The Standard for Project Management

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Introduction

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 development approach, (i.e., predictive, adaptive, or hybrid). The standard 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.

The standard describes how projects create value and benefits in organizations as well as how organizational and project leaders can harness the power of project management for success. Effective and efficient project management should be considered a strategic competency within organizations. Projects enable organizations to:

- Tie project results to strategy and business goals;
- Compete more effectively;
- Sustain the organization;
- Manage change; and
- Respond to the impact of business environment changes.

The project management landscape has undergone significant changes in recent years, particularly with the rise of adaptive approaches and the impact of generative artificial intelligence (GenAI).

Adaptive project management methodologies, including but not limited to agile practices,

have become increasingly important. These approaches enable project teams to tailor their strategies to meet the unique challenges and dynamic conditions of each project. While this standard discusses relevant agile practices in project management, it is important to note that the field of agile extends beyond project management alone.

Simultaneously, GenAI is revolutionizing the field of project management by offering advanced tools and capabilities that significantly improve project outcomes. Artificial-intelligence-driven solutions can analyze vast amounts of data to provide actionable insights, predict potential risks, and recommend optimal courses of action. This technology enhances decision-making processes, automates routine tasks, and facilitates more accurate forecasting and planning. As a result, project managers can focus more on strategic activities, fostering innovation, and driving continuous improvement.

In this evolving landscape, the role of project managers has expanded beyond traditional organizational skills. Today's project managers should be skilled strategists and change managers, capable of driving value in their context, company, and industry. Project professionals need to navigate complex environments, leverage emerging technologies, and align project outcomes with organizational goals.

The Standard for Project Management serves as a foundational guide for project professionals, providing a common language and framework that can be applied across various industries, methodologies, and technological advancements. The standard supports organizations and project professionals in navigating the complexities of modern project management, ensuring consistency and effectiveness in project delivery while allowing for the flexibility needed in today's dynamic business environment. By applying the standard, organizations can better position themselves to achieve strategic objectives, drive innovation, and maintain competitiveness.

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.
- **Value.** The ratio of benefit to investment that is gained from achieving the goals of a portfolio, program, or project. Different stakeholders perceive value in different ways. Organizations may focus on business value as determined with performance metrics or finances, such as return on investment (ROI). Customers may interpret value as the convenience offered by a given product or service. Governments and nongovernmental organizations (NGOs) may prioritize the value of societal impact of groups of people, communities, or the environment.
- **Project.** A temporary initiative in a unique context undertaken to create value. The temporary nature of projects indicates a beginning and an end to the project work or a phase of the project work. A unique context can be driven by distinct goals, approaches, stakeholders, or other dimensions. Projects can stand alone or be part of a portfolio or program.
- **Program.** A group of interrelated projects and activities that are managed in a coordinated manner to obtain value not available from managing them individually. Those interrelated activities may include subsidiary programs (subprograms).
- **Portfolio**. A group of programs, projects, and related activities selected and managed to achieve strategic objectives. Related activities may include subsidiary portfolios (subportfolios) and operations.
- **Project management.** The application of knowledge, skills, tools, and techniques to project activities to meet or exceed the intended value.

- **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's work to achieve the intended outcomes and managing the processes to deliver those 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.
- **Product.** An artifact that is produced, is quantifiable, and can be either an end item in itself or a component item.
- **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.

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

1.3 Foundational Elements of Project Management

This section elaborates on the foundational elements necessary for working in and understanding the discipline of project management. The section explores key project management perspectives and relationships that are important for effective project delivery and organizational success, and covers concepts such as:

- How projects drive organizational change;
- The link between organizational governance and project governance in project initiation;
- The difference between operations and project management; and

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

- The relationships among portfolio, program, and project management, as well as their connections to operations management.

By examining these foundational elements, project professionals can gain a comprehensive understanding of how projects fit into the broader organizational context and how they contribute to value creation.

1.3.1 Characteristics of a Project

Organizations expect projects to deliver value in addition to outputs and artifacts. Project managers are expected to deliver project outcomes that create value for the organization and stakeholders within the organization's system for value delivery.

Organizational work is performed both by operations and projects. While organizations expect all work to deliver value beyond outputs and artifacts, operations and projects differ in how they create value. The following terms are defined to provide context for that distinction, and the broader content of this standard.

- **Temporary.** Projects are undertaken to create value through producing tangible and intangible deliverables. While operations are ongoing, the temporary nature of projects indicates that a project has a definite beginning and end. Projects are temporary, but their deliverables may (and often do) exist beyond the end of the project. The end of the project is reached when one or more of the following is true:
  - The project's objectives have been achieved;
  - The objectives will not or cannot be met;
  - Funding is exhausted or no longer available for allocation to the project;
  - The need for the project no longer exists (e.g., the customer no longer wants the project completed, a change in strategy or priority ends the project, the organizational management provides direction to end the project, etc.);

- The human or physical resources are no longer available; or
- The project is terminated for legal cause or convenience.

- **Unique context.** A unique context in projects refers to the specific conditions and environments that distinguish one project from another, even if they have otherwise similar characteristics. This uniqueness arises from factors such as differences in goals, scope, duration, costs, risks, resources, and stakeholders involved in the project. Even if two projects aim for the same value or objectives, each project differs due to the context in which it is carried out. These differences require tailored management approaches to meet the specific needs and challenges of each project. As a result, the unique context of each project requires customized strategies for success.

  For example, a large housing development may involve a single construction vendor in a single government district. However, each of those housing units may involve varying lenders and buyers, distinct customization requests, and unique grading requirements from one plot to another.

- **Value creation through change management.** Projects, in pursuit of value, drive change in organizations. From a business perspective, a project is aimed at moving an organization from one state to another to achieve a specific objective (see Figure 1-1). Before the project begins, an organization is in its current state. The desired result of the change driven by the project is described as the future state.

  For some projects, this may involve creating a transition state where multiple steps are made along a continuum to achieve the future state. The successful completion of a project results in the organization moving to the future state and achieving value for the organization, as defined by key stakeholders.

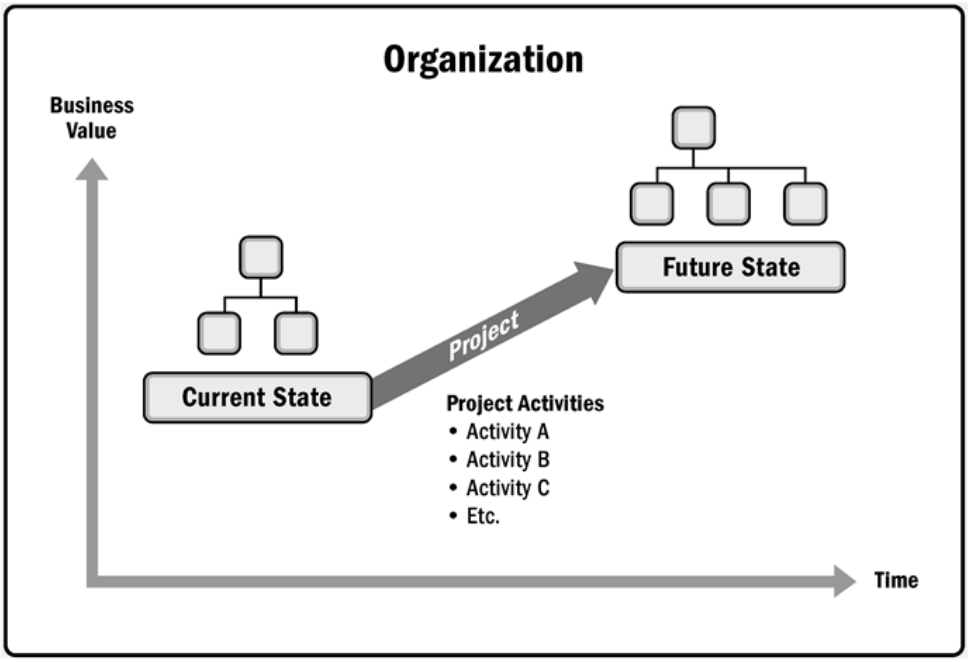

Figure 1-1. Organizational State Transition via a Project

In the context of organizational change or transformation, “change management” may be required beyond the scope of the project itself. This change management often involves a separate organization or function dedicated to ensuring that the intended benefits of the project materialize and have a long-lasting impact. Change management focuses on preparing, supporting, and helping individuals, teams, and organizations in making organizational changes. This preparation helps ensure that the changes introduced by the project are effectively integrated and sustained within the organization, thereby maximizing the project’s value and ensuring its long-term success.

1.3.2 Connecting Organizational Governance and Project Governance in Project Initiation

Organizational governance provides direction and control through policies and processes to meet strategic and operational goals. Typically overseen by a board of directors, organizational governance ensures accountability, fairness, and transparency to its

stakeholders. Organizational governance can influence the governance of portfolios, programs, and projects in several ways:

- Enforcing legal, regulatory, standards, and compliance requirements;
- Defining ethical, social, and environmental responsibilities; and
- Specifying operational, legal, financial, and risk policies.

Project governance, on the other hand, is the framework that guides project management activities to create a unique product, service, or result to meet organizational, strategic, and operational goals. Project governance provides structure, processes, roles, responsibilities, accountabilities, and decision-making models for managing the project. Project governance, as a project management domain, is discussed further in Section 2.1 of *A Guide to the Project Management Body of Knowledge (PMBOK® Guide)*.

1.3.2.1 Project Initiation

Organizational leaders initiate projects in response to factors affecting their organizations. Projects enable organizations to make necessary changes to address these factors. The factors can be categorized into four areas:

- Meeting regulatory, legal, or social requirements;
- Satisfying stakeholder requests or needs;
- Implementing or changing business or technological strategies; and
- Creating, improving, or fixing products, processes, organizations, or services.

By responding to these factors, leaders can ensure an organization's viability. Projects provide the means to make these changes and should ultimately link to the organization's strategic objectives and business value.

1.3.3. Operations and Project Management

Operations management is concerned with the ongoing production of goods and/or services. Operations management ensures that business operations continue efficiently by using the optimal resources needed to meet customer demands. Operations is concerned with managing processes that transform inputs (e.g., materials, components, energy, and labor) into outputs (e.g., products, goods, and/or services). Operations management is outside of the scope of formal project management as described in this guide.

Changes in business or organizational operations may be the focus of a project—especially when there are substantial changes to business operations because of a new product or service delivery. Ongoing operations are outside of the scope of a project. However, there are intersecting points where the two areas cross. For example, projects can intersect with operations at various points during a product life cycle, such as:

- When developing a new product, upgrading a product, or expanding outputs;
- While improving product delivery operations or the product development process;
- At the end of the product life cycle; and
- At each closeout phase.

At each point, deliverables and knowledge are transferred between the project and operations for implementation of the delivered work. This implementation occurs through a transfer of project resources or knowledge to operations or through a transfer of operational resources to the project.

1.3.4. Relationship of Portfolio, Program, Project, and Operations Management

Using project management processes, tools, and techniques puts in place a sound foundation for organizations to achieve their goals and objectives. Portfolios, programs, projects, and operations are integral components of an organization, each serving interconnected roles.

Projects are often managed as stand-alone initiatives, but they can also be part of larger portfolios or programs. When projects are grouped together into a program, they are managed in a coordinated manner to achieve benefits not available from managing them individually. Programs drive significant organizational change and improvement; they are not merely large projects.

Some organizations use a project portfolio to manage multiple programs and projects that are underway at any given time. A portfolio is a group of programs, projects, and related activities selected and managed to achieve strategic objectives. Portfolio management involves selecting, prioritizing, and controlling an organization's programs and projects in line with its strategic goals. This holistic view ensures that resources are allocated efficiently, and that the portfolio delivers maximum value.

Portfolios, programs, projects, and operations often engage with the same stakeholders and may compete for the same resources. This overlap should implement effective coordination to avoid conflicts and maintain a balanced approach to resource allocation and stakeholder engagement. Portfolio, program, and project managers should work together to align their efforts with the organization's strategic objectives.

Figure 1-2 illustrates a sample portfolio structure indicating relationships among the programs, projects, shared resources, and stakeholders. Organizational and portfolio

planning impact the components by means of prioritization based on risk, funding, and other considerations. The portfolio view allows organizations to see how the strategic goals are reflected in the portfolio. This portfolio view also enables the implementation and coordination of appropriate portfolio, program, and project governance. This coordinated governance allows for authorized allocation of human, financial, and physical resources based on expected performance and benefits.

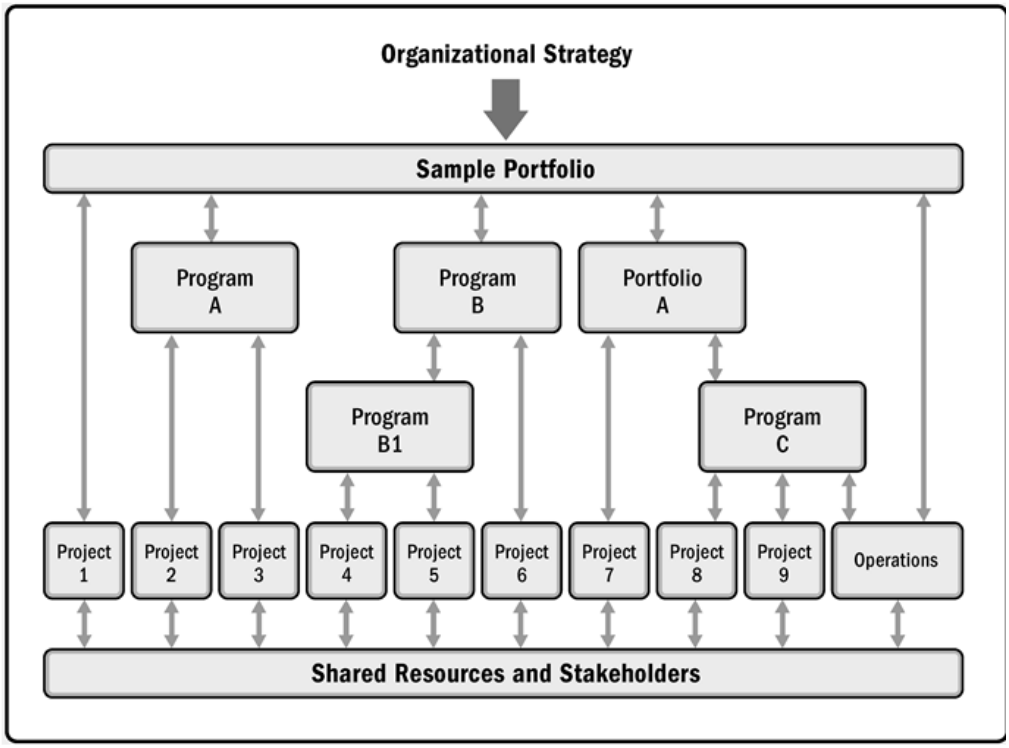

Figure 1-2. Portfolios, Programs, Projects, and Operations

Table 1-1 gives a comparative overview of portfolios, programs, and projects from an organizational perspective. The table highlights key differences and similarities in terms of definition, scope, change, planning, management, monitoring, and success criteria.

Table 1-1. Comparative Overview of Portfolios, Programs, and Projects

Organizational Project Management			
	Projects	**Programs**	**Portfolios**
Definition	A temporary initiative in a unique context undertaken to create value	A group of related projects and activities that are managed in a coordinated manner to obtain value not available from managing them individually	A group of programs, projects, and related activities selected and managed to achieve strategic objectives
Scope	Defined objectives, progressively elaborated	Encompasses the scope of its components	Organizational scope aligned with strategic objectives
Change	Managed and controlled processes	Adaptable to optimize value delivery	Continuous monitoring of broader changes
Planning	Predictive, adaptive, or hybrid, depending on the organization and context	High-level plans that track interdependencies	Strategic planning and resource allocation
Monitoring	Monitoring and controlling outputs	Monitors progress of component projects	Monitors strategic changes and resource allocation
Success	Measured by value, including output quality, timeliness, budget compliance, and customer satisfaction	Measured by the program's ability to deliver value collectively	Measured by strategic value and overall change management success

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 Functions Associated With Projects.** This section identifies the functions that support projects.
- **Section 2.3 The Project Environment.** This section identifies internal and external factors that influence projects and the delivery of value.
- **Section 2.4 Product Management Considerations.** This section identifies the ways portfolios, programs, projects, and products relate to one another.
- **Section 2.5 Project Management Roles.** This section describes the various roles of those involved in managing projects and their functions.

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, and the expected value to be created via any project investment should meet or exceed the threshold for targets, both financial and nonfinancial, that have been set. Projects are specifically designed to maximize value for an organization and its stakeholders.

Business value is any form of tangible or intangible elements that contribute to the overall health and well-being of the organization during a project, at the end of the project, and/or in the long run. Table 2-1 offers examples of such elements.

Table 2-1. Examples of Business Value

Tangible Elements	Monetary assets	Stockholder equity	Utility	Fixtures	Tools	Market share
Intangible Elements	Goodwill	Brand recognition	Public benefit	Trademarks	Strategic alignment	Reputation

The following are some examples of ways that projects meet or exceed expected value thresholds. Note that such value thresholds should always be considered in their investment context—that is, the expected value should meet or exceed a target threshold of return on project investments, whether that value is financial or nonfinancial such as:

- Creating a new product, service, or result that meets the needs of customers or end users;
- Delivering the project within baseline when the project's constraints baseline represents a high-value outcome;
- Contributing to community development, environmental sustainability, and ethical responsibility;
- 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

Portfolios, programs, projects, products, and operations can each generate value, either individually or collectively. 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. The figure also shows a stand-alone program with projects and stand-alone projects not associated with portfolios or programs. Any of the programs or projects could include products. Operations can directly support and influence portfolios, programs, and projects, as well as other business functions, such as payroll or supply chain management. Portfolios, programs, and projects influence one another as well as operations.

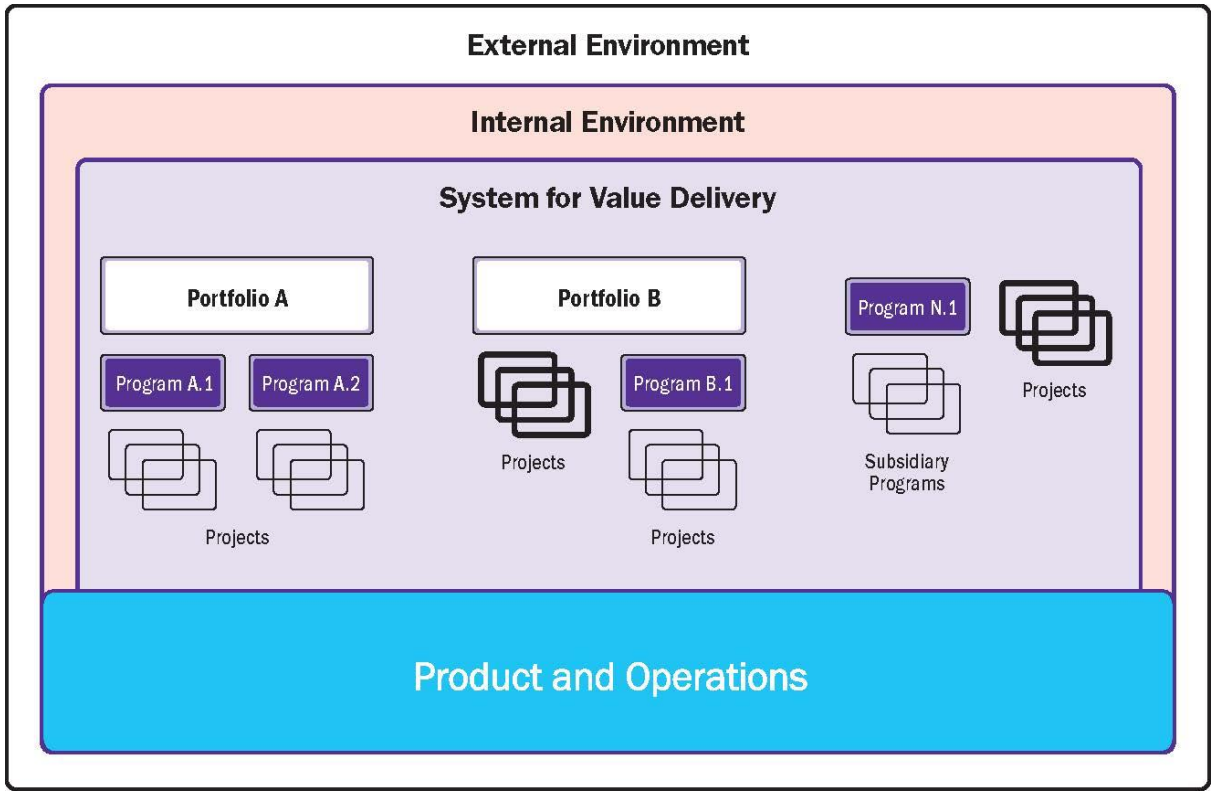

Figure 2-1. Example of a System for Value Delivery

As shown in Figure 2-1, 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.

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. Because all projects are investments, their expected value—whether financial or nonfinancial—should meet or exceed target thresholds in order to justify the investment in the first place.

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 2-2 demonstrates an example of how information flows effectively throughout the system.

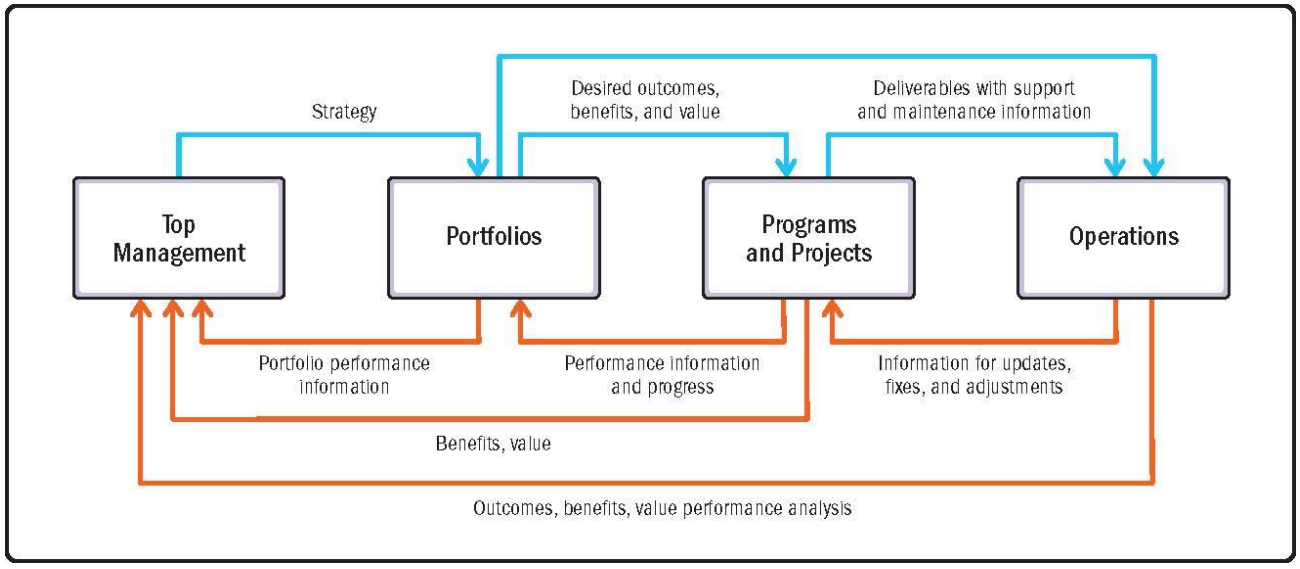

Figure 2-2. Example Information Flow

2.1.2 Assessing Project Success

A project's positive impact extends beyond its financial return. While achieving financial metrics is crucial, project success also encompasses a broader range of benefits such as acquiring new customers, being first to market, implementing technological or process improvements, complying with new standards and regulations, and attaining social and environmental sustainability goals.

There is a difference between the success of the project result and the success of the project management activities. For example, in Sydney, Australia, the well-known Sydney Opera House project's initial budget was US$7 million and the construction was expected to take 4 years. The final expenditure at completion was US$107 million and the completion took 14 years. Today, the monument is a UNESCO World Heritage site—the most known landmark on the continent—and is visited each year by 10.9 million people. The management of this project is generally considered a failure but the project result exceeded the expectations many times over. The successful outcome would have been even stronger had the same scope been delivered years earlier and at a lower investment cost. On the other hand, for example, a monorail system was built in the 1980s to connect key areas of Sydney. The project was completed on time and within budget; nevertheless, it failed to attract sufficient ridership and was ultimately dismantled in 2013.

2.2 Functions Associated With Projects

People drive project delivery. They do so by fulfilling functions that are necessary for the project to run effectively and efficiently. Functions that are related to the project can be fulfilled by one person, 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 projects are coordinated, the collective effort of the project team delivers outcomes, benefits, and value. The project team may be supported by additional functions depending on the deliverables, industry, organization, and other variables. The Resources project management performance domain provides examples of functions that are often found on projects, although it is 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. Sections 2.2.1 through 2.2.7 provide examples of functions that are often found in projects, although they do not provide a comprehensive list.

2.2.1 Provide Oversight and Coordination

People providing oversight and coordination help the project team to deliver value, typically by orchestrating the work of the project, removing obstacles, and protecting the focus of the team. The specifics of how this function is carried out within the project team can vary among organizations but can include leading the planning and monitoring and controlling activities. In some organizations, this function may involve some evaluation and analysis activities as part of the preliminary project activities. Coordination includes consulting with executives and business unit leaders on ideas for advancing objectives, improving project performance, and meeting customer needs. The coordination activities may also include assisting in business analysis, tendering and contract negotiations, and business case development. Oversight may 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.

2.2.2 Feedback

People in this function contribute perspectives, insights, direction, and expectations. In projects that use adaptive or hybrid approaches, 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 reviews 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 that may be required to deliver value.

2.2.3 Facilitate and Support

The facilitation and support function 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, a collective sense of responsibility for the work output, and shared motivation in pursuit of the target outcome. Facilitation helps the project team to create consensus around solutions, resolve conflicts, and make decisions. Facilitation may also be used to coordinate meetings and contribute in an unbiased way to the advancement of project objectives. Supporting people through change and helping to address obstacles that can prevent success should also be part of this function. This support may include evaluating performance and providing individuals and project teams with feedback to help them learn, adapt, and improve.

2.2.4 Perform Work

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 may be highly specialized, while other work may be performed by project team members who have broad skill sets.

2.2.5 Apply Expertise

People in this function provide the knowledge, vision, and expertise in a specific subject for a project. These people offer advice and support throughout the organization and contribute to the project team's learning process and work accuracy. People providing this expertise can be external to the organization or internal project team members and may be required for the whole project or during a specific timeframe. In a portfolio context, the unique skill mix brought by experts and other team members is often the "pace setter" of value delivery for the whole organization, and honoring the pace-setting power of this unique skill mix can accelerate the flow of work on every project.

2.2.6 Provide Business Direction and Insight

People performing 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. This function involves interacting with other stakeholders, customers, and project teams to define the product direction. The general goal is to maximize the value of the project deliverable and the return on project investments. In adaptive and hybrid environments, direction and insight may be provided using a specific cadence. In predictive environments, there may be designated checkpoints for presentation of—and feedback on—project progress.

2.2.7 Provide Resources

People in this function promote the project and communicate the organization's vision, goals, and expectations to the project team and broader stakeholder community. These people advocate for the project and the project team by helping to secure the decisions, resources, and authority that allow project activities to progress. They may also serve as liaisons between senior management and the project team, playing a supporting role in keeping projects aligned to business objectives, removing obstacles, and addressing 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 high-value target dates that are unlikely to be met without intervention from this function.

2.3 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 may yield a favorable, unfavorable, or neutral impact on project characteristics, stakeholders, or project teams. Two major categories of influences are enterprise environmental factors (EEFs) and organizational process assets (OPAs).

Enterprise environmental factors may originate from the environment outside of the project and from outside of the enterprise. These EEFs may have an impact at the organizational, portfolio, program, or project level.

Organizational process assets are internal to the organization. These OPAs may arise from the organization itself, a portfolio, a program, another project, or a combination of these. Figure 2-3 shows the breakdown of project influences into EEFs and OPAs.

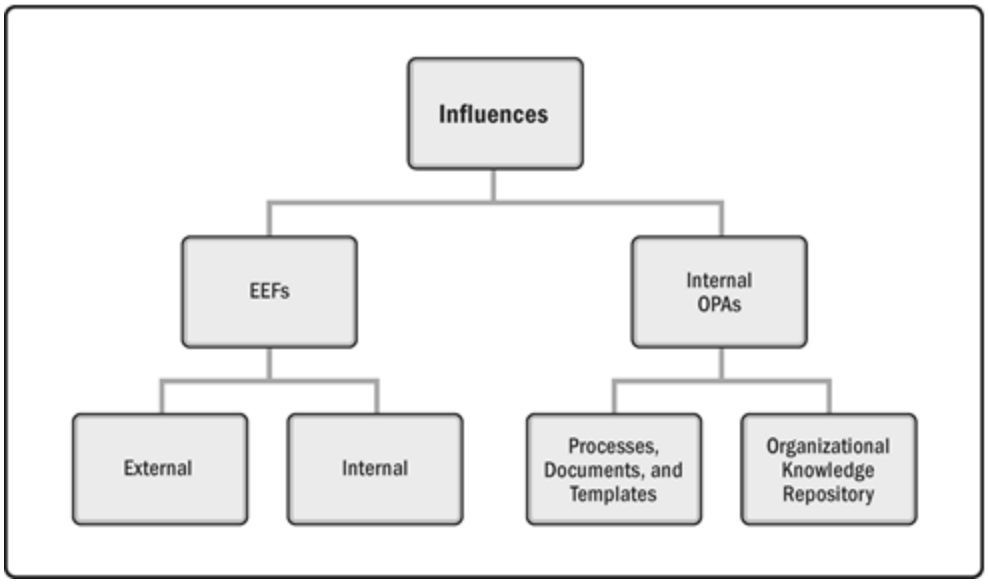

Figure 2-3. Project Influences

2.3.1 Enterprise Environmental Factors

Enterprise environmental factors refer to conditions, not directly influenced by the project team, that influence, constrain, or direct the project. These conditions can be internal and/or external to the organization. The EEFs are considered as inputs to many project management processes, specifically for most planning processes. These factors may enhance or constrain project management options. In addition, these factors may have a positive or negative influence on the outcome.

Enterprise environmental factors vary widely in type or nature. These factors need to be considered if the project is to be effective. The EEFs include but are not limited to the factors described in Sections 2.3.2 and 2.3.3.

2.3.2 Enterprise Environmental Factors Internal to the Organization

The following are examples of EEFs that are internal to the organization:

- **Organizational culture, structure, and governance.** Examples include vision, mission, values, beliefs, cultural norms, leadership styles, hierarchy and authority relationships, organizational styles, ethics, codes of conduct, policies, and procedures.
- **Geographic distribution of facilities and resources.** Examples include factory locations and virtual teams.
- **Infrastructure.** Examples include existing facilities, equipment, organizational telecommunications channels, information technology hardware, availability, and capacity.
- **Information technology software.** Examples include scheduling software tools, configuration management systems, web interfaces to other online automated systems, and work authorization systems.
- **Resource availability.** Examples include contracting and purchasing constraints, approved providers and subcontractors, and collaboration agreements.
- **Employee capability.** Examples include existing human resources expertise, skills, competencies, and specialized knowledge.

2.3.3 Enterprise Environmental Factors External to the Organization

The following are examples of EEFs that are external to the organization:

- **Marketplace conditions.** Examples include competitors, market share brand recognition, and trademarks.
- **Social and cultural influences and issues.** Examples include political climate, codes of conduct, ethics, and perceptions.
- **Legal restrictions.** Examples include country or local laws and regulations related to security, data protection, business conduct, employment, and procurement.
- **Academic research.** Examples include industry studies, publications, and benchmarking results.

- **Government or industry standards.** Examples include regulatory agency regulations and standards related to products, production, environment, quality, and workmanship.
- **Financial considerations.** Examples include currency exchange rates, interest rates, inflation rates, tariffs, and geographic location.
- **Physical environmental elements.** Examples include working conditions, weather, and constraints.

2.3.4 Organizational Process Assets

Organizational process assets, depending on the industry, organization, and model, may include the plans, processes, documents, templates, and knowledge repositories specific to and used by the performing organization. These assets influence the management of the project.

Organizational process assets may include any artifact, practice, or knowledge from any or all of the performing organizations involved in the project, which can be used to execute or govern the project. The OPAs also include the organization's lessons learned from previous projects and historical information, as well as from previous work carried out. The OPAS are inputs to many project management processes and may include completed schedules, risk data, and earned value data. Since OPAs are internal to the organization, the project team members may be able to update and add to the OPAs as necessary throughout the project. They may be grouped into two categories:

- **Plans, processes, and documents.** Generally, these assets are not updated as part of the work that must be accomplished for the outcomes of the project and are usually established by the project management office (PMO) or another function outside of the project. These assets can be updated only by following the appropriate organizational policies. Some organizations encourage project teams to tailor

templates, life cycles, and checklists for the project. In these cases, the project team should tailor those assets according to the needs of the project.

- **Organizational knowledge repositories.** These assets are updated throughout the project with project information. For example, information on financial performance, lessons learned, performance metrics and issues, and defects are continually updated throughout the project.

2.3.5 Plans, Processes, and Documents

The organization's plans, processes, and documents for conducting project work include but are not limited to:

- Tailoring guidelines and criteria for the organization's set of standard processes and procedures to satisfy the specific needs of the project;
- Product and project life cycles as well as methods and procedures (e.g., project management methods, estimation metrics, process audits, improvement targets, checklists, and standardized process definitions for use in the organization);
- Templates (e.g., project management plans, project documents, project registers, report formats, contract templates, risk categories, risk statement templates, probability and impact definitions, probability and impact matrices, and stakeholder register templates);
- Preapproved supplier lists, contract templates (e.g., fixed-price, cost-reimbursable, and time and materials [T&M] contracts) and proposal evaluation criteria;
- Progress monitoring to meet or exceed the project's value proposition, reoptimizing the project baseline when advantageous;
- Knowledge repository creation;
- Change control procedures;
- Traceability matrices;
- Issue and defect management processes;

- Resource availability control and assignment management;
- Processes for prioritizing, approving, and issuing work authorizations;
- Templates;
- Standardized guidelines, work instructions, and performance measurement criteria;
- Verification and validation processes; and
- Project closure guidelines or requirements.

2.3.6 Organizational Knowledge Repositories

The organizational knowledge repositories for storing and retrieving information include but are not limited to:

- Configuration management knowledge repositories containing the versions of software and hardware components and baselines of all performing organization standards, policies, procedures, and project documents;
- Financial data repositories containing information such as labor hours, incurred costs, budgets, and any project cost overruns;
- Historical information and lessons learned knowledge repositories such as project records and documents, all project closure information and documentation, information regarding both the results of previous project selection decisions and previous project performance information, and information from risk activities;
- Issue and defect management data repositories containing issue and defect status, control information, issue and defect resolution, and action item results;
- Data repositories for metrics used to collect and make available measurement data on processes and products; and
- Project files from previous projects such as scope, cost, schedules, performance measurement baselines, project calendars, project schedule network diagrams, risk registers, risk reports, and stakeholder registers.

2.3.7 Organizational Structures

Determination of the appropriate organizational structure type is a result of the study of trade-offs between two key variables. The variables are the organizational structure types available for use and how to optimize them for a given organization. There is not a one-size-fits-all structure for any given organization. The final structure for a given organization is unique due to the numerous variables to be considered. Organizational structures take many types. Table 2-2 compares several types of organizational structures and their influence on projects.

Table 2-2. Influences of Organizational Structures on Projects

Organizational Structure Type	Project Characteristics			
	Work Groups Arranged By	**Project Manager's Authority**	**Project Manager's Role**	**Resource Availability**
Organic or simple	Flexible; people working side by side	Low	Part-time role; may or may not be a designated job role such as coordinator	Little or none
Functional (centralized)	Job being done (e.g., engineering, manufacturing)	Low	Part-time role; may or may not be a designated job role such as coordinator	Little or none
Multidivisional (may replicate functions for each division with little centralization)	One of the following: product; production processes; portfolio; program;	Low	Part-time role; may or may not be a designated job role such as coordinator	Little or none

	geographic region; customer type			
Matrix—strong	By job function, with project manager as a function	Moderate to high	Full-time, designated job role	Moderate to high
Matrix—weak	Job function	Low	Part-time role; done as part of another job and not a designated job role such as coordinator	Low
Matrix—balanced	Job function	Low to moderate	Part-time role; embedded in the functions as a skill and may not be a designated job role such as coordinator	Low to moderate
Project-oriented (composite, hybrid)	Project	High to almost total	Full-time, designated job role	High to almost total
Virtual	Network structure with nodes at points of contact with other people	Low to moderate	Full-time or part-time role	Low to moderate
Agile	Team itself	Low	Full-time or part-time role	High to almost total

PMO*	Mix of other types	High to almost total	Full-time, designated job role	High to almost total

*PMO refers to a portfolio, program, or project management office or organization.

2.4 Product Management Considerations

The disciplines of portfolio, program, project, and product management are linked. While portfolio, program, and product management are beyond the scope of this standard, understanding each discipline and the relationships among them provides a useful context for projects where the 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 is 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 benefits and create value for the organization more directly.

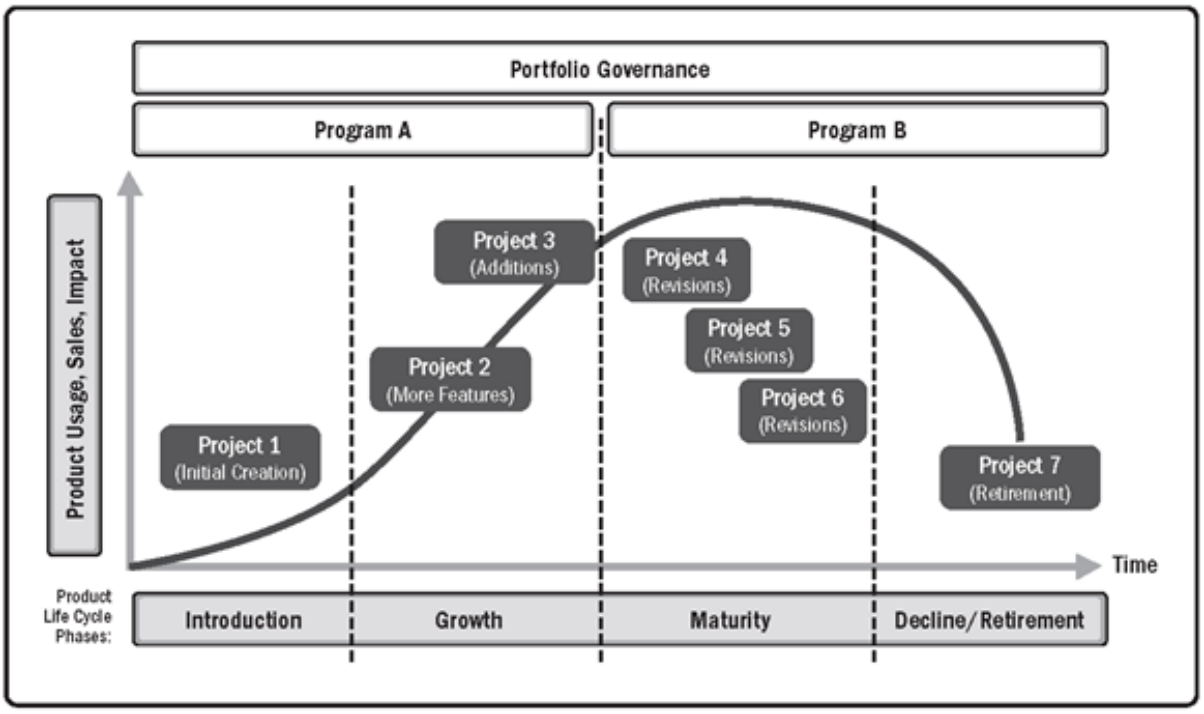

Figure 2-4. Sample Product Life Cycle

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-term 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 the development and maturity 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 may 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.

- **Product management across programs and projects.** As shown in Figure 2-4, a product life cycle often spans multiple programs and projects, and thus calls for effective management across those programs and projects.

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.

2.5 Project Management Roles

Each function and role within a project setup adds specific value, and the project's outcomes directly depend on those contributions. In this section, some key project functions and roles, such as the project management team, project manager, sponsor, customer, product owner, project team, and end user, that add value to a project's execution are presented. However, as each enterprise and project are unique, the functions, roles, and responsibilities may differ accordingly.

2.5.1 The Project Management Team

The project management team may consist solely of a project manager or may include more individuals who form a team; both structures will be referred to synonymously in this section. The project management team is critical in leading a project team to achieve the project's outcome and deliver value to the organization while considering flexibility, adaptability, and tailoring. The critical nature of this role is due to several factors ranging from uncertainty to new ways of working. Project management teams perform various functions such as facilitating and mentoring the project team and managing the processes to deliver intended outcomes.

Depending on the organization's policies and processes, it is suggested that the project management team is involved from project initiation through closing and, in some cases, in post-project benefit analysis. Moreover, in some organizations, a project management team may be involved in evaluation and feasibility analysis activities before project initiation and may consult with executive and business unit leaders on ideas for advancing strategic objectives, improving organizational performance, and meeting customer needs. In some organizational settings, the project management team may also be called upon to manage or assist in business analysis, business case development, and aspects of portfolio management for a project. The project management team's role and level of involvement may vary from organization to organization, and hence, the role should be tailored to fit the organizational structure, like tailoring project processes.

The project management team performs numerous functions and roles within their sphere of influence. The project management team is a reflection of the capabilities, value, and contributions of the project management profession. The functions and roles of the project management team in the various spheres of influence are shown in Figure 2-5.

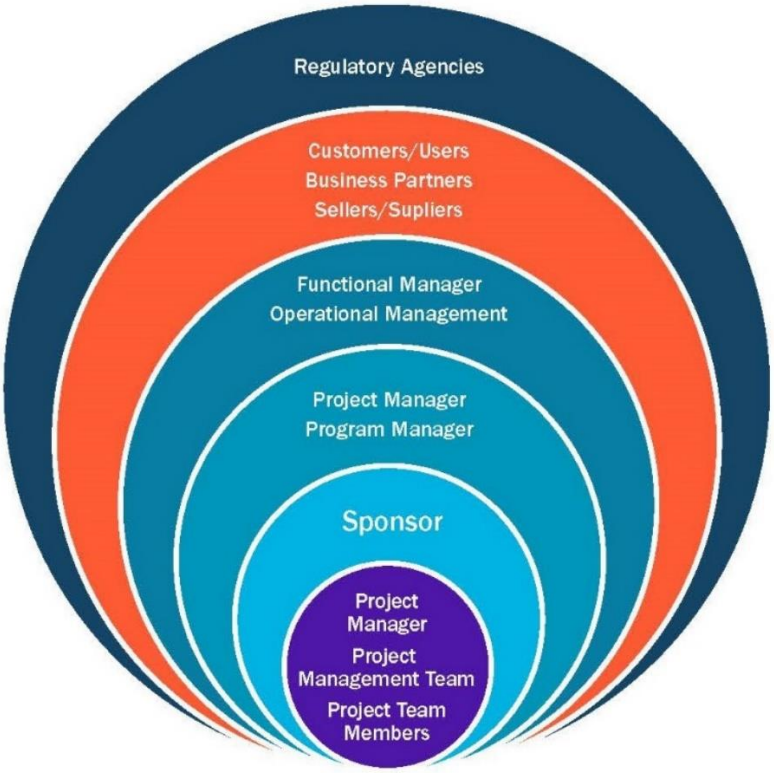

Figure 2-5. Project Management Team Within Various Spheres of Influence

In many organizations, the title of "project manager" or "project management team" may not explicitly denote someone who is managing a project. The governance structure and context of each project often determine the assignment of project management responsibilities. For instance, in some scenarios, a functional manager, such as a finance or human resources manager, may oversee project activities, ensuring that they align with departmental goals and strategies. Also, the function and title for the role may be "project leader" or "project lead" instead of "project manager."

In adaptive development approaches and agile project environments, it is common for a function such as "product owner" or "product manager" to handle some of the project management tasks. The titles and roles of "scrum master," "agile coach," "agile manager," "agile expert," "agile delivery manager," "development team," or "project team" may also

share some project management responsibilities that are usually performed by project managers. This adaptability reflects an organization's internal regulations and constraints, emphasizing that the essence of project management lies in the characteristics of the project itself rather than the title of the individual overseeing it. It is crucial for any person fulfilling this function, regardless of their official position, to embrace the core aspects of project management to steer projects toward success. Varying examples of these agile roles are described in the PMI Disciplined Agile® (DA®) tool kit.

2.5.1.1 Interaction Between Project Management Team and Project Aspects

The engagement of a project management team in project tasks is pivotal in bringing focus and clarity to the work. A competent project management team should prioritize tasks effectively, discerning which are most urgent and important, and allocate attention accordingly. This prioritization helps ensure that resources are optimized and that critical project milestones are met on schedule. The project management team's presence catalyzes progress and efficiency, maintaining project momentum through strategic oversight and resource management.

There are many leadership styles that a project management team can adopt based on the individuals, situations, team structures, stakeholders, and organizational processes. Leaders should be versatile and able to switch between different leadership styles to achieve a better outcome. The project management team proactively interacts and negotiates with other project management teams, project managers, and functional managers for demands on critical resources, priorities on project funding, receipt or distribution of deliverables, and in aligning project goals and objectives with those of the organization.

Interacting with others helps to create a positive influence for fulfilling a project's various needs and for sharing experiences and addressing challenges, as a project management team works with and in different areas, departments, industries, and locations. The project

management team usually works with the project sponsor, customer, or product owner to address internal political and strategic issues that may impact the team or the viability or quality of the project or product. The skills of the project management team, due to the complexity of the function and the increasing need for versatility and flexibility, are a mix of different skills such as ways of working, power skills, and business acumen, with a sole aim of accomplishing tasks without compromising their professional and social responsibility to the profession and society at large.

In the context of leadership styles, situational leadership is particularly relevant for project management teams. This approach emphasizes the importance of flexibility and adaptability in leadership based on the evolving demands of the project. A project management team should adjust their leadership style to suit the specific needs of the team, the time sensitivity of tasks, and the complexity of the project. Whether it involves shifting from a more directive approach during critical project phases to a supportive style when team autonomy is beneficial, the ability to adapt one's leadership style is crucial for navigating the diverse challenges that projects typically present. Figure 2-6 represents the competencies needed by a project management team to fulfill the project outcomes in a successful way. Table 2-3 details several examples of how to apply project management team competencies.

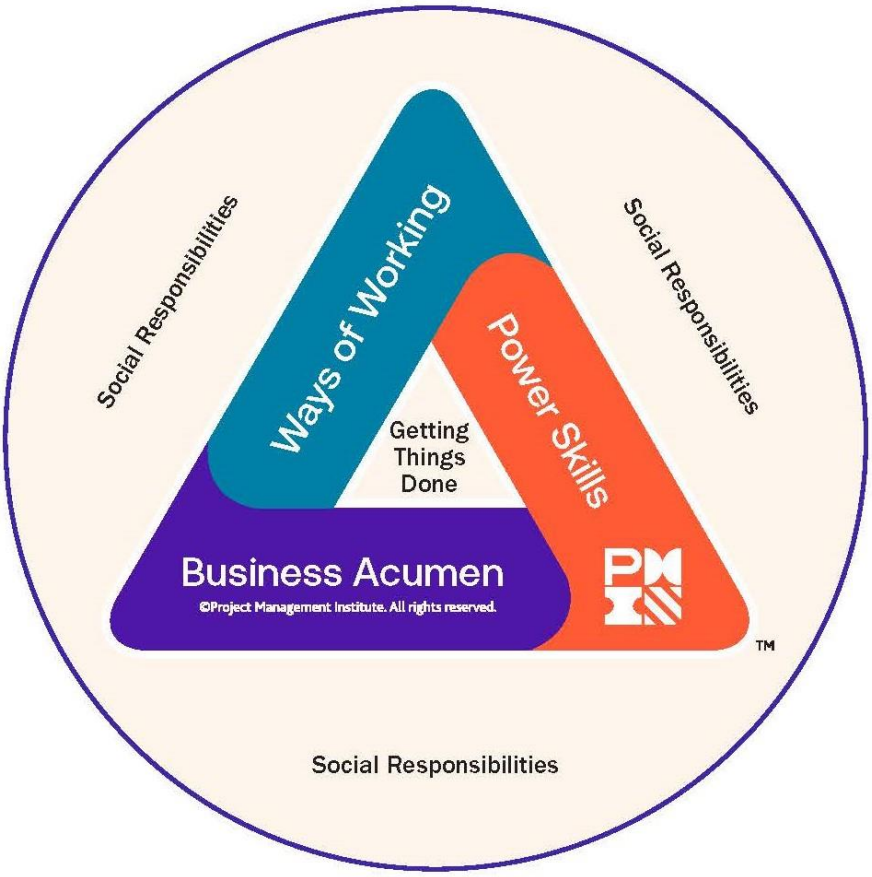

Figure 2-6. Project Management Team Competencies

The competencies that project team members should possess include:

- **Social and professional responsibility.** This competency refers to the acknowledgment that the project management team makes decisions that are aligned to the common good.
- **Power skills.** This competency includes all of the human skills that a project management team needs to apply to successfully execute the project (e.g., emotional intelligence [EI]). This competency is of significant importance , considering that projects are conceived to add value to society.
- **Business acumen.** This competency refers to the application of strategic thinking and the alignment of the project management team within the organizational context. Understanding the connections between strategy execution and projects is key to

ensuring that the value delivered to organizations and societies is aligned with the overall organizational strategy.

- **Ways of working.** This competency includes the understanding and application of the standards, methodologies, and frameworks that a project management team may use to execute projects and add value to the organization.
- **Getting things done.** This competency refers to the actual work and execution of ideas and projects to add value. The ability to accomplish tasks is a central competency that ensures that the expected value is delivered.

Table 2-3. Examples of the Application of Project Management Team Competencies

Ways of Working	Project management methodologies (predictive, adaptive)	Brainstorming techniques	Performance measurement and tracking techniques	Change management techniques
	Quality measurement tools	Legal requirements governing project management practice	Dashboarding; key performance indicators (KPIs); reporting procedures	Risk identification; monitoring and controlling; response techniques
	Project management; information management; presentation tools and techniques	Interaction of work breakdown structure (WBS) elements within the project schedule	Procurement management techniques; make-or-buy analysis	Variance and trend analysis techniques; documenting tools and techniques
Power Skills	Exercising judgment; decision-making	Leadership tools and techniques	Innovative and agile mindset	For-purpose orientation
	Team motivation methods	Negotiating; conflict resolution	Interviewing techniques; facilitation	Assessing one's own professional strengths and weaknesses
Business Acumen	Optimization techniques (e.g., Six Sigma, Lean)	Project selection criteria (cost, feasibility, impact)	Analysis (cause and effect, baseline data)	Integrated change control processes
	Basic project accounting principles	Compliance (statute/organization)	Knowledge of the industry	Cost-benefit analysis
	Contracting methods and administration techniques; vendor management techniques	Resource planning and its contingency planning process	Strategic thinking; business case development; financial analysis	Time and cost estimation techniques; project controls
	Workflow diagramming; process and data analysis techniques; benchmarking	Generative artificial intelligence (GenAI)		

Getting Things Done	Proactive and intentional when it comes to power	Analyzing and interpreting information	Types and uses of organization charts	Prioritization and time management; feedback techniques
	Stakeholder Identification, impact analysis	Respecting other people and the resources trusted to manage the project	Problem-solving techniques (e.g., root cause analysis)	Oral and written communication techniques; communication channels and applications
	Work to acquire the power and authority to be applied within organizational policies	Ability to deal with enterprise politics; politics involves influence, negotiation, autonomy, and power	Project management information systems; communications to intended audiences	Influencing skills; understanding the requirements of different stakeholders
Professional & Social Responsibility	Project quality good practices and standards	Giving back to society as a responsibility	Adhering to applicable laws and regulations	Self-development and striving for continuous improvement
	Demonstration of a high level of personal and professional integrity	Adhering to ethical standards by respecting cultural and social norms	Extract, synthesize, and transfer knowledge to future projects	Assessing and incorporating community and stakeholder values
	Coaching and mentoring fellow professionals for advancement of the profession	Global sensitivity and cultural diversity; environmental responsibility		

2.5.1.2 Competency Development in Project Management

In project management, competency development is crucial to ensure that each team member performs their duties efficiently and grows professionally within the project environment. The project management team plays a pivotal function in this development by fostering a learning culture that blends various competencies across the team. By strategically mixing team members of different seniority levels, the project management team facilitates an exchange of knowledge and skills that benefits the entire team. This mix of skill levels provides mentorship and coaching opportunities that nurture less-experienced team members, helping them to build their capabilities and confidence through guided learning and hands-on experience.

The project management team's responsibility may extend beyond project deliverables to include the professional growth of the team. This responsibility may also be taken by

functional managers, project management offices (PMOs), or line managers of team members. Nevertheless, this skill development involves identifying individual learning needs and integrating competency development into the project's workflow. Effective project management teams create opportunities for individuals to take on challenges that stretch their skills and provide them with constructive feedback. Additionally, by promoting a culture of continuous improvement and reflective practice, the project management team helps ensure that lessons learned are captured and shared, enhancing the team's collective expertise. This culture drives project success and prepares individuals for more complex functions in future projects, thereby strengthening the overall project management discipline. For adaptive development approaches, this responsibility of competency development may be handled by a scrum master or agile manager instead.

2.5.1.3 Technological Impact on Project Management

Technological advancements significantly boost the efficiency and transparency of project management. Tools that support task scheduling, resource allocation, and real-time communication streamline project phases from planning through execution, ensuring that tasks are effectively tracked and managed. Additionally, emerging technologies like artificial intelligence (AI) offer predictive insights based on historical data, helping to identify potential risks and optimize project trajectories. These technologies provide critical data on team performance and financial management, allowing project managers to make informed decisions promptly.

The advent of cloud computing has revolutionized data storage and access, facilitating seamless updates and collaboration across global teams. This technology helps ensure that all team members have uniform access to essential project information, enabling quick adjustments to project dynamics and maintaining continuity across dispersed teams. The enhanced agility from cloud-collaboration technologies supports dynamic project execution, accommodating changes swiftly without significant delays.

The project management team's function in leveraging these technologies may involve diligent planning, coordination, and auditing to ensure that the selected technology serves the project's best interests. The project management team should ensure the accuracy of data and the neutrality of outputs, avoiding biases that could skew project results. By selecting appropriate technologies and continuously monitoring their integration and effectiveness, the project management team can safeguard the integrity and success of the project, thereby maintaining high standards of quality and reliability in project outcomes. However, in some organizations, the responsibility for technological impact and tool usage may be handled by the project management office (PMO) instead of the project management team. For further details, see Appendix X2 on PMOs.

2.5.2 Sponsor, Customer, and Product Owner

The project sponsor, customer, and product owner may be an individual or committee that provides decision leadership outside of the project management team's authority and power. The sponsor, customer, or product owner's active engagement and oversight support the project management team to drive project outcomes efficiently. The sponsor, customer, or product owner communicates the organization's vision, goals, and expectations to the project management team and project team, while keeping the project aligned with business objectives, facilitating executive-level decisions, helping to secure resources, advocating for the project team, and addressing issues or removing obstacles that are beyond project management team's authority. This individual or committee should continuously monitor project progress and provide advice to the project management team as required so that project's intended business benefits are realized.

The strategic link that the sponsor, customer, or product owner provides both empowers and enables the project team to optimize its performance by maintaining alignment with the organization's strategy. Thus, their presence increases the likelihood of achieving the desired project outcome, while their absence might inversely impact the project.

Further details about project teams, functions, roles, responsibilities, and characteristics are elaborated in Section 2.5 (Stakeholders performance domain) in the *PMBOK® Guide* portion of this book.

2.5.3 Project Team

The project team is a set of individuals who are performing the project's work and are directly responsible for achieving project objectives. The team's size, composition, and skill level depend on the project's scale and complexity. The level of the project team's involvement and the coordination required will vary from project to project and should be tailored according to the project's needs. Some projects benefit from decentralized coordination in which project team members self-organize and self-manage, such as scrum development teams, while other projects benefit from centralized coordination under the leadership and guidance of a project management team, project manager, or a hybrid mix. Regardless of how coordination takes place, supportive leadership models and meaningful continuous engagement among project teams and other stakeholders are key to a successful project. Section 2.6 (Resources performance domain) in the *PMBOK® Guide* portion of this book provides further details about project teams, functions, roles, responsibilities, and characteristics of the project team.

2.5.4 End Users

To effectively serve the end users, project management teams and project teams should engage in continuous dialogue with the end users to capture and integrate their feedback throughout the project life cycle. This engagement involves iterative testing and validation processes to help ensure that the project remains aligned with the end users' evolving needs. By prioritizing end-user satisfaction, project management teams can minimize the risks associated with delivering a product or service that does not meet the expected utility. Thus, the integration of end-user feedback not only refines the project outcome but also secures its relevance and success by confirming that the deliverables concretely address

the needs and expectations of those who will ultimately use them. This strategy helps ensure that the project delivers substantial value, achieving its primary goal of satisfying the end users.

3

Project Life Cycles

A project life cycle is the series of activities and/or phases that a project passes through from its start to its completion. The project life cycle provides the basic framework for managing the project. This basic framework applies regardless of the specific project work involved. Project life cycles are determined by four factors:

- Project phases;
- Development approach;
- Delivery cadence; and
- Project Management Process Groups.

This section explores each of those life cycle factors in detail.

3.1 Project Phases

Projects are often decomposed into a collection of multiple phases. A project phase is a collection of logically related project activities that culminates in the completion of one or more deliverables.

The phases may be sequential, iterative, or overlapping. In some projects a combination of these phases may be used. Project life cycles are independent of product life cycles, which may be produced by a project. Projects may also generate services or results, which in turn enable outcomes that progressively realize the organization's strategy.

The phases in a life cycle can be described by a variety of attributes. Attributes may be measurable and unique to a specific phase. Attributes may include but are not limited to

name, number, duration, resource requirements, entrance criteria for a project to move into that phase, and exit criteria for a project to complete a phase. A phase gate is held at the start and end of a project phase. Project phases often have a phase gate review—also known as stage gate—to check that the desired outcomes or exit criteria for the phase have been achieved before proceeding to the next phase. Exit criteria may be tied to acceptance criteria for deliverables, contractual obligations, meeting specific performance targets, or other tangible measures. The project's performance and progress are compared to project and business documents. A decision (e.g., go/no-go decision) is made as a result of this comparison to continue to the next phase, continue to the next phase with modification, end the project, remain in the phase, or repeat the phase or elements of it.

Usually, it is up to the project manager and project management team to determine the best life cycle for each project, but sometimes the options are limited by the performing organization. The project life cycle should be flexible enough to meet or exceed the project's target objectives in a way that protects and enhances the project's value proposition as much as possible. Life cycle flexibility often includes:

- Selecting the development approach or mix of approaches;
- Identifying the types of processes and activities that should be performed; and
- Adjusting the various attributes of an activity, phase, or process. (e.g., name, duration, exit criteria, and entrance criteria).

It is important to note that regardless of the chosen life cycle, every project follows a similar structure: It begins with an initial phase where the goals and requirements are analyzed, followed by a phase where the actual work is carried out, and finally, a closing phase where the project's results are handed over. This sequence is consistent across all projects, regardless of their nature or methodology. Essentially, every project has a beginning, a middle phase, and an ending phase.

A generic project life cycle is generally impacted by a series of characteristics. Depending on the project life cycle, these may present a series of scenarios. These characteristics and its scenarios are:

- **Cost and staffing.** In some scenarios, levels of cost and staffing are low at the start, increase as the work is done, and drop rapidly as the project or phase ends. Another scenario may be a more stable allocation of resources and costs (see Figure 3-1).

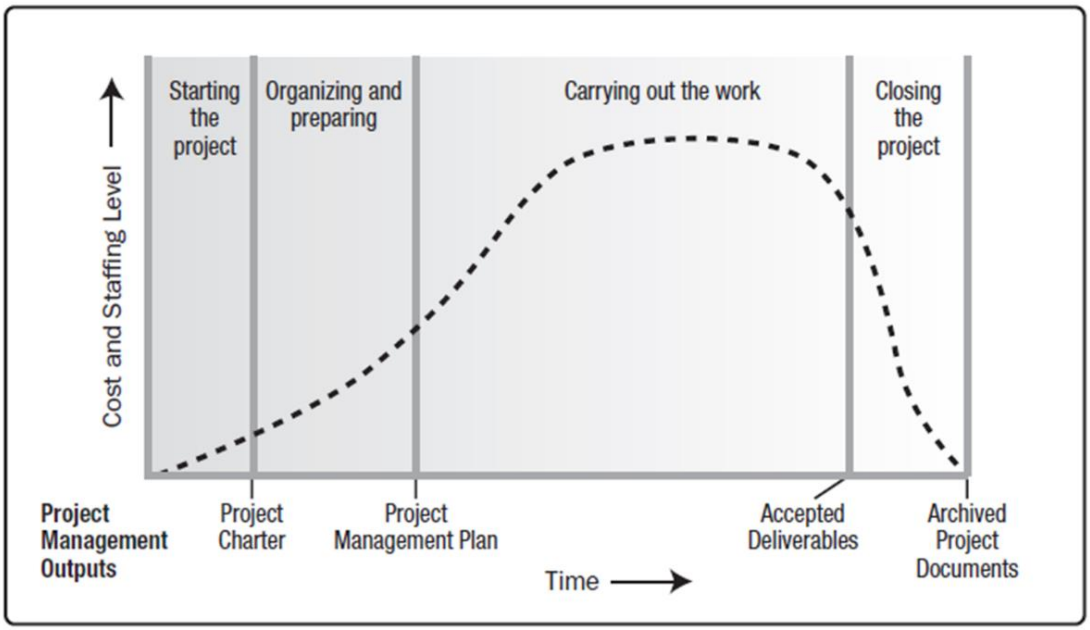

Figure 3-1. Typical Cost and Staffing Levels Across a Generic Project Life Cycle Structure

- **Risk and uncertainty.** Regardless of the project life cycle, risk and uncertainty are usually greatest at the start of the project or phase and decrease over the project's life cycle as decisions are reached and deliverables are accepted.
- **Stakeholder influence on change.** In some scenarios the ability of stakeholders to influence the project's scope, without significantly impacting cost and schedule, is highest at the start of the project or phase and decreases as the project progresses toward completion. In other cases, the stakeholder is encouraged to participate actively in the execution process, validating that value has been delivered according

to their expectations and the organization's best interest. Consistent feedback leads to the possibility of detecting risk and its impact at an earlier stage (see Figure 3-2).

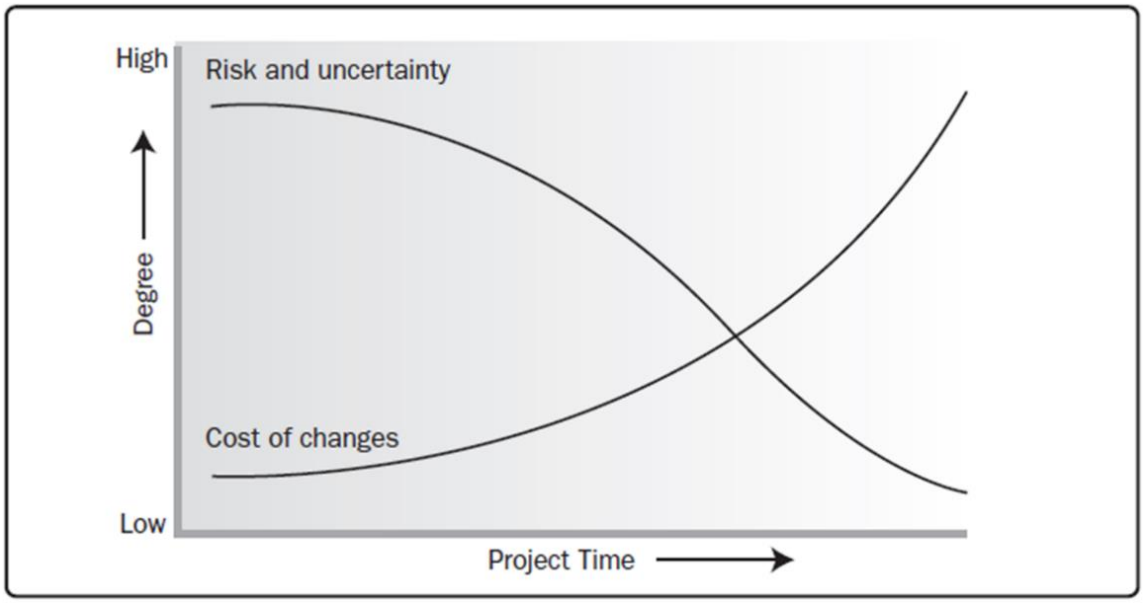

Figure 3-2. Impact of Variables Over Time

3.2 Development Approaches

A development approach is the means used to create and evolve the product, service, or result during the project life cycle. Note that the term "development approach" is separate from the term "development phase of the project." There are different development approaches, and different industries may use different terms to refer to them.

Three commonly used approaches are predictive, adaptive, and hybrid. These approaches are often viewed as a spectrum, from the predictive approach on one end of the spectrum, to the adaptive on the other end. The hybrid approach is usually intended as a mix of predictive and adaptive approaches (see Figure 3-3).

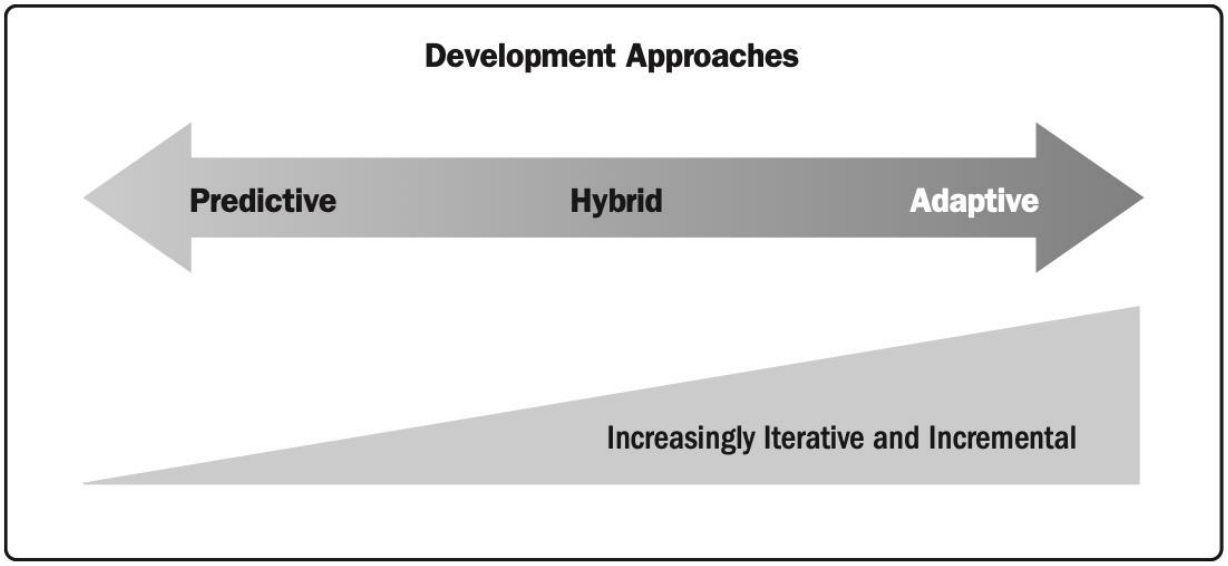

Figure 3-3. The Spectrum of Development Approaches

The choice of the setup of a project is typically made by the project manager, who, based on the nature of the project, carries out the necessary evaluations for establishing the framework and way of working with the team.

The main factors that play a role in the choice of the approach are related to the requirements, scope, and goals of the project.

When the requirements are sufficiently clear early in the project, a predictive approach may be optimal and, in this setup, the schedule baseline, together with the cost baseline, are determined according to the scope that should be delivered. Taken together, the baselines for schedule, cost, and scope are referred to as the project's integrated baseline.

When the requirements are less clear early in the project, as the complexity of the project or the final characteristics of the product of service are not yet known and more feedback is needed (e.g., details from the final customer or end user), an adaptive approach may be optimal. In an adaptive approach, work is reviewed periodically, often in a timeboxed cadence, so that feedback can be incorporated as the integrated baseline evolves. At the

end of the timebox, the requirements that have been implemented will be reviewed and planning for the next timebox will commence. As the teams will be working together on the same requirements and features, the cost for the involvement of the team will be well known. In this case, based on the timeboxes and the team involved (as well as the budget), the scope will be delivered in an adaptive way.

However, it is important to distinguish between the flexibility offered by an adaptive approach, relative to project baselines. Projects often need the ability to vary a set of constraints in order to operate with other, more fixed constraints (see Figure 3-4).

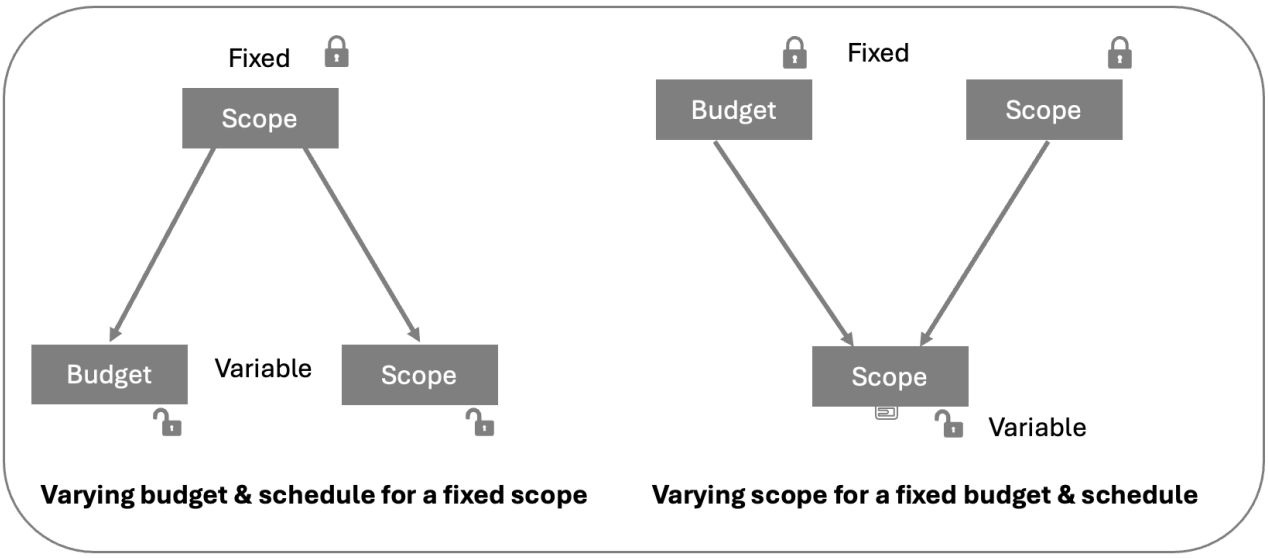

Figure 3-4. Comparison of Variations Benefitting From Adaptive Approaches

- **Predictive approach.** A predictive approach may be optimal when the project scope can be stabilized early in the project. A predictive approach may also be referred to as a waterfall approach.[2] This approach may also be optimal when

[2] Note that the term "waterfall" has connotations for many people synonymous with being unnecessarily slow, unreliable, and outdated. To the extent that a waterfall approach includes excessive batching of tasks or phases (e.g., all development work should be fully completed before any quality assurance work can commence), such negative connotations may be merited. However, to the extent that a waterfall approach helps teams understand the logical sequence in a project's high-level flow of work, such connotations are off-base and potentially harmful. To help minimize confusion on such connotations, PMI has used the term "predictive" since the *PMBOK® Guide*—Fifth Edition.

there is a significant investment involved and a high level of risk that may justify frequent reviews, change control mechanisms, and replanning between development phases. The scope, schedule, cost, resource needs, and risks can be well defined in the early phases of the project life cycle and are expected to remain relatively stable. This development approach allows the project team to capture reliable certainty early in the project and to perform much of the planning up front (see Figure 3-5). For projects or phases in which the cost of iterating far exceeds its value, such as the build phase of many construction projects, a predictive approach may be optimal. Similarly, for projects in heavily regulated environments, such as healthcare, there may be phase gates required in order for regulators to carefully assess whether, for instance, a new drug treatment or medical device has demonstrated sufficient promise to merit further development.

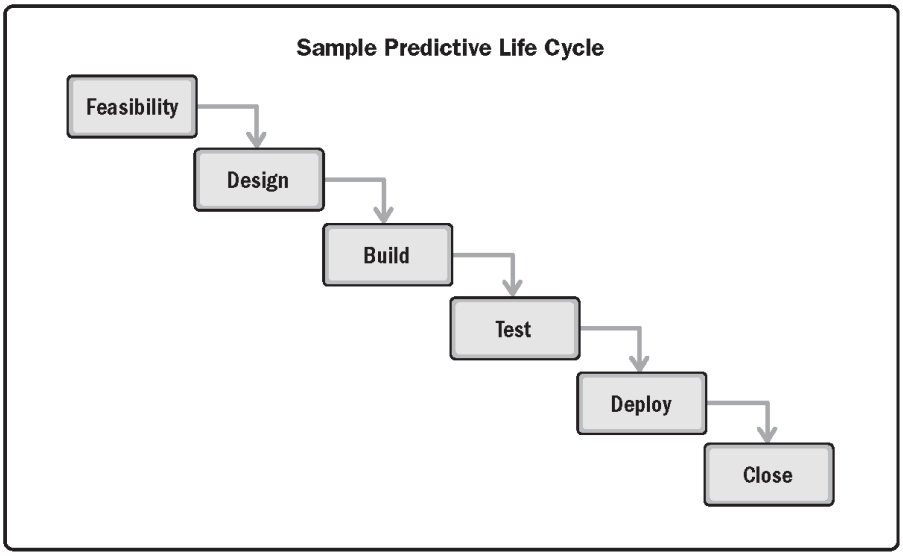

Figure 3-5. Sample Predictive Life Cycle

In certain predictive approaches, it may be optimal to deliver the product partially and incrementally. In this approach, the project is divided into different phases or increments, with each phase or increment delivering a part of the overall product. Each increment builds upon the previous one, progressively adding features and

functionality or completing parts of the product (see Figure 3-6). This approach allows stakeholders to use and benefit from parts of the product before the entire project is completed and can often enhance the value proposition of the project.

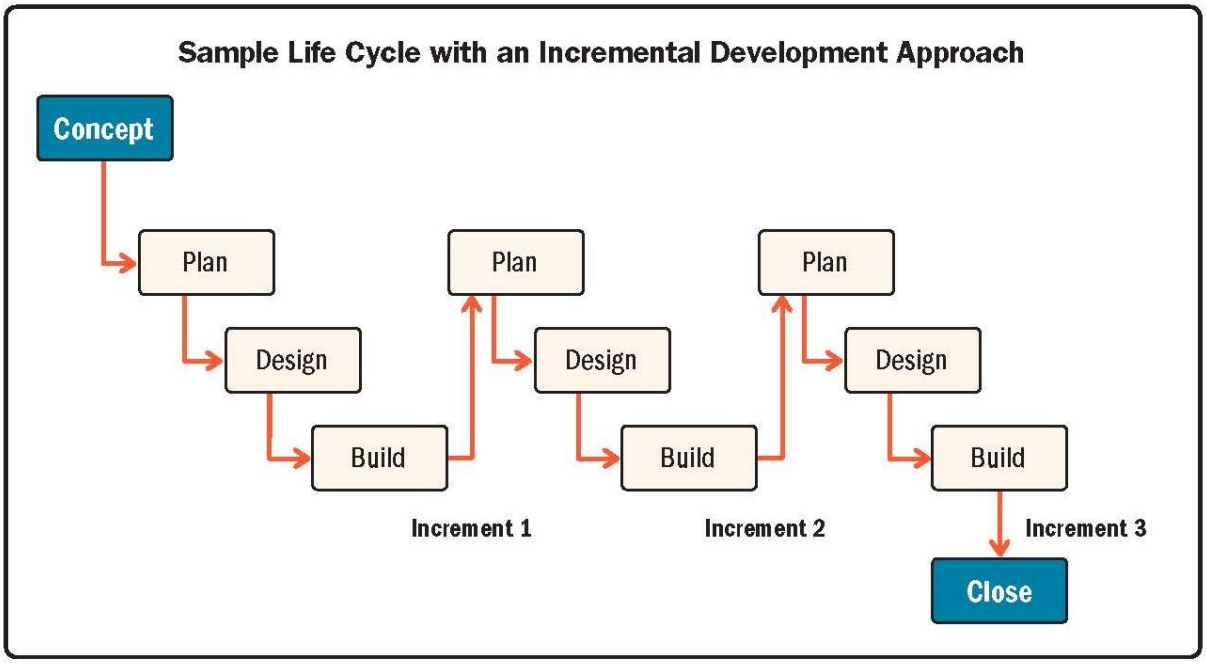

Figure 3-6. Sample Predictive Life Cycle With an Incremental Delivery

- **Adaptive approach.** Also referred to as change-driven or agile approaches, adaptive approaches are useful when requirements are subject to a high level of uncertainty and volatility and are likely to change significantly throughout the project. A clear vision is established at the start of the project, and the initial known requirements are refined, detailed, changed, or replaced in accordance with user feedback, the environment, or unexpected events.

  Adaptive approaches can be both iterative and incremental. However, iterations tend to be shorter than increments, and the product is likely to undergo more change based on more frequent stakeholder feedback.

While agility is a wide mindset that is broader than a development framework, agile approaches can be considered adaptive. Some agile approaches entail iterations that are 1 to 2 weeks in duration with a demonstration of the accomplishments at the end of each iteration. The entire project team (including the developers) is heavily involved in the planning at various levels. In the iteration, the developers determine the scope they can achieve based on the prioritized requirements in the form of the product backlog, estimate the amount of work, and work collaboratively to develop the scope during the iteration (see Figure 3-7).

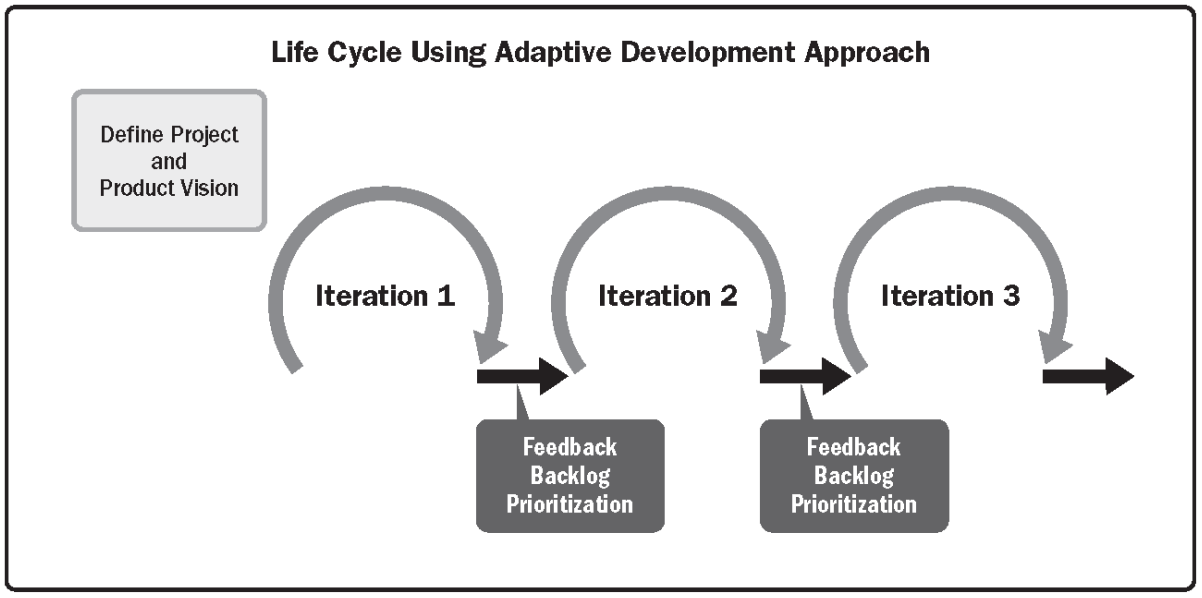

Figure 3-7. Life Cycle With Adaptive Development Approach

Several adaptive methodologies use flow-based scheduling. One goal is to maximize the flow of deliverables based on resource capacity, materials, and other inputs. A related goal is to minimize time and resource waste and maximize the efficiency of processes and the throughput of deliverables. Projects that use these practices and techniques often adopt them from flow-maximizing approaches such as the Kanban method originating in Lean, and multiple techniques originating in the theory of constraints.

It is useful to distinguish between agile methods designed for a single team versus those designed for larger-scale purposes. There is also a meaningful difference between larger-scale methods and larger-scale toolkits; for example, PMI Disciplined Agile® (DA®) is designed to be a tool kit. Figure 3-8 provides examples of additional tool kits that may be considered.

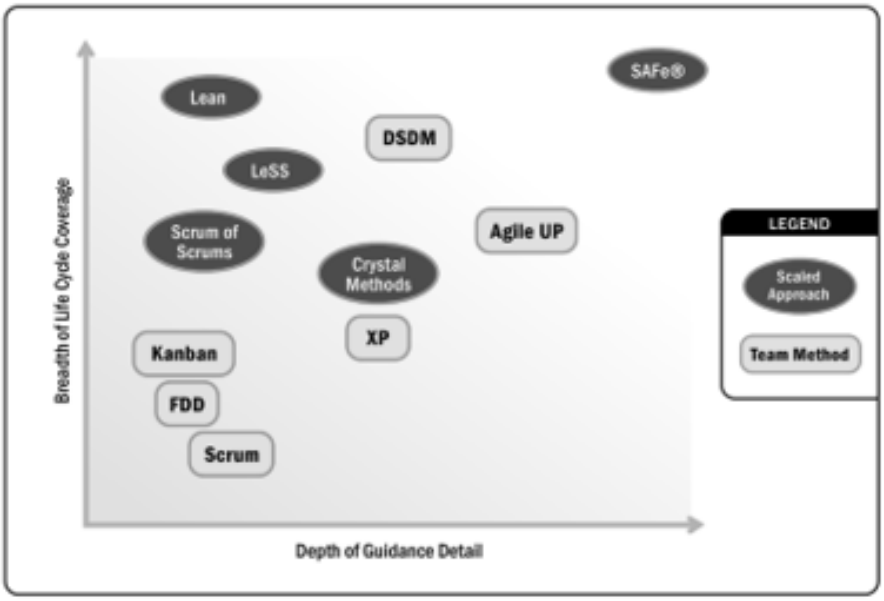

Figure 3-8. Agile Approaches Plotted by Breadth and Detail

- **Design projects.** Adaptive approaches are appropriate for projects such as graphic design or user interface (UI)/user experience (UX) design, where iterative design reviews and customer feedback are essential.
- **New product development.** Adaptive approaches are also appropriate for projects where the final features of the product are refined based on market needs such as the development of a new mobile app or web service. Note: Not all software development projects follow an adaptive approach, but if they have an uncertain and evolving scope with the possibility of partial delivery, then an adaptive approach may be optimal.

- **Hybrid approach.** A hybrid development approach is a combination of adaptive and predictive approaches. This development approach incorporates some elements from a predictive approach and some from an adaptive approach. This development approach might be appropriate when there is uncertainty or risk around the requirements such as the design of a custom home. Once the design is complete, it makes sense to iterate no more than once for the build. Hybrid approaches are also useful when deliverables can be modularized or when there are deliverables that can be developed by different project teams. As the name suggests, a hybrid approach is more adaptive than a predictive approach, but less so than a purely adaptive approach.

  Another example is a project with two main deliverables, where one deliverable is developed using an adaptive approach and the other using a predictive approach (e.g., software that will be developed with an adaptive approach but needs to be installed in a new data center that will be built with a predictive approach).

  With a hybrid approach, the different phases of the project can be approached differently or in the same phase, such as realization/build/construction for instance, which can be carried out in subsidiary streams that use a different way of working—in certain cases, adaptive, and in other cases, predictive.

  There are four popular patterns of hybrid approaches, as demonstrated in Figures 3-9, 3-10, 3-11, and 3-12.

Figure 3-9. Agile Development Followed by a Predictive Rollout

- The early processes utilize an agile development life cycle, which is then followed by a predictive rollout phase.

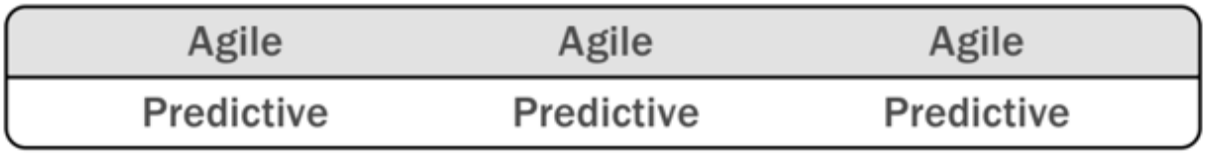

Figure 3-10. A Combined Agile and Predictive Approach Used Simultaneously

- Another approach is to use a combination of agile and predictive approaches throughout the life cycle.

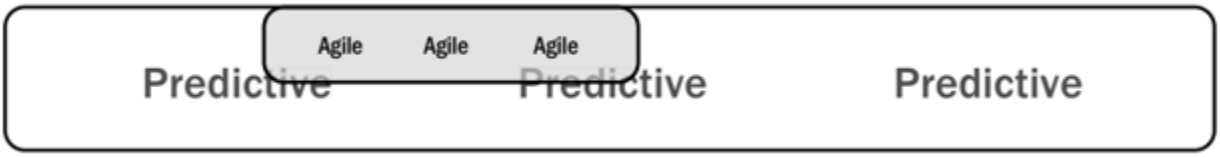

Figure 3-11. A Largely Predictive Approach With Agile Components

- A small agile element within a chiefly predictive project is used.

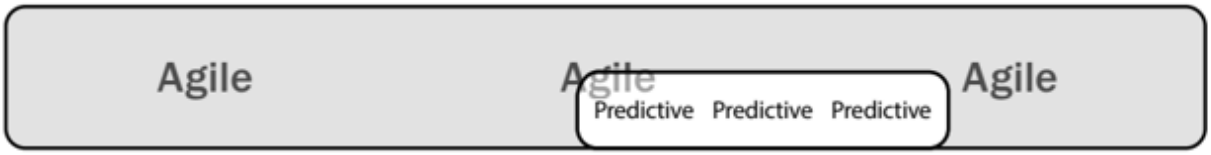

Figure 3-12. A Largely Agile Approach With a Predictive Component

- A largely agile approach with a predictive component is used.

    - **Construction project with IT integration.** A hybrid approach is appropriate during a construction project (predictive) that involves building a smart building with complex IT systems that need to be flexible during development (adaptive).

- **Healthcare solutions.** A hybrid approach is also appropriate during the implementation of an electronic medical records system in a hospital where certain aspects (infrastructure setup) are predictive and the development and integration of the user interface may benefit from an adaptive approach.

The PMI Disciplined Agile® (DA®) tool kit [2] describes three levels of hybrid approaches commonly found in projects across industries:

- **Hybrid Level 1.** A predictive approach is the dominant contributor to the way of working. Meanwhile, some adaptive elements are leveraged to reduce specific project pain points.
- **Hybrid Level 2.** A predictive approach continues to be a major contributor to the way of working. However, at this level, some portion of the project utilizes a more adaptive approach than a predictive one.
- **Hybrid Level 3.** At this point on the spectrum, an adaptive approach becomes a major contributor to the way of working. Some predictive elements are used to satisfy various business constraints.

3.3 Considerations for a Development Approach Selection

There are several factors that influence the selection of a development approach. The factors can be divided into categories of the deliverables, the project, and the organization. The following subsections describe the variables associated with each category.

3.3.1 Deliverables

There are many variables associated with project deliverables that can influence the choice of development approach. The following list outlines some of the variables to consider when selecting the development approach.

- **Degree of innovation.** This variable refers to the degree of innovation required to produce deliverables. When the scope and requirements are well understood, the optimal degree of innovation is likely to be lower compared to when the scope and requirements are less well understood.
- **Requirements certainty.** When the requirements are well known and straightforward to define, a predictive approach will often be optimal.
- **Degree of scope stability.** This variable refers to the degree to which the project scope is stable throughout the project execution. In general, the less stable the scope is, the more optimal it will be to apply an adaptive approach.
- **Ease of change.** If the nature of the deliverable makes it difficult or costly to manage and incorporate changes, then a predictive approach may be optimal.
- **Delivery options.** The nature of the deliverable and whether it can be delivered in components influences the development approach. More details can be found in Section 3.4 on delivery cadence.
- **Risk.** Adaptative approaches can be helpful to reduce risk and uncertainty.
- **Safety requirements.** Products that have rigorous safety requirements often use a predictive approach as there is a need for significant up-front planning to ensure safety compliance.
- **Feedback.** If there is significant value likely to be realized from frequent feedback from the end users and stakeholders, an adaptive approach may be optimal.
- **Regulations.** Environments that have significant regulatory oversight may use a predictive approach due to the required processes, documentation, and demonstration needs.

3.3.2 Project

Project variables that influence the choice of development approach are centered around stakeholders, schedule constraints, and funding availability.

- **Stakeholders.** Projects that use adaptive methods typically call for significant stakeholder involvement throughout the process.
- **Schedule constraints.** If there is value to be realized from delivering something early, even if it is not a finished product, an iterative or adaptive approach may be optimal.
- **Funding uncertainty.** Projects being executed in an environment of funding uncertainty can sometimes generate more value using an adaptive or iterative approach.

3.3.3 Organization

Organizational variables such as the structure, culture, capability, project team size, and location can influence the choice of development approach.

- **Organizational structure.** Organizations with a fixed functional structure—and more traditional hierarchical arrangements—are more inclined to select a predictive approach due to preferred lines of authority. Organizations with a network-oriented structure may be more naturally inclined to embrace more adaptive or hybrid approaches.
- **Culture.** A predictive approach may be a better fit in an organization with a culture of managing and directing, where the work is planned out and progress is measured against baselines. Adaptive approaches may fit better in an organizational culture that emphasizes self-managed teams, flexible thinking, and innovation.
- **Organizational capability.** Organizational policies, ways of working, reporting structures, and attitudes should all be aligned to employ delivery methods successfully. As stated previously, culture and organizational structure promote certain approaches, depending on their specific characteristics.
- **Project team size and location.** Adaptive approaches often work better with smaller project teams. Some adaptive frameworks recommend having between three and nine team members. In predictive and hybrid approaches, this number may depend

more on the project's requirements and scope complexity. Team location is relevant to all approaches, though some adaptive methods call for colocation of team members. For some individuals and teams, remote work may enhance efficiency and focus on the team's execution.

3.4 Delivery Cadence

Based on the selected development approach, projects can have a single delivery, multiple deliveries, or periodic deliveries.

- **Single delivery.** Projects that have a single delivery deliver at the end of the project. For example, a process-reengineering project may not have any deliveries until near the end of the project when the new process is rolled out.
- **Multiple deliveries.** Some projects have multiple deliveries. A project may have multiple components that are delivered at different times throughout the project. For example, a project to develop a new drug may have multiple deliveries, such as preclinical submissions, Phase 1 clinical-trial results (safety, side effects, best dose, and timing), Phase 2 clinical-trial results (effectiveness for 100–300 human volunteers), Phase 3 clinical-trial results (tests efficacy against standard treatments), registration and regulatory approval, and then launch. In this example, the deliveries are sequential. Some projects have deliveries that are developed separately rather than sequentially, such as a project to update building security, as many tasks can be performed in parallel. Deliveries may include physical barriers to entry, new badges, new key code pads, and so forth. Each of these is a separate delivery, but few, if any of them, need to follow a specific order. In all cases, however, the deliveries should be concluded in order to meet or exceed the target business objectives.
- **Periodic deliveries.** Commonly used in adaptive approaches, periodic deliveries are like multiple deliveries but they are on a regular and fixed delivery schedule such as

monthly or semi-monthly. A new software application may have internal deliveries every 2 weeks, and then periodically release the deliveries into the market.

- **Continuous delivery.** Continuous delivery is the practice of delivering increments of value on an ongoing basis, often via very small batch sizes and with the help of automation. This delivery approach allows the team to be responsive to customer feedback and shifting market trends.

3.5 Project Management Process Groups

This standard describes the project management processes employed to meet project objectives. Project management processes are grouped into five Project Management Process Groups: Initiating, Planning, Executing, Monitoring and Controlling, and Closing.

3.5.1 Initiating Process Group

The Initiating Process Group consists of those processes performed to define a new project or a new phase of an existing project by obtaining authorization to start the project or phase. The purpose of the Initiating Process Group is to align the stakeholders' expectations and the project's purpose, inform stakeholders of the scope and objectives, and discuss how their participation in the project and its associated phases can help to ensure their expectations are met. Within the Initiating processes, the initial scope is defined and initial financial resources are committed. Stakeholders who will interact and influence the overall outcome of the project are identified. If not already assigned, a project manager is appointed. This information is captured in the project charter and stakeholder register. When the project charter is approved, the project is officially authorized and the project manager is authorized to apply organizational resources to project activities.

The key benefits of this Process Group are that only projects that are aligned with the organization's strategic objectives are authorized and that the business case, benefits, and stakeholders are considered from the start of the project. In some organizations, the project

manager is involved in developing the business case and defining the benefits. In those organizations, the project manager generally helps write the project charter. In other organizations, the preliminary project work is done by the project sponsor, project management office (PMO), portfolio steering committee, or another stakeholder group.

Business documents are documents that are generally originated outside of the project but are used as inputs to the project. Examples of business documents include the business case and benefits management plan. Figure 3-13 shows the sponsor and the business documents in relation to the Initiating processes.

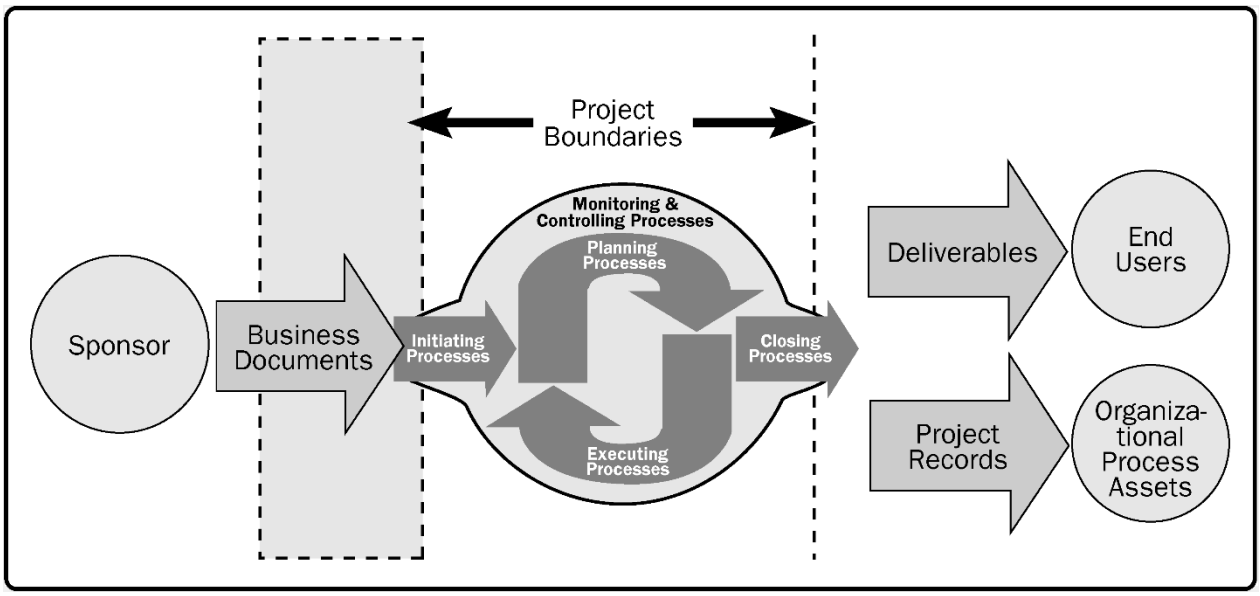

Figure 3-13. Project Boundaries

Involving the sponsors, customers, and other stakeholders during project initiation creates a shared understanding of success criteria. This involvement also increases the likelihood of deliverable acceptance when the project is complete as well as stakeholder satisfaction throughout the project.

3.5.2 Planning Process Group

The Planning Process Group consists of those processes that establish the total scope of the effort, define and refine the objectives, and develop the course of action required to attain those objectives. The processes in the Planning Process Group develop the components of the project management plan and the project documents that are used to carry out the project. The nature of a project may require the use of repeated feedback loops for additional analysis. As more project information or characteristics are gathered and understood, some additional planning may be required. Significant changes that occur throughout the project life cycle may trigger the need to revisit some planning assumptions. This ongoing refinement of the project management plan is called progressive elaboration, indicating that planning is an iterative or ongoing activity. Highly predictive approaches tend to front-load their planning, though plan updates and refinements throughout the project life cycle are not uncommon. In contrast, highly iterative approaches tend to perform some brief, high-level planning up front—often called “roadmapping”—typically followed by a more consistent level of frequent planning and replanning throughout the project life cycle. The key benefit of this Process Group is to define the course of action to successfully complete the project or phase.

The project management team seeks input and encourages involvement from relevant stakeholders while developing the project management plan and project documents. When the initial planning effort is complete, the approved version of the project management plan is used as the authoritative reference for how the project will be managed.

From there, the project management team applies efforts to gain at least a high-level understanding of project scope, analyzing possible trade-offs in the associated time, resource, and investment costs in order to maximize the value proposition of the project. Once the project management team is confident that it has an integrated scope, schedule,

and cost baseline representing best value, it is ready to begin executing.[3] Throughout the project, the Monitoring and Controlling processes track project performance against the integrated baseline.

3.5.3 Executing Process Group

The Executing Process Group consists of those processes performed to complete the work in a manner consistent with the integrated baseline, which can and should be changed whenever such a change would enhance the value proposition of the project. This Process Group involves coordinating resources, managing stakeholder engagement, and integrating and performing the activities of the project in accordance with the integrated baseline. The key benefit of this Process Group is to drive focused execution to achieve the value proposition represented by the integrated baseline. A large portion of the project budget, resources, and time is expended in performing the Executing processes. This is also where the choice of development approach is often most evident.

3.5.4 Monitoring and Controlling Process Group

The Monitoring and Controlling Process Group consists of those processes required to track, review, and regulate the progress and performance of the project; identify any areas in which changes to the plan are required; and initiate the corresponding changes. Monitoring includes collecting project performance data, producing performance measures, and reporting and disseminating performance information. Controlling includes comparing actual performance with planned performance, analyzing variances, assessing trends to effect process improvements, evaluating possible alternatives, and recommending appropriate course corrections as needed. The key benefit of this Process Group is that

[3] Note that many project teams consider a simple high-level roadmapping exercise as sufficient for the initial planning, especially in environments where the scope is expected to change significantly. As a result, the project team may consider a robust analysis of scope/schedule/cost trade-offs to be effectively useless; however, some discussion on how sensitive the project's value proposition is to schedule durations or specific dates can often be crucial, as can any sensitivity to exceeding an investment–cost threshold.

project performance is measured and analyzed at regular intervals, appropriate events, or when exceptional conditions occur, in order to identify and correct variances from the project management plan. The Monitoring and Controlling Process Group also involves:

- Evaluating change requests and deciding on the appropriate response; this can be highly formalized or performed by a single authoritative person (e.g., the product owner in Scrum).
- Recommending corrective or preventive actions in anticipation of possible problems; this can be performed by a dedicated risk or quality management function, or self-managed by a small core team.
- Monitoring project activities against the integrated baseline, or at least against a high-level roadmap.
- Continuous monitoring provides the project team and other stakeholders with insight into the status of the project and identifies any areas that require additional attention. For any project having a stable, integrated baseline, the effort required to perform monitoring and controlling will be fairly consistent through execution. In contrast, for any project undergoing frequent and significant baseline changes—as is common with adaptive approaches—monitoring and controlling are likely to be less consistent. The Monitoring and Controlling Process Group monitors and controls the work being done within each life cycle phase and for the project as a whole.

3.5.5 Closing Process Group

The Closing Process Group consists of the process(es) performed to formally complete or close a project, phase, or contract. This Process Group verifies that the defined processes are completed within all of the Process Groups to close the project or phase, as appropriate, and formally establishes that the project or project phase is complete. The key benefit of this Process Group is that phases, projects, and contracts are closed out appropriately, transitioning to operations in a manner that helps meet or exceed the

project's target business objectives. While there is only one process in this Process Group, organizations may have their own processes associated with project, phase, or contract closure. Therefore, the term Process Group is maintained.

This Process Group may also address the early closure of the project (e.g., when canceling the project becomes the best way to maximize the return on that project investment—or perhaps more accurately, to minimize what may have become a negative return).

These five Process Groups are independent of the application areas (such as marketing, information services, or accounting) or industry focus (such as construction, aerospace, or telecommunications). The Process Groups are also independent of methodology, as all development approaches honor these five in some manner. Individual processes in the Process Groups are often iterated prior to completing a phase or a project.

The output of one process generally becomes an input to another process or is a deliverable of the project or project phase. For example, the project management plan and project documents (e.g., risk register, responsibility assignment matrix, etc.) produced in the Planning Process Group are provided to the Executing Process Group, where updates are made. Figure 3-14 illustrates an example of how Process Groups can overlap during a project or phase.

Process Groups are not project phases. If the project is divided into phases, the processes in the Process Groups interact within each phase. It is possible that all Process Groups could be represented within a phase, as illustrated in Figure 3-15.

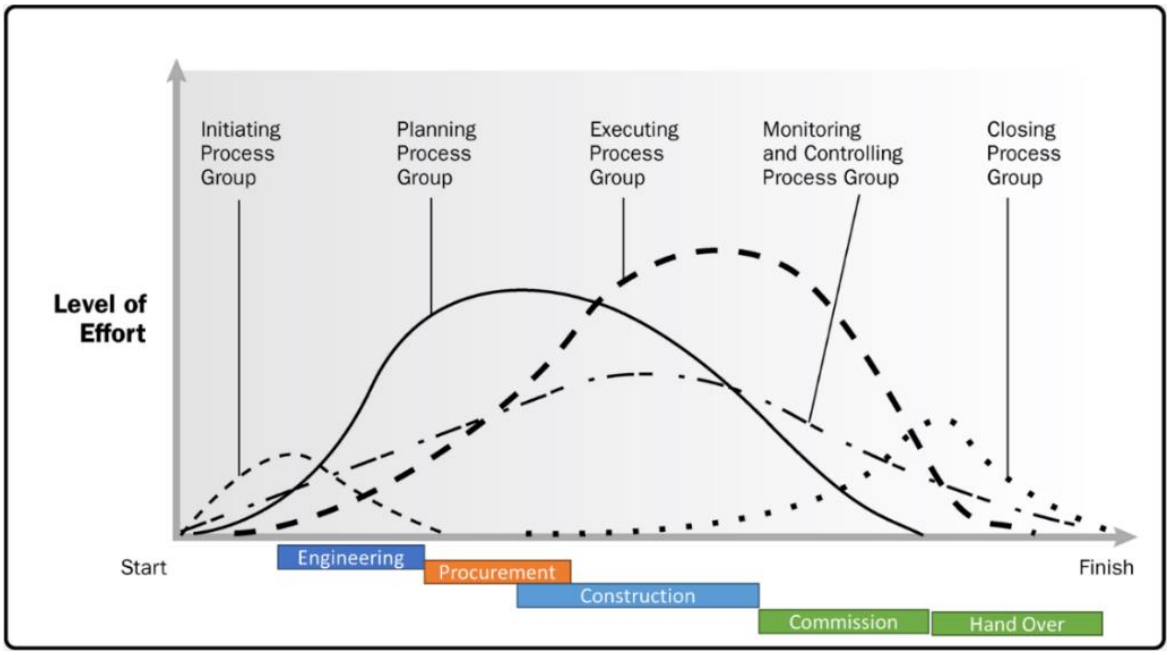

Figure 3-14. Example of Process Group Interactions Within a Project or Phase

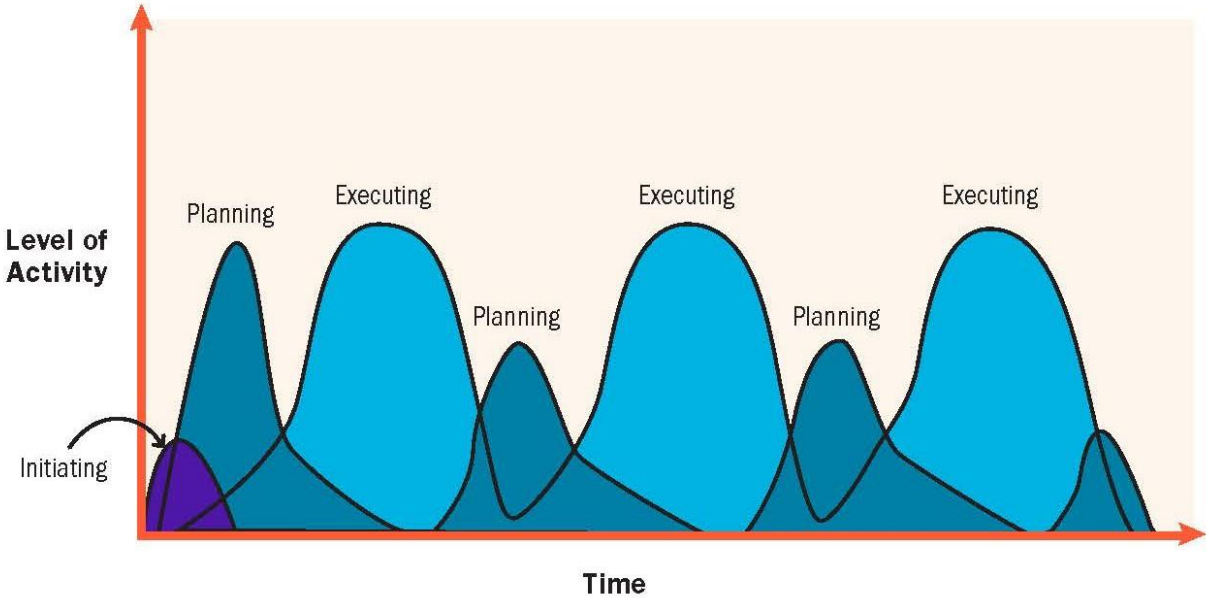

Figure 3-15. Example of Process Group Interactions Within a Project or Phase in an Adaptive Approach

4

Project Management Principles

Principles for a profession serve as foundational guidelines for strategy, decision-making, and problem-solving. Professional standards and methodologies often derive from these principles. In some professions, principles act as prescriptive laws or rules. However, the principles of project management are not prescriptive but, rather, are intended to guide the behavior of people involved in projects.

By adhering to these principles and aligning them with ethical values, project managers can navigate the complexities of their projects and drive meaningful, positive, and sustainable change within their organizations. These principles are broad, allowing for diverse ways that individuals and organizations can maintain alignment with them, thereby fostering a dynamic and responsive project management environment.

Because the principles of project management provide guidance, their application and the manner 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 another. However, in practice, there may be instances when the principles overlap, reflecting the complex and interconnected nature of project management.

This section defines the six principles of project management:

- Adopt a holistic view (see Section 4.3).
- Focus on value (see Section 4.4).
- Embed quality into processes and deliverables (see Section 4.5).
- Be an accountable leader (see Section 4.6).
- Integrate sustainability within all projects areas (see Section 4.7).

- Build an empowered culture (see Section 4.8).

Collectively, these principles describe the mindset of project management, which in turn guides the mechanics of project management. This interplay between mindset and mechanics is discussed in the following section.

4.1 The Project Management Mindset

Project management is much more than a collection of performance domains, processes, and methods; it represents a mindset fundamental to driving change and generating value within organizations. The project management mindset is described by a set of principles that guide the practice of project management mechanics.

The project management mindset is composed of three dimensions: proactive, ownership and value-driven. Figure 4-1 provides an overview of the relationships among each dimension and the correlation with the project management principles described in this section.

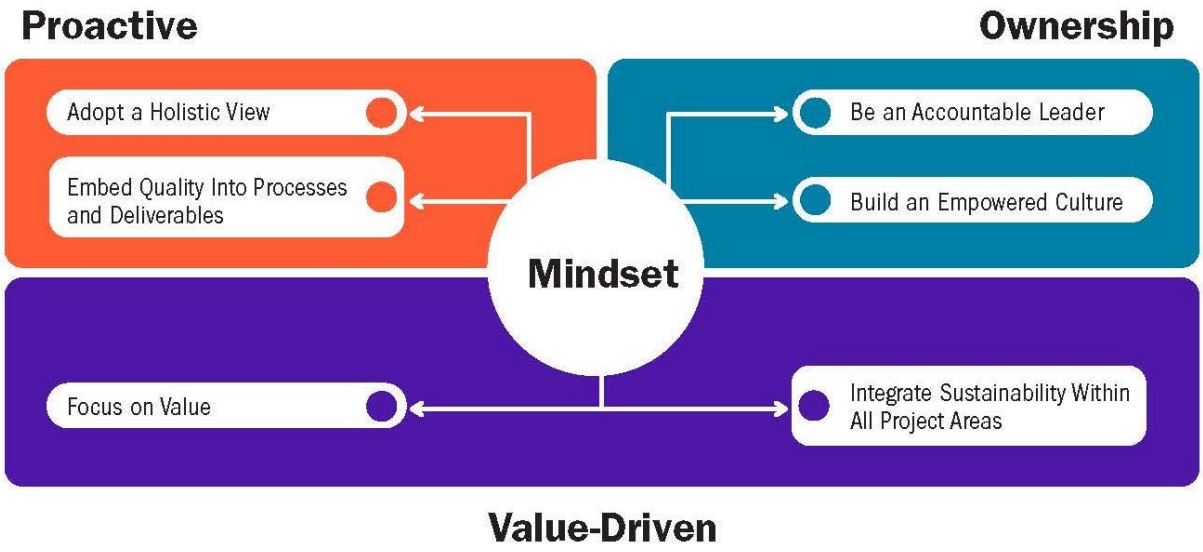

Figure 4.1. The Project Management Mindset

The proactive mindset in project management emphasizes systems thinking and appropriate levels of planning to help ensure that target quality thresholds are embedded within every phase of the project. The proactive mindset integrates the principles of “Adopt a Holistic View” and “Embed Quality Into Processes and Deliverables,” promoting a comprehensive and forward-thinking project management culture with a focus on managing constantly arising project challenges proactively and in a timely manner.

The ownership dimension focuses on the accountability of leaders and the development of a high-performance team culture. This dimension integrates the principles of “Be an Accountable Leader” and “Build an Empowered Culture,” ensuring that leadership is not just about making decisions but also about fostering a culture of accountability and collaboration. This mindset supports the development of strong, self-reliant teams that drive project success through shared ownership and commitment.

The value-driven dimension emphasizes the importance of delivering maximum value while integrating sustainability into the project life cycle. This dimension encompasses the principles of "focus on value" and "integrate sustainability within all project areas," and ensures that projects not only align with organizational goals, but also make a positive contribution to the broader community, the environment, and the triple bottom line of people, profit, and planet. This dimension helps organizations achieve project success that is both impactful and sustainable.

By integrating the proactive, ownership, and value-driven mindset dimensions, organizations can create a solid framework for achieving exceptional project results. This holistic approach ensures that projects are planned and executed in a manner intended to meet or exceed target business objectives (proactive), lead with accountability and empowerment (ownership), and drive projects forward with a focus on value and sustainability (value-driven). Together, these dimensions enable organizations to deliver projects that are not only successful, but also socially responsible and environmentally sustainable.

4.2 Principles and Performance Domains

Performance domains are designed to enable the practical application of project management principles and ensure this mindset is translated into effective practices and outcomes. These performance domains include the knowledge, processes, and methods that are essential for effective project delivery. Key project management performance domains include Governance, Scope (including quality), Schedule, Finance, Stakeholders, Resources, and Risk. Each of these domains plays a crucial role in operationalizing project management principles by providing a structured approach to managing various aspects of a project, from planning and execution to monitoring and controlling.

The principles of project management (i.e., adopt a holistic view, focus on value, embed quality into processes and deliverables, be an accountable leader, integrate sustainability within all project areas, and build an empowered culture) are comprehensively covered by one—or several—performance domains.

For instance, the principle of adopt a holistic view is supported by all domains, which helps ensure that all project aspects are considered and aligned. The principles of embedding quality into processes and deliverables and focusing on value are primarily addressed within the Governance, Scope, Risk, Schedule, Finance, and Stakeholder domains, ensuring the deliverables genuinely help drive realization of the project's target business objectives. The principle of being an accountable leader intersects with the Governance, Stakeholder, and Resource performance domains, highlighting the importance of leadership in project success. Finally, the principles of integrating sustainability within all project areas and building an empowered culture are relevant across all domains.

4.3 Adopt a Holistic View

Holistic View	
Adopt a holistic view throughout the project life cycle—from planning all the way to execution and handover—ensuring seamless integration and alignment at every stage.	➢ Viewing a project holistically helps ensure that decisions consider all interconnected elements, optimizing alignment with overarching objectives and enhancing project sustainability. ➢ Proactively managing risks across all project domains anticipates challenges and strengthens project resilience, minimizing potential disruptions. ➢ Engaging stakeholders throughout the project life cycle fosters collaboration, integrates diverse perspectives, and raises the probability that desired outcomes are achieved.

Figure 4-2. Adopt a Holistic View

The principle of adopting a holistic view involves understanding and managing projects by considering all components and their interdependencies as part of a larger system. This perspective aligns with the concept of systems thinking, which emphasizes the interconnectedness of elements within a project. This principle provides a framework for seeing interrelationships in their full context and for seeing patterns rather than static "snapshots."

A holistic view in project management ensures that all project components, including processes, resources, stakeholders, and external factors, are considered in decision-making and results in actions that are based on a broader context in which the project operates. Given that all projects are investments, a unifying objective is that all projects are undertaken with the expectation that the outcome will be worth more than what is sacrificed in its pursuit. With such a unifying objective in mind, the principle of adopting a holistic view

can enhance alignment with organizational objectives while also improving stakeholder engagement and risk management.

4.3.1 Project Impact

Applying a holistic view to project management results in a more integrated and cohesive approach to achieving project goals. Key characteristics of projects managed with a holistic view include:

- **Alignment with organizational goals.** Projects are more likely to contribute positively to the strategic objectives of the organization.
- **Integrated decision-making.** Decisions are made considering the entire project ecosystem, leading to more sustainable and effective outcomes.
- **Enhanced communication.** Clear and consistent communication across all stakeholders helps ensure that everyone is informed and aligned.
- **Managing uncertainty and complexity.** In projects with high uncertainty, a holistic view ensures that planning and execution incorporate techniques to progressively identify and mitigate sources of uncertainty that are likely to harm the project's value proposition. Similarly, for highly complex projects, a holistic approach seeks to understand and simplify the intricate interdependencies within the project, uncovering inherent simplicity.
- **Proactive risk management.** By having a holistic view from the onset, the project management team can have a wider and clearer understanding of the project's interconnectedness. Hence, the project management team is in a better position to identify the potential risks and opportunities early on and visualize their direct and indirect impacts, which in turn drives informed and timely decision-making to mitigate risks while exploiting opportunities.

By embracing a holistic view, project managers and stakeholders can ensure that all aspects of the project are considered, leading to better decision-making and more effective project execution, which not only aligns with organizational goals but also fosters resilience and adaptability, resulting in a successful project.

4.3.2 Principle in Action

To provide an example of this principle in action, consider a nonprofit, nongovernmental organization (NGO that is launching a project to promote public health practices in a local community, supported by a dedicated volunteer team. As per a conventional, nonholistic approach, the focus is on creating educational materials and then organizing events. However, midway through the project, the NGO learns of a local government initiative with similar goals, offering a funding grant for aligned efforts. Recognizing the potential for greater impact, the team adapts their communications to align with the government initiative, qualifying for the grant. While this introduces stricter policy and communication constraints, the project now has more resources and broader reach, enabling the NGO to make a more significant and lasting impact on public health in the community.

4.3.3 Connected Domains

Adopting a holistic view is one of the most important principles as it interacts with and elevates the performance of all domains. By applying this principle, each domain can be managed more effectively, ensuring a cohesive and integrated approach to project management. This principle benefits each project management performance domain in the following ways:

- **Scope.** The principle of adopting of a holistic view helps ensure alignment of all project activities with the overall project scope, preventing scope creep and misalignment by considering the entire project ecosystem. Also, by promoting clarity on the business objectives to be achieved, rather than merely the end deliverables,

the principle encourages creative solutioning, allowing an equal opportunity to achieve simpler but more effective, sustainable, and long-lasting solutions.

- **Governance.** A holistic view promotes transparency and accountability, enabling informed decision-making that drives progress in a manner that maximizes the positive impact from project investments for a given portfolio, program or project.
- **Risk.** A holistic view facilitates proactive risk management by identifying and managing risks across all project domains, understanding their interdependencies and developing robust risk management strategies.
- **Stakeholders.** The principle of adopting a holistic view enhances stakeholder engagement by ensuring inclusive participation in decision-making processes, leading to improved satisfaction and collaboration as their perspectives are integrated into the project strategy.
- **Finance.** A holistic approach optimizes financial management by aligning budget allocations with project priorities, controlling project costs effectively, and anticipating financial impacts of changes within the broader project context—all aimed at maximizing returns on project investments.
- **Schedule.** A holistic view improves scheduling by considering interdependencies of all project activities, making timelines more realistic and adaptive to changes and maintaining alignment with project goals. By implementing a holistic view, the project management team ensures that most relevant what-if scenarios are drawn out and evaluated, and that candidate baseline changes are evaluated for which one might yield the highest return on investment for that project—and for the project's portfolio and program contexts overall.
- **Resources.** Having a holistic mindset also emphasizes understanding how all project components are intended to integrate in order to maximize the project's value proposition. This view makes it easier to drive the flow of completed work, avoid unnecessary resource conflicts, and resolve conflicts more quickly, all according to what drives the most value.

4.4 Focus on Value

Value	
Continually evaluate and adjust project alignment to business objectives and intended benefits and value.	➢ Value per unit of investment is the ultimate indicator of project success. ➢ Value can be realized throughout the project, at the end of the project, or following project completion. ➢ Value, and the benefits that contribute to it, can be defined in quantitative and/or qualitative terms. ➢ Project teams focus on outcomes that maximize value creation and meet or exceed target business objectives. ➢ Project teams evaluate progress and adapt to maximize the expected value.

Figure 4-3. Focus on Value

Value, also referred to as project value, is the ultimate success indicator and driver of projects, requiring a clear focus from the project manager. Value is the overall worth or importance of the project outcomes and benefits to stakeholders. This value encompasses the deliverables and their related outcomes, particularly from the perspective of key stakeholders. Value can be expressed in various ways, such as financial contributions to the sponsoring or receiving organization, social benefits, or the customer's perceived benefits from the project result. Regardless of their form, all projects exist to pursue target business objectives that are worth more than what is sacrificed in pursuit of those objectives—often significantly more than what might be available via alternative investment options.

Project justification and organizational strategy, often detailed in a business case, provide the project team with the necessary information to make decisions that meet or exceed the intended business value. Desired outcomes should be clearly described, iteratively assessed, and updated throughout the project life cycle. The project team should adapt to changes and continuously evaluate progress against the desired outputs, baselines, and

business case to ensure alignment with the intended outcomes. If misalignment occurs or the project is unlikely to deliver the intended value, it may be best to terminate the effort.

A focus on value aims to maximize the return on project investments for the customer, performing organization, or other stakeholders. This effort involves delivering the required functionality and quality by optimizing workflow with acceptable risk exposure, using minimally necessary resources and avoiding unnecessary rework and other types of waste. In adaptive projects without a fixed scope, the project team collaborates with the customer to determine which features are worth the investment in both time and money.

The value contribution of project work can be short term or long term and may be intertwined with operational activities, making it challenging to isolate. When a project is part of a program, evaluating value at the program level is necessary to properly direct the project. A reliable evaluation of value should consider the entire context and life cycle of the project as well as its expected payback period, which may extend well beyond project closeout.

4.4.1 Project Impact

Shifting focus from deliverables to intended outcomes allows project teams to deliver on the project's vision or purpose, rather than merely creating a specific deliverable. While a deliverable may support the intended project outcome, it may not fully achieve the project's vision or purpose. For example, customers may want specific software because they believe it will resolve their business need for higher productivity. The software is the output of the project, but it doesn’t enable productivity by itself. Adding a new deliverable, such as training in the use of the software, can enable a higher-value outcome. If the project’s output fails to enable higher productivity, then the entire value proposition of the project evaporates and becomes more harmful than helpful, given the investment in time and resources. Therefore, project teams and stakeholders should understand both the deliverable and the intended outcome from the deliverable.

4.4.2 Principle in Action

To provide an example of the principle of focusing on value in action, consider a company that is undertaking a project to roll out a new internal technology system. A conventional approach might focus on choosing a product with the most features for the price and then customizing it to meet all of the requested stakeholder requirements. In contrast, a value-focused approach aligns the project with business outcomes like maximizing usage and adoption. A deeper look might reveal a fast-paced organizational culture that values simplicity of experience over complexity of features. By reducing features and customizations, the more simplified solution might better match the culture, and thus increase overall usage and satisfaction.

4.4.3 Connected Domains

The focus on value principle interacts with and elevates the practice of all project management performance domains. By applying this principle, each domain can be managed more effectively, ensuring that the project maximizes value for the stakeholders. The relevant connections between this principle and specific performance domains includes:

- **Finance**. The principle of focusing on value ensures that financial resources are allocated efficiently to maximize the project's value. This effort involves continuous assessment of financial performance against the business case to ensure that the project remains viable and delivers the expected financial benefits.
- **Governance.** A value-focused approach establishes frameworks and processes that ensure decisions are made in alignment with the project's value objectives. Governance is “right sized” to focus on value delivery, not bureaucracy.
- **Schedule.** A focus on value helps to ensure that time is managed effectively to help the project to deliver the expected value within the target timeframe. This effort

includes planning and controlling the project schedule to avoid delays that could diminish the project's value.

- **Scope.** A value-focused approach can help to define and control the project scope to ensure that all work contributes to the intended value. This approach involves continuous scope management to prevent scope creep and ensure that the project remains focused on delivering its key outcomes.
- **Stakeholders.** A value mindset can help when engaging with stakeholders to understand their needs and expectations, ensuring that the project delivers value from their perspective. Effective stakeholder engagement helps align the project's outputs with the desired outcomes and enhances stakeholder satisfaction.

4.5 Embed Quality Into Processes and Deliverables

Quality	
Embed quality into processes and deliverables to maintain a consistent focus on achieving target quality thresholds. This emphasis on quality helps to ensure outcomes that meet project objectives and align with the needs, requirements, and acceptance criteria set by relevant stakeholders.	➢ Project quality entails satisfying relevant stakeholders' expectations and fulfilling project and product requirements. ➢ Quality focuses on meeting acceptance criteria for deliverables. ➢ Project quality entails ensuring project processes are appropriate and as effective as possible.

Figure 4-4. Embed Quality Into Processes and Deliverables

Quality is the degree to which a set of inherent characteristics of a project deliverable helps to meet or exceed the project's target objectives. Embedding quality includes the ability to satisfy customers and stakeholders' stated or implied needs as a matter of course, with minimal work. The quality of the deliverable is measured by both the conformance to acceptance criteria and fitness for use.

Foundational to embedding target thresholds of quality is continuous improvement and waste elimination, because they help project teams to meet or exceed target business objectives. By focusing on continuous improvement, project teams can identify areas for improvement and make changes to their processes and outcomes. By eliminating waste, project teams can streamline their processes and reduce the amount of time and resources required to deliver on the target quality thresholds. Within these frameworks, quality may have several dimensions, which may differ across industries and projects. These dimensions include, but are not limited to, the following:

- **Performance.** Does the deliverable function as the project team and other stakeholders intended?
- **Conformity**. Is the deliverable fit for use? Does it meet the specifications?
- **Reliability.** Do the deliverables produce the target level of consistency necessary to meet or exceed desired outcomes?
- **Resilience.** Is the deliverable able to cope with unforeseen failures and quickly recover?
- **Satisfaction.** Does the deliverable elicit valuable feedback from customers and/or end users? This includes usability and user experience.
- **Uniformity.** Does the deliverable show parity with other deliverables produced in the same manner?
- **Efficiency.** Does the deliverable produce the greatest output with the least number of inputs and effort?
- **Sustainability.** Does the deliverable produce a positive impact on economic, social, and environmental parameters?

Project teams measure quality using metrics and acceptance criteria based on technical specifications. A specification is an attribute that is necessary to be present in a project deliverable to help meet or exceed a target business objective. Quality is linked to the product acceptance criteria, as described in the project charter, statement of work (SOW),

or other key documents. In some projects, as the project evolves through experimentation, these criteria should be regularly updated and refined. Ensuring these criteria are validated during the acceptance process is essential to meeting project objectives and delivering a successful product.

Quality is also relevant to the project approaches and activities used to produce the project's deliverables. Project teams can pursue the target quality thresholds of both the project and the product by providing training, conducting inspections, and performing testing. Additionally, project activities and processes are evaluated through reviews and audits. Both approaches aim to identify and prevent errors and defects, thereby maintaining an accelerated flow of completed work while pursing target quality thresholds.

4.5.1 Project Impact

The objective of quality activities is to help ensure that what is delivered meets the objectives of the customer and other relevant stakeholders. The intention is to minimize the waste of resources and maximize the probability of attaining the desired outcome. This results in:

- Moving the deliverables to the point of delivery quickly, and
- Early detection and prevention of defects to minimize the need for rework or reduce material waste.

The objective of quality activities is the same whether dealing with an up-front, well-defined set of requirements or a set of requirements that is progressively elaborated and incrementally delivered.

Quality management processes and practices help produce deliverables and outcomes that meet project objectives and align to the expectations, requirements, and acceptance criteria expressed by the organization and relevant stakeholders. Close attention to quality in project processes and deliverables creates positive outcomes, including:

- Project deliverables that are fit for purpose and that meet acceptance criteria, stakeholder expectations, and business objectives with minimal defects;
- Timely delivery, enhanced cost control, and the level of product quality associated with meeting or exceeding target business objectives;
- Reduced rework, scrap, and customer complaints;
- Effective supply chain integration, increased productivity, and robust service delivery;
- Higher project team morale and satisfaction; and
- Better decision-making and continuous process improvement.

4.5.2 Principle in Action

To provide an example of the principle of embedding quality into processes and deliverables in action, consider a company that is expanding its wholesale shipping services to support the Latin American market. A conventional approach would focus on meeting the governmental shipping specifications for each target market and ensuring compliance with regulatory requirements.

In contrast, a quality-driven approach would investigate the expectations of the broader stakeholder system, including target distributors and retailers. This deeper analysis might reveal that high-value customers have stricter standards than the regulatory bodies, which could influence packaging, delivery times, or product handling. By addressing these higher standards, the company not only meets legal requirements but also exceeds customer expectations, leading to stronger market entry, enhanced customer satisfaction, and potentially greater market share.

4.5.3 Connected Domains

The principle of embedding quality into processes and deliverables is critical in all project management performance domains because it is essential to ensuring that project outcomes meet stakeholder needs and expectations. This principle should be a part of the project's design across people, processes, and structure. Different industries, companies, and contexts have different approaches to quality, but commitment to achieving the right level of quality is entrenched in the successful outcomes of all projects, across domain areas. A lack of commitment to the right level of quality in any domain can lead to erosion of the end result and poor project outcomes. This quality-focused principle affects the performance domains in the following ways:

- **Scope.** The connection between quality and the scope performance domain is particularly strong, as scope management inherently involves quality management activities. Ensuring that project deliverables meet the requirements, necessary standards, and specifications is an important aspect of scope management. By embedding the right level of quality into the scope, the project team can ensure that all deliverables are not only completed within the defined boundaries, but also meet quality standards, which prevents rework and ensures stakeholder satisfaction.
- **Governance.** Embedding quality into governance processes improves transparency and accountability. Governance structures can ensure that quality standards are met and can enable decisions that prioritize quality in all project activities.
- **Risk.** The domain of risk encompasses the proactive management of quality-related risks. By embedding quality into every aspect of the project, potential quality issues are anticipated and mitigated, reducing the risk of defects and noncompliance.
- **Stakeholders.** Quality in this performance domain ensures that stakeholder expectations are met. Through continuous communication, stakeholder feedback is integrated into the project aspects, leading to increased satisfaction and collaboration.

- **Finance.** Embedding quality into finance helps control costs by preventing rework and reducing waste. Aligning financial management with quality objectives supports cost control while pursuing the project's business objectives.
- **Resources.** In this performance domain, embedding quality ensures that the right resources are allocated to maintain target quality thresholds. This effort includes using skilled personnel and appropriate tools, helping to ensure that the project is adequately supported to deliver intended results.

4.6 Be an Accountable Leader

Accountability	
Demonstrate leadership behaviors and be an accountable leader by guiding your team with integrity, making responsible decisions, and fostering a culture of trust and responsibility.	➢ Leaders influence, inspire, and motivate others. ➢ Leaders are accountable for their actions. ➢ Effective leaders lead by example. ➢ Leaders demonstrate respect. ➢ Effective leaders adapt their style to the situation. ➢ Leaders foster an environment of psychological safety. ➢ Any project professional, stakeholder, and team member can demonstrate leadership behaviors.

Figure 4-5. Be an Accountable Leader

Projects create a unique need for effective leadership. Unlike general business operations, where roles and responsibilities are often established and consistent, projects often involve multiple organizations, departments, functions, or vendors that do not interact on a regular basis. Moreover, projects may carry higher stakes and expectations than regular operational functions. As a result, a broader array of managers, executives, senior contributors, and other stakeholders may attempt to influence a project. This diversity of influence often creates higher degrees of confusion and conflict. Consequently, high-performing projects

demonstrate effective leadership behaviors more frequently, and from more people than lower-performing projects. Accountable leadership is about being responsible and taking ownership of the project's target business objectives, as well as the actions taken and the decisions made. When assigned work, accountability means being responsible for executing that work. The key characteristics of an accountable leader include:

- **Integrity.** Integrity is a value required of all team members, where people demonstrate the moral principles that guide their decisions, particularly in tough situations. The decisions made by a leader with integrity are focused on the common good.
- **Self-awareness.** Effective leaders have the capability to make a connection between their feelings, thoughts, and actions by understanding of their motives, values, and strengths. This self-awareness helps professionals build relationships to accomplish results.
- **Respectful, humble, and available.** Leaders should be open to feedback and should work for the team, supporting their needs and removing barriers when possible. These values form the basis for the concept of servant leadership.
- **Flexibility and adaptability.** Leaders should have the capability to adapt their leadership style to the situation and the audience. Leadership styles should be adapted based on the project's needs without losing the leader's core values.
- **Shared leadership.** Leadership is not exclusive to any specific role; in different moments of the project, a team member, stakeholder, or professional may take the leadership seat. High-performing projects feature multiple people exercising leadership skills. Leadership is different from authority. Authority is the position of control given to individuals within the organization while leadership is about inspiring and motivating others through leading by example.

4.6.1 Project Impact

As leaders, project managers influence—through their behavior—all of the professionals involved in a project. The project manager motivates, influences, inspires, and acts as a role model. This influence is a very important aspect that the project manager should be aware of at each moment, taking responsibility for their actions and the related consequences.

Accountable leaders focus on delivering value beyond the project work. They commit to promoting the growth of other leaders around them and making a positive impact in their area of influence. The implications of this principle are profound and diverse for the project manager and all relevant stakeholders and lead to:

- Enhanced team performance;
- Increased trust and morale;
- Improved decision-making;
- Greater stakeholder confidence; and
- Resilience in facing challenges.

4.6.2 Principle in Action

To provide an example of the principle of being an accountable leader, consider a government megaproject that involves multiple vendors. A conflict arises among the vendor teams over previously arranged shift rotations. A conventional approach would focus on enforcing the contractually agreed-upon labor policies and holding each vendor accountable for resolving the discontent among their staff.

In contrast, an accountable-leadership-driven approach could involve holding a series of cross-vendor discussions to explore the root cause of the issue and identify acceptable adjustments to the shift rotations. This collaborative approach not only resolves the conflict

but also removes friction that could undermine quality and productivity, fostering a more cohesive and motivated project team.

4.6.3 Connected Domains

This principle of being an accountable leader supports many project management performance domains and can enhance the effectiveness of the project manager when well applied, such as:

- **Governance.** In the Governance performance domain, accountable leadership ensures that decisions are made transparently and ethically. Leaders take ownership of the project's direction and outcomes, fostering trust and ensuring that governance structures are upheld.
- **Stakeholders.** An effective leader is able to engage and influence stakeholders to obtain the support that is needed for the project.
- **Resources.** Self-awareness helps to build relationships and foster human interactions to obtain better results. An effective leader manages resources with responsibility and integrity.
- **Risk.** An effective leader can adapt and be flexible to opportunities or threats that a project team may face. Effective leaders demonstrate integrity and accountability to ensure that the decisions made are for the benefit of the project.

4.7 Integrate Sustainability Within All Project Areas

Sustainability	
Consistently integrate sustainability practices across all project areas, as project managers, teams, and sponsors are all responsible for this integration.	➢ Integrating sustainability means considering people, the planet, society, and profit while performing project-related activities. ➢ Sustainability encompasses addressing environmental and social impacts, considering the well-being of people globally, and implementing sustainable strategies. ➢ The sustainability principle can be evident at the tactical, operational, and strategic levels of all projects.

Figure 4-6. Integrate Sustainability Within All Project Areas

The principle of integrating sustainability within all project areas involves meeting present needs without compromising the ability of future generations to meet their own needs. This principle also encompasses incorporating technology for a better future while avoiding negative externalities for the organization, community, and environment. The principle involves internalizing any externality that the project should create, if any (see Figure 4-7). This approach addresses environmental impacts, considerations for the well-being of people globally, and the implementation of sustainable strategies.

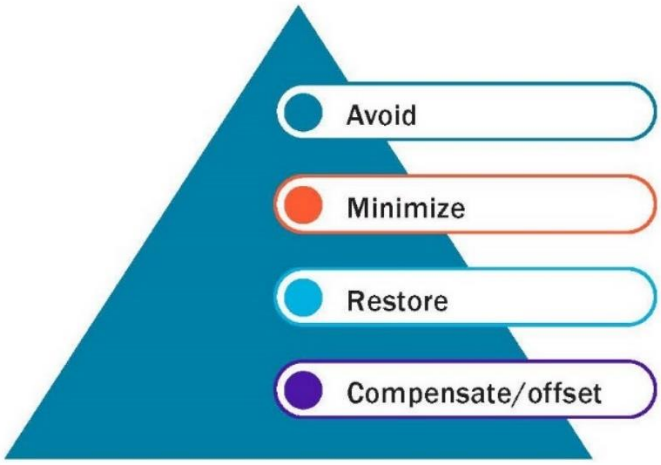

Figure 4-7. The Sustainability Pyramid

Sustainability is essential for addressing global challenges such as climate change, community impact, and societal injustice while implementing corporate social responsibility and good technological practices. The dual principle of sustainability offers significant benefits when integrated into project management because of the triple bottom line concept. Other benefits for organizations implementing sustainability broadly are:

- **Organizational benefits.** These benefits include employee satisfaction, performance improvements, staff retention, and stronger recruitment. Additional benefits include improved relationships with shareholders and stakeholders, reduced risk and impact, increased resilience and organizational learning, and enhanced decision-making processes. This overall improvement results from resolving ethical dilemmas, enhancing corporate governance, complying with laws and regulations, reducing litigation costs, increasing brand value, and boosting corporate reputation.
- **Operational benefits.** These benefits include innovation in internal processes, productivity improvements due to operational waste minimization, and designing for sustainability.

- **Financial benefits.** These benefits include but are not limited to direct cost savings from reduced material and energy usage, lower operational costs, decreased capital expenses, increased share value, and investments from sustainable finance investors.
- **Benefits related to customers and stakeholders.** These benefits include increased satisfaction and innovation driven by active listening and open communication with customers and stakeholders throughout the project life cycle. Additional advantages are market share growth due to the rising demand for sustainable and innovative products globally, a stronger reputation, and new market opportunities.

4.7.1 Project Impact

Sustainability principles can be evident at all tactical, operational, and strategic levels of projects. Green processes and practices may already be integrated into enterprise environmental factors (EEFs). For example, enterprise sustainability or information management strategies may impose requirements on project deliverables and teams. Additionally, these principles can impact projects from initiation to closure. For instance, sustainability-related KPIs may be included in the project scope statement, project charter, business case, contracts, or other formal documents authorizing project activities. Compliance can be monitored during project planning, execution, and closure. As sustainability is integrated into strategic goals for most organizations and communities, projects play a pivotal role in realizing sustainable practices and outcomes (see Figure 4-8). Instilling sustainability in project management requires:

- Having a societal perspective for projects and their outcomes;
- Maintaining broad stakeholder engagement through a "management for stakeholder" approach;
- Leading the team and stakeholders with responsible (ethical) leadership; and
- Holistically focusing on the value generated by the project from the perspective of the broader stakeholder audience such as value creation and distribution.

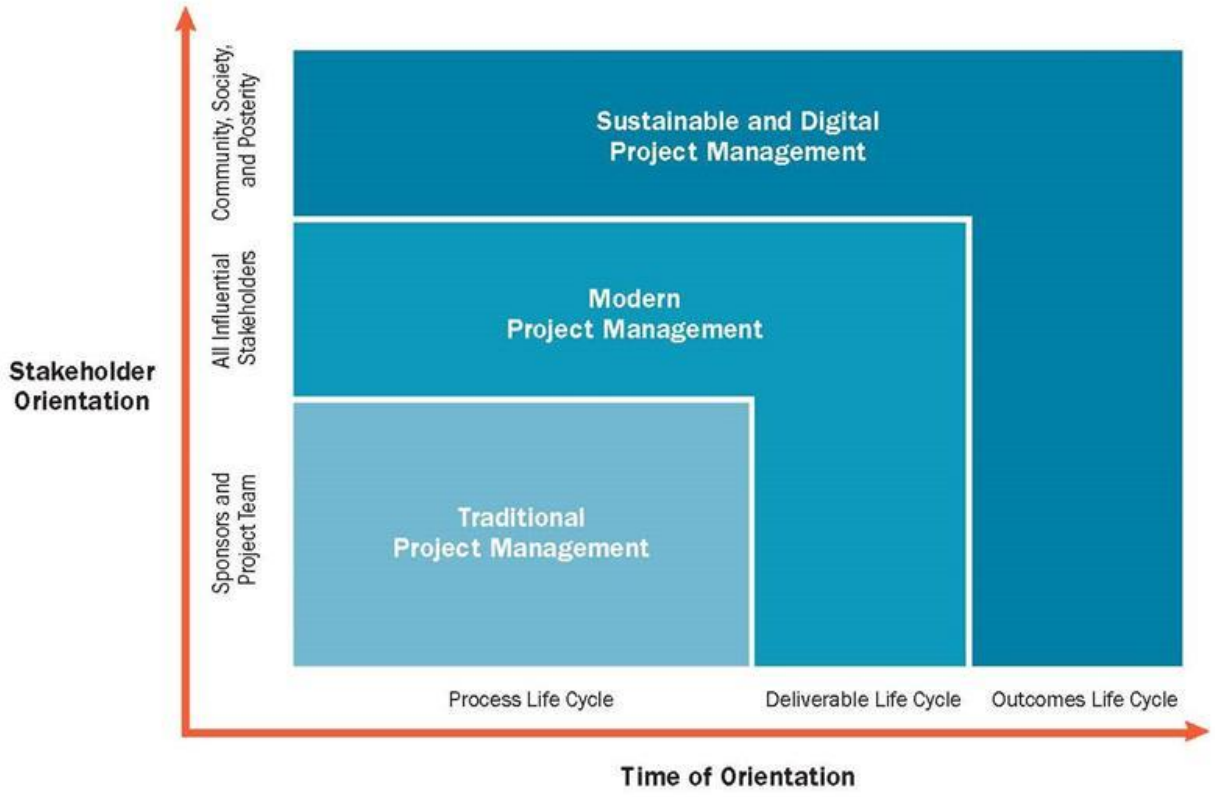

Figure 4-8. Sustainability Principle Broadens the Scope Timeframe of Project Management

The inclusion of sustainability goals does generate some challenges, such as:

- Integrating sustainability broadens the scope of project management by extending the timeframe and involving more stakeholders. This in turn increases the complexity of managing projects. Sustainability goals should be included in the formal project documents, such as the business case, and confirmed by the project sponsor. If these goals are not included, the project manager should still encourage discussions about their impact during meetings and among stakeholders.
- A sustainability risk is when project managers market sustainability but do not use sustainable practices. As an example, greenwashing poses a significant risk in project management because it involves making misleading or unsubstantiated claims about an organization's sustainable practices to appeal to environmentally and socially conscious consumers. When societal, economic, and environmental

elements are considered individually rather than integrated, there is a risk that one element may dominate, undermining the overall sustainability of the project.

- Assessing a project's success is challenging due to the lack of universal sustainability criteria; each project requires a tailored approach. To promote sustainability and reduce waste, the project team should have access to only the digital tools they can fully utilize for their work.

4.7.2 Principle in Action

To provide an example of the principle of integrating sustainability into all project areas, consider a construction project. Construction projects often require materials derived from natural resources, which may be sourced externally. If sustainability principles are overlooked, the project team might choose the least expensive materials, potentially harming the environment and human health. By adhering to sustainability principles, the project team not only focuses on the project's profit and the internal rate of return, but also demonstrates a commitment to environmental sustainability and the responsible use of materials and natural resources while involving local communities. This effort could involve carefully planning the required materials and selecting sources with the least environmental impact or seeking materials that mimic natural processes and draw inspiration from nature (e.g., constructing urban buildings with wood or using recycled concrete instead of natural stones).

Technology projects can enhance sustainability by integrating eco-friendly practices into project management, emphasizing social responsibility, and maximizing social impact. By adopting digital tools and innovative technologies, project teams can reduce resource consumption and waste, streamline processes, and improve efficiency. Projects can also focus on creating positive social impacts such as improving access to education and healthcare through technology. Environmental sustainability is achieved by selecting sustainable materials, minimizing carbon footprints, and implementing green technologies.

This holistic approach ensures that technology projects contribute to a more sustainable and equitable future.

4.7.3 Connected Domains

The sustainability principle may impact the Finance performance domain as green and digital practices could require additional financing. These practices may also lead to changes in KPIs and different calculations of the internal rate of return or return on investment. The project team may consider green and digital benefits to be included in the project requirements.

The principle of sustainability can positively impact the Risk performance domain. Sustainability initiatives can also present new innovation opportunities for the project team. Introducing project and societal values may also positively influence the Governance, Scope, and Stakeholders project management performance domains. This approach can have a lasting impact on the project team and enhance the organization's reputation once the project or product life cycle is complete.

Integrating sustainability can affect many aspects of a project, including but not limited to:

- **Governance.** The project team's proactive and collaborative approach with the governance team develops a positive, transparent communication channel with management, ensuring perfect alignment with the project objectives and outcomes, with the least deviations and less confusion. This approach includes integrating sustainability goals into governance practices to ensure long-term environmental and social benefits.
- **Scope.** Open-channel communication proactively calibrates to a project's evolving needs to add, adjust quality, or remove elements of the scope or project requirements. Sustainability considerations are embedded into the scope to ensure that project deliverables meet environmental and social standards.

- **Schedule.** Teams can offer ideas to accelerate, slow down, or stop delivery of key project activities to maximize the available opportunities. Scheduling decisions consider the environmental impacts, aiming to minimize carbon footprints and resource usage.
- **Finance.** Teams help to reduce or eliminate planned expenditures by adding steps, requirements, or restrictions that increase costs or require additional resources. Benefits realization occurs by generating and identifying long-term goals, so the project delivers the intended identified value. Financial planning includes sustainability investments that promote long-term cost savings and environmental benefits.
- **Stakeholders.** Teams establish, influence, or even define the level and character of engagement with stakeholders and the broader organization. Stakeholder engagement strategies include sustainability education and collaboration to ensure all parties are aligned with the project's environmental and social goals.
- **Resources.** Teams restrict or enable access to physical resources in line with project requirements; the same applies for people with the skills, knowledge, and experience needed to deliver the intended outcomes and promote a learning culture. Resource management prioritizes sustainable materials and practices, ensuring minimal environmental impact.
- **Risk.** The team defines the risk thresholds of the project and participates in subsequent risk management activities. Risk management includes identifying and mitigating environmental and social risks to ensure the project's sustainability objectives are met.

4.8 Build an Empowered Culture

Culture	
Build and empower a culture to collaborate proactively, promoting unity in shared objectives efficiently and effectively through stakeholders and teams with diverse skills, knowledge, and experience.	➢ Stakeholders determine the success of projects. ➢ Stakeholders and team members on a project are key to its success, and they should be empowered across many dimensions. ➢ A collaborative project environment enables stakeholders and team members to contribute their ideas and recommendations freely and proactively to meet project outcomes. ➢ Knowing that key stakeholders can highly influence project performance and outcomes, motivated and empowered project teams actively engage with them to maximize value delivery.

Figure 4-9. Build an Empowered Culture

To develop an empowered project culture, the project environment should promote mutual trust among stakeholders and the project team members. There should be full clarity on individual roles, responsibilities, team agreements, and guiding processes. These factors enable individuals to work together and provide synergistic effects from their interactions, which enables all stakeholders to collaborate more effectively and efficiently to drive project success.

4.8.1 Project Impact

Project stakeholders are influenced by the culture of the organization that is involved in the project and by the environment in which they operate. Within these influences, project teams often establish their own cultural norms. Project teams have the flexibility to customize their organizational frameworks to optimally achieve the intended project goal within such new cultures.

Building an empowered culture enables successful project execution in the following areas:

- **Diversity.** A diverse project team can enrich the project environment to create a more inclusive space by bringing together different perspectives. In a global economy, the project team could comprise internal organizational staff, contracted contributors, volunteers, or external third parties. Also, some project team members may be brought on short term to work on a specific deliverable. Incorporating these key members into a project team may present challenges. However, cultivating a team environment that honors diversity and seeks to harness it constructively fosters an atmosphere where conflicts can be managed efficiently.
- **Process definition.** Project teams should define processes that enable the completion of tasks and work assignments. Additionally, project teams should engage other stakeholders to understand, consider, communicate, and respond to their interests, needs, and opinions.
- **Interpersonal skills.** Project teams and stakeholders should develop a set of interpersonal skills such as initiative, integrity, honesty, collaboration, respect, empathy, and confidence. These competencies and perspectives assist teams in adjusting to the tasks and to one another. Coupled with an active involvement of stakeholders from inception to completion, these competencies pave the way for success.
- **Knowledge of organizational structures.** Being aware of the various configurations and relationships among the components of project tasks and organizational procedures is important for teams to consider while building an empowered culture. Project teams tailor and employ frameworks that facilitate the synchronization of personal contributions within project tasks.
- **Team agreements.** Team agreements represent a set of behavioral parameters and working norms that are established by the project team and upheld through individual and team commitment. These agreements should be created at the beginning of a project to determine the essential norms and practices that facilitate ongoing collaborative success.

4.8.2 Principle in Action

To provide an example of the principle of building an empowered culture, consider a project team that is facing challenges with stakeholder engagement in a project due to the territorial complexities and diversity of the people involved in the project. Building an empowered culture enables stakeholders to be seen and included from the project's inception. This involvement provides stakeholders with guidelines to add value and actively participate, contributing to the project's success.

Remote and virtual teams are facing new challenges due to differences in working styles and the loss of in-person connection. Building an empowered culture gives all team members and stakeholders the opportunity to build and collaborate in effective and constructive ways, solving differences and managing conflict proactively.

4.8.3 Connected Domains

Teams and stakeholders can affect many aspects of a project, including but not limited to:

- **Governance.** The project team's proactive and collaborative approach with the governance team develops a positive, transparent communication channel with management, helping to ensure perfect alignment with the project objectives and outcomes with the least deviations and less confusion.
- **Scope.** Open-channel communication proactively calibrates to a project's evolving needs to add, adjust quality, or remove elements of the scope or project and quality requirements.
- **Schedule.** Empowered teams can offer ideas to accelerate, slow down, or stop delivery of key project activities to maximize the available opportunities.
- **Finance.** Empowered teams help to reduce or eliminate unplanned expenditures by adding steps, requirements, or restrictions that increase costs or require additional resources. Benefits realization occurs by generating and identifying long-term goals, so the project delivers the intended identified value.

- **Stakeholders.** Teams establish, influence, or even define the level and character of engagement with stakeholders and the broader organization.
- **Resources.** Teams restrict or enable access to physical resources in line with the project requirements; the same applies for people with the skills, knowledge, and experience needed to deliver the intended outcomes and promote a learning culture.
- **Risk.** The team defines the risk thresholds of the project and participates in subsequent risk management activities.

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