1 PROVIDE OVERSIGHT AND COORDINATION

People in this function help the project team achieve the project objectives, typically by orchestrating the work of the project. The specifics of how this function is carried out within the project team can vary among organizations, but can include leading the planning, monitoring, and controlling activities. In some organizations, this function may involve some evaluation and analysis activities as part of pre-project activities. This function includes monitoring and working to improve the health, safety, and overall well-being of project team members.

Coordination includes consulting with executive and business unit leaders on ideas for advancing objectives, improving project performance, or meeting customer needs. It can also include assisting in business analysis, tendering and contract negotiations, and business case development.

Oversight can be involved in follow-on activities related to benefits realization and sustainment after the project deliverables are finalized but before formal closure of the project. This function can support portfolios and programs within which the project is initiated. Ultimately, the function is tailored to fit the organization.

2.3.2 PRESENT OBJECTIVES AND FEEDBACK

People in this function contribute perspectives, insights, and clear direction from customers and end users. The customer and end user are not always synonymous. For the purpose of this standard, the customer is defined as the individual or group who has requested or is funding the project. The end user is the individual or group who will experience the direct use of the project deliverable.

Projects need clear direction from customers and end users regarding project requirements, outcomes, and expectations. In adaptive and hybrid project environments, the need for ongoing feedback is greater because the project teams are exploring and developing product elements within specific increments. In some project environments, the customer or end user engages with the project team for periodic review and feedback. In some projects, a representative of the customer or client participates on the project team. The customer and end user input and feedback needs are determined by the nature of the project and the guidance or direction required.

2.3.3 FACILITATE AND SUPPORT

The function of facilitation and support may be closely related to providing oversight and coordination, depending on the nature of the project. The work involves encouraging project team member participation, collaboration, and a shared sense of responsibility for the work output. Facilitation helps the project team create consensus around solutions, resolve conflicts, and make decisions. Facilitation is also required to coordinate meetings and contribute in an unbiased way to the advancement of project objectives.

Supporting people through change and helping address obstacles that can prevent success is also required. This can include evaluating performance and providing individuals and project teams with feedback to help them learn, adapt, and improve.

2.3.4 PERFORM WORK AND CONTRIBUTE INSIGHTS

This group of people provides the knowledge, skills, and experience necessary to produce the products and realize the outcomes of the project. Work can be full time or part time for the duration of the project or for a limited period, and the work can be colocated or virtual, depending on the environmental factors. Some work can be highly specialized, while other work can be done by project team members who have broad skill sets.

Gaining insights from cross-functional project team members representing different parts of the organization can provide a mix of internal perspectives, establish alliances with key business units, and encourage project team members to act as change agents within their functional areas. This work can extend into support functions (during or after the project) as the project deliverables are implemented or transitioned into operations.

2.3.5 APPLY EXPERTISE

People in this function provide the knowledge, vision, and expertise in a specific subject for a project. They offer advice and support throughout the organization, and contribute to the project team's learning process and work accuracy. These people can be external to the organization or can be internal project team members. They can be required for the whole project or during a specific time frame.

2.3.6 PROVIDE BUSINESS DIRECTION AND INSIGHT

People in this function guide and clarify the direction of the project or product outcome. This function involves prioritizing the requirements or backlog items based on business value, dependencies, and technical or operational risk. People in this function provide feedback to project teams and set direction for the next increment or element to be developed or delivered. The function involves interacting with other stakeholders, customers, and their project teams to define the product direction. The goal is to maximize the value of the project deliverable.

In adaptive and hybrid environments, direction and insight can be provided using a specific cadence. In predictive environments, there can be designated checkpoints for presentation of and feedback on project progress. In some instances, business direction can interact with funding and resourcing functions.

2.3.7 PROVIDE RESOURCES AND DIRECTION

People in this function promote the project and communicate the organization's vision, goals, and expectations to the project team and broader stakeholder community. They advocate for the project and the project team by helping to secure the decisions, resources, and authority that allow project activities to progress.

People in this function serve as liaisons between senior management and the project team, play a supporting role in keeping projects aligned to business objectives, remove obstacles, and address issues outside the bounds of the project team's decision authority. People in this function provide an escalation path for problems, issues, or risks that project teams cannot resolve or manage on their own, such as a shortage of funding or other resources, or deadlines that cannot be met.

This function can facilitate innovation by identifying opportunities that arise within the project and communicating these to senior management. People in this function may monitor project outcomes after project closure to ensure the intended business benefits are realized.

2.3.8 MAINTAIN GOVERNANCE

People who fill a governance function approve and support recommendations made by the project team and monitor project progress in achieving the desired outcomes. They maintain linkages between project teams and strategic or business objectives that can change over the course of the project.

2.4 THE PROJECT ENVIRONMENT

Projects exist and operate within internal and external environments that have varying degrees of influence on value delivery. Internal and external environments can influence planning and other project activities. These influences can yield a favorable, unfavorable, or neutral impact on project characteristics, stakeholders, or project teams.

2.4.1 INTERNAL ENVIRONMENT

Factors internal to the organization can arise from the organization itself, a portfolio, a program, another project, or a combination of these. They include artifacts, practices, or internal knowledge. Knowledge includes lessons learned as well as completed artifacts from previous projects. Examples include but are not limited to:

- **Process assets.** Process assets may include tools, methodologies, approaches, templates, frameworks, patterns, or PMO resources.
- **Governance documentation.** This documentation includes policies and processes.
- **Data assets.** Data assets may include databases, document libraries, metrics, data, and artifacts from previous projects.
- **Knowledge assets.** Knowledge assets may include tacit knowledge among project team members, subject matter experts, and other employees.
- **Security and safety.** Security and safety measures may include procedures and practices for facility access, data protection, levels of confidentiality, and proprietary secrets.
- **Organizational culture, structure, and governance.** These aspects of an organization include the vision, mission, values, beliefs, cultural norms, leadership style, hierarchy and authority relationships, organizational style, ethics, and code of conduct.
- **Geographic distribution of facilities and resources.** These resources include work locations, virtual project teams, and shared systems.
- **Infrastructure.** Infrastructure consists of existing facilities, equipment, organizational and telecommunications channels, information technology hardware, availability, and capacity.
- **Information technology software.** Examples include scheduling software, configuration management systems, web interfaces to online automated systems, collaboration tools, and work authorization systems.
- **Resource availability.** Examples include contracting and purchasing constraints, approved providers and subcontractors, and collaboration agreements. Availability related to both people and materials includes contracting and purchasing constraints, approved providers and subcontractors, and time lines.
- **Employee capability.** Examples include general and specialized expertise, skills, competencies, techniques, and knowledge.

2.4.2 EXTERNAL ENVIRONMENT

Factors external to the organization can enhance, constrain, or have a neutral influence on project outcomes. Examples include but are not limited to:

- **Marketplace conditions.** Marketplace conditions include competitors, market share, brand recognition, technology trends, and trademarks.
- **Social and cultural influences and issues.** These factors include political climate, regional customs and traditions, public holidays and events, codes of conduct, ethics, and perceptions.
- **Regulatory environment.** The regulatory environment may include national and regional laws and regulations related to security, data protection, business conduct, employment, licensing, and procurement.
- **Commercial databases.** Databases include standardized cost estimating data and industry risk study information.
- **Academic research.** This research can include industry studies, publications, and benchmarking results.
- **Industry standards.** These standards are related to products, production, environment, quality, and workmanship.
- **Financial considerations.** These considerations include currency exchange rates, interest rates, inflation, taxes, and tariffs.
- **Physical environment.** The physical environment pertains to working conditions and weather.

2.5 PRODUCT MANAGEMENT CONSIDERATIONS

The disciplines of portfolio, program, project, and product management are becoming more interlinked. While portfolio, program, and product management are beyond the scope of this standard, understanding each discipline and the relationships between them provides a useful context for projects whose deliverables are products.

A product is an artifact that is produced, is quantifiable, and can be either an end item itself or a component item. Product management involves the integration of people, data, processes, and business systems to create, maintain, and develop a product or service throughout its life cycle. The product life cycle is a series of phases that represents the evolution of a product, from introduction through growth, maturity, and to retirement.

Product management may initiate programs or projects at any point in the product life cycle to create or enhance specific components, functions, or capabilities (see Figure 2-4). The initial product may begin as a deliverable of a program or project. Throughout its life cycle, a new program or project may add or improve specific components, attributes, or capabilities that create additional value for customers and the sponsoring organization. In some instances, a program can encompass the full life cycle of a product or service to manage the benefits and create value for the organization more directly.

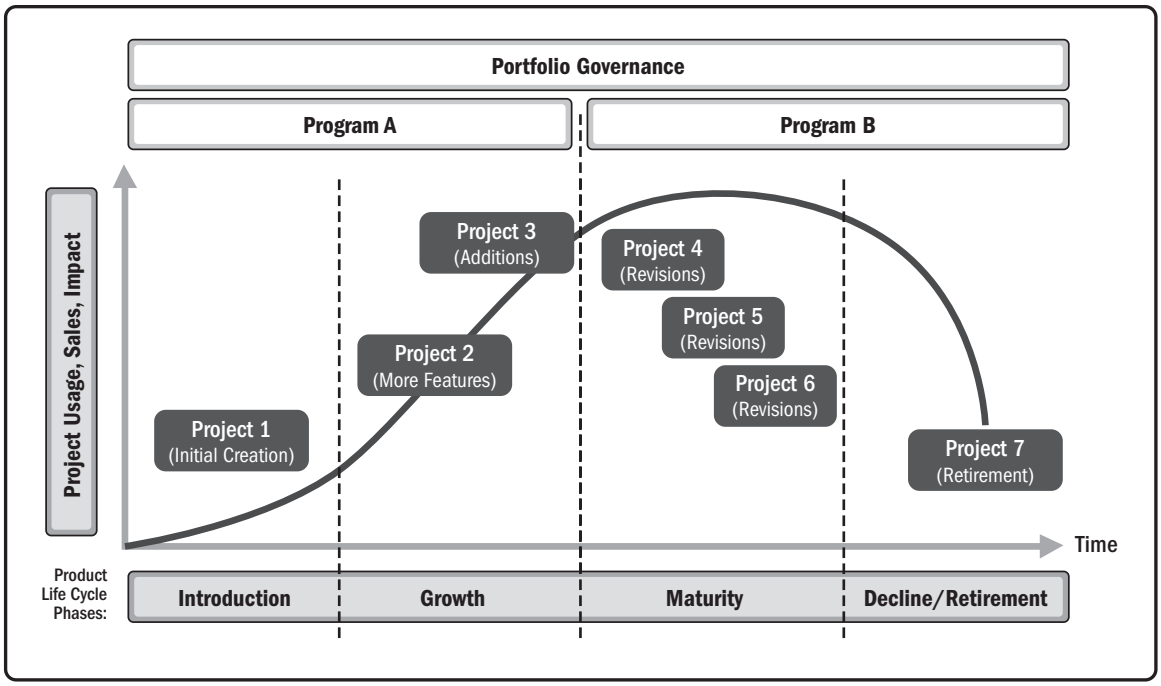

Figure 2-4. Sample Product Life Cycle

Product management can exist in different forms, including but not limited to:

- **Program management within a product life cycle.** This approach incorporates related projects, subsidiary programs, and program activities. For very large or long-running products, one or more product life cycle phases may be sufficiently complex to merit a set of programs and projects working together.
- **Project management within a product life cycle.** This approach oversees development and maturing of product capabilities as an ongoing business activity. Portfolio governance charters individual projects as needed to perform enhancements and improvements or to produce other unique outcomes.
- **Product management within a program.** This approach applies the full product life cycle within the purview and boundaries of a given program. A series of subsidiary programs or projects will be chartered to achieve specific benefits for a product. Those benefits can be enhanced by applying product management competencies like competitive analysis, customer acquisition, and customer advocacy.

While product management is a separate discipline with its own body of knowledge, it represents a key integration point within the program management and project management disciplines. Programs and projects with deliverables that include products use a tailored and integrated approach that incorporates all of the relevant bodies of knowledge and their related practices, methods, and artifacts.

3

Project Management Principles

Principles for a profession serve as foundational guidelines for strategy, decision making, and problem solving. Professional standards and methodologies are often based on principles. In some professions, principles serve as laws or rules, and are therefore prescriptive in nature. The principles of project management are not prescriptive in nature. They are intended to guide the behavior of people involved in projects. They are broadly based so there are many ways individuals and organizations can maintain alignment with the principles.

Principles can, but do not necessarily, reflect morals. A code of ethics is related to morals. A code of ethics for a profession can be adopted by an individual or profession to establish expectations for moral conduct. The *PMI Code of Ethics and Professional Conduct* [2] is based on four values that were identified as most important to the project management community:

- Responsibility,
- Respect,
- Fairness, and
- Honesty.

The 12 principles of project management are aligned with the values identified in the *PMI Code of Ethics and Professional Conduct.* They do not follow the same format, and they are not duplicative, rather the principles and the *Code of Ethics* are complementary.

The principles of project management were identified and developed by engaging a global community of project practitioners. The practitioners represent different industries, cultural backgrounds, and organizations in different roles and with experience in various types of projects. Multiple rounds of feedback resulted in 12 principles that provide guidance for effective project management.

Because the principles of project management provide guidance, the degree of application and the way in which they are applied are influenced by the context of the organization, project, deliverables, project team, stakeholders, and other factors. The principles are internally consistent, meaning that no principle contradicts any other principle. However, in practice there may be times when the principles can overlap. For example, guidance for navigating complexity can present information that is useful in recognizing, evaluating, and responding to system interactions or optimizing risk responses.

Principles of project management can also have areas of overlap with general management principles. For example, both projects and business in general focus on delivering value. The methods may be somewhat different in projects as opposed to operations, but the underlying principle associated with focusing on value can apply to both. Figure 3-1 demonstrates this overlap.

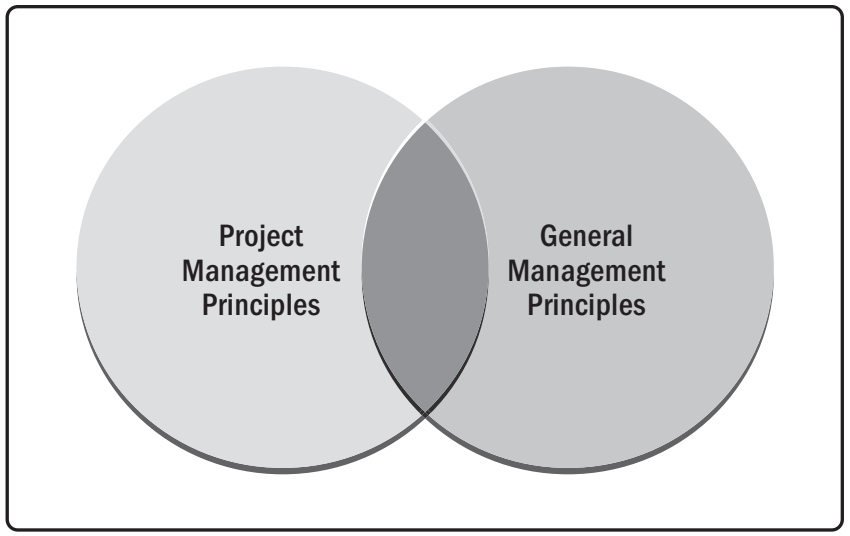

Figure 3-1. Overlap of Project Management and General Management Principles