Project Management Institute

GLOBAL**STANDARD**

THE STANDARD FOR PORTFOLIO MANAGEMENT

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The Standard for
PORTFOLIO MANAGEMENT

Fourth Edition

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INTRODUCTION

This section covers the purpose, context, and principles of portfolio management, including the definition of several key terms, and provides an overview of *The Standard for Portfolio Management* – Fourth Edition. The following major sections are addressed:

1.1 PURPOSE OF *THE STANDARD FOR PORTFOLIO MANAGEMENT*

The Standard for Portfolio Management – Fourth Edition identifies project portfolio management principles and performance management domains that are generally recognized as good practices for organizations that have business needs to effectively manage complex and intense program and project investments. "Generally recognized" means that the principles and performance management domains described are applicable to most portfolios most of the time, and that there is widespread consensus about their value and usefulness. "Good practice" means there is general agreement that the application of these principles and performance management activities can enhance the chances of success and are proven to work over a wide range of portfolios. Good practice does not mean the management activities described should be applied uniformly to portfolios; the organization's governance and the portfolio manager are responsible for determining what is appropriate for any portfolio given its environment, and in the context of the organization's project and program management framework.

The Standard for Portfolio Management – Fourth Edition includes a common, unified vocabulary for use among the portfolio management profession for promoting, discussing, researching, writing, applying, and continuously improving portfolio management concepts. By using a single lexicon that is understandable by practitioners regardless of geographical location, culture, industry, or educational background, portfolio management practitioners are able to communicate and facilitate the management of portfolios and execution of strategies.

Portfolio management of programs, projects, and related operations is intended for all types of organizations.

This standard is a companion to information already provided in *A Guide to the Project Management Body of Knowledge (PMBOK® Guide)* – Sixth Edition [1],[1] and *The Standard for Program Management* – Fourth Edition [2]. As a foundational reference, this standard is not intended to be comprehensive or all-inclusive. It is a guide rather than a methodology. One can use various methods and tools to implement the principles and practices described herein.

In addition to the standards that establish guidelines for project management principles, processes, tools, and techniques, the *PMI Code of Ethics and Professional Conduct* [3] describes the expectations that practitioners should have for themselves and others. It is specific about the basic obligations of responsibility, respect, fairness, and honesty. It requires that practitioners demonstrate a commitment to ethical and professional conduct. It carries the obligation to comply with laws, regulations, and organizational and professional policies. Because practitioners come from diverse backgrounds and cultures, the *Code of Ethics* applies globally. When dealing with any stakeholder, practitioners should be committed to honest and fair practices and respectful dealings. Acceptance and adherence to the *Code of Ethics* is a requirement to achieve and maintain the Portfolio Management Professional (PfMP)® credential and other PMI certifications.

1.2 AUDIENCE FOR *THE STANDARD FOR PORTFOLIO MANAGEMENT*

This standard provides a foundational reference for anyone interested in managing or assessing a portfolio of programs, projects, and related operations. This includes, but is not limited to:

- Senior executives and governance boards who make decisions regarding organizational strategy;
- Management staff responsible for developing organizational strategy or those making recommendations to senior executives;
- Portfolio, program, and project management practitioners, particularly portfolio managers;
- Researchers analyzing portfolio management;
- Members of a portfolio, program, or project management office;
- Consultants and other specialists in portfolio, program, or project management and related disciplines;
- Business and technical professionals such as auditors, trainers, engineers, and others who are increasingly asked to manage a portfolio of programs, projects, and operational activities;
- Operations managers, organization unit managers, civil engineers, construction managers and constructors of large/megaprojects, and process owners who have financial, human, marketing, material resources, or supply chain considerations in a portfolio;

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

- Portfolio, program, project, and operational team members, customers, and other related stakeholders;
- Strategy planners and executives in organizations;
- Educators teaching portfolio management and related subjects; and
- Students of portfolio management and related fields.

1.3 WHAT IS A PORTFOLIO?

A portfolio is a collection of projects, programs, subsidiary portfolios, and operations managed as a group to achieve strategic objectives. The portfolio components, such as programs and projects within the portfolio, are quantifiable (e.g., identified, categorized, evaluated, prioritized, authorized). Also, the portfolio components may be related or unrelated, may be independent or interdependent, and may have related or unrelated objectives. Portfolio components compete for a share of some or all of a set of limited resources. The share or proportions of individual components within a portfolio structure can be driven by organizational strategies and capabilities. Therefore, organizations need to examine their unique circumstances and determine how best to optimize and balance the portfolio components.

A portfolio exists to achieve organizational and business unit strategies and goals, and may consist of a set of current and future portfolio components. Like programs and projects, portfolios have a life cycle. However, unlike programs and projects, which have a more limited duration, portfolios often have greater longevity and management attention. Given portfolios' longer term, new components can churn into portfolios and their subsidiary portfolios. Portfolio closure can occur when the portfolio is no longer required, when the intended objectives are achieved, or when the portfolio's components are decommissioned or moved to another portfolio. Depending on the size and complexity of organizations, portfolios can merge and separate to achieve optimal performance.

An organization may have more than one portfolio, each addressing unique or different organizational (business, functional, or other) strategies, goals, and objectives. Proposed new initiatives that could evolve into programs or projects may be placed into an existing or new portfolio. In addition, larger portfolios may contain subsidiary portfolios and are usually structured as a hierarchy (see Figure 1-1). For example, programs, projects, or functional-unit portfolios may reside within a larger business unit portfolio, which, in turn, is nested as just one portfolio within the entire enterprise portfolio. Common project portfolios include product lines, information technology portfolios, enterprise project portfolios, and a myriad of others.

Furthermore, portfolios can be internal or external to an organization. Portfolios can also exist at various levels of an organization, such as enterprise, divisional, business unit, and functional. Portfolios can be organized separately, but they can also be organized in a hierarchical structure. Portfolios can support both the core functions as well as the support functions of an organization.

At any given time, a portfolio represents a collection of its selected portfolio components and reflects one or more organizational strategies and objectives for that point in time. Therefore, a functioning portfolio should be a representation of an organization's intent, direction, and progress at any given moment. If a portfolio is not aligned to the organizational strategy for any reason, the organization should reasonably question why the work of the portfolio is being undertaken and should align the portfolio with its strategy by taking corrective actions such as adjusting, aligning, and/or removing the initiatives included in the portfolio.

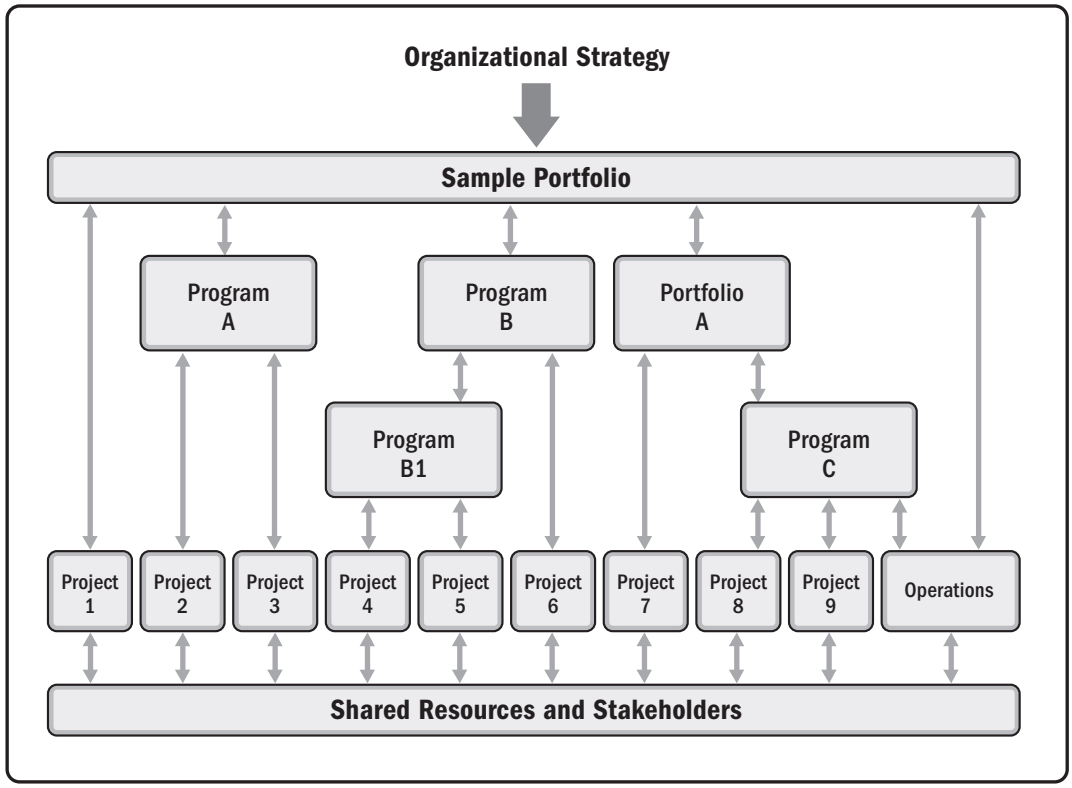

Figure 1-1. Portfolios, Programs, and Projects—High-Level View

1.4 RELATIONSHIPS AMONG PORTFOLIOS, PROGRAMS, PROJECTS, AND OPERATIONS

The relationships among portfolios, programs, and projects are such that a portfolio refers to a collection of projects, programs, subsidiary portfolios, and related operations managed collectively as a group to achieve strategic objectives. The relationships among these components have the potential to bring value to the organization through portfolio management. This is also the criterion by which they are evaluated and added to the portfolio. Programs are grouped within a portfolio, and they include related projects, subsidiary programs, and program activities managed in a coordinated manner to obtain benefits not available from managing them individually. Individual projects that have strategic importance, whether within or outside of a program, are considered part of a portfolio. Although the programs or projects within a portfolio may not be directly related or interdependent, they are linked to the organization's strategic plan by means of the portfolio.

Organizational planning impacts the projects by means of project prioritization based on risk, funding, resource constraints, and other considerations relevant to the organization's strategic objectives. Organizational planning can direct the management of resources and support for the component programs and projects based on risk categories, specific lines of business, or general types of projects.

All portfolio components should exhibit certain features that include:

- Representing how the organization will achieve its strategic goals and objectives through the portfolio and its components;
- Representing the organization's investment priorities to achieve its strategy;

- Requiring management and governance that includes allocating and sharing resources (e.g., human, financial, asset, and intellectual) across portfolio components;
- Having the ability to be quantifiable and, therefore, evaluated, measured, ranked, and prioritized; and
- Having the ability to be directed or controlled to accomplish portfolio value.

1.5 WHAT IS PORTFOLIO MANAGEMENT?

Portfolio management is the centralized management of one or more portfolios to achieve strategic objectives. It is the application of portfolio management principles to align the portfolio and its components with the organizational strategy. Portfolio management can also be viewed as a dynamic activity through which an organization invests its resources to achieve its strategic objectives by identifying, categorizing, monitoring, evaluating, integrating, selecting, prioritizing, optimizing, balancing, authorizing, transitioning, controlling, and terminating portfolio components.

1.6 RELATIONSHIPS AMONG PORTFOLIO MANAGEMENT, PROGRAM MANAGEMENT, AND PROJECT MANAGEMENT

Portfolio management balances conflicting demands among portfolio components, allocates resources (e.g., human, financial, assets, and intellectual) based on organizational priorities and capacity, and integrates management principles and sound practices to deliver business value aligned with the strategic objectives. The focus of program management is on achieving the intended benefits and business outcomes for which the program was initiated and doing so within cost and schedule. Project management is largely concerned with achieving specific project deliverables that support business and organizational objectives.

The attributes of portfolio components can be further differentiated as represented in Table 1-1.

Portfolio, program, and project management should be aligned with and driven by organizational strategy and other business drivers. Conversely, portfolio, program, and project management contributes to the achievement and implementation of strategic objectives. Portfolio management aligns with organizational strategy by selecting the best portfolio components, prioritizing the work, providing the needed resources, overseeing or working with portfolio component managers on their implementation, supervising proper transition into the operational environment, and enabling the achievement of portfolio value. Program management is focused on harmonizing its component and operational initiatives and managing their interdependencies in order to realize specified benefits. Project management develops and implements plans at a more detailed level to achieve a specific scope that is driven by the objectives of the portfolio or program to which it is subjected and, ultimately, to organizational strategy (e.g., business, functional, and other broad strategies).

Portfolio management often establishes the overall direction and tone of business execution that shapes and defines or calibrates its components.

Table 1-1. Comparative Overview of Portfolio, Program, and Project Management

Organizational Project Management			
	Projects	**Programs**	**Portfolios**
Definition	A project is a temporary endeavor undertaken to create a unique product, service, or result.	A program is a group of related projects, subsidiary programs, and program activities that are managed in a coordinated manner to obtain benefits not available from managing them individually.	A portfolio is a collection of projects, programs, subsidiary portfolios, and operations managed as a group to achieve strategic objectives.
Scope	Projects have defined objectives. Scope is progressively elaborated throughout the project life cycle.	Programs have a scope that encompasses the scopes of its program components. Programs produce benefits to an organization by ensuring that the outputs and outcomes of program components are delivered in a coordinated and complementary manner.	Portfolios have an organizational scope that changes with the strategic objectives of the organization.
Change	Project managers expect change and implement processes to keep change managed and controlled.	Programs are managed in a manner that accepts and adapts to change as necessary to optimize the delivery of benefits as the program's components deliver outcomes and/or outputs.	Portfolio managers continuously monitor changes in the broader internal and external environments.
Planning	Project managers progressively elaborate high-level information into detailed plans throughout the project life cycle.	Programs are managed using high-level plans that track the interdependencies and progress of program components. Program plans are also used to guide planning at the component level.	Portfolio managers create and maintain necessary processes and communication relative to the aggregate portfolio.
Management	Project managers manage the project team to meet the project objectives.	Programs are managed by program managers who ensure that program benefits are delivered as expected, by coordinating the activities of a program's components.	Portfolio managers may manage or coordinate portfolio management staff, or program and project staff that may have reporting responsibilities into the aggregate portfolio.
Monitoring	Project managers monitor and control the work of producing the products, services, or results that the project was undertaken to produce.	Program managers monitor the progress of program components to ensure the overall goals, schedules, budget, and benefits of the program will be met.	Portfolio managers monitor strategic changes and aggregate resource allocation, performance results, and risk of the portfolio.
Success	Success is measured by product and project quality, timeliness, budget compliance, and degree of customer satisfaction.	A program's success is measured by the program's ability to deliver its intended benefits to an organization, and by the program's efficiency and effectiveness in delivering those benefits.	Success is measured in terms of the aggregate investment performance and benefit realization of the portfolio.

1.7 PRINCIPLES OF PORTFOLIO MANAGEMENT

Organizational strategies and their objectives serve to establish and guide an organization's decisions, direction, purpose, and resource allocations to achieve targeted values. These values can be broad or narrow depending on organizational mission and vision. Extrinsic values may be market, social, political, and environmental; intrinsic values such as competency, talent, culture, growth, development, and competitiveness are also important considerations. Determining organizational strategy is difficult; achieving results is sometimes even more challenging and complex.

There are many challenges to achieving results. Chief among them are aligning strategy and execution, obtaining and maintaining senior management support, balancing what is feasible with what is essential, determining short- and long-term benefits and goals, managing resources including capacities and capabilities, and achieving and sustaining the ability to execute. In short, organizations cannot afford to waste precious resources and should find ways to "do the right projects at the right time in the right way." Portfolio management presents an organized approach to achieve strategic results.

The following fundamental principles are core to this standard:

- Strive to achieve excellence in strategic execution;
- Enhance transparency, responsibility, accountability, sustainability, and fairness;
- Balance portfolio value against overall risks;
- Ensure that investments in portfolio components are aligned with the organization's strategy;
- Obtain and maintain the sponsorship and engagement of senior management and key stakeholders;
- Exercise active and decisive leadership for the optimization of resource utilization;
- Foster a culture that embraces change and risk; and
- Navigate complexity to enable successful outcomes.

The purpose of these principles is to provide guidance for portfolio management practitioners in the conceptualization, establishment, implementation, and ongoing management of portfolio(s) in their organizations. By creating strong links between strategic planning and strategic business execution, organizations can achieve greater organizational performance while improving resource utilization, exploiting new opportunities, and minimizing threats.

1.8 RELATIONSHIPS AMONG PORTFOLIO MANAGEMENT, ORGANIZATIONAL STRATEGY, STRATEGIC BUSINESS EXECUTION, AND ORGANIZATIONAL PROJECT MANAGEMENT

The organizational strategy helps define specific goals and objectives for the organization. Organizational strategy should be overarching, encompassing organizational activities that include operations and other related change activities. Because strategies are ideas, concepts, and plans, the attainment of business value requires action for the execution of these plans (e.g., strategic plans, business development plans, operational plans, action plans). Most change activities, both internal and external to the organization (e.g., contract work), are performed through portfolio components such as program and project activities. To maintain and sustain competitiveness, organizations require strong strategic execution to implement their portfolios, programs, and projects, not just occasionally, but consistently and repeatedly over time. This requires organizations to adopt strong disciplines, such as organizational project management (OPM). OPM is a strategic business execution framework that utilizes portfolio, program, and project management as well as organizational enabling practices to consistently and predictably deliver organizational strategy to produce better performance, results, and business value.

Value is the primary focus of portfolio management. It is defined as the entire quantifiable and qualifiable benefits, worth, and usefulness of the organization—the total sum of all tangible and intangible elements. Examples of tangible elements include monetary assets, shareholder satisfaction, and utility. Examples of intangible elements include reputation, brand recognition, public benefit, legacy, patents, and trademarks. Business value can be defined in terms of its short-, medium-, or long-term realization. Value is created through the effective management of ongoing operations.

1.8.1 PORTFOLIO MANAGEMENT AND ORGANIZATIONAL STRATEGY

An organizational strategy is composed of goals and policies that provide the overall direction and focus of the organization, and plans and actions to achieve those goals. These serve as a primary input to portfolio management. Organizations strive to possess effective management capability that will lead to longevity and success. Portfolio management is an integral part of the organization's overall strategic direction. It is the vehicle through which change initiatives and strategic investments are undertaken to realize strategic goals and objectives. Linking portfolio management to strategy balances the use of resources to maximize the value delivered in executing programs, projects, and operational activities. The organizational strategy and objectives are translated into a set of initiatives that are influenced by many factors, such as market dynamics, customer and partner requests, shareholders, government regulations, internal stakeholders and their aspirations, and competitor plans and actions. These initiatives establish a portfolio of programs, projects, and operations components to be executed in the specific period.

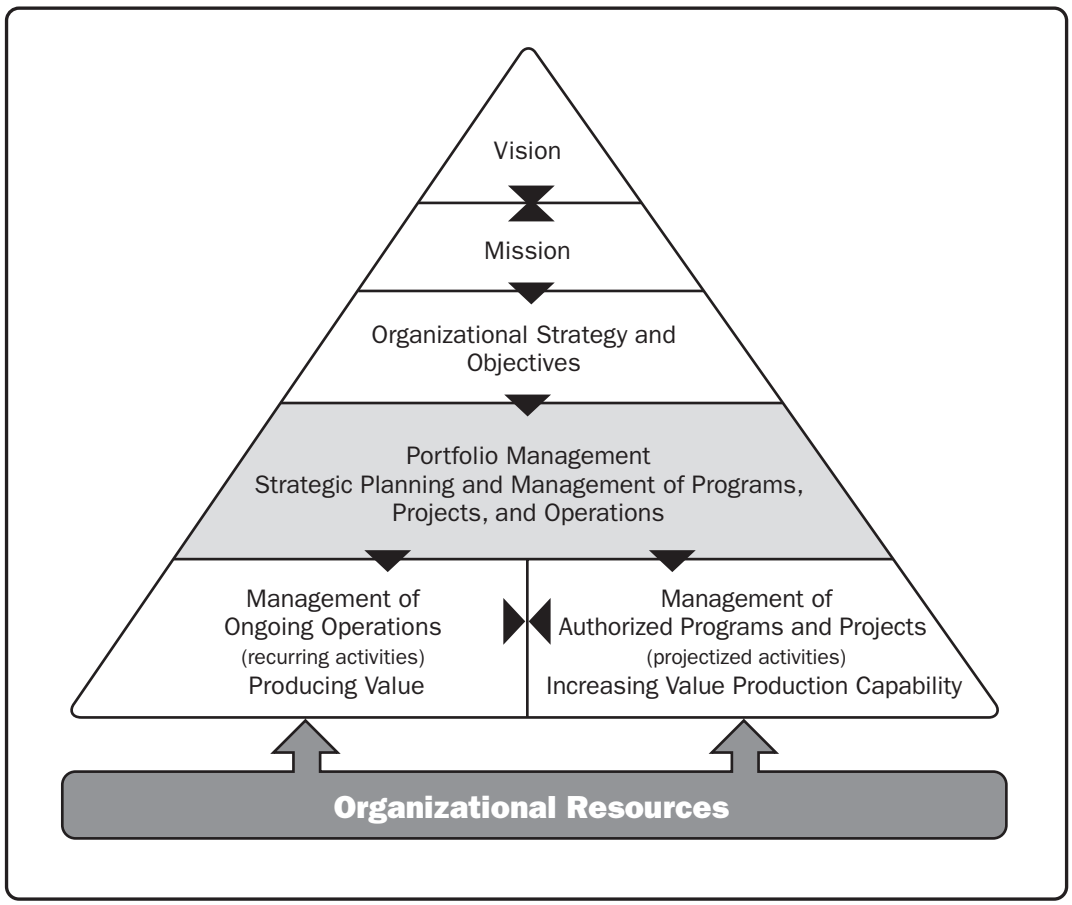

Figure 1-2. The Organizational Context of Portfolio Management

Figure 1-2 illustrates the relationship and direction that vision, mission, and organizational strategy and objectives provide to portfolio management strategic planning and the management of programs, projects, and operations. Portfolio management aims to enhance key business performance indicators, such as ROI or improving societal value, by providing a holistic framework for strategy execution. Portfolio management requires constant alignment to strategic objectives and the ability to envision alternative future consequences to support and enhance strategic portfolio decision making. Awareness of portfolio components with its many relationships and dependencies, as shown in Figure 1-2, enhances the portfolio manager's ability to envision possible future issues and risks.

The shaded section in Figure 1-2—portfolio management strategic planning and management of programs, projects, and operations—depicts the relationship between organizational strategy and objectives with management activities of initiatives and operational activities. Portfolio performance is monitored against the organizational strategy and objectives with performance feedback, providing input for potential changes in strategic direction for the organization.

Portfolio management also requires integration with organizational planning and business analysis to analyze current business risks. This analysis may drive strategic changes to enable the planned (active and future) portfolio components to continue to support strategic goals. When organizational planning determines that a goal is no longer valid for the organization, the portfolio manager, often working together with the governance team, reviews the portfolio and reassesses any portfolio components that are in place to achieve the obsolete goal, with the intent of adjusting or terminating any component that no longer contributes to strategic goals.

Portfolio management ensures continuous alignment to strategic objectives, which is paramount because organizations can undergo strategy redefinition as a result of shareholder pressure for greater profitability, changing market conditions, balancing the needs for change with the needs of ongoing operations, and so forth. Sometimes, a change in the tactics for the implementation of the strategic objectives may also result in portfolio changes. The portfolio should always be realigned and rebalanced after important decisions are made at the senior executive level that result in changes to strategy and/or strategic objectives. This realignment and balance of the portfolio should also be shared with the employees who play critical roles as stakeholders in programs and projects. Through the review of strategic, tactical, and operational capabilities and gaps, portfolio management provides feedback that is useful for the planning and management of resources, monitoring the health of the portfolio, and working with program and project management on the execution of the portfolio components.

1.8.2 STRATEGIC BUSINESS EXECUTION AND ORGANIZATIONAL PROJECT MANAGEMENT

Portfolio management, program management, and project management are domains of the organizational project management framework for managing the capability to deliver value. Organizational project management (OPM) is a framework in which portfolio, program, and project management are integrated with organizational enablers in order to achieve strategic objectives. OPM enables an organization to leverage its results and implementation success, and supports a strong organization within a competitive and rapidly changing environment.

An organization establishes goals that will move it toward its vision and that have objectives consisting of measurable steps for goal achievement. Execution of portfolio components should focus on achieving these strategic objectives and, ultimately, the goals of the organization.

Once a portfolio component is authorized, the program or project manager assumes direct management control of the portfolio component and applies management processes to enable the work to be done. A responsible program or project manager will monitor planned versus actual performance and provide ongoing feedback to the portfolio manager.

Portfolio components do not exist in isolation. Each portfolio includes diverse components, is a part of the entire organizational system of interrelated components, and each portfolio is simultaneously a part of the entire organizational system.

Portfolio management practitioners work in a complex environment with overlapping and often conflicting interests. Under such conditions, practitioners are often challenged by information overload and not enough actionable intelligence. To comprehend such an environment and be in a position to anticipate behavior, it is necessary to study the portfolio as a system. Programs and projects are the temporary vehicles that deliver change. Therefore, a systems perspective allows for

a better understanding of the goals of the change initiatives and of the vehicles delivering these goals—the components of the portfolio.

The ultimate goal of linking portfolio management with organizational strategy and strategic business execution is to establish a balanced, realistic plan that will help the organization achieve its goals. The impact of the portfolio management plan upon strategy is attained through six performance management domains and the portfolio life cycle, as illustrated in Figure 1-3.

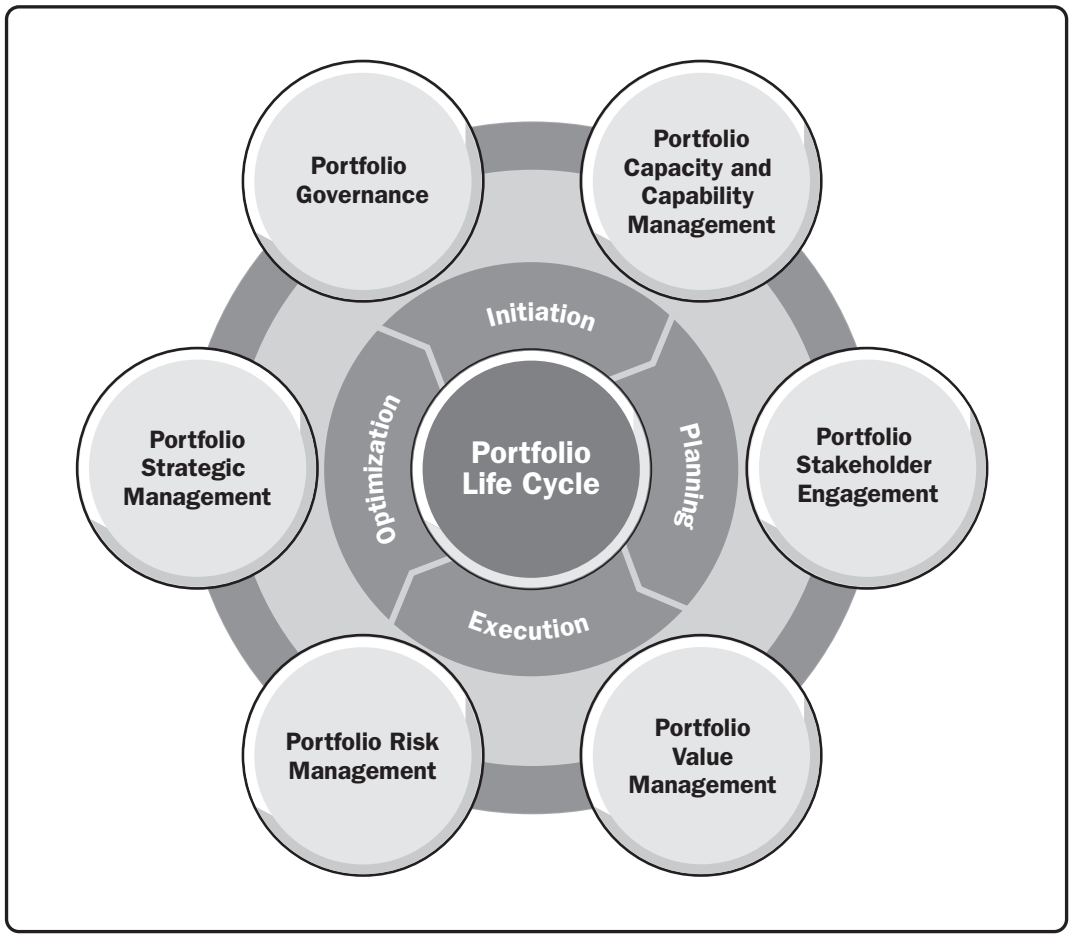

Figure 1-3. Portfolio Management Performance Domains

The six portfolio management performance domains represent the collection of good practices. The following provides a brief description of each portfolio management performance domain, including the portfolio life cycle. These are further elaborated in subsequent sections of this standard.

- **Portfolio Life Cycle (Section 2).** Portfolios are a major investment of organizational resources and, like programs and projects, portfolios go through a life cycle that includes initiation, planning, execution, and optimization. The diligent management of the life cycle by balancing stability with adaptability is crucial for managing activity in today's constantly changing environment.
- **Portfolio Strategic Management (Section 3).** Each portfolio component should be aligned to one or more strategic objectives, and the positive impact should be constantly monitored. This is what is meant by the term

strategic management in the portfolio management context, and it is achieved by a clear understanding of the strategic objectives and how important each component is in relation to those objectives. Any proposal for including a component in the portfolio should describe how it supports the attainment of intended business value.

- **Portfolio Governance (Section 4).** Through open and transparent governance, including processes for categorizing, prioritizing, selecting, and approving portfolio components, key stakeholders are more likely to accept the decisions and agree with the process, even when they may not fully endorse the decisions made.
- **Portfolio Capacity and Capability Management (Section 5).** The selection of portfolio components and the roadmap for their implementation is balanced against the organization's current capacity and capability with the potential of bringing in additional resources. The portfolio view allows for future planning to develop capacity and capabilities as required. This is particularly important when resourcing and balancing program and project components against operational components.
- **Portfolio Stakeholder Engagement (Section 6).** Key portfolio stakeholders require active expectation management. By staying aligned and connected, portfolios improve the probability of delivering value. Active communication is a primary vehicle through which the exchange of information, improved transparency, and stakeholder buy-in are all achieved.
- **Portfolio Value Management (Section 7).** Portfolio Value Management enables investment in a portfolio to yield the expected return as defined by the organizational strategy. Value contribution and sustainment need to be monitored throughout the component execution as well as after component closure.
- **Portfolio Risk Management (Section 8).** Portfolio Risk Management evaluates risks (positive/opportunities, negative/threats) at the portfolio level and considers how those risks may impact the achievement of the portfolio strategic plan and objectives. This requires consistent monitoring for uncertainty, within both the internal and external environment of the portfolio.

1.9 PORTFOLIO COMPONENTS AND THEIR INTERRELATIONSHIPS

A portfolio is a system or collection of entities—called portfolio components—plus a collection of interrelationships among these components. Portfolio components share a common purpose: to achieve the strategic objectives of the organization. The portfolio system is managed as an integrated whole relative to the other systems of the organization.

As a portfolio system, the portfolio's hierarchy results in a parent–child relationship with its portfolio components, just as a program has a parent–child relationship with its projects. Consequently, the portfolio components are also managed based on standards, such as *A Guide to the Project Management Body of Knowledge (PMBOK® Guide)* and *The Standard for Program Management*, and are periodically measured to gauge the likelihood that the portfolio components will achieve their goals.

A larger portfolio can contain subsidiary portfolios, which in themselves are component collections of programs, projects, or operations managed as a group to achieve strategic objectives. Subsidiary portfolios can exist for different reasons, including management grouping, available funds, customer requirements, schedule, resources, stakeholders, different sponsors, etc.

1.9.1 PROGRAM MANAGEMENT

Program management is the application of knowledge, skills, tools, and techniques to a program to meet the program requirements and to obtain benefits and control not available by managing projects individually. It involves

aligning multiple components to achieve the program goals and allows for optimized or integrated cost, schedule, effort, or other parameters. Although the benefits of a project often arise after the project ends, some benefits can appear during the program life cycle as single projects within the program end.

Components within a program are related through a common outcome or delivery of a collective set of benefits. If the relationship among the projects is only that of a shared client, seller, technology, resource, etc., the effort should be managed as a portfolio of independent projects rather than as a program. In programs, it is important to integrate and control the interdependencies among the components. The program manager accomplishes this by working within the following five interrelated and interdependent Program Management Performance Domains: Program Strategy Alignment, Program Benefits Management, Program Stakeholder Engagement, Program Governance, and Program Life Cycle Management. Through structured governance functions and domains, program management enables appropriate component interdependencies and helps determine the optimal approach for managing them.

Through structured oversight and governance, program management enables appropriate planning, control, delivery, transition, and benefits sustainment across the components within the program to achieve the program's intended strategic benefits. Program management provides a framework for managing related efforts considering key factors such as strategic benefits, coordinated planning, complex interdependencies that may create new emergent issues and risks, deliverable integration, resource pools, and optimized pacing.

1.9.2 PROJECT MANAGEMENT

Project management is the application of knowledge, skills, tools, and techniques to project activities to meet project requirements by providing the project deliverables. It is accomplished through the appropriate application and integration of project management processes identified for the project. The specific project circumstances may influence the constraints on which the project manager needs to focus.

Managing a project typically includes:

- Identifying, analyzing, documenting, and prioritizing requirements;
- Addressing the various needs, concerns, and expectations of the stakeholders as the project is planned and carried out;
- Setting and maintaining active communication with stakeholders;
- Balancing the competing project constraints, which include, but are not limited to, the project's scope, quality, schedule, budget, resources, and risk; and
- Successfully producing and handing over the project deliverables.

The relationships among these factors are such that if any one factor changes, at least one other factor is likely to be affected. For example, if the schedule is shortened, the budget often needs to be increased to add additional resources to complete the same amount of work in less time. When a budget increase is not possible, the scope or quality may be reduced to deliver a product or service in less time for the same budget.

Project stakeholders may have differing ideas as to which factors are the most important, creating an even greater challenge. Changing the project requirements may create additional risks. The project team should be able to assess the situation, balance the demands, and maintain active communication with stakeholders in order to deliver a successful project. It is important for the project team to be conscious of how the success of the project fits into the organization's measures of success, which can be conveyed as part of the portfolio management process.

Because of the potential for change, the project management plan is iterative and goes through progressive elaboration throughout the project's life cycle. Progressive elaboration involves continuously improving and detailing a plan as more detailed and specific information and more accurate estimates become available. Depending on the chosen project management framework (predictive, adaptive, or a combination of both), progressive elaboration allows a project management team to navigate and adapt to emergent issues and risks, to generate a suitable risk response plan, and to manage to a greater level of detail as the project evolves.

1.9.3 OPERATIONS MANAGEMENT

Operations is the business function responsible for planning, coordinating, resourcing, and controlling the repeatable, usually cyclical, day-to-day activities of the organization. This business function is called business as usual (BAU). Operations management consists of the various procedures and their assignments. These include roles with lines of delegation, levels of authority, and mechanisms to report, escalate, and decide how to achieve the best value from the resources available within constraints and risks.

When the ongoing pattern of activity is subject to change (by external factors, for example) or when it may be improved by discretionary application of change, then resources within the portfolio are diverted into programs and projects. Projects may be further grouped as programs (as a result of a link between their expected benefits or shared resources) and into portfolios because of a linkage among any or all of their schedule, resources, stakeholders, or strategic objectives.

The portfolio of operational change for projects links a subset of recurring activities managed as projects to the organizational strategy. As these activities are executed and deliver results, these underpin the execution of the organization's strategic portfolio components.

The outputs from operations planning and organizational strategy and objectives result in portfolios that guide program and project activities. As the portfolio components move into initiation, the respective areas use their management practices to manage deliveries. As the portfolio components are executed, portfolio management maintains the relationships among them to monitor progress, take corrective action (if needed), and maintain alignment with strategic goals. Therefore, at the highest level, strategic and operational portfolio components are ultimately managed as a single, comprehensive portfolio of work that is undertaken by the organization. This holistic view of change by operations components combined with the organizational change initiatives (program and project components) optimize the efficient balance of the organizational resources.

1.10 ROLE OF THE PORTFOLIO MANAGER

Portfolio managers have the responsibility for the establishment and implementation of portfolio management. Where program and project managers primarily focus on "doing the work right," the portfolio manager's primary focus is on "doing the right work," and portfolio governance enables the "right work" to be performed at the right time and with adequate resources allocated. A governing body establishes the governance of portfolios, programs, and projects by setting guidelines for them as well as linking them to the organizational strategy and verifying the overall results. Furthermore, portfolio managers are responsible for ensuring proper communication and coordination among portfolio components.

Portfolio managers often play a number of important roles, quite often those of architect, enabler, and facilitator of portfolio management principles, processes, and practices, as well as the role of portfolio analyst. As architects, portfolio managers work with their organizational counterparts to evaluate the portfolio management plans, assess and define needed skills, design appropriate processes, and adjust these processes accordingly. As enablers, portfolio managers may seek ways to continually improve the applied portfolio management processes and adjust portfolio components toward better alignment with changes in strategy to ensure continual relevance to the organization. As facilitators in execution mode, portfolio managers manage the day-to-day operations of the portfolio management processes. This includes:

- Conveying to the portfolio governing body how the portfolio components as a whole are aligned and realigned with the strategic goals;
- Capturing the portfolio impact and value creation against strategic directives;
- Providing appropriate recommendations or options for action;
- Influencing and managing the process of resource allocation;
- Overseeing or coordinating with portfolio component managers on implementation;
- Receiving information on portfolio component performance and progress; and
- Reporting portfolio progress to top management.

The portfolio manager reviews the portfolio for balance (e.g., short term versus long term or risk versus return) and negotiates agreement(s) with relevant strategic stakeholders (e.g., executive management, operations). Portfolio managers also sequence portfolio components to account for portfolio component dependencies and their effects, the balancing of constrained resources, and other organizational considerations. In addition, portfolio managers ensure that timelines for portfolio management processes are maintained and followed and that the managers of portfolio components (subsidiary portfolios, programs, projects, and operations) receive and provide the information required under the portfolio management processes. Portfolio managers are the primary conduit between managers of portfolio components and portfolio stakeholders.

The portfolio manager regularly communicates information and recommends criteria for governance actions and decisions, such as deciding when programs and projects should proceed, be reprioritized, be changed to adapt to strategic changes, be terminated, or be suspended before the originally planned completion dates. The portfolio manager also makes appropriate recommendations to portfolio governing bodies regarding specific directives for components and improvement of portfolio practices toward ensuring that the intended value is delivered to the organization.

The portfolio manager needs to be aware of how the portfolio is related to the organizational vision, mission, and strategic goals, and identify, assess, and measure the business value that the portfolio is adding to the organization's objectives. Throughout the portfolio life cycle, the portfolio manager should be able to manage risks, monitor and prioritize portfolio components, resolve issues that need senior-level attention, develop and improve processes, and apply organizational knowledge and management skills. In addition, the portfolio manager should be able to effectively manage the organization's resources and provide timely information for stakeholder communication requirements.

In order to succeed in this role, the portfolio manager should adhere to the competences depicted by the PMI Talent Triangle® (i.e., technical project management skills, leadership capabilities, and strategic and business management expertise), be able to form and lead expert teams, and have expertise in all of the following areas:

- **Portfolio strategic management and alignment.** A portfolio manager should understand and monitor changes in the organizational strategy and objectives and be aware of how the portfolio supports them. Both financial and nonfinancial benefits and risks to the organization need to be considered. The portfolio manager should also have business analysis skills as well as financial knowledge.
- **Portfolio management methods and techniques.** The portfolio manager should have expertise in the application and analysis of portfolio management methods and techniques that include both qualitative and quantitative measures as prescribed or dictated by the organization's leadership. Further, various portfolio management tools can assist with aligning the portfolio components with strategic objectives. Such tools provide valuable methods of organizing, prioritizing, and categorizing valuable information regarding the performance of portfolio components plus validated reporting to Portfolio Governance.
- **Stakeholder engagement.** An effective portfolio manager should be adept at working with portfolio stakeholders to maximize portfolio and organizational performance. A portfolio manager should communicate frequently with stakeholders using modes and techniques appropriate for the context. The portfolio manager should facilitate communications among stakeholders to negotiate agreements, resolve conflict, and make timely and agile portfolio decisions.
- **Leadership and management skills.** An effective portfolio manager should have well-developed leadership and management skills and be able to interact with senior executives, management, and other stakeholders. Further, a portfolio manager should be adept at managing people through recruitment and retention, goal setting, performance evaluation, reward and recognition, succession planning, and employee development, and should have highly developed communication skills. Employee development may include mentoring, coaching, motivating, and training of personnel.
- **Risk management.** An effective portfolio manager should manage risks that are both internal and external to the organization. For risk evaluation, consideration is given to portfolio dynamics, such as fiscal constraints, cost-benefit, windows of opportunity, portfolio component constraints, changing portfolio environmental conditions (e.g., market change), and stakeholder dynamics.
- **Organizational change management.** An effective portfolio manager should manage the impact of changes on the organization. Change readiness is measured at the portfolio, program, and project levels; in each case, the level and range of metrics will be different depending, for example, on the system, the technology, the stakeholders, the deliverables, the expected benefits, etc. Change readiness can be measured by program and project managers, but is better assessed at the portfolio level.
- **Systems thinking.** This approach relates to understanding how different components of the portfolio are interrelated and interdependent of one another. It can connote the ability to think through which portfolio components should be selected to contribute to the organizational strategy as a "top-down" approach. Moreover, systems thinking enhances the capability to visualize the contribution/value added by each of the components to the portfolio's strategic objectives—a "bottom-up" view. A systems approach may facilitate the proper selection of necessary components to execute the portfolio, aid with proper resource allocation, and ensure that the selected components are aligned toward achieving the business goals of the organization.

1.11 OTHER ROLES IN PORTFOLIO MANAGEMENT

This section summarizes additional important roles in portfolio management, including:

- Sponsors;
- Portfolio governance body;
- Portfolio, program, and project management office (PMO)—sometimes a PMO for the whole organization is established, often called an enterprise PMO (EPMO);
- Portfolio analyst;
- Program managers;
- Project managers;
- Change control board;
- Program and project team members; and
- Subject matter experts, business analysts, and functional managers in charge of operations included in the portfolio.

Some organizations employ a portfolio analyst who works closely with the portfolio manager and the EPMO. The responsibilities of the portfolio analyst may be as follows: (a) to identify and track interdependencies between portfolio components and facilitate their resolution/management at the portfolio level; and (b) identify portfolio management process gaps, recommend improvements, and help implement them. The portfolio analyst role can be combined with other roles and tailored to meet organizational needs. Further, a number of organizations have a change control board that works, in practice, as a steering committee for projects. In many organizations, splitting responsibilities between project sponsors, the project steering committee, and portfolio governance is an important issue.

1.11.1 SPONSORS

A sponsor is a person or group who provides resources and support for the portfolio. If it is a group, then individual accountabilities should be clearly defined. The portfolio sponsor usually participates in the portfolio governance body. Sponsors are accountable for resource allocation and enabling success. Sponsors champion the approval of portfolio and/or portfolio components (projects, programs, subsidiary portfolios, and operations) and are also accountable for the ultimate success of the portfolio.

At the portfolio level, a sponsor is a champion of the entire portfolio and should work closely with the portfolio manager in the establishment and ongoing management of the portfolio and its processes. Once the portfolio component is approved, the sponsor helps the portfolio manager ensure that the components perform according to organizational strategy and objectives. Sponsors also support portfolio management to recommend portfolio and portfolio component changes or closures to align with organizational strategic changes. Sponsors should be vigilant regarding any changes in the portfolio components that might affect the achievement of the strategic objectives toward which the portfolio has to be constantly aligned.

1.11.2 PORTFOLIO GOVERNANCE BODY

Portfolio governance is the framework, functions, and processes established by the governing body and set by the organization to guide portfolio management activities and make decisions about investments and priorities for the portfolio and ensure that the portfolio management processes are followed to sustain the organization. Leadership and sponsorship from the portfolio governance body are essential for the portfolio manager. The portfolio governing body is made up of one or more individuals with the requisite authority, knowledge, and experience to ensure the alignment of portfolio components with organizational strategy. Sometimes, portfolio governance is performed by subgroups that have specific responsibilities toward portfolio governance (e.g., selection/prioritization of portfolio components, investment decisions, oversteering portfolio progress, a change review board to decide on change proposals). This governing body usually has the authority to evaluate the portfolio performance and to make resourcing, investment, and priority decisions as needed. Change recommendations may include new portfolio components, the suspension or change of existing portfolio components, and the reallocation of resources among portfolio components. The recommendations may be complex, with significant organizational constraints, especially concerning reallocation of resources. Often, portfolio governance does not only make the recommendations, but is also responsible for their approval process. Portfolio governance is paramount to portfolio decision making; it informs and guides decisions related to strategic alignment, investments, and the setting of priorities. Proper governance is essential and crucial to enforce accountability, optimize investments, escalate issues to decision makers, and improve communication.

1.11.3 PORTFOLIO, PROGRAM, AND/OR PROJECT MANAGEMENT OFFICE

The term *PMO* refers to a portfolio, program, and/or project management office. The PMO supports portfolio, program, or project functions, respectively. At the portfolio level, a PMO, which may be referred to as an enterprise PMO (EPMO) or center of excellence, is an organizational entity that provides a wide variety of capabilities and processes supporting portfolio management. These may include some or all of the following:

- Identifying, analyzing, coordinating, negotiating, monitoring, and controlling portfolio components; supporting component proposals and evaluations; facilitating prioritization; authorization; termination of components; and facilitating the allocation of resources in alignment with organizational strategy and objectives;
- Developing and maintaining portfolio, program, and project frameworks and methodologies;
- Managing knowledge regarding the project management discipline, including good practices and lessons learned;
- Providing program and project progress information and metric reporting utilizing key performance indicators (KPIs) (e.g., expenditure, defects, resources) to the portfolio governance process;
- Managing, including monitoring and controlling, such as regulatory/governance compliance and benefit realization across the entire portfolio;
- Assisting with risk strategy development and risk identification, and communicating risks and issues related to portfolio components;
- Coordinating communication across portfolio components; and
- Developing and conducting training and mentoring of human resources in portfolio management skills, tools, and techniques.

The portfolio management office has a focused and specific responsibility for the centralized management and coordination of the portfolios that lie within its domain. The responsibilities of this office may range from providing portfolio support functions to actually managing the portfolio—usually, in this case, the portfolio manager is also the head of the PMO. The structure and function of the portfolio management office vary with the needs of the organization—for example, the PMO life cycle, the PMO model, and the PMO critical success factors.

The portfolio management office may act as a stakeholder throughout the portfolio's life cycle and may recommend the selection, termination, or initiation of actions necessary to ensure that the portfolio remains aligned with the organization's strategic objectives.

The portfolio management office may provide the following services to a project or program management office:

- Defining and developing the portfolio management strategy;
- Providing portfolio oversight and managing the overall portfolio value and portfolio component benefits;
- Defining portfolio vision and mission statements; management structure; and methodology, best practices, and standards for use as guidelines while formulating the methodology and standards for project and program management;
- Aggregating and providing performance results of the portfolio components based on predefined metrics;
- Identifying risks, analyzing risks, and planning risk responses at the portfolio level; and
- Forecasting supply and demand for the portfolio and optimizing the portfolio resource allocation. Thus, supply and demand are analyzed and broken down for each portfolio component.

The roles, responsibilities, and activities of a project or program management office are addressed in the relevant PMI standards: *A Guide to the Project Management Body of Knowledge (PMBOK® Guide)* [1] and *The Standard for Program Management* [2].

1.11.4 PROGRAM MANAGERS

Program managers are responsible for ensuring that the overall program structure and program management processes align with the portfolio management plan. The program manager ensures that the program delivers the intended benefits. Detailed information on program management may be found in *The Standard for Program Management*.

Portfolio management supports the program manager by providing the information needed to make decisions that guide the program and by providing administrative support in managing schedules, budgets, risks, and other areas required for effective program management. A program manager works with the portfolio manager, the portfolio management team, and/or the portfolio management office to provide information such as program performance against goals.

1.11.5 PROJECT MANAGERS

Project managers are responsible for the effective initiation, planning, execution, monitoring and controlling, and closing of assigned projects within the portfolio in accordance with corresponding objectives and specifications. Program and project team members fulfill specific roles toward the successful execution of each portfolio component. Detailed information on project management may be found in *A Guide to the Project Management Body of Knowledge (PMBOK® Guide)*. Project managers provide project performance indicators, directly or indirectly, to the portfolio manager, PMO, or governing body. This information is used along with other criteria to monitor progress for each portfolio component and derive overall portfolio progress, issues, assumptions, and risk emerging from component dependencies. Moreover, such information is valuable for determining which projects should proceed, be modified, be suspended, or be terminated, and to communicate with stakeholders. Further to the key management roles within the portfolio framework listed in Section 1.11, the operational managers of each organization have the role of realizing the outcomes and benefits from the successfully implemented portfolio components.

2

THE PORTFOLIO LIFE CYCLE

This section provides information on the portfolio life cycle. The following major sections are addressed:

2.1 Overview

2.2 Guiding Principles

2.3 Ongoing Life Cycle

2.4 Portfolio Management Information System (PMIS)

2.5 Governance Within the Portfolio Life Cycle

2.1 OVERVIEW

The portfolio life cycle is the ongoing processes and functions that occur to a set of portfolios, programs, projects, and operations within a continuous time frame. In today's global market, the portfolio life cycle needs to be adaptive and flexible to constantly changing needs from all influences, internal and external, so organizations can remain competitive and financially stable. One or more portfolios can exist within the life cycle. If several portfolios exist, they can be centralized or decentralized in terms of management within the governance structure in place. For example, a research and development portfolio could be decentralized while another portfolio may be managed centrally. The controls required to manage a portfolio should be flexible to adapt to the complexities of multiple portfolio scenarios. Selection and authorization of portfolio components can be part of the periodic (e.g., annual) planning or strategic review, with quarterly and/or monthly updates. Once established, portfolio management is an ongoing practice. Performance monitoring of the portfolio(s) is ongoing. Adjustments to the portfolio components may be required when changes to the organization occur. Portfolio management starts with the initiation of each portfolio and may continue indefinitely or until the portfolio is closed.

Strategic planning, organizational performance metrics, and product and service design are all critical elements as inputs into the portfolio life cycle. Underlying these inputs is a thorough understanding of the portfolio's value to the organization. Defining the value derived from the portfolio's functions, products, and services from all perspectives (organization, customers, additional stakeholders) helps eliminate non-value-added programs, projects, or activities. The value stream should be mapped to understand which value-added programs, projects, and activities are essential to enterprise strategic objectives, and conversely, which are of little or no benefit.

2.2 GUIDING PRINCIPLES

The guiding portfolio management principles described in Section 1.7 of this standard influence all stages of the portfolio life cycle. Specific impacts from principles within individual stages of the life cycle are mentioned in Sections 2.3 through 2.5.

2.3 ONGOING LIFE CYCLE

A portfolio's continuous life cycle consists of several stages: initiation, planning, execution, and optimization. As a portfolio progresses through its life cycle, information and decisions are passed within and between each of these stages (see Figure 2-1). This is ongoing and not necessarily sequential. For example, a portfolio could undergo several iterations of planning and then proceed to execution within a short time frame based on a number of factors, both internal and external. Within the same business change life cycle, the portfolio can be "refreshed" with the addition or deletion/modification of the portfolio components. Replanning can occur when the portfolio mix is reviewed at the end of each business change life cycle when a top-down alignment is taken into account. All stages within the portfolio, including initiation, are adaptable, flexible, and fluid. As management decisions are made within the portfolio life cycle, the portfolio can be changed and updated to adapt to internal and external factors. For example, if a new government regulation comes into effect after periodic planning, the portfolio management team may have to adjust management plans to align to the new regulatory requirements. Figure 2-2 shows an example of major activities that are likely to occur by each stage.

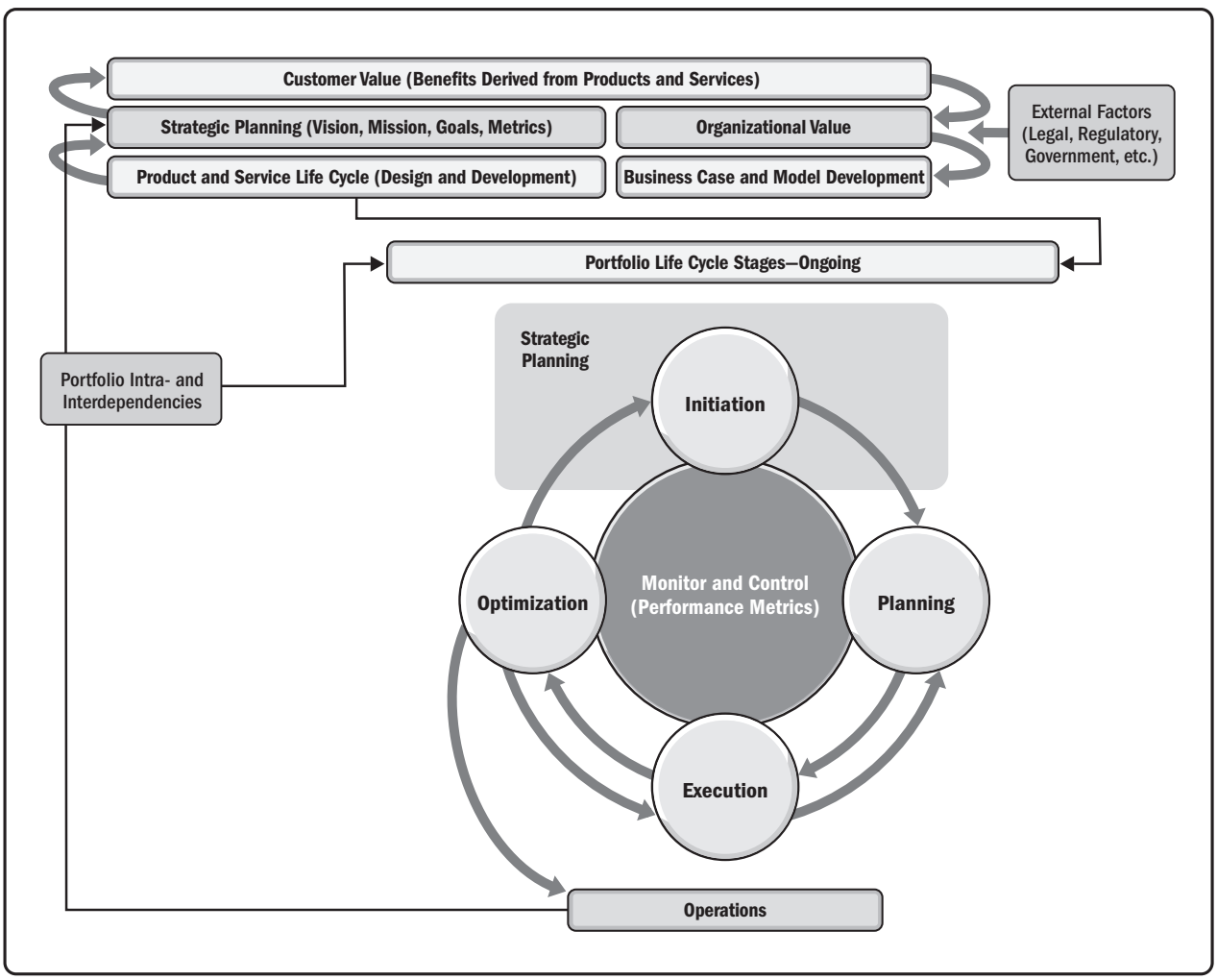

Figure 2-1. Information and Decision Flows Within the Portfolio Life Cycle (Example)

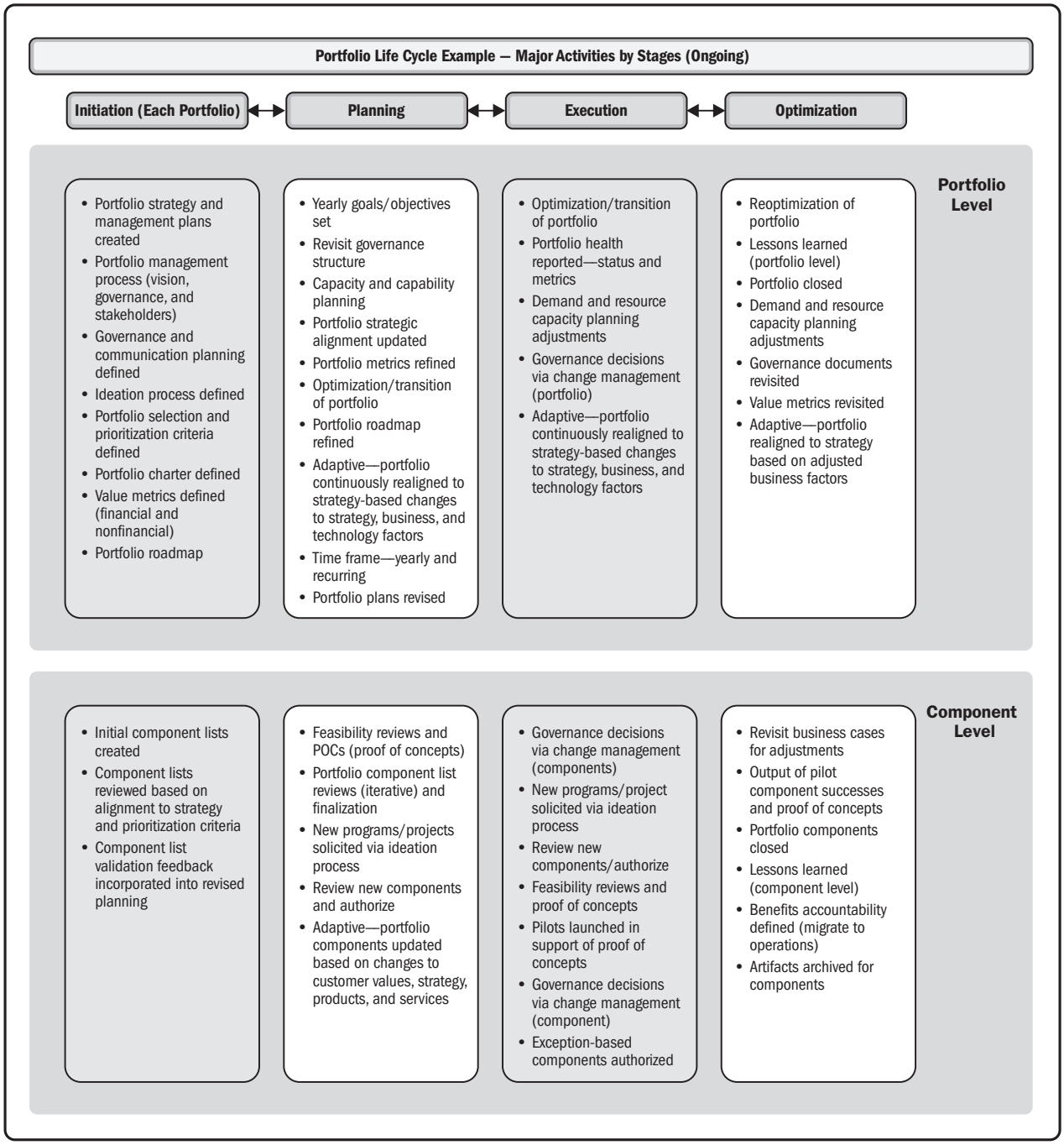

Figure 2-2. Example of Portfolio Life Cycle Major Activities

Supportive processes are organization specific, utilized to keep the portfolio aligned with governance controls and measures. These supportive processes include communications, financial, risk, and dependency management. They are defined and aligned to the portfolio during the initiation phase. Dependency management is primarily focused on the impact to and from portfolio components caused by various factors, such as resource and time constraints, financial costs, project outcomes, and risk profiles.

2.3.1 INITIATION

Initiation is an important stage. It is kicked off or informed by the formal release of business and/or organizational objectives and goals or to provide the management structure for previously disparate components. It sets the approach and principles for major processes that define how the portfolio and its components will be managed throughout the life cycle. The primary goals of this stage include, but are not limited to:

- Validating business and operational strategy;
- Identifying the portfolio components included in the scope; and
- Defining a long-term roadmap with financial goals, performance metrics, communications, governance, stakeholders' definition and roles, and ongoing management plans for the portfolio and its components.

During this stage, the following key processes are first discussed and set up: governance framework, communications planning, prioritization criteria, portfolio performance metrics, and portfolio risk management. The portfolio governance plan and charter are created, as detailed in Section 3. Discussions occur regarding how the strategy of the organization ties to the portfolio and its components at a high level.

2.3.2 PLANNING

The primary goals of the planning stage are to develop the portfolio management plan and reach agreement on:

- Management of portfolio components in scope;
- Budgeting required to successfully execute components;
- Identification of interdependencies between portfolios and their components;
- Identification of risks and issues, and development of response plans;
- Resourcing requirements (human, financial, asset, and intellectual);
- Prioritization of portfolio components;
- Confirmation of governance body/sponsor and stakeholder accountability;
- Portfolio metrics to measure success (financial and nonfinancial);
- Scope of components within the portfolio; and
- Product and/or services requirements and specifications.

During periodic portfolio strategic planning, the portfolio business model is revisited to ensure that it is in alignment with customer values/benefits and business/organizational strategic goals. Initial optimization of the portfolio occurs as a result, because the portfolio is formally aligned to strategy during this phase. Portfolio metrics are reviewed to ensure that they are tied to realistic goals/objectives at the customer, strategic, and financial levels. Existing components agreed upon during the initiation stage are reviewed in more detail, including scope, timing, budget, risks involved, resourcing requirements (human, financial, asset, and intellectual), and interdependencies.

Additionally, the prioritization criteria are reviewed based on new components introduced and their performance since the last strategic review. Changes are proposed and reviewed based on these criteria. Capital needs are compared against available funding and demand, and resource capacity plans are set based on the needs of the portfolio. During replanning, the portfolio is reviewed again. Components, including subsidiary portfolios, are revised based on the needs of the organization. Finally, portfolio management plan(s) are reviewed and updated based on the relevant status of components at this time, as well as overall portfolio risks and/or issues.

2.3.3 EXECUTION

The primary goals of the execution stage are to:

- Lead delivery of all components within each portfolio,
- Actively manage and resolve risk and issues across (interdependencies) and within the portfolio and its components,
- Facilitate portfolio and component communication (including status reporting at various levels),
- Reprioritize and change subsidiary portfolios as needed (monitor and control),
- Monitor benefits realization potential based on component delivery, and
- Manage portfolio assets and resources limited to the portfolio.

Portfolio execution is performed through its various components and operations. The health of the portfolio is reported through regular status reports and by reviewing the component performance metrics that were established during the planning phase. Proposed changes are reviewed based on ongoing organizational needs. Changes in the organizational environment may necessitate the reprioritization of components or the introduction of new components into the portfolio. These new components are reviewed as required based on unplanned critical needs (internal or external) or positive outcomes of proofs of concept, pilots, or feasibility studies.

2.3.4 OPTIMIZATION

Optimization is the process of making a portfolio as effective as possible by maximizing available conditions, constraints, and resources. Typically, the primary goal of portfolio optimization is to ensure that the available human, material, and financial resources are best applied to the appropriate remaining components of the portfolio. Although some organizations schedule regular optimization sessions, typically this activity is triggered when components are added or closed. During this stage, the portfolio manager facilitates discussions with stakeholders to ensure that the organization realizes the intended benefits for the remaining components.

While lessons learned for each of the closed components is not a part of this process, the results might add value to the discussion. Similarly, benefits realization from components that have been transitioned into the operational work of the organization may also provide credible evidence for optimization.

2.3.5 MONITOR AND CONTROL

Monitor and control is one of the critical supportive activities for monitoring portfolio performance and recommending changes to the portfolio component mix and portfolio component performance and compliance with organizational standards. The purpose of monitor and control is to understand when changes need to be made to the portfolio or to the portfolio management processes. This process includes execution, documentation, and communication of the decisions and the resulting actions taken.

2.4 PORTFOLIO MANAGEMENT INFORMATION SYSTEM (PMIS)

The portfolio management information system (PMIS) consists of the tools and techniques used to gather, integrate, visualize, preserve, and disseminate the outputs of organizational portfolio management. It is used to support all aspects of portfolio management, may be integrated with business management tools (the organization's enterprise resource planning system, the business process management system, tools to measure and optimize business processes, process modeling tools, etc.), and may be a manual or automated process depending on the needs of the organization.

These systems support overall organizational visibility, standardization, measurement, and process improvement, and can facilitate effective decision making by providing executive management with key performance metrics and target collection, analysis, and reporting. The PMIS is a powerful tool for portfolio governance, because it provides transparency and clarifies responsibility and accountability within the portfolio.

Automated tools may include commercial project portfolio management (PPM) applications as well as an information gathering and administration system with interfaces to other organizational automated systems. The PMIS is sometimes a collection of spreadsheets rather than automated tools during the early stages of organizational maturity. An effective PMIS enables the portfolio manager to define, analyze, design, produce, collect, and integrate necessary data elements to manage and support a successful portfolio. It provides an integrated system solution for reporting all project-based work and may be interconnected with the management information system of the whole organization. The PMIS includes tools and processes such as:

- Portfolio categorization with components, dependencies, owners, and other stakeholders, etc.;
- Centralized dashboard for executive reporting of management decision making (key performance metrics agreed to track);
- Software automation tools to replace manual processes;
- Centralized online document repository and version control;
- Change or configuration management;
- Workflow management and documentation of escalation communication;
- Historical and current information on portfolio risks, issues, assumptions, and dependencies;
- Integration with other applications and integrated business process management tools;
- Financial management processes and systems (e.g., budget tracking), cost control and schedule control processes and systems (e.g., earned value management), and enterprise resource planning tools (including capabilities, costs, and schedule);

- Risk database and associated analysis tools;
- Issues database and associated analysis tools;
- Communications management processes and tools; and
- Business process management tools.

It should be noted that integration among all management tools plays an important part toward validated, consolidated communication of information and knowledge for the whole organization.

The PMIS needs to be a comprehensive, documented, dynamic set of policies, processes, tools, plans, and controls for portfolio management. When properly implemented, the PMIS provides direction and integrates information from individual project/program management systems. The use of an effective PMIS provides a way to routinely analyze and quantify the value added by each portfolio component and provides input for portfolio component valuation and prioritization.

Specifically, the PMIS allows portfolio managers to answer questions, such as the following:

- Which portfolio components will best support the organization's business strategies and goals?
- Is there a program or project that provides the anticipated business results, as demonstrated by portfolio metrics?
- Does each portfolio component have appropriate resources, including staff with the right skill sets?
- Does the PMIS reflect the real overall status of the portfolio and is it the ultimate source for decision making?

A comprehensive PMIS should support processes that address continuing performance challenges for ongoing portfolio components as well as processes that concentrate on the portfolio's evolution, including the selection of new projects and portfolio component termination procedures.

2.5 GOVERNANCE WITHIN THE PORTFOLIO LIFE CYCLE

Developing the portfolio governance framework, which is an integral part of organizational governance, early in the portfolio life cycle is a crucial step. It can be one of the most important decisions that an organization makes.

To determine the rigor and level of portfolio governance needed in an organization, there are several factors to consider, including:

- Types of components within the portfolio and the required number of subsidiary portfolios;
- Legal or regulatory programs and projects, which typically need firm governance;
- Level of administration resources to support the governance (documentation, communication, and internal audit processes);
- Agility required to adapt the portfolio to frequently changing market needs, technological changes, etc., based on the nature of an organization's business strategy at specific points in time;
- Centralized versus decentralized governance required based on the size and scope of an organization (i.e., global, domestic, or local only);

- Location of governance and resources (processes, integrated tools and techniques, good practices) required for the successful execution of portfolio components;
- Audits consisting of the regular review of portfolio components, both internal and external (e.g., government or legal agencies); and
- Performance metrics, including financial, nonfinancial, and portfolio-focused.

The level of complexity introduced by the portfolio components has to be investigated, and complexity navigation based on a standardized framework should be planned and followed as part of the portfolio governance framework.

Developing the portfolio governance framework early in the portfolio life cycle is crucial. The portfolio components' governance frameworks need to be aligned to portfolio governance. It is much more effective to set up the governance correctly from the start with the optimal level of rigor and without major delays to achieve the maximum benefit for portfolio components that already exist. Some examples of governance delay could be related to ineffective portfolio management or a lack of engagement from senior management stakeholders to ensure that the governance in place is comprehensive. Downstream impacts of such challenges could include communication gaps, financial/resource priority conflicts, or poor risk management. The governance of portfolios is further discussed in Section 4 of this standard.

3

PORTFOLIO STRATEGIC MANAGEMENT

Portfolio Strategic Management is the management of intended and emergent initiatives that are often identified at an executive level and provide the very fabric under which portfolio management is executed. It supports strategic thinking and is the basis for an effective organization or business unit. Strategic thinking simply means asking, "Are we doing the right thing?" More precisely, it means assessing whether the right thing is being done using three key requirements:

- A profound understanding of the associated environment(s),
- Full alignment of all portfolio components with the vision and values of the organization, and
- Creativity in developing effective responses to forces and changes that affect the fulfillment of that purpose.

In the context of a portfolio, strategic thinking is captured in the strategic portfolio management plan.

This section provides information on Portfolio Strategic Management. The following major sections are addressed:

3.1 OVERVIEW

Alignment of strategic management and portfolio management enables the actions of an organization to be consistent with the expectations of senior management and stakeholders. Without this, there is a high risk that a portfolio will not match the overall strategy and that the programs/projects being undertaken will add little or no value—certainly less value than is expected. Portfolio Strategic Management should be considered a two-way process. In addition to the continual monitoring of strategy and investment decisions at the executive level, the practice should provide feedback on the impact and viability of such strategic decisions and potential outcomes.

3.2 GUIDING PRINCIPLES

To successfully manage a portfolio, a strategic approach that is mindful of the organization's strategic plan, goals, and objectives needs to be undertaken. Unlike what is done in program or project management, in strategic management, the portfolio manager needs to maintain a long-term vision in order to execute sound practices of decision making, risk management, and value management, among other organizational considerations. All of the principles outlined in Section 1.7 are important for strategic management. However, the following are especially applicable to this domain:

- Achieve excellence in strategic execution.
- Ensure that investments in portfolio components are aligned with the organization's strategy and governance practices.
- Balance portfolio value against overall risks.
- Foster a culture that embraces change and risk.
- Navigate complexity to enable successful outcomes.
- Continuously acquire talent and implement professional talent management.

Strategic management not only oversees the performance of the portfolio components, it also plays an important role in providing feedback to all stakeholders on the success of the organization's strategies and the viability of its long-term goals and objectives.

3.3 PORTFOLIO STRATEGIC OBJECTIVES

The portfolio strategic planning process consists of developing a portfolio strategic plan and aligning the strategic management of the portfolio to the organizational strategy and objectives. The portfolio strategic plan explains the key components of the portfolio management life cycle, describing the key initiation decisions, planning criteria, governance and optimization considerations, and execution elements. The portfolio strategic plan is used to align organizational and financial structure with priorities, mission, and objectives. Typically, a portfolio strategic plan includes a vision and a mission statement, a description of the organization's long-term portfolio goals and objectives, and the means by which the organization plans to achieve these general goals and objectives. The portfolio strategic plan should also provide performance indicators and target metrics to allow assessment of ongoing strategic alignment and tracking of progress toward achieving the strategic objectives. The portfolio strategic plan may also identify external factors that may affect the achievement of long-term portfolio goals.

When defining the portfolio structure, it is important to understand the overall strategy to ensure that the right components within those business areas with the highest strategic value are included. It is also important to ensure that every goal of the portfolio strategic plan has at least one initiative that would lead to its realization, and that the summation of the initiatives' outcomes under a specific strategic goal lead to 100% realization of that strategic goal's benefits. Therefore, an organization's portfolios should cover 100% of the organization's strategic goals—and only the organization's strategic goals—meaning that any initiatives that do not serve a specific strategic goal should be terminated.

Evaluating and describing how the portfolio management activity will be aligned with the overall strategy is what defines the portfolio strategic plan based on process, actions, and elements that support this evaluation and its implementation. The process, actions, and elements include things such as portfolio management objectives, prioritization, allocation of funds, organizational benefits, performance expectations, resources, assumptions, constraints, dependencies, risks, and requirements.

Additionally, managing a portfolio is not a specific and time-bound process, so the expected results of the portfolio are not bound to its components, but instead to what they deliver in terms of results.

The portfolio strategic plan is produced using organizational strategy, vision, and objectives. The portfolio manager collaborates with management in the governing bodies and with key stakeholders in the development of the plan. The portfolio strategic plan may support the strategy for the organization, organizational unit, or function.

Organizational strategy is implemented through portfolio components and ongoing operations. When producing the portfolio strategic plan, the portfolio manager integrates and responds to changes in the portfolio while remaining aligned with the organizational strategy, vision, and objectives.

3.4 DEVELOPING PORTFOLIO STRATEGIC OBJECTIVES

At their broadest, strategic objectives serve to define an organization's ambition in some detail. An organization's ambition is found in its mission and vision statements, which together describe the main purpose of an organization and its ultimate goal. They are the steps and accomplishments that an organization completes to realize that ultimate goal.

Strategic objectives form the backbone of a strategic plan. They represent specific, short-term actions (1 to 2 years) that are the result of the vision (typically 5 or more years) and goals (usually, 3 or more years).

A strategic objective statement should outline what is to be achieved and the overall approach that will be taken to achieve it (and the benefit of achieving it), and should focus on what is offered to customers. The critical elements in a strategic objective are measurability and clarity. Crucially, the strategic objective is guided by the organization's mission.

3.4.1 VISION AND MISSION STATEMENTS

Vision and mission statements should be single thoughts that can be easily understood. The strategic vision statement describes where the business sees itself based on the chosen strategy. The strategic mission statement explains the overall approach for achieving this vision.

To test the effectiveness of a mission statement, associated leaders, managers, and employees should be able to easily describe the vision and mission of the business in simple terms. If they cannot articulate the vision or mission, then the statement is of little use. The vision and mission guide the everyday activities of every person involved in the business. To be effective, the statements need to be short and simple, capturing the essence of what the business wishes to accomplish.

The vision and mission statements build the whole culture of the organization. The difference between a vision statement and a mission statement is this: A *vision* is what the company aspires to BE, and a *mission* is what the company is in business to DO. A vision statement is an inspirational mental picture of the value the organization hopes to achieve over time, regardless of changes in leadership. It offers a shared view of the future that excites employees. A mission statement tells WHAT the company is currently in business to DO, WHO it does it for, and HOW. It defines an organization's present state and its approach for the next few years. Mission statements may get refined as customers and their needs change. All employees should be able to articulate an organization's mission statement so they can see how their work aligns with and valuably contributes to this mission. It also helps them understand and accept organization-wide decisions.

A sample vision statement might be: "Our vision is a world without cancer."

A sample mission statement might be: "Our mission is to deliver outstanding value by providing high-quality fishing gear to satisfy the needs of our customers, and to do so at the lowest possible cost."

3.4.2 STRATEGIC GOALS

Goals are general statements indicating what is to be achieved, so they should be integrated with the vision. Goals are more qualitative statements rather than quantifiable targets, and they also need to be integrated with the mission, which describes how the organization will achieve its vision. Some examples of strategic goals are to:

- Capture a bigger market share,
- Enter a new market,
- Comply with regulatory requirements,
- Improve profitability,
- Increase efficiency,
- Provide better customer service,
- Improve employee training, and
- Improve customer satisfaction.

A strategic goal should be all of the following:

- **Understandable.** Is it stated simply and easy to understand?
- **Suitable.** Does it fit with the vision and mission?
- **Acceptable.** Does it fit with the values of the organization and the employees?
- **Flexible.** Can it be adapted and changed as needed?

Strategic goals should always center on the most important priorities of the organization to avoid losing focus, and they should be designed in such a way that they don't contradict or interfere with one another.

3.4.3 STRATEGIC OBJECTIVES

Whereas the vision describes the goal, a strategy is a choice about how to reach that goal. Strategic objectives can, therefore, be split into categories—for example:

- Profitability,
- Compliance,
- Financial resources,
- Market position,
- Legal or regulatory conformance,
- Innovation,
- Productivity,
- Physical resources,
- Human resources,
- Social responsibility,
- Value creation, or
- Customer satisfaction.

Strategic objectives should be selected to address the major challenges and drivers of the performing organization or business unit. To make strategic objectives manageable and actionable, their number should be limited. Once the strategic objectives are identified, they should be validated using the following basic criteria:

- Is the objective feasible and achievable?
- Is the objective measurable and verifiable?
- Is the objective adaptable and flexible?
- Is the objective consistent with the rest of the strategic plan?

One example of a strategic objective could be to increase market share by 10% with respect to the previous year's figures in a specific geographic area within the next 6 months.

3.4.4 STRATEGIC INITIATIVES

Organizations execute their strategies through the creation of strategic initiatives, comprising portfolios of programs and projects to achieve a future state. The process of defining strategic initiatives from the organizational strategy needs to be elaborated. This can include elements of strategic gap analysis, application of a balanced scorecard, and similar techniques to select the initial components and group them under subsidiary portfolios.

The portfolio components may not necessarily be interdependent or have related objectives. An organization may have more than one portfolio, each addressing unique organizational strategies and objectives. Proposed initiatives may be structured as portfolios, and components are identified, evaluated, selected, and authorized. Managing the necessary changes should be an integral part of planning initiatives. Strategic initiatives comprised of programs and projects move the organization toward that future state. The set of initiatives frequently involves a combination of one or more of the following:

- New products or services,
- New business models,
- New capabilities,
- New markets and channels,
- New value creation opportunities, and
- Breakthrough platforms.

3.5 STRATEGIC RISK APPETITE

An organization's strategic risk appetite is defined as the amount and type of risk that an organization is willing to take in order to meet its strategic objectives. Organizations have different risk appetites depending on their organization, culture, and underlying strategic drivers, as well as the individual risk appetites of their senior managers. A range of risk appetites may exist for different risk categories, and these appetites and/or risks may change over time.

Determination of strategic risk appetite should be a core consideration in the approach to enterprise risk management. A properly communicated, appropriate risk appetite statement can help organizations achieve goals and support sustainability. Organizations need to take some risks (threats) and avoid others and similarly exploit some opportunities and ignore others. Some organizations may find it easier than others to define performance standards, but it is necessary for boards in all sectors to do so if they wish to express their risk appetite meaningfully. This question may be easier to answer for a commercial organization than for a government organization, but it can usually be addressed by boards in many organizations.

Risk threshold constraints are not easy to define—every organization can tolerate different levels of risk. It is important, however, for the organization to establish a common understanding of risk and be prepared for the likelihood and impact of known threats. Organizations should define the maximum level of risk tolerance for each area of risk before taking action.

In order to manage risk effectively, the organization needs to determine what level of risk exposure is acceptable in pursuit of the strategic objectives. This is defined by measurable risk thresholds that reflect the risk appetite of the organization and other portfolio stakeholders. Risk thresholds express the degree of acceptable variation around a strategic objective. The risk appetite statement should be based on a review of the perspectives and concerns of all stakeholders and should address the implications of current organizational strategies and practices.

3.6 PORTFOLIO CHARTER

A portfolio charter is the document that formally authorizes the portfolio manager to apply resources to the portfolio components and should be present with every occurrence of formal portfolio strategic planning. The charter provides the portfolio structure, including the hierarchy and organization of the portfolio, programs, projects, and operations. It forecasts how and when the portfolio will deliver value to the organization. Chartering a portfolio links the portfolio to the organizational strategy and other portfolios and describes how the portfolio will deliver value to the organization. The charter may include portfolio objectives, portfolio justification, portfolio sponsor(s), portfolio management roles and responsibilities, key and major stakeholders, stakeholder expectations and requirements, communication requirements, high-level scope, benefits, critical success criteria, resources, high-level timeline, and assumptions, constraints, dependencies, risks, and related organizational strategic objectives.

In creating the portfolio charter, the following elements should be taken into account:

- **Portfolio strategic plan.** When developing the portfolio charter and defining the portfolio structure, it is important to be guided by the portfolio strategic plan. The information in the portfolio strategic plan that is necessary for developing the portfolio charter includes the portfolio vision and objectives; the benefits expected; and the key risks, dependencies, and constraints.

  Within the portfolio strategic plan, the prioritization model is useful as a decision framework to structure the portfolio components.

- **Portfolio process assets.** To develop the portfolio charter, the portfolio manager should leverage the portfolio's plans, policies, procedures, and guidelines, and any existing documentation of stakeholder relationships, scope, benefits, and portfolio goals.

- **Enterprise environmental factors.** Enterprise environmental factors may consist of organizational, environmental, and governmental variables that may contribute to and constrain the process of developing the portfolio charter. The portfolio structure in the charter may need to align with the organizational accounting structure or with the functional structure of the organization (e.g., by organizational unit or business unit).

3.7 PORTFOLIO ROADMAP

The portfolio roadmap is a visual, high-level artifact (e.g., usually a graphical representation) that details how the portfolio(s) and its relevant components are tied to the strategic goals of the organization. The roadmap should be updated at least in every portfolio reoptimization and approval period and/or when major changes are made to the portfolio. An example is shown in Figure 3-1.

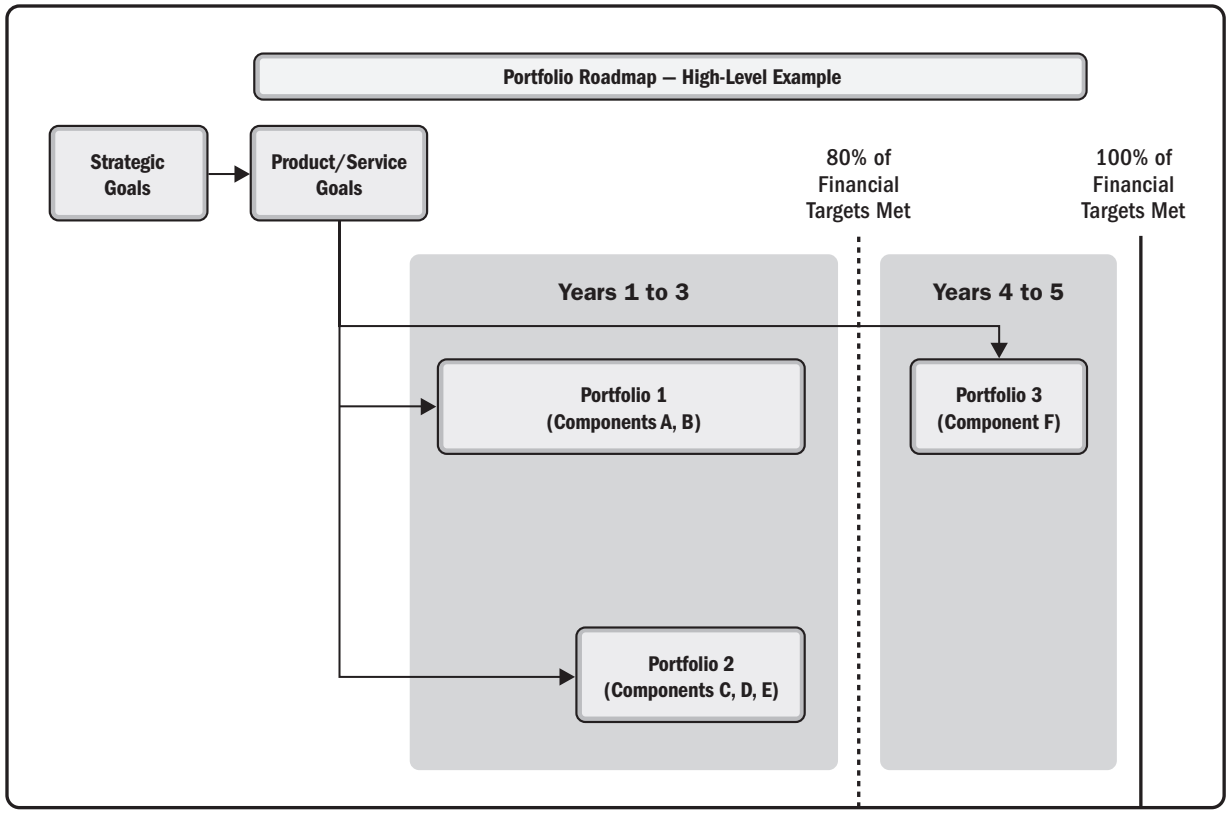

Figure 3-1. Example of Portfolio Roadmap

3.8 KEY PORTFOLIO COMPONENTS

A portfolio is built using a set of subsidiary portfolios, programs, projects, and operational activities managed in a coordinated way, improving their effectiveness to provide the expected result for the organization. The portfolio components may not necessarily be interdependent, nor are they necessarily executed at the same time. To enable effective management of the portfolio, the results (expected or realized) of its components should be measured, ranked, and prioritized.

The size of the portfolio's set of components will differ for each portfolio, or it can change during the existence of the portfolio. To be effective in delivering the expected portfolio results (and in a resource-constrained environment), it is important to limit or maintain a manageable number of components within the capabilities of the organization. A key component in a portfolio is one that contributes in a highly significant manner to the realization of the desired benefits. To improve the effectiveness of the portfolio, it is important to establish what the key components of the portfolio are. Once those key components are identified, the portfolio management team should assess its own effort on managing them and take actions to improve its overall organization.

3.8.1 EVALUATING PORTFOLIO KEY COMPONENTS

The evaluation process may take place on a regular basis. It is performed by reviewing the current set of components included in the portfolio and selecting and evaluating those that are important for the portfolio's overall results. The process of defining the key portfolio components requires profound knowledge of the strategic objectives and the portfolio's contribution to them based on the portfolio's current internal and external environment. Therefore, identifying the key components of the portfolio is dependent on reviewing and updating the main strategic objectives of the organization and the portfolio.

The evaluation process can be triggered by several activities. The most common ones are:

- A change becomes necessary in the organizational strategy and objectives because of internal or external factors;
- A gap forms between the overall expected portfolio results and the actual results;
- An ongoing key component is delayed, closed, or has a major change on its validated plans;
- A new portfolio component is validated; and
- A new opportunity (e.g., a new technology) has emerged.

Besides the contribution value of the component, there are other factors that need to be evaluated in order to define a key component for a portfolio. Among them are the following:

- **Realization factors.** These include cost, duration, resource capacity, expected results, complexity, organizational resistance to change, and so forth.
- **Organization's objective-oriented factors.** These represent the ratio between the positive and the negative effect on strategic objectives being impacted, the ease of assessing results, visibility, and the results realization timeline.
- **External factors.** These include contribution to the organization's image; contribution to the healthiness of the community, country, and world; and resistance to change from the surrounding community.

The evaluation of key portfolio variables is a process often overlooked when a key component is evaluated, even though these variables are often determining factors in the success of portfolio management.

Each component potentially has a negative impact on other objectives. For example, a key component could be to develop a state-of-the-art marketing campaign that will positively impact the organization's image and benefits. At the same time, the efficiency objective of the organization will be negatively impacted by this component because there is a threat due to the uniqueness of the expected result. Or, an organization may have an efficiency objective that can be attained with a lean project, but, at the same time, the realization of this project could have a negative effect on the quality of the work environment or may create a resistance to change that will override the expected benefits.

3.8.2 SELECTING PORTFOLIO KEY COMPONENTS

The selection of key components is crucial in portfolio success. The effectiveness of the choice of the main components largely depends on the visibility and management process of the organization's strategic objectives in relation to the portfolio. Without this information, the portfolio may not define which components are important, because the portfolio has no quantifiable expectations.

Validating the portfolio against the organizational strategy helps ensure that the two are in alignment. Proposed portfolio components or current inventory of work either not aligned with the overall strategy or deemed unlikely to deliver intended value are not recommended for inclusion in the portfolio, except as unfunded backlog components. When a current component is found to no longer be the best fit in a portfolio, it is likewise closed. This helps maximize the return on investment of resources (e.g., human, financial, asset, intellectual). Factors to consider include the following:

- **Organizational strategy and objectives.** The organizational strategy and objectives provide long-term direction, vision, goals, and objectives. The input can also be an organizational strategic plan document that contains the vision, mission, strategy, and objectives, with various levels of detail, depending upon the purpose and scope of the plan within the organization.
- **Inventory of work.** An organization may not have a portfolio that is a prioritized list of components. However, it may have an inventory of work that could develop into a portfolio. The list of portfolio components or inventory of work needs to be aligned with the organization's strategic objectives to ensure that they are valid and able to meet the objectives for which they were created. Component interdependencies should also be clearly understood and documented, as an efficient portfolio typically includes as many interdependencies as practical to minimize the effort to meet component objectives. For example, a derivative product may rely on both the earlier generation's manufacturing process and the demonstrated feasibility of a key subsystem from a dependent research project; as a result, the risk of conducting this project is lower, but this project cannot be completed to plan unless the dependent activities are successful.
- **Portfolio process assets.** Portfolio process assets may contain relevant data and information regarding the portfolio and guidance on authorizing and controlling the portfolio required for optimizing the portfolio. In developing the portfolio structure and portfolio charter, the portfolio management team needs to know the process assets that stakeholders are willing to provide. Examples include:
  - *Portfolio funding.* Understanding the financial resources that stakeholders are willing to commit and the expected return on investment is critical in structuring the portfolio; and
  - *Portfolio resources.* Understanding the available resources committed to the portfolio assists the portfolio management team in structuring the portfolio, taking resource constraints and dependencies into consideration.
- **Organizational process assets.** Organizational process assets include any or all processes related to the assets from an organization(s) involved in a portfolio that can be used to influence the portfolio's success. Process assets include, but are not limited to:
  - Formal/informal plans;
  - Organization's standard policies, methodologies, processes, and procedures;
  - Knowledge assets, intellectual property (IP), patents, know-hows, etc.;
  - Guidelines;
  - Lessons learned;
  - Templates/forms;
  - Knowledge and information from historical program/project records and documents (i.e., organizational knowledge base);
  - Annual reports; and
  - Key performance indicators (KPIs) from management portfolios in the past (for benchmarking purposes).

- **Enterprise environmental factors.** Enterprise environmental factors are organizational and environmental variables that can contribute to the determination of how to manage certain aspects of a portfolio. Some factors to consider are:
  - Organizational culture or structure,
  - Tools,
  - Personnel,
  - Infrastructure,
  - Marketplace conditions,
  - Governmental regulations,
  - Stakeholder risk tolerances, and
  - Economic conditions and forecasts.

3.9 PORTFOLIO OPTIMIZATION

Portfolio optimization is the ongoing practice by which benefits, risks, and resources are balanced and optimized. It should be an integral part of any effective organization's planning process to ensure that there is alignment between supply (e.g., human, financial, asset, intellectual) and demand (e.g., projects, maintenance, regulatory changes). With multiple projects either under way or in the pipeline at any one time, the balance of priorities, resource alignment, allocation, and overall bandwidth management should be effectively managed to avoid overruns of time and money and overutilization of human and technology resources.

To understand how to optimize the portfolio and to manage expectations, optimize risk exposure, and plan for delivery challenges, portfolio optimization practice should be used and integrated into the organization's annual planning process. This practice looks across all components of the portfolio, illuminates the dependencies and constraints across the portfolio, and identifies the most effective bundling of projects where synergies and leverage points are defined.

Examples of typical challenges that organizations may experience related to portfolio optimization include:

- Portfolios and resources not being aligned with objectives and strategies;
- Lack of transparency or access to good, accurate data;
- Resources being maxed out as a result of time wasted on too many low-value projects;
- Difficulty in adjusting portfolios quickly in response to market changes;
- Assessing impact of change in one of the components to the other components, if any (e.g., transfer of resources among components, schedule implications); and
- Cyclic impact of reprioritization or optimization.

Some considerations for optimizing a portfolio include the following:

- **Select and prioritize the right components.** Not every component has the same urgency. It is important to recognize the sequence of component completion based on organizational goals and be able to facilitate the higher-priority components first, followed by those lower on the list. Management also uses their insights into this process—some items cannot be quantified.
- **Forecast the cost of delivering the project portfolio.** Because profitability or cost efficiency is key for a successful organization, it is important to track the costs of portfolios on all levels and monitor them accordingly. There should be visibility to track a program/project and determine if the program/project should be canceled based on costs exceeding the benefits of completing it.
- **Provide real-time status reporting for executives.** Executives are often the ones who make the business decisions, and it is important for them to have real-time visibility of the status of components in order to make the best decisions for the organization. These portfolio component status reports can eliminate many risks involved with project issues that have not been communicated. Because fairness and nonbiased information are keys for best decisions, it is important to ensure consistent portfolio component reports within the portfolio by standardized project and program management practices. For example, executives may receive biased information from portfolio components if there is no standardized process in place.
- **Initiate project governance for consistent processes.** Ensure that individuals and the organization are held accountable for missed deadlines and wrongfully executed projects by ensuring that the reporting and status of projects remains consistent across the entire organization, making it easier to track the outcome of projects and resulting in greater efficiency overall using governance functions (oversight, control, integration, decision making).
- **Achieve a complete view of all portfolio components.** It is important for organizations to have a single true version when it comes to project status. This eliminates questions and helps individuals prioritize and support the projects that need attention.

3.10 MANAGING STRATEGIC ALIGNMENT

Managing strategic alignment enables the portfolio manager to respond to changes in organizational strategy and enhance the ability to accept and act on significant strategic change that impacts portfolio planning and management.

As strategy shifts, the current state should be compared with the future state (which may be evolutionary or incremental in nature). A gap may result in a realignment of resources or adjustments in the portfolio component mix to support the strategic change. Changes in portfolios are a normal occurrence, and, depending on the significance of the changes, portfolio documents may need to be reworked to ensure continued alignment with strategy. This repeated adaptation is in contrast to the progressive elaboration required in project management. This is an aligning process to identify the gap between current and future states and to analyze the impact and response to strategic changes and changes in resources (people, processes, and assets/technology).

Strategic objectives and goals are analyzed to determine which part of the portfolio structure will address specific strategic goals. The current existing portfolio or inventory of work needs to be analyzed to determine what work or component is to continue or close and which components will be added. The techniques include the analysis of the drivers of strategic change to determine the desired contribution of the initiatives to the strategic objectives and determine benefits and measurable contributions considering financial, resource, knowledge, and risk constraints.

3.10.1 CONSIDERATIONS WHEN MANAGING STRATEGIC IMPACT

Stakeholder analysis is critical in managing strategic change because it helps ensure continuity and aligns key stakeholders' expectations with the changing strategy and resulting portfolio realignment. The change may also lead to identifying new stakeholders or removing existing stakeholders. The techniques used to analyze stakeholder expectations and requirements may include interviewing senior executive stakeholders and analyzing requirements and expectations for strategic change. This may include identifying the stakeholders by individual or group and determining expectations and requirements, evolving conditions, newly recognized pain points, problems or desires, change impacts, issues, risk tolerance, changing external governance and rules (such as environmental rules), and concerns.

A gap analysis compares the current portfolio mix and components with the new strategic direction and the future organizational vision. This is essential to properly manage strategic change. This analysis determines the gaps and changes needed in the portfolio mix so that components may be added, changed, or terminated.

A readiness assessment gauges the ability of the organization to perform the steps necessary to bridge the gap between the current portfolio state and the future state. The assessment determines the if, when, what, and how of implementing the change, and points out any needs not yet addressed that are required in order to bring about the change.

3.10.2 THE IMPACT OF STRATEGIC CHANGE

A change in the related strategy can have a limited or a far-reaching impact on the portfolio, its components, and/or the underlying principles. These include, but are not limited to, the following:

- The portfolio strategic plan is updated and needs to be revisited when future strategic changes are made. Various elements of the portfolio strategic plan may need to change to reflect the organizational strategy change, such as the prioritization model, benefits, assumptions, constraints, dependencies, and risks.
- The portfolio charter is updated and revisited when future strategic changes are made. The portfolio structure in the charter may need to change to reflect new strategic objectives, as well as key or major stakeholders and their communication requirements.
- When a strategic change is made, components may be added, modified, delayed, or terminated from the portfolio to enable alignment with the new strategy.
- Based on the impact of the strategic change, the portfolio roadmap is updated, taking into consideration the new future vision and resulting changes in the portfolio components, timeline, and dependencies.

- Portfolio management plan updates may be needed because of changes in management approach, priorities, organizational structure, and other aspects of the portfolio management plan that may result from the strategic change. Updates to the stakeholder engagement, communications management, performance, and risk sections may also be required as a result of the stakeholder, gap, and readiness assessments.
- The portfolio process assets are updated when strategic changes impact portfolio plans and processes. These assets include information available from historic files on previous strategic changes to the portfolio-related people, processes, and technology; performance metrics; risk management; and lessons learned databases.
- Portfolio funding structure/financial management plan may need to be updated, if warranted.
- Access and integrate the maturity characteristics of the organization to facilitate successful change.

4

PORTFOLIO GOVERNANCE

This section explains what governance is, what it is based on, its guiding principles, how governance is implemented in terms of practices, and how governance activities differ from management activities. Understanding and implementing an effective portfolio governance framework guides the portfolio decision-making processes in the interests of all stakeholders while adhering to the governance principles of the organization. The following major sections are addressed:

4.1 OVERVIEW

The term *governance* is increasingly used in the field of portfolio, program, and project management, but the term and what it represents is frequently confused with notions associated with management. This section provides clarity on the concept of governance versus management, the importance of principles and how they impact both governance and management activities, and how portfolio governance principles impact programs and projects within the portfolio in addition to their value as part of component-based methodologies to increase the chances of component success. Governance activities encapsulate and enable the application of the portfolio principles to the actual work of portfolio management. (See Section 1.7 for the list of portfolio management principles that underpin this standard.)

4.2 WHAT IS PORTFOLIO GOVERNANCE?

Portfolio Governance is a set of practices, functions, and processes within a framework based on a set of principles that are the fundamental norms, rules, or values that guide portfolio management activities in order to optimize investments and meet organizational strategic and operational goals [4]. The term *governance framework* includes oversight, decision making, control, and integration functions, by which governance processes and tasks are directed toward the achievement of portfolio governance objectives.

4.3 GUIDING PRINCIPLES

This section on governance is very different from the other sections in this standard because governance is the framework within which portfolio management works, whereas other aspects of portfolio management are associated with the definition, implementation, and execution of the portfolio within the governance framework. This subtle difference also reflects which guiding principles are used to establish effective Portfolio Governance.

Section 1.7 lists eight principles relating to portfolio management; however, one principle directly relates to governance: Enable transparency, responsibility, accountability, sustainability, and fairness.

4.4 THE CONCEPT OF GOVERNANCE

Portfolio Governance is established based on principles, rules, and values that are desirable and guide the establishment of portfolio governance practices within an organization. Governance can be viewed from different perspectives as a system of controls, as a set of processes, and as a set of processes and relationships. Governance is very different from management. Governance is associated with decision making, oversight, control, and integration, whereas management is described as working within the limitations set by the governance framework with the overall aim of achieving the organizational objectives.

4.4.1 PORTFOLIO GOVERNANCE IMPACT ON PROGRAMS AND PROJECTS

When establishing the Portfolio Governance practices of a portfolio, including the component programs, projects, and operations, it is important to understand and influence the underlying governance principles and governance objectives of the components to ensure that they integrate and align to the principles and objectives of the portfolio. To achieve this, the component program and project methodologies should include governance principles along with management principles. Governance principles should help avoid and also resolve ambiguities, issues, and conflicts that may arise during a component's life cycle, especially when the endeavor has a low-outcome predictability in a complex environment.

Figure 4-1 shows the flow of the governance principles down through the organization, which influences the governance objectives at the portfolio, program, project, and operation levels. These governance principles help create the value system of an organization.

Senior management, typically at the board level, defines organizational governance based on the fundamental norms, rules, and values of the organization, which are used as the basis to develop Portfolio Governance practices. Because Portfolio Governance practices incorporate the governance principles of the organization, they flow down to the portfolio components to provide control, integration, decision making, and general oversight. The implementation of portfolio, program, project, and operations governance is accomplished through governance roles, which are described in Section 4.6. The effectiveness of the governance practices throughout the portfolio is dependent on the mentalities, rationalities, and ways of interaction, chosen by those in governance roles to implement, maintain, and change the governance structure.

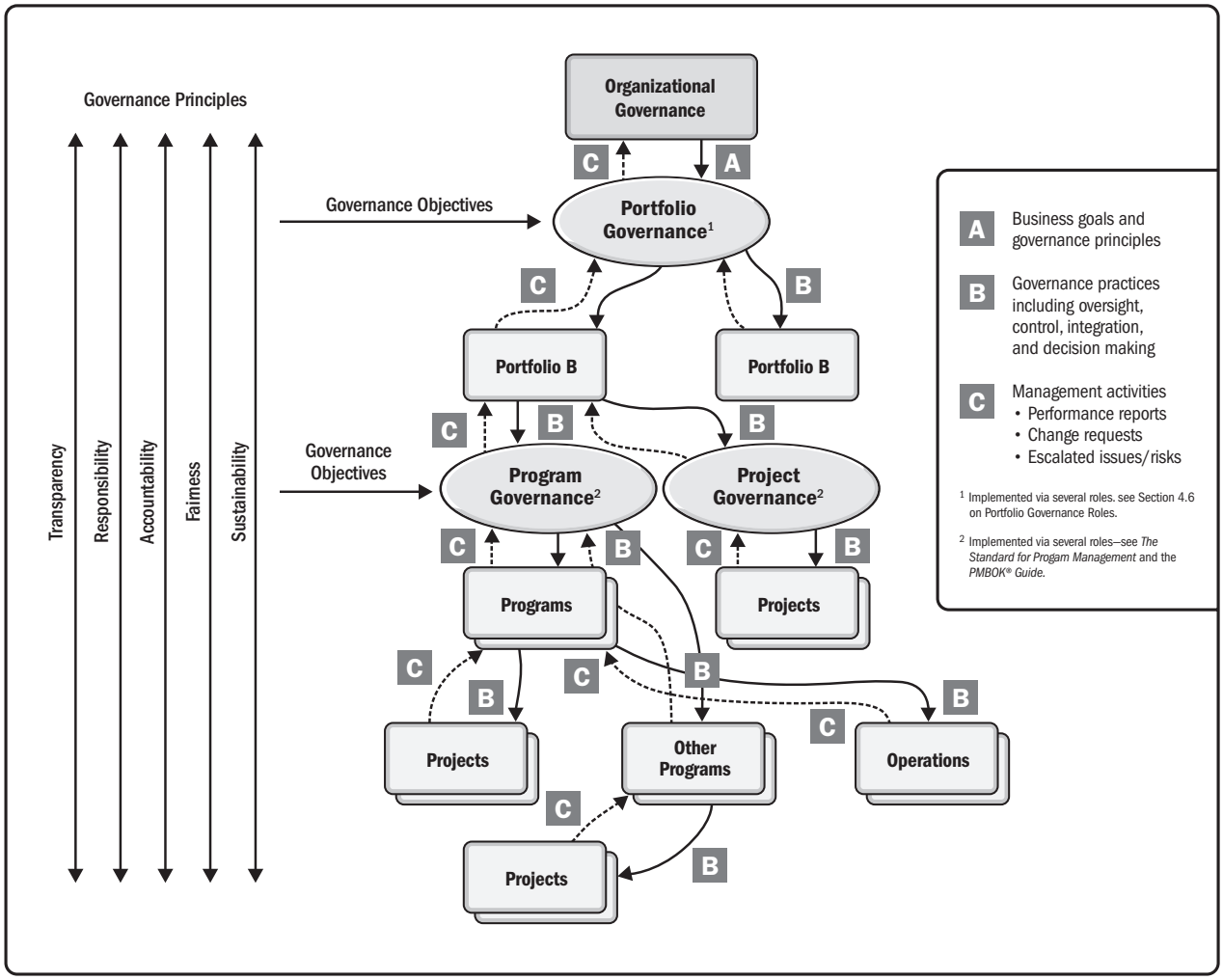

Figure 4-1. Governance Hierarchy, Including Principles and Objectives

4.4.2 PORTFOLIO GOVERNANCE AND OTHER DOMAINS IN PORTFOLIO MANAGEMENT

The Portfolio Governance Performance Domain is shown as one of the six performance management domains (see Figure 1-3). Governance impacts all the other portfolio domains, including the portfolio supporting processes in terms of the underlying governance principles and applied governance practices. The governance domain is comprised of four governance functions that represent the processes and activities that may be repeated throughout the portfolio and its components: decision making, oversight, control, and integration. The decision-making function includes the processes and activities that provide the overall governance structure for delegation of management authority for the portfolio and its components. The oversight function provides the governance processes and activities to support the leadership and direction for the portfolio and its components. The control function provides the processes and activities used to monitor, measure, and report on the portfolio and its components. The integration function provides the processes and activities to support the strategic alignment of the portfolio and its components.

4.5 EFFECTIVE PORTFOLIO GOVERNANCE DESIGN FACTORS

Portfolio governance design will have a significant influence on whether the portfolio can consistently meet its objectives throughout its life cycle. In extreme cases, governance practices that are not based on organizational governance principles and are inappropriate for the type of portfolio will increase the risk of component failure and jeopardize the overall success of the portfolio. There are many factors to consider when designing portfolio governance practices. Common factors to consider when optimizing portfolio governance include the following:

- **Legislative environment.** Portfolios contain many components, some of which may be significantly influenced by changing legislation; these may benefit from governance designed for direct interaction with legislative authorities.
- **Regulatory environment.** Many organizations are regulated within their industry or area. Therefore, their portfolio governance should be designed to ensure that proposed components for portfolio inclusion comply with regulations both in terms of component selection and throughout the components' life cycles.
- **Decision-making hierarchy.** For the components, it is important that decision-making responsibility is at the level where competence, accountability, and authority reside. There are complexities to this approach. For example, in organizations where employees are not ultimately accountable for their actions or are not made to feel accountable for their actions, there will be a greater need for controlling practices. In other circumstances, an experienced and respected component manager and team may be given greater autonomy and decision-making powers than is typically given to component managers at a similar level.
- **Alignment with organizational governance.** Portfolio governance should align with organizational governance in terms of organizational principles. Portfolio governance objectives should, in principle, align with organizational governance and should also reflect the nature of the portfolio and its specific objectives. Particular care should be taken for portfolios belonging to organizations that are joint ventures, to align to the governing principles of all parent entities. When designing portfolio governance practices, consideration should also be given to:
  - Types of governance practices that should be in place for the portfolio components;
  - Factors such as contracting of resources, risk of component failure (especially for high-risk components), components' level of importance from low to strategically important, and program and project management offices (PMOs) and how they will support components from a governance perspective; and
  - Component life cycles and the experience of the component teams applying the life cycle processes.
- **Alignment with organizational culture.** Organizational culture should be taken into account throughout the design of the portfolio governance, as culture influences the way of thinking and the acceptance of governance.

4.6 PORTFOLIO GOVERNANCE ROLES

Establishing an appropriate collaborative relationship among the individuals responsible for portfolio governance is critical to the success of the portfolio in delivering the value the organization desires. Portfolio managers leverage the portfolio governance board to help establish organizational conditions that support the goals of the portfolio. Governance board activities include monitoring escalated portfolio risks that may impact the financial value of the portfolio, the portfolio component mix used to achieve the organizational strategy and objectives, and the impact to the organization's capacities and capabilities. Establishing a collaborative relationship among the members of the portfolio governance board, of which the portfolio manager or portfolio owner is often the chair, is also critical to the ultimate success of the organization. Portfolio managers may be assigned responsibility and accountability for effectively managing the portfolio in pursuit of organizational goals as authorized by the portfolio governance board. When doing so, a portfolio manager assumes a responsible role for the governance practices within the governance domain. The accountability of the governance roles may reside with the head of the business unit, the chief operating officer, chief strategy officer, chief financial officer, chief information officer, or another similar executive role.

Portfolio governance structures are best defined in a manner that is specific to the principles and needs of each organization and the requirements of the components within the portfolio. The relationship between the portfolio governance and portfolio management functions often is managed by assigning key roles to individuals who are part of those functions and recognized as key stakeholders.

4.6.1 PORTFOLIO SPONSOR

The portfolio sponsor is the individual who is responsible for championing the application of organizational resources to help meet the portfolio's goals and objectives, and realizing its intended value contribution. The portfolio sponsor role frequently is filled by an executive member of the portfolio governance board who has a senior role in directing the organization and its investment decisions and who is personally vested in the success of the portfolio components and, therefore, the value that the portfolio is creating for the organization. In many organizations, the portfolio sponsor acts as the chairperson of the portfolio governance board.

Typical responsibilities of the portfolio sponsor are to:

- Ensure that portfolio goals and objectives are aligned with the strategic vision;
- Provide oversight and feedback on the delivery of benefits to enable success of the portfolio;
- Remove barriers and obstacles to portfolio success;
- Ensure funding-related approvals;
- Provide the necessary resources; and
- Manage interactions between senior management and the portfolio management team with regard to the portfolio activities.

As a member or chair of the portfolio governance board, the sponsor is integral to the fulfillment of governance responsibilities. It is critical that the organization allows the portfolio sponsor to perform the role effectively. Sufficient time and resources should be provided to enable success, which often requires relief from other duties. The skills and experience of the portfolio sponsor impacts the effectiveness of the portfolio. Often, the portfolio sponsor is required to drive changes through the organization so that operations can accommodate capabilities delivered by the portfolio components and secure the available benefits leading to value realization. The sponsor is integral to the communication and stakeholder processes. Typically, an effective portfolio sponsor exhibits the following skill sets and background:

- Organization-wide perspective,
- Ability to influence senior stakeholders,
- Ability to work across different stakeholder groups to find mutually beneficial solutions,
- Leadership skills,
- Decision-making authority, and
- Effective communication skills.

4.6.2 PORTFOLIO GOVERNANCE BOARD

Most organizations seek to ensure appropriate portfolio governance by establishing a portfolio governance board to determine the governance practices and provide the appropriate leadership, oversight, and decision making. Portfolio governance boards improve the likelihood that the portfolio governance domain is based on governance principles that guide the establishment of governance practices across portfolios, programs, and projects. The board should be well positioned to efficiently address governance issues or questions that may arise during the portfolio life cycle. Portfolio governance boards are often composed of executive-level stakeholders selected for their strategic insight, business area knowledge, functional responsibilities, operational accountabilities, responsibilities for managing the organization's portfolio, and/or abilities to represent important stakeholder groups. In some organizations, the governance board may also be responsible for some portfolio management tasks. In such cases, portfolio governance boards are often staffed by individuals who are either individually or collectively recognized as having organizational insight and decision-making authority that are critical to the establishment of portfolio goals, strategy, and operational plans. Often, portfolio governance boards include senior leaders from the functional groups responsible for supporting significant elements of the portfolio, including, for example, the organizational executives and leaders responsible for supporting the portfolio's components. The portfolio governance board ensures that the portfolio is executed in an environment with appropriate organizational knowledge and expertise and well supported by the governance framework, and empowers those with decision-making authority.

Typical governance responsibilities include:

- Determining the governance framework, which includes oversight, decision making, control, and integration functions by which governance processes and tasks are directed toward the achievement of governance objectives;
- Approving governance-related policies and processes;
- Establishing component selection, categorization, prioritization, and authorization criteria; and
- Reviewing and remediating escalated issues and risks relating to governance.

Responsibilities of governance boards that also have a management responsibility typically include:

- Ensuring that the portfolio strategic plan aligns with the organizational strategic and operational goals;
- Considering and balancing the degree of organizational change required to achieve portfolio value;
- Providing executive support in portfolio, program, and project process alignment and expectations;
- Providing leadership in making, enforcing, carrying out, and communicating decisions;
- Defining key performance targets and thresholds;
- Influencing and directing multiple areas, such as organizational communications, external reporting, funding and investment measures, and strategic direction for new products and services;
- Controlling allocation of resources in accordance with an organization's strategic priorities and operational needs;
- Determining risk and/or reward, including the financial investment, return, and portfolio value;
- Reviewing and resolving conflicting goals and objectives;
- Defining key messages to be communicated to stakeholders and the organization;
- Reviewing performance and proposed recommendations to adjust the portfolio; and
- Reviewing and remediating escalated issues and risks relating to the management of the portfolio.

In small organizations, a single executive may take on all of these responsibilities rather than convening a full portfolio governance board, oversight committee, or board of directors with multiple individuals.

4.6.3 PORTFOLIO AUDIT ORGANIZATION

Portfolio governance includes the assignment of responsibility for ensuring that the component managers know that planned and ad hoc audits may be required or desired based on the specific nature of the organization. Audit assessments may be conducted by an internal and/or external auditing body and include organizational and component/subcomponent compliance with approved or mandated business or program/project management processes. Component audits are frequently focused on finances, management and governance practices, risk management practices, strategic alignment, quality assurance and quality control, and component documentation.

Portfolio-instigated audits may delegate responsibility to the component governance board(s) for creating organizational or component-specific plans for audits to be used by the component team. Such plans often provide details on organizational policies regarding audit expectations and preparedness, standardized audit processes, anticipated schedules for known internal or external audits, roles and responsibilities of component staff regarding the conduct of audits, and policies for review and communication of audit results.

Audits are sometimes viewed within the portfolio components as time-consuming endeavors that burden the components. It should be noted that audits are often valuable measures of component quality that help the component manager, portfolio manager, and other stakeholders identify areas of concern, thereby reducing the risk of triggering corrective actions. Also, an audit is a direct communication channel to senior management, allowing clear messages to reach the audit review team that otherwise may be blocked or filtered. The audit support provided by the governance function may, therefore, contribute significantly to the eventual success of the components and the long-term success of the portfolio.

4.6.4 OTHER ROLES

Other roles required to support portfolio organizational and process changes include:

- Supporting portfolio governance and execution of portfolio components to ensure that defined goals are being met;
- Supporting the portfolio governance team to determine the impact of changes;
- Supporting any changes impacting the outcome of the programs and projects;
- Representing the functional area on the governing body, when applicable; and
- Supporting portfolio governance-related organizational changes.

5

PORTFOLIO CAPACITY AND CAPABILITY MANAGEMENT

This section covers the Portfolio Capacity and Capability Management performance domain as it relates to portfolio management. The objective for Portfolio Capacity and Capability Management is to ensure that the portfolio's capacity and capability demands are in alignment with portfolio objectives and can be supported or met by the organization's resource capacities and capabilities, thus enabling successful portfolio execution and expected portfolio returns. The following major sections are addressed:

5.1 OVERVIEW

The capacity and capability management function plays a critical role in the organization's overall portfolio management—from strategic planning to portfolio selection and optimization, through portfolio execution, to realizing the resulting value to the organization. Effective and efficient capacity and capability management bridges the gap between an organization's overall strategy and the attainment of specific business objectives through the monitoring and controlling of the execution of program and project efforts managed within the portfolio structure. Terms are described as follows:

- **Capacity and capability management.** A comprehensive framework based on a set of guiding principles, consisting of a set of tools and practices to identify, allocate, and optimize resources for maximizing resource utilization and minimizing resource conflicts in portfolio execution. Capacity and capability management in the context of portfolio management implies all aspects of resources such as staff, capital, technology, equipment, etc.
- **Capacity management.** Addresses what types of resources are needed, how many are needed, and when resources are needed to support portfolios.

- **Capability management.** Elaborates what aspects of resource capacity are available and addresses the attributes, competences, and skills associated with resources and organizational support for portfolios.

The objective of Portfolio Capacity and Capability Management is to determine the optimal balance between what the organization can do now, or its capacity, and what the organization can potentially do, or its capability. Portfolio Capacity and Capability Management maximizes resource utilization and minimizes conflicts for successful portfolio execution. Sound practices around portfolio selection and execution, decision making, change management, risk management, value management, and benefit management have a direct impact on resource capacities and capabilities. Interdependencies among portfolio components drive complexity and, thus, affect resources as well. Portfolio Capacity and Capability Management focuses on the human, financial, asset, and intellectual capital resources an organization uses to execute portfolio components. Thus, each organization has an ideal potential as to what it can accomplish and what can be done now, given an entire set of organizational demands and priorities. The portfolio manager needs to look across the organization to identify the programs and supporting projects that will be in the portfolio to meet the strategic objectives of the organization. These programs and supporting projects should also be executable by balancing the portfolio's demands against the organization's capacity and capability to achieve the business goals of the portfolio and associated value.

Balancing the organization's capacity and capability is not a simple task. The integration of programs and projects within the portfolio to meet strategic objectives is complex and involves many interrelationships among the organization, its programs, and supporting projects. A portfolio should be understood as a complex adaptive system rather than as isolated, or even simply connected, components. Capacity and capability management involves aspects that shape the portfolio and allow portfolio managers to plan, monitor, and control the execution of portfolios to meet organizational strategic goals and aggregate investment performance and benefit realization.

5.2 GUIDING PRINCIPLES

Organizations, irrespective of size, complexity, or nature of the business environment, need to define and embrace a set of guiding principles to be effective with capacity and capability management and succeed at the portfolio level. All of the principles outlined in Section 1.7 are relevant to Portfolio Capacity and Capability Management. However, the following are especially noteworthy because they have profound and direct impact on resources to successfully execute the portfolio:

- Exercise active and decisive leadership for the optimization of resource utilization,
- Achieve excellence in strategic execution,
- Balance portfolio value against overall risks, and
- Navigate complexity to enable successful outcomes.

The discussions in this section reflect these principles as the underlying basis for effective capacity and capability management.

5.3 CAPACITY MANAGEMENT

Capacity management is one of the most complex and critical areas within portfolio management. It addresses the overall resource demands of portfolios and their components. Capacity is the organization's ability to fulfill aggregate resource demands for successfully executing a planned portfolio of initiatives.

An organization's capacity or resource needs for portfolio execution occur primarily across four major categories:

- **Human capital.** Availability of human resources to support the portfolio.
- **Financial capital.** Availability of funds to support the portfolio.
- **Assets.** Availability of physical assets, such as machinery, office space, factory sites, etc.
- **Intellectual capital.** Availability of patents, copyrights, etc.

Each of these resource categories requires thorough planning, analysis, and active management to successfully execute the portfolio and achieve associated goals and objectives. These resource categories are critically important and closely correlate with one another. Ratios and relevance depend on the industry and portfolio mix.

Capacity management seeks to address conflicts related to the resource demands of portfolios and their respective components. It helps identify what resources are needed, how many are needed, and when resources are needed to support the portfolio, including ongoing optimization to maximize utilization and minimize conflicts.

The "what" aspects of resource capacity management are further elaborated by capability management, which addresses the attributes, competences, and skills associated with resources. Outside of resource capability, other critical organizational capabilities should consider which resources directly contribute to successful portfolio execution.

Figure 5-1 represents the capacity and capability management components of portfolio management.

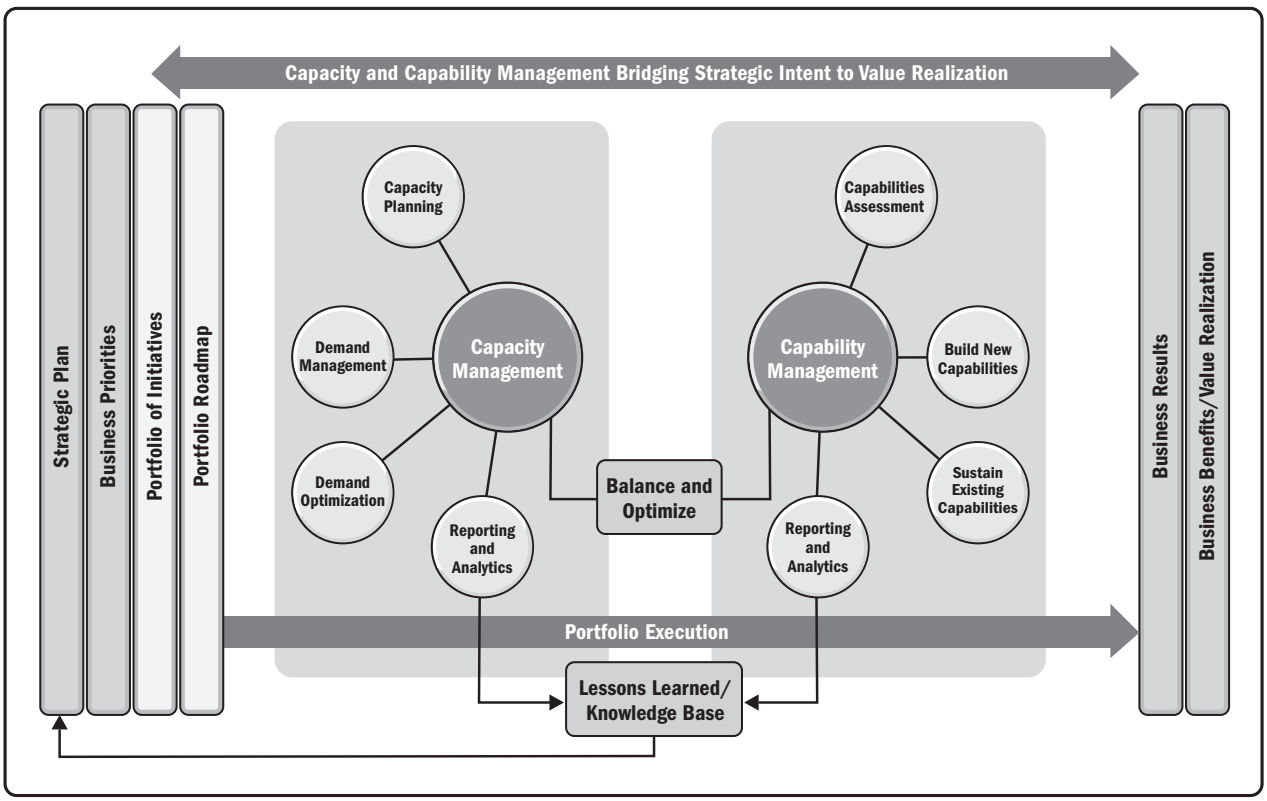

Figure 5-1. Capacity and Capability Management Components of Portfolio Management

Capacity management for portfolios involves methodically developing an overall profile of portfolio resource demands and the available supply of resources, analyzing and aligning the supply of resources to the portfolio needs, measuring and monitoring resource demands and supply throughout the portfolio execution, and executing changes as needed for the portfolio to perform at the optimal level for targeted benefits or value realization.

Capacity management uses a comprehensive and integrated approach for resource management. It encompasses the following four elements:

- **Capacity planning.** This element entails the forecasting of resource demands and the available supply of resources for portfolio execution based on the available information in the portfolio roadmap, strategic plans, historical data, etc.
- **Supply and demand management.** This element involves analysis and resource allocations for portfolio components to balance supply and demand.
- **Demand optimization.** This element involves ongoing measurements and the monitoring of resources for needed course corrections and adjustments during portfolio execution.
- **Reporting and analytics.** This element involves identifying and capturing data and associated analysis for trends and patterns to aid with portfolio decision making.

Capacity management's four elements collectively enable the organization to execute the portfolio and obtain targeted portfolio benefits based on the approved resource levels or constraints, thus driving value for the organization. The components of capacity management are discussed in more detail in Sections 5.4 through 5.6.

5.4 CAPACITY PLANNING

Capacity planning allows for an understanding of resource needs by measuring portfolio components against the available capacity of the organizational resources, ensuring that the organization can successfully execute its business initiatives as identified in the portfolio.

From the portfolio perspective, overall demand and available supply should be identified and compiled as an overall supply and demand profile for resource analysis and allocations to follow as part of demand management. A portfolio supply and demand profile provides a consolidated and holistic view of forecasted resources. It also captures the risk attitudes and thresholds specific to resources and investments, which are essential in defining resource allocations and making trade-off decisions for portfolio component ranking, prioritization, selection, and ongoing balancing and optimization of the overall portfolio.

An integrated review of the organizational strategic plan, risk management plans, organizational process assets, portfolio process assets, and enterprise environmental factors provides essential information in developing an aggregate and comprehensive forecast of demand and the available supply to support the portfolio.

The aggregate supply and demand profile highlights the resource capacity available from the organization across the human, financial, asset, and intellectual dimensions, including boundaries and constraints, and provides valuable guidance in portfolio execution and portfolio governance to select and fund portfolio components.

While accounting for the entire portfolio, capacity planning also needs to accommodate special instances when the portfolio may have mandatory or legislative initiatives that exceed the capacity or capability limits of the organization. Depending on the organization's risk profile, capacity planning may have contingency reserves for unplanned portfolio components that may come up during business cycles.

The overall portfolio supply and demand profile, derived through capacity planning, provides a consolidated and holistic view of supply and demand. It helps define the resource allocations and trade-off criteria for ranking, prioritizing, and selecting profile components, and the ongoing balancing and optimization of the portfolio.

5.5 SUPPLY AND DEMAND MANAGEMENT

Supply and demand management involves analysis and resource allocations for portfolio components to balance supply and demand. The alignment between overall supply and demand begins with a thorough analysis to support resource allocations for portfolio components. Analysis provides a critical decision framework to be utilized for resource allocation during portfolio selection, authorizing, and funding. A supply and demand profile provides foundational information for the needed capacity and capability analysis, a prerequisite for corresponding allocations. Capacity and capability analysis is essential for studying the capability of resources (i.e., skill sets and certifications), matching them with the portfolio components' objectives and goals, and translating the capability into the capacity that can meet the portfolio demands.

5.5.1 SUPPLY AND DEMAND ANALYSIS

Supply and demand analysis is performed to understand the human, financial, assets, and intellectual capital capacity and capability accessible in order to select, fund, and execute portfolio components. Capability is a specific competency that enables an organization to execute components and deliver results. Capacity and capability analysis, which drives the decision criteria for the resource allocation, may include scenario analysis, quantitative and qualitative analysis, and risk analysis.

Following the supply and demand analysis, an organization can take appropriate action based on the drivers of the portfolio. When demand is the primary driver, the organization needs to adjust the resource supply (through temporary and permanent resources). When the resource supply is relatively fixed, the organization needs to manage the project demand and sequence project work based on resource availability and project priority. In many cases, organizations will both adjust the resource supply and manage project demand.

5.5.2 SUPPLY AND DEMAND ALLOCATIONS

A prioritized list of portfolio components, decision criteria, and capacity and capability analysis collectively enables effective resource allocations to balance supply against the portfolio demands. The required portfolio resources should be identified according to each initiative's business case or plan, and an inventory of resources and capabilities aggregated to reflect the demand. This demand is then mapped to existing organizational resources, including funds, other tangible and intangible assets, and key human resources, such as program and project managers and subject matter experts. A master schedule of resource allocation is necessary to plan the consolidated demand of portfolio resources.

At the portfolio management level, the concept of supply and demand takes on a wider meaning than what is used at the program and project levels. The goal in managing supply and demand is to ensure that organizations optimally allocate resource capacity against resource requirements or demand based on strategic goals of the organization and associated portfolio composition. Organizations should allocate resources to minimize both capacity underutilization and overutilization (refer to Figure 5-2 on the supply and demand relationship). The ideal outcome requires diligent, iterative resource management and continuous optimization processes.

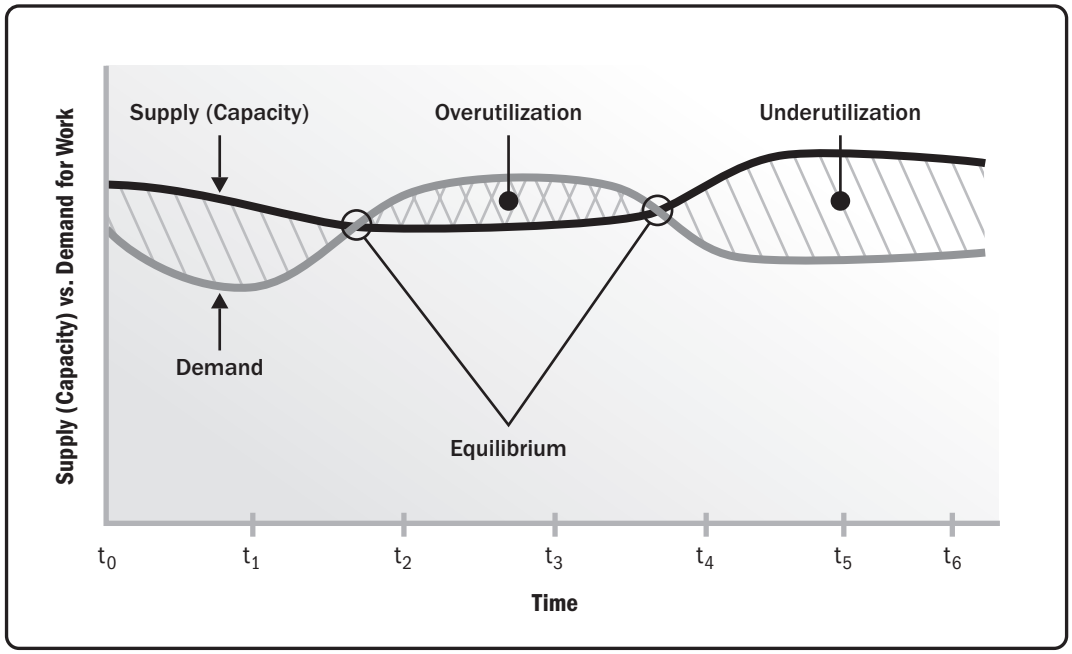

Figure 5-2. The Relationship Between Supply (Capacity) and Demand

The balancing of these demands or resources with the output of the portfolio or the portfolio's resultant value is commonly referred to as capacity balancing. Forecasting supply and demand at the portfolio level, along with short-term and long-term planning, is key to balancing portfolio capacity over time.

Portfolio resources are always constrained, so supply and demand needs to be continually reviewed and balanced with appropriate approaches. Some organizations assume that there are unlimited resources and that resources can be procured through various channels to satisfy any demand. These are typically projectized organizations. Other organizations assume resource limitation, where resources can be available within a range of variability. These organizations are more often functional or matrix organizations. In functional and matrix organizations, labor resources are used on both project work and operational work. Fluctuations in operational workload have an impact on the availability of resources for work managed within the portfolio. This is one of the main reasons why critical operations (or changes thereof) should be included in the portfolio, in addition to programs and projects.

There is a complex relationship between the types of resource supplies. The capability and productivity of human resources, even when training, background, and experience are similar, can vary widely. Labor rates can vary based on skill set, experience, industry, organizational structure, and the physical location of resources. Labor resources can be hired or contracted. Equipment and physical assets can be purchased, leased, or rented and made available locally or remotely.

Every organization has bottleneck resources, which are skill sets that are needed on many projects but are in short supply. Bottleneck resources are typically those critical human resources who have an understanding of the business processes and technical or functional knowledge with the ability to translate business requirements and evaluate the impact of changes. People with these skill sets are difficult to hire or contract because of their scarcity and the specific organizational knowledge they are required to have. Specialized equipment or facilities can also be bottleneck resources. The demand for these resources needs to be managed continuously to avoid poor portfolio performance as a result of resource challenges. It can be difficult to accurately determine the demand for resources across a portfolio of programs, projects, and operations at a point in the life cycle before detailed planning has occurred. As portfolio components are selected and planning is conducted, new information regarding resource requirements is often learned.

In order to maximize the use of resources, organizations commit resources to authorized portfolio components based on the expected end date of an active portfolio component (commonly referred to as "soft booking"). Unexpected delays or unrecognized dependencies between portfolio components can result in situations where a resource is not available when expected.

Resource allocation should take into account the strategic intent and the forecast value or benefit of portfolio components when those components are approved for funding. Portfolio components with higher expected benefits and stronger strategic intent should have higher priority over resource allocations when the portfolio components are approved and funded.

In addition to the strategic intent and benefits for resource allocations, the organization's risk appetite needs to be taken into account as well to ensure that threats and opportunities are balanced appropriately to optimize portfolio value.

Resource bottlenecks and constraints should be continually identified and monitored during portfolio execution, and appropriate strategies for resource leveling and bottlenecks should be implemented in a timely fashion to minimize any adverse impacts on portfolio performance.

Resource allocations for the portfolio need to be continually reviewed and analyzed during portfolio execution for adjustment and course corrections while striving for an optimal balance between supply and demand at the aggregate portfolio level, thus confirming that the expected portfolio value is preserved and maximized. Program and project change requests should be approved considering the impact on resource management at the portfolio level (to other components of the portfolio).

5.6 SUPPLY AND DEMAND OPTIMIZATION

Supply and demand optimization involves ongoing measurements and monitoring of resources for needed course corrections and adjustments during portfolio execution.

Continual and ongoing monitoring of the supply and demand relationship is critical to the success of the portfolio. The portfolio manager analyzes information regarding resource utilization and changing resource requirements of active portfolio components as well as the resource needs for planned and approved portfolio components against the availability of resources. The portfolio manager then allocates the resources in such a way ("doing the right project at the right time with the right resources") that the right resources are identified and matched to the right projects at the right time. When resources are constrained, the organization may be unable to accomplish the planned components and may need to reprioritize portfolio components.

In portfolio execution, it is critical for the portfolio manager to maintain a close alignment and balance between risk appetite and resource capacity and capability to ensure that adequate resource capacity and capability are available to manage the portfolio within the tolerated risk exposure level.

It is important that the relationships among resources, portfolio schedules, and any associated risks are clearly identified and managed throughout portfolio execution. Mitigating strategies or optimization measures are put in place to preserve the expected value and benefits of the portfolio.

Important metrics, key trends and patterns, and lessons learned should be captured as part of the measuring and monitoring process. This enables the organization to build a knowledge base repository—an organizational asset that can be extremely valuable for future use in capacity and capability planning.

In order to succeed with this challenge, organizations should implement a lean structure and robust change management processes to drive agility, effectiveness, and timeliness in response to actions and their associated decisions. Effective end-to-end change management, which includes identification, impact assessment, communication, disposition, and execution, is critical for ensuring portfolio value and associated benefits.

Changes to portfolio components, such as overruns, changes to scope, termination, and rescheduling, drive resource optimization and balancing. The portfolio management team needs to identify resource impacts that result from portfolio component changes. The portfolio manager needs to communicate with and gain concurrence on consequential schedule changes from portfolio stakeholders to ensure optimal portfolio performance. Such changes can be made easily when a robust monitoring and control system is in place so portfolio decision makers know the current state of the portfolio, variances to the plan, and the path toward fulfillment of strategic objectives and goals.

Proactive and continuous engagement with portfolio stakeholders and a focus on capacity and capability are extremely important and beneficial in identifying and evaluating any potential risks or issues related to resources. Once risks or issues are identified and evaluated, a planned risk response approach can be formulated and implemented, thus avoiding expensive stoppages or disruptions. Conversely, surplus availability of resources can also lead to advancing some of the portfolio components.

5.7 ORGANIZATIONAL CAPABILITIES

A capability is the ability of an organization through its people, processes, and systems to execute an entire portfolio of initiatives for delivering goods and services. Capability creates competences that provide a competitive advantage in the marketplace and deliver a desired customer value proposition and the achievement of the organization's goals and objectives. Because organizational capability deals with competences that are employed or exercised through internal processes and systems, an evolutionary path exists. When followed, this path allows the organization to become more organized, more systematic, and more mature. Over time, as organizational capabilities mature, what gets done shifts from a reliance on the heroics and/or talents of individual people toward documented and standardized processes and systems.

Capability differs from capacity in that capacity is how much the organization can do now, at the present time, while capability refers to the potential of the organization that may or may not be exploited. In addition, capability may indicate the ability of the organization to ramp up required resources to execute work when the capacity is at a shortfall at a point in time. The sum total of all characteristics represents the sum total of all resource attributes and represents the organization's capability, while the sum total of realized or actuated resource attributes is the organization's capacity. Synergy also plays into this equation—the sum of resource attributes is not a simple mathematical equation. In complex systems, the sum of attributes may be less or greater than the whole, and this complex relationship is what makes balancing capacity and capability within the portfolio so difficult.

5.8 CAPABILITY ASSESSMENT

A capability assessment is an internal analysis regarding what the organization has or does not have and what it can and cannot do. In other words, a capability assessment analyzes strengths and weaknesses with respect to resources, thus aiding with the selection, funding, execution, and optimization of the portfolio. Strengths are capabilities that the organization possesses and has developed, which can be exploited and developed into a sustainable competitive advantage and targeted value proposition. Not all strengths have the potential to become a sustainable competitive advantage, but they still provide competitive parity. Weaknesses are capabilities that are lacking or deficient and prevent the organization from developing a sustainable competitive advantage. The organization needs to address significant weaknesses that hinder the organization from developing sustainable competitive advantage.

An assessment can provide the organization with valuable information to:

- Gain an understanding of the current state of the organization;
- Identify gaps between the existing and desired capabilities of the organization;
- Receive a fact-based early warning of potential roadblocks to portfolio management success;
- Evaluate organizational agility;
- Learn what needs to be done and when to achieve organizational goals;
- Position the organization to address capability gaps in advance rather than react to them when they emerge;
- Discover how, when, and where to apply critical resources for long-term success; and
- Develop fact-based recommendations and a realistic plan for achieving and sustaining full organizational capability.

5.9 CAPABILITY DEVELOPMENT

Organizations continue to assess and evaluate their environment to identify new capabilities to develop or sustain existing capabilities in line with business strategy and market conditions.

5.9.1 DEVELOPING NEW CAPABILITIES

Developing organizational and individual capabilities depends on maintaining, improving, or developing requisite competences. Competences are individual characteristics, including knowledge, skills, abilities, self-image, traits, mindsets, feelings, and ways of thinking, which, when used with appropriate roles, achieve a desired result. Individual or collective performance based on a set of competences creates a positive impact on business outcomes. Key desirable competences include:

- Expertise in managing human resources,
- Relationship management,
- Consulting skills,
- Leadership and ability to navigate organizational boundaries,

- Communication skills,
- Effectiveness in dealing with global and cultural issues,
- Ethical behavior,
- Ability to evaluate information to make critical decisions, and
- Business acumen.

The challenge for any organization is to build capabilities before competitors do; however, other drivers can motivate organizations to create new capabilities or expand their existing capabilities. These drivers include:

- Organizational culture,
- Customer demands,
- Long-term shifting markets and trends, and
- Response to an urgent external or internal event.

Before detailed planning has occurred, it can be difficult to predict the demand for resources across a portfolio of programs, projects, and operations. As the portfolio manager and stakeholders select portfolio components and conduct detailed planning, new information regarding needed resources and capabilities is often uncovered.

There are several capability elements that organizations should keep in mind as they consider building the capabilities needed to support the organization and portfolio strategy. These include the following:

- **Mission.** Purpose of the capability, how it will operate, and what it will deliver as derived from the organization's strategy.
- **Talent.** Skills, incentives, and workforce planning that enable an optimal talent base to execute the capability.
- **Process.** An integrated set of processes and activities used to achieve the desired outcome.
- **Technology.** Systems required to support the development and sustainment of the capability.
- **Integration.** Clear roles, decision rights, and policies that inform organizational structure.
- **Insights.** Information, analytics, and decision flow that drive informed and timely decision making.

Organizations often face the strategic challenge of determining how to deploy their limited resources, not only to build capabilities to achieve a competitive advantage, but also to make that advantage sustainable. It is important to understand that capabilities are generally interdependent. Organizations should target an optimal set of capabilities for primary attention; however, these limited resources can be stretched to build sustainable capabilities by focusing on capabilities that are interconnected. For example, to build speed, the organization will likely need to target fast learning, fast innovation, or fast collaboration. As one capability improves, it will, in turn, probably improve others. Improved capabilities enhance leadership characteristics, so working to improve any one capability builds leadership potential. As the quality of leadership improves, talent and collaboration issues often surface—and in the process of resolving those problems, the organization usually strengthens its accountability and learning.

5.9.2 SUSTAINING EXISTING CAPABILITIES

To enhance the sustainability of the competitive advantage of a capability, managers should work to embed the capabilities throughout different interconnected and hierarchical processes within the organization, that is, address the process, technology, and integration capability elements. By establishing a formal system of rules and organizational hierarchies to shape deliberative decision making regarding the use of a capability, the organization can enhance the sustainability of its capabilities.

Sustaining capability also requires gaining insight via regular checkpoints. These checkpoints include conducting capability audits to help gauge—and ultimately boost—the status of the organization's capabilities, as well as measuring benefits realization associated with the new/enhanced capability.

5.10 PERFORMANCE REPORTING AND ANALYTICS

Performance reporting and analytics involves identifying, capturing, and distributing data and associated analysis for progress updates, trends, and patterns to aid with portfolio decision making. Suitability, selection, and frequency of the capacity- and capability-related metrics are driven by the size, complexity, and nature of the portfolio and organizational culture.

Although capacity- and capability-related metrics have vital importance throughout portfolio management, they are immensely valuable in building a knowledge base of historical data that can be leveraged in future strategic planning cycles or portfolio management activities.

5.11 BALANCE CAPACITY AND CAPABILITY

Capacity and capability require balancing for effective portfolio execution and optimization, attaining strategic goals and objectives, and delivering value to the organization. Organizational change management is a key to managing optimal balance of capacity and capability for portfolio needs.

Projects and programs are driven by requirements that seek to fill a capability gap related to some product, service, or organizational capability. Requirements are balanced via project processes to deliver an optimized solution. Similarly, at the portfolio level, capability gaps are reduced through a balancing of capacity and capability. The balancing act at the portfolio level does not involve trade-offs between requirements. Rather, it involves resource trades to balance the organization's potential, its use of its capabilities in its current operating state, and its capacity.

Balancing does not necessarily mean a maximization of capacity to achieve an organization's theoretical capability. The goal is not to minimize the capability gap without regard to other factors. Balancing capacity and capability is not a simple task because it is part of a complex system. Within complex systems, organizations need to consider many interrelationships. Balancing capacity and capability involves the integration of organizational strategic plans, organizational process assets, portfolio process assets, and enterprise environmental factors. Dynamic capability and capacity is crucial to innovation.

Balancing dynamic capacity and capability is especially difficult because it deals primarily with personnel or soft skills. As part of this balancing process, capacity and capability gaps are filled, but not necessarily minimized, across all areas.

6

PORTFOLIO STAKEHOLDER ENGAGEMENT

Organizational strategy defines the path of an organization toward achieving its vision. Portfolio management is the means by which an organization implements a defined strategy by directing the limited resources of the organization to the portfolio components that most support the strategy realization. The implementation of an organizational strategy is also important for other organizations or individuals dealing with the organization.

Portfolio stakeholders are the individuals, organizations, or groups that can affect, may be affected by, or perceive themselves to be affected by a decision, activity, or outcome of a portfolio. In addition, individuals, organizations, or groups that could affect the organization's ability to achieve its objectives (positively or negatively) should also be treated as stakeholders. A large number of individuals and groups could be considered stakeholders, being somehow directly or indirectly affected by portfolio activities. When it comes to engaging and communicating with them, the question is on whom to focus and how to condense the long list of potential stakeholders. The stakeholder list at the portfolio level is significantly different from the list at the portfolio component level. The difference is not only related to the stakeholder level (i.e., frequently a portfolio-level stakeholder will be at a higher management level), but is also related to the level of interest of the involved stakeholders. Portfolio Stakeholder Engagement deals primarily with delivering strategies and allocating resources, whereas programs deal primarily with benefits management, and projects deal with delivering scope in terms of quality, time, and cost. These different interests mean that different roles will be considered for the stakeholders of a portfolio versus the stakeholders of a component.

An integral part of stakeholder engagement is portfolio communications management, which includes developing a portfolio communications management plan and managing the dissemination of portfolio information. The communication strategy focuses on generating and/or obtaining all relevant data and on satisfying the most important information needs of stakeholders so that effective portfolio decisions are made and organizational objectives are met. Transparency may be a communication strategy to mitigate the risk of inadequate communication. Transparency with priorities and status provides credibility for the portfolio manager, enables good relationships with stakeholders, and helps reduce the chance of resources working on efforts that are not aligned with the organizational strategy and objectives.

The following major sections are addressed:

6.1 OVERVIEW

Stakeholder engagement includes practical implementation topics, such as working with portfolio stakeholders to maximize portfolio and organizational performance. A portfolio manager communicates frequently with stakeholders using modes and techniques appropriate for the context. The portfolio manager facilitates communications among stakeholders to negotiate agreements and make portfolio decisions.

Three main stakeholder groups can be identified as affected by the portfolio execution:

- **Executive leaders and managers of an organization.** These stakeholders need access to the resources of the organization to perform and achieve their given objectives. Every time portfolio management results in the shifting of resources from one (potential) component to another, the key interests of executive leaders and managers are affected.
- **Internal or external organizations and individuals working for a portfolio component.** These stakeholders have a strong personal interest connected to the funding and direction of the relative component. The portfolio heavily influences decisions to start and continue the work on these components.
- **Internal or external users and customers of the portfolio components.** These stakeholders (individuals as well as organizations) have both implicitly and explicitly documented requirements connected with the portfolio components. The prioritization of the components in the portfolio affects the satisfaction of these expectations.

Together with these main stakeholder groups, many other stakeholders can be affected by a portfolio, including process owners, suppliers, individuals responsible for governance, shareholders, governments, and even the public at large.

The successful execution of the portfolio and its components, which has a strong impact on the interests of these stakeholders, is also heavily influenced by them. Portfolio Stakeholder Engagement is concerned with all forms of communication directed to inform, influence, and enable stakeholders at the portfolio level.

Engaging stakeholders is not the end objective of the activities and approaches described in this section. Rather, it is a means by which the portfolio manager supports the achievement of excellence in executing defined strategies. This implies enabling transparency, responsibility, accountability, and fairness; ensuring that investments in portfolio components are aligned with the organization's strategy and governance practices; and obtaining and maintaining the sponsorship and engagement of senior management and key stakeholders. Effective Portfolio Stakeholder Engagement and communications management will foster a culture that embraces change and risk while supporting the organization in navigating complexity to enable successful outcomes (refer to *Navigating Complexity: A Practice Guide* [5]).

Well-engaged stakeholders have a clear understanding of the portfolio's value and direction. They are transparently informed regarding the impact of the portfolio on their interests and will have as much opportunity as possible to align these interests with the interests of the portfolio. Stakeholders with opposing interests are enabled to reconcile their expectations in light of the higher value of strategy realization.

The key iterative steps of stakeholder engagement and communication include the following aspects, which will be discussed further in subsequent sections:

- **Stakeholder identification and analysis.** Identifying and analyzing the stakeholders who operate at the strategic level and then setting plans for engagement.

- **Stakeholder engagement planning.** Outlining the portfolio management principles, processes, and activities to engage stakeholders.
- **Stakeholder engagement activities.** Providing timely assessments of portfolio component selection, prioritization, and performance, as well as early identification of portfolio-level issues and risks.

The management of portfolio communication approaches is described in Section 6.6.

Portfolio communication facilitates a two-way effective dialogue between affected internal and external stakeholders, individuals, or groups, including:

- Executive managers;
- Operations managers;
- Governing bodies;
- Sponsors;
- Project, program, and subsidiary portfolio managers;
- Suppliers and external resource providers;
- Regulatory bodies; and
- Others.

In order to develop the portfolio communications management plan, stakeholder identification and analysis are necessary in addition to the determination of communications requirements.

In planning portfolio communication, the portfolio management plan may identify some of the primary stakeholders, such as executive managers and sponsors, who are accountable for the success of the portfolio. Planning may uncover additional stakeholders that require or may benefit from knowledge of the portfolio's progress, performance, and changes. These additional discoveries are reflected as updates to the portfolio management plan. As a comprehensive list of stakeholders is compiled, it is important to determine the stakeholders' information needs and their preferred mode of communication. Developing a strong communications management plan requires inputs from a variety of other portfolio management processes, such as performance and risk management.

Portfolio communication recognizes broad and varied stakeholders, from executive management to individuals performing the basic tasks and third parties. The information needs of portfolio stakeholders are much more varied than the program/project-level communication, primarily because of the breadth and variety of stakeholders. Transparency in planning portfolio management reporting is important for discovering early if elements are missing and for managing risk as a result of insufficient or inconsistent communication. Transparent communication is also valuable when planning for the optimal utilization of resources.

Table 6-1 lists the various stakeholder roles and their typical level of interest in the portfolio as a guide to their potential communication requirements.

Table 6-1. Stakeholder Interest Table

Stakeholder Groups	Stakeholder Roles	Stakeholder Interests	Stakeholder Expectations
Portfolio Sponsors	• Provide funding • Provide resources • Provide high-level scoping	• Benefits and outcomes that meet the organization's goals	• To be informed regularly of portfolio return on investment, key portfolio milestones, risks, costs, and schedule
Portfolio Governance	• Oversees the portfolio • Sets priorities • Manages the spending • Reports progress • Manages timely delivery of benefits	• Portfolio performance • Governance decisions • Change decisions • Concerns of sponsors and governing body	• To be the most knowledgeable party of portfolio progress against goals • To be aware of all developments of consequence
PMO	• Ensures that portfolio management best practices are being followed	• Project progress • Lessons learned • Developing PMO materials for future use	• To receive notification of all portfolio changes and portfolio needs
Contract Management Team (vendors, legal)	• Ensures that funding is intact • Manages the contract • Ensures efficient availability of contractor staff	• Financial standings • Project progress • Contract impacts and changes	• To be made aware of progress against contractual deliverables • To be made aware of any changes to the contract including increased resource requirements
Portfolio Component Teams	• Report progress and completion of components	• Portfolio changes • Portfolio risks and issues	• To receive notification of all portfolio changes, risks, and issues
Portfolio Manager	• Establishes and implements portfolio management • Ensures proper communication and coordination among components • Designs and improves appropriate processes • Adjusts portfolio components • Communicates with the portfolio governing body	• Alignment of the portfolio with strategic goals • Creating value for the organization through balanced portfolio components • Effective communication between portfolio stakeholders and component managers • Efficient use of portfolio resources	• To be fully informed of organizational strategic goals and objectives • To be provided with sufficient resources for portfolio components • To be empowered to communicate with all portfolio stakeholders
External Stakeholders	• Stay informed of the funding and direction of the portfolio and its component(s) • Execute work decisions based on the progress of respective components	• Effect of portfolio and component execution on their requirements and interests	• Full and open communications on portfolio and component execution and progress • Appropriate consideration of their interests and concerns in the implementation of the portfolio and components

6.2 GUIDING PRINCIPLES

Because all processes and activities in portfolio management involve some sort of communication, it could be stated that stakeholder engagement synergizes with all the other performance management domains of this standard. The focus of this section is less on the regular exchange of information that is directly connected to the performance of portfolio management functions and more on the conscious activity of engaging portfolio stakeholders through two-way communication and interaction.

Although all the principles outlined in Section 1.7 are relevant for Portfolio Stakeholder Engagement and for communications management, the following principles are especially important in providing guidance to the approaches and activities described in this section:

- Achieve excellence in strategic execution;
- Enable transparency, responsibility, accountability, sustainability, and fairness;
- Ensure that investments in portfolio components are aligned with the organization's strategy and governance practices;
- Obtain and maintain the sponsorship and engagement of senior management and key stakeholders;
- Foster a culture that embraces change and risk; and
- Navigate complexity to enable successful outcomes.

6.3 DEFINITION AND IDENTIFICATION OF PORTFOLIO STAKEHOLDERS

Stakeholders are ubiquitous across all aspects of portfolio, program, and project management. Therefore, there is great similarity in identifying and analyzing stakeholders across various domains. What distinguishes portfolio stakeholder identification and analysis from program or project stakeholder engagement?

Although portfolio management activities are useful in program management and even in project management, Portfolio Stakeholder Engagement is essentially a strategic activity. Portfolio Stakeholder Engagement primarily deals with the stakeholders that operate at a strategic level, more so than those that operate directly at the program or project level. For example, depending on the project, the project staff may not even be aware of the stakeholders who are critical to the ongoing operations and the future of the organization.

It may also be that there are agreements and relationships at the strategic level that need to be honored in component programs and projects. This section concentrates on identifying the stakeholders who operate at the strategic level, and then setting the plans for engagement. These are the policies and procedures of which all program and project stakeholders within the scope of the portfolio should be appropriately cognizant.

At this level, stakeholders include both key individuals as well as entities. In addition to acting at the strategic level, the key focus of portfolio stakeholders is the delivery of strategy—specifically, the strategic initiatives that have been allocated to the portfolio.

It is critical that portfolio stakeholder identification and analysis activities do not inhibit or constrain the interactions with programs and projects more than necessary. Therefore, the focus is on guidance and enablement, rather than constraint (although the latter may occur because of agreements that are in place among stakeholders that should be taken into account).

At the strategic level, the portfolio manager has access to information that may not be available at lower levels in the organization. The portfolio manager plays a key role in ensuring the alignment of current and future projects with the organizational strategy, and may possess knowledge of how organizational capability will develop and what competences and capabilities will become available to programs and projects.

Because of the potentially sensitive nature of portfolio information, especially relative to competitive and proprietary information generated and available at the highest levels of the organization, precautions are usually established and enforced to limit access to certain stakeholders (those who might seek to potentially negatively impact an organization's performance of strategic objectives), as well as those who would be negatively disposed to priority decisions. This group of stakeholders could include competitors, suppliers, or customers. This latter concern should be appropriately addressed within the governance guidelines at the organizational and portfolio levels.

6.3.1 CATEGORIZATION OF STAKEHOLDERS

The existence of portfolio management in an organization implies that there are many programs or projects contemplated or in execution within the organization. By nature, any large organization operates in an environment that includes actual and potential suppliers, customers, competitors, regulators, and other interested parties, in addition to the internal stakeholders of the organization.

By devising a taxonomy (an ordered arrangement of groups or categories), the task of categorizing strategic stakeholders can be made easier. The common language that is developed improves the interaction among portfolio components and helps reduce conflict. For example, when there are many programs or projects in a portfolio, there may be competition for scarce resources. Standardized terminology can make it easier to resolve these issues. It can also help to establish lists of external stakeholders with whom prearrangements can be made (e.g., approved vendors list). These and other common activities can reduce portfolio component start-up time and improve communication among component managers and stakeholders.

Using the organization's strategy for guidance, portfolio managers can identify types of stakeholders and start identifying preferred parties with whom to establish and maintain relationships (and maintain those relationships to further programs and projects).

Note also that strategy is a relative term that depends on the domain in which the portfolio exists. For example, it might be at the international or national level (e.g., the United Nations or government), organizational level, or even at a business unit or lower level.

Because the marketplace is dynamic, categorizing stakeholders needs to be an ongoing activity, for as long as a portfolio exists. Examples of categories of stakeholders include:

- Senior executives,
- Strategic alliances,
- Contractors,
- Regulatory bodies,
- Competitors,
- Interest and action groups,
- Customer segments, and
- Other parties that would operate at the portfolio level.

These stakeholders are mainly organizations, but they could also include specific, highly influential individuals.

6.3.2 IDENTIFYING STAKEHOLDERS

Portfolio management guides and directs the overall portfolio and its components. Program management may do this also, as well as steer, but it is the role of project management to execute, and it is important that portfolio management does not overstep its responsibility. This applies to stakeholder engagement as well. It is important that Portfolio Stakeholder Engagement is understood and an outline of the scope of operation is developed. As suggested previously, Portfolio Stakeholder Engagement tends to focus at the strategic level, and not so much at the tactical level; however, suggestions may be offered and stipulations may be made when necessary in order to avoid placing unnecessary constraints on programs and projects.

6.4 ANALYSIS OF PORTFOLIO STAKEHOLDERS

The identification of stakeholders is an ongoing process. Periodically, a rough-cut analysis should be performed to identify whether stakeholders may be conveniently grouped. However, it is important to remember that in every group, there are key members who need to be handled separately and individually.

In order to identify the key concerns (or perspectives) of the stakeholders, it may be useful to express those concerns as shown in Table 6-2.

Table 6-2. Example of Key Stakeholder Context

Who	Concern	Context
Owner	Needs a solution to a problem or opportunity	Expresses the need in strategy (strategic plan) Implementation agent: the sponsor
Architect	Describes owner's need	In an architecture design
Engineer	Designs the solution	In specifications, drawings, and models (or use cases)
Builder	Implements the solution	In virtual (process, structure, and data) and physical artifacts, which are combined into a working system
User	Uses the solution	Agent: the solution owner
Community	Receives the benefit of the solution or is negatively impacted by the solution	Agent: government and regulatory authorities who are meant to protect their interests

The key functions of the portfolio manager are to interpret the organizational strategy and understand the strategic initiatives to the degree that components can be identified, categorized, and evaluated so that they may be combined—for example, as programs or run as single projects.

As indicated in Table 6-2, every portfolio has stakeholders who operate at different levels and have different interests. Common terms can be used to identify them. Some have specific interests, while others (e.g., a regulatory body) may have an overriding interest to ensure that the interests of one stakeholder do not impact others more than necessary. For example, many countries have rules that govern competition, and there may be severe penalties for what may be regarded as collusion. It is important to gather information about these rules and include it in the guidance for programs and projects.

6.5 STAKEHOLDER ENGAGEMENT PLANNING

Stakeholder engagement planning is one of the key activities of the portfolio manager. The portfolio manager focuses on understanding the organizational strategy and translating/aligning that strategy with the operations plan in the organization including communication. There has to be a clear linkage between the components being executed in the operations plan and how those initiatives support the organizational strategy.

Because all strategic plans are reviewed and revised regularly, especially in a competitive and ever-changing world market, the portfolio should be reviewed frequently to ensure alignment between the revised strategy and the operational plan initiatives being executed. Therefore, the stakeholder engagement plan should include triggers for communication and further engagement with stakeholders as the portfolio undergoes review and adjustment to strategic plan changes.

6.6 IDENTIFYING COMMUNICATIONS MANAGEMENT APPROACHES

In identifying the most effective ways to approach communications within the portfolio, many factors should be taken into account. These range from the portfolio governance practices and processes of the organization to the resources available to the portfolio management team and their use within the guidelines of the portfolio roadmap and portfolio management plan.

6.6.1 ALIGNMENT WITH GOVERNANCE

It is important to ensure that the portfolio communications management plan is aligned with the organization's portfolio governance requirements and processes. Portfolio managers should ensure that they have access to these processes and, if the organization does not have formal documents, then the portfolio team needs to develop the required governance to run the portfolio and have it approved by the sponsor.

These principles and objectives should be incorporated into the communications management plan. Senior management defines organizational governance based on the fundamental norms, rules, and values of the organization, which are used as a basis for developing portfolio governance practices, including communications management. As portfolio governance practices incorporate the governance principles of the organization, they flow down to the portfolio components so as to provide control, integration, decision making, and general oversight.

6.6.2 COMMUNICATION INFRASTRUCTURE

The portfolio includes the list of approved and potential portfolio components as well as other descriptive information on the components, such as dependencies, level of effort, points of contact, and other dashboard-type information. Communication infrastructure includes all of the organizational and portfolio management processes, policies, and technologies used to communicate portfolio status. Knowledge of the components of the portfolio may have an effect on the communication approach used for consolidating and standardizing communication and evaluating communication strategy at a portfolio (as opposed to a component) level. The portfolio list of components is critical in understanding the full scope of communication needed.

The portfolio roadmap helps with understanding the structure of the portfolio, identifying interdependencies among the portfolio components, and determining how the portfolio components fit together in order to lay out the plan for achieving organizational strategy and objectives. Clear and timely communication of the roadmap and any changes to it is a fundamental part of portfolio communications. The portfolio communications management plan may include information about interdependencies among the portfolio's components that could impact portfolio communication objectives.

6.6.3 PORTFOLIO MANAGEMENT PLAN

The portfolio management plan provides the scope and objectives of the portfolio and the initial list of primary internal and external portfolio stakeholders, including the governance model. The portfolio management plan is the guiding artifact that establishes portfolio-level dependencies and constraints to allow for effective oversight. The portfolio management plan describes the planned approach for identifying, analyzing, selecting, approving, prioritizing, and scheduling the portfolio components and setting priorities. All elements of the portfolio management plan have communication requirements, such as risks that need to be communicated to the governing body, the portfolio manager, and the stakeholders. Changes in the portfolio management plan may introduce new stakeholders or new communication requirements.

The portfolio communications management plan may be a subsidiary plan to the portfolio management plan or it may be included within the portfolio management plan. The portfolio governance plan may also be subsidiary to the portfolio management plan.

6.6.4 PORTFOLIO REPORTS

Portfolio reports include a variety of reports, such as portfolio status or progress reports, performance reports, portfolio risk reports, portfolio dashboards, spreadsheets, and summary reports from the overall governance of portfolio components. Portfolio performance reports can provide information on the total investment in each portfolio component, which serves as the communication of assessed portfolio value. Some organizations communicate with dashboards to provide status information at a glance. The format and content of these reports should be defined in the portfolio communications management plan, providing templates, standard forms, processes, and procedures for planned portfolio reporting.

6.6.5 PORTFOLIO PROCESS ASSETS

Portfolio process assets related to planning portfolio communication include, but are not limited to:

- Manager roles and responsibilities,
- Status reports,
- Risk profile or risk assessment with key risks and issues,
- Forecasts with variance to plan,

- Governance decisions,
- Funding decisions,
- Resource decisions,
- Value assessments, and
- Delegations of responsibility for communication.

6.6.6 COMMUNICATION GOVERNANCE AND INTERFACE TO COMPONENTS

The successful exercise of portfolio governance is fully dependent on effective communication with all stakeholders. Careful analysis of the needs and desires of all participants is essential to ensure that the proper information flows in a timely and efficient manner.

6.6.6.1 ELICITATION TECHNIQUES

As portfolio stakeholders and stakeholder communication requirements change over time, it is important for the portfolio manager to engage with stakeholders to ensure that the portfolio communications management plan is aligned with their needs. This may be achieved through interviews, questionnaires and surveys, stakeholder meetings, and lessons learned sessions on the effectiveness of communication.

By meeting with stakeholders, for example, the portfolio manager can review the planned communication to get feedback on the portfolio communications plan. Brainstorming can be helpful in identifying new stakeholder groups that were not previously considered, and in these meetings, portfolio stakeholders can confirm or recommend changes to the communication requirements.

6.6.6.2 COMMUNICATION REQUIREMENTS ANALYSIS

In communication requirements analysis, the vehicle or tool used to communicate information to the stakeholders and the planned frequency is evaluated to determine whether changes should be made. A list of available communication methods is charted to evaluate alternatives and ensure that the optimal vehicle is being used to meet stakeholder needs.

Reviews are conducted to identify any redundant communication. Some redundancy is intentional so that multiple types of recipients are reached and recipients' varied preferences for receiving information are met. Choices may need to be made to identify which communication is primary, which is secondary, and which should be discontinued.

A communication matrix may be used for capturing and recording the results of this analysis. Table 6-3 is an example of a communication matrix. The communication matrix is foundational to building the communications management plan.

Table 6-3. Example Communication Matrix

Communication Areas	Frequency	Intended Recipient	Communication Vehicles*
Portfolio Governance Decisions	Quarterly and monthly	Project sponsor Portfolio manager PMO Contracting officer	Quarterly and monthly reports on internal portal
Portfolio Dashboard	Weekly/monthly	Project sponsor Portfolio manager PMO	Governance meetings, email distribution, portfolio dashboards on internal portal
Portfolio Performance Reports	Weekly/monthly	Portfolio sponsor PMO Portfolio stakeholders Functional managers	Governance meetings, status reports with email distribution, newsletters, blogs, portfolio dashboards on internal portal
Key Risks and Issues Updates	Weekly/monthly	Portfolio sponsor Portfolio stakeholders Functional managers	Governance meetings, status reports with email distribution
Resource Utilization	Weekly/monthly	Project team Project team members SMEs	Governance meetings, status reports with email distribution, portfolio dashboards on internal portal

*Multiple vehicles for sending a communication do not necessarily mean redundant communication. Sometimes multiple vehicles are necessary to reach different types of recipients or the recipients have varied preferences for receiving the information.

To complete a portfolio communication requirements analysis, an assessment of the organizational culture is helpful to ensure that the portfolio communications management plan is suitable for the organization. If the organization is generally comfortable with technology, portals may be planned more extensively as the primary vehicle for reporting information. If the organization is not comfortable with technology, it may prefer paper reports and emails. Updates for organizational culture can be reflected in the matrix.

6.7 MANAGE PORTFOLIO COMMUNICATIONS

In communicating with portfolio stakeholders, it is important that both agreed-upon governance and stakeholder communications requirements are constantly taken into consideration. This means that any changes to the portfolio content, governance, or roadmap are fed through to the stakeholders, and the communications metrics updated accordingly.

During portfolio management plan execution, new communication or information management needs and methods may be determined. These updates are included in the contents of the portfolio management plan or in the subsidiary portfolio communications management plan.

7

PORTFOLIO VALUE MANAGEMENT

Portfolio Value Management ensures that investment in a portfolio delivers the required return as defined in the organizational strategy, which is an expression of the stakeholder direction in defining portfolio components such as projects and programs.

The following major sections are addressed:

7.1 OVERVIEW

This section presents the Portfolio Value Management performance domain and discusses appropriate concepts, such as maximizing value, assuring value, and realizing value.

7.2 GUIDING PRINCIPLES

All portfolios are managed to enhance and maintain the value of the organization, whether that value is tangible or intangible. In order for value to be maximized, the organization should adhere to a set of principles to successfully guide it at the portfolio level. All of the principles outlined in Section 1.7 are important for value management. However, the following are especially applicable as they directly impact the value of the organization:

- Ensure that investments in portfolio components are aligned with the organization's strategy and governance practices, and
- Balance the portfolio value against overall risks.

The objective of value management is independent of the nature of the organization. Whether the organization is a private company or a governmental agency, defining the organization's value objectives drives its strategy, impacting its governance practices and strategic management processes, and how it approaches risk.

7.3 WHAT IS VALUE MANAGEMENT?

A search for a definition of value offers perspectives from a number of domains, including mathematics, ethics, economics, and management; however, they essentially all revolve around the idea that value is an indicator of the effect an entity or offering can deliver. That effect can be seen in a number of ways—for example, as increased revenue, increased profit, or reduced risk. Value is contextual. The effects that an organization seeks to command are driven by the purpose of the organization and its worldview, which is reflected in its strategy. The value of an entity or offering increases the more impactful it is and the more relevant to the organization's strategy the impact is. An entity or offering is high in value where it has significant impact on an organization's environment and where that impact is relevant to the organization's strategy. Not all forms of value are universally relevant. Public sector bodies may seek reduced costs and increased citizen satisfaction and, therefore, value the measures that lead to that. Private sector organizations may value measures that lead to increased revenue and margin, while, in nongovernmental organizations (NGOs), those measures that best enhance outputs related to mission may be most valued.

Significance can also be undermined by redundancy. When an aid program is shipping food into a disaster area, the food has value, perhaps measured in terms of the number of survivors who did not experience starvation over a period of time. If food is shipped in faster than it can be distributed and the excess will perish before it can be consumed, then the excess stock has no value in the context of that particular program, because it will not contribute any impact.

For value to be recognized, metrics are required. Defined units of measurement and methods of making the measurements should exist and be relevant to the organization and the effects to be commanded (see Section 7.9 for more information on measurement). Metrics related to value may attach to tangible and intangible outputs or effects just as value may be tangible or intangible. Tangible value can be directly measured. It includes things such as:

- Skills uplift,
- Resource capacity,
- Market share, and
- Client satisfaction.

Economic value is a particular case of tangible value and, where an economic value can be assigned, will typically be a key consideration for a portfolio manager. Improvements in economic value can be realized by:

- Improving productivity, possibly by the substitution of capital for labor or by reducing the investment in input resources, such as human capital, financial assets, and intellectual capital; and
- Increasing the volume of activity, without necessarily increasing productivity.

Intangible value cannot be directly measured, although proxy measures will be possible. Intangible value includes things such as:

- Brand awareness,
- Organization's reputation,

- Risk exposure,
- Compliance, and
- Societal value.

Measurement of value is not necessarily straightforward, particularly given that organizations operate in environments they cannot control and typically pursue multiple strategies to the same end. Though the value of a quoted organization based on its market capitalization may be directly and transparently measured, measuring the value based on consumer perceptions of the brand will likely require an indirect approach. A hotel chain may use a loyalty program to drive profit, but may have other programs with the same aim and may choose to try to isolate measurement of the impact of the loyalty program by measuring things such as membership count, net promoter scores from members, and the profit per member. A food aid program in a disaster area seeks to preserve life, but there may be other threats to life besides starvation, including disease and armed conflict. The aid agency may seek a more nuanced measurement beyond numbers surviving versus original population count, perhaps focusing on the number of people being treated for malnutrition or other afflictions.

7.4 COMPONENTS OF VALUE MANAGEMENT

There are a number of key activities required for effective Portfolio Value Management in the context of the links between the portfolio's effect on the environment, the organization's purpose, and the development of strategy leading to the creation of a portfolio or its reshaping. To effectively manage value, the portfolio manager should:

- **Negotiate expected value.** Negotiate the value to be created by the portfolio, considered at two levels:
  - Against the aims of the organizational strategy for the portfolio as a whole, and
  - Within the portfolio where each of its candidate components is assessed against the value framework negotiated for the portfolio.
- **Maximize return.** Maximize the return from the investment in the portfolio. Plan and enact an approach to deliver each component at the lowest, safe economic cost without negative impact to the required effects and value. This includes modeling and evaluating various approaches to satisfying the aims of the portfolio using techniques such as the portfolio efficient frontier and other applicable risk management tools and techniques.
- **Realize value.** Ensure that the value required to be realized by the investment in the portfolio is achieved. The key is recognizing that the environment into which the component will deliver its outputs is actively conditioned to exploit those outputs in pursuit of the required value.
- **Measure performance.** Measure the performance achieved by the outputs generated by the components in the portfolio—for instance, in support of a balanced scorecard. The portfolio manager should gather the agreed-upon metrics.
- **Report value.** Report the value achieved based on the metrics. This is a political act in that the value achieved consists of a narrative-related achievement in light of applicable risks, the impact of shifts in the environment, and possible changes in organizational purpose or worldview.

To achieve effective Portfolio Value Management, the portfolio manager needs to create a model of the portfolio's requirements, influencing factors, and tolerances that will drive portfolio components toward realization of the value target. Figure 7-1 illustrates these points in the context of the links between the portfolio's effect on the environment, the organization's purpose, and the development of strategy leading to the creation of a portfolio or its reshaping.

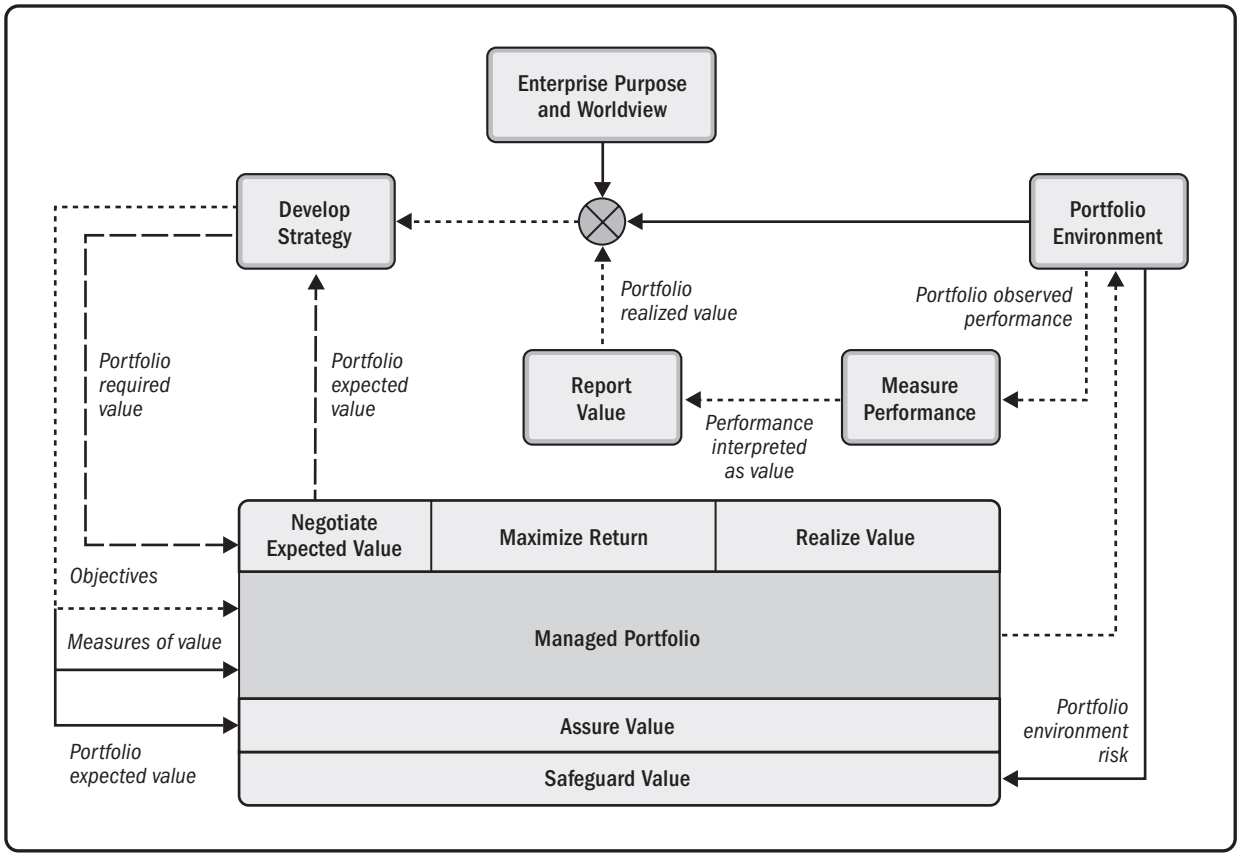

Figure 7-1. Key Activities in Portfolio Value Management

There are two primary feedback loops from the portfolio to the strategy driving it. The first is the one that negotiates the expected portfolio value given the required value resulting from strategy development, assigned budget, enterprise environmental factors, external and internal risks, and organizational risk appetite. The second feedback loop acts more slowly, taking measurements of performance and achieved value and combining those with environmental observation and the organization's purpose and worldview to shape strategy. This second feedback loop is the more impactful of the two.

Underpinning all of the activities discussed in this section are (a) the need to assure value at the portfolio level, establishing the approaches to be followed by the components and tracking the implementation of those approaches and their impact; and (b) the need to safeguard value. Value is safeguarded by effective management of the risks in the portfolio's environment, recognizing that opportunity management is encompassed within risk management.

7.5 NEGOTIATING EXPECTED VALUE

The portfolio manager negotiates the expected value to be achieved by the portfolio against the required value in order to ensure that the immediate goals developed by the strategy do not place the organization at risk of significant underachievement. As part of the negotiation, the portfolio manager removes redundant value and aligns expectations and risk appetite. The negotiation requires the portfolio manager to act as a bridge between the component owners and the strategy function within the organization.

The strategy is also informed by strategic investment choice. Investment choice relates to the alignment of the portfolio. This analysis focuses on the new and changing strategic objectives/goals and indicates where there are gaps in investment within the portfolio as a whole. Gaps may pose a risk to the portfolio.

Assessment approaches include but are not limited to the following:

- **Trade-off analysis.** Determines the effect of changing one or more factors of the portfolio.
- **Market-payoff variability.** Focuses on pricing and sales forecasts and depends on a number of marketing factors, whereby the effects of changing one or more of these factors may affect the portfolio itself or the portfolio strategy.
- **Budget variability.** Determines the effect of changing the portfolio.
- **Performance variability.** Analyzes the performance of the portfolio.
- **Market requirement variability.** Analyzes changes in market requirements in relation to the portfolio.
- **Time-to-market variability.** Determines the effects of portfolio velocity.

There are three concepts that support the negotiation:

- **Value management framework.** A framework that provides a baseline for defining the target value for each component.
- **Evidence-based value statements.** Each portfolio component should generate a business case that has evidence-based (whether tangible or intangible) value statements about the value required, including timing, realization dependencies, and accountabilities.
- **Efficient frontier.** A modeling approach that gives decision makers the analytical tool to optimize portfolios given resource constraints.

7.6 MAXIMIZING VALUE

The return on investment (ROI) of the portfolio measures the value achieved for the input cost. Given that the required value has already been negotiated, the portfolio manager should aim to realize the value required from the portfolio at the lowest, safe economic cost. The portfolio manager has a number of tools available to achieve this, including:

- Risk appetite related to input and output quality assigned to components,
- Design guidance applied to components to prevent over-specification of solution elements,
- Application of solution constraints to force synergy between components in the portfolio or between components in the portfolio and components in other portfolios,
- Requirement on individual components to exercise effective financial management,
- Exercise of effective financial management at the portfolio level, and
- Use of the efficient frontier.

There is an organizational risk that the portfolio focuses too heavily on maximizing the return, losing sight of its true requirement, which is to return value. It becomes very easy to move to a regime where the organization and, therefore, the portfolio manager becomes focused on cost and loses sight of value, undermining the return achieved. Effective portfolio financial management is a key part of maximizing return in this model.

Portfolio financial management includes the activities involved in identifying the portfolio's financial sources and resources, determining inputs into the ideation process, establishing the overall budget for the portfolio, integrating the budgets of the portfolio components, securing approval of financial changes of ongoing components through governance, and monitoring and controlling costs throughout the duration of the portfolio. It rests on five pillars:

- **Portfolio financial framework.** Specifies the system and methods for coordinating available funding, determining constraints, and specifying how funds are allocated in order to align the use of financial resources with strategic goals and priorities.
- **Portfolio financial management plan.** A component of the value management framework that documents the portfolio's financial aspects: funding schedules and milestones, initial budget, contract payments and schedules, financial reporting activities and mechanisms (including external reporting obligations, e.g., statutory), and the financial metrics. The portfolio financial management plan may also be referenced from the portfolio management plan.
- **Portfolio component cost estimations.** Used to determine a bottom-up budget compilation for the portfolio.
- **Portfolio budget.** Established by compiling all available financial information and listing all funding and payment schedules in sufficient detail so that the portfolio's costs can be tracked as part of the portfolio budget baseline.
- **Financial management effort.** Once the portfolio receives initial funding and begins paying for component expenses, the financial management effort moves into tracking, monitoring, and controlling the portfolio's funds and expenditures together with the financial measures related to the expected benefits.

7.7 ASSURING VALUE

The purpose of value assurance is to ensure that the portfolio can realize the negotiated required value, reflected in the plan for execution of the components of the portfolio. Value is an aggregation of the output from its components. Projects produce deliverables—for example, the online registration and account management system for a membership application process. Programs deliver benefits. In the hotel loyalty scheme, for instance, a program might redefine the membership application process and membership levels. The benefits could include simplified administration and improved management information for targeted marketing.

The underlying premise is that if a portfolio component successfully builds its assigned deliverables, it can make its contribution to the chain that links the deliverables to component outcome to benefit to value all the way to the organization's mission, as shown in Figure 7-2. The diagram shows how the portfolio value will be undermined if components produce deliverables that fail to enable the target changes. Value assurance aims to mitigate that risk. The benefits of a program are typically realized as each component project finishes. With some exceptions (i.e., early benefits realization), the benefits of each individual project appear only after the project finishes. While Figure 7-2 shows a cycle, activity at any point can be continuous, for example, the organization may continuously develop and refine new strategies. If the organization is disrupted, then it can develop a response by intervening at whichever point is most appropriate.

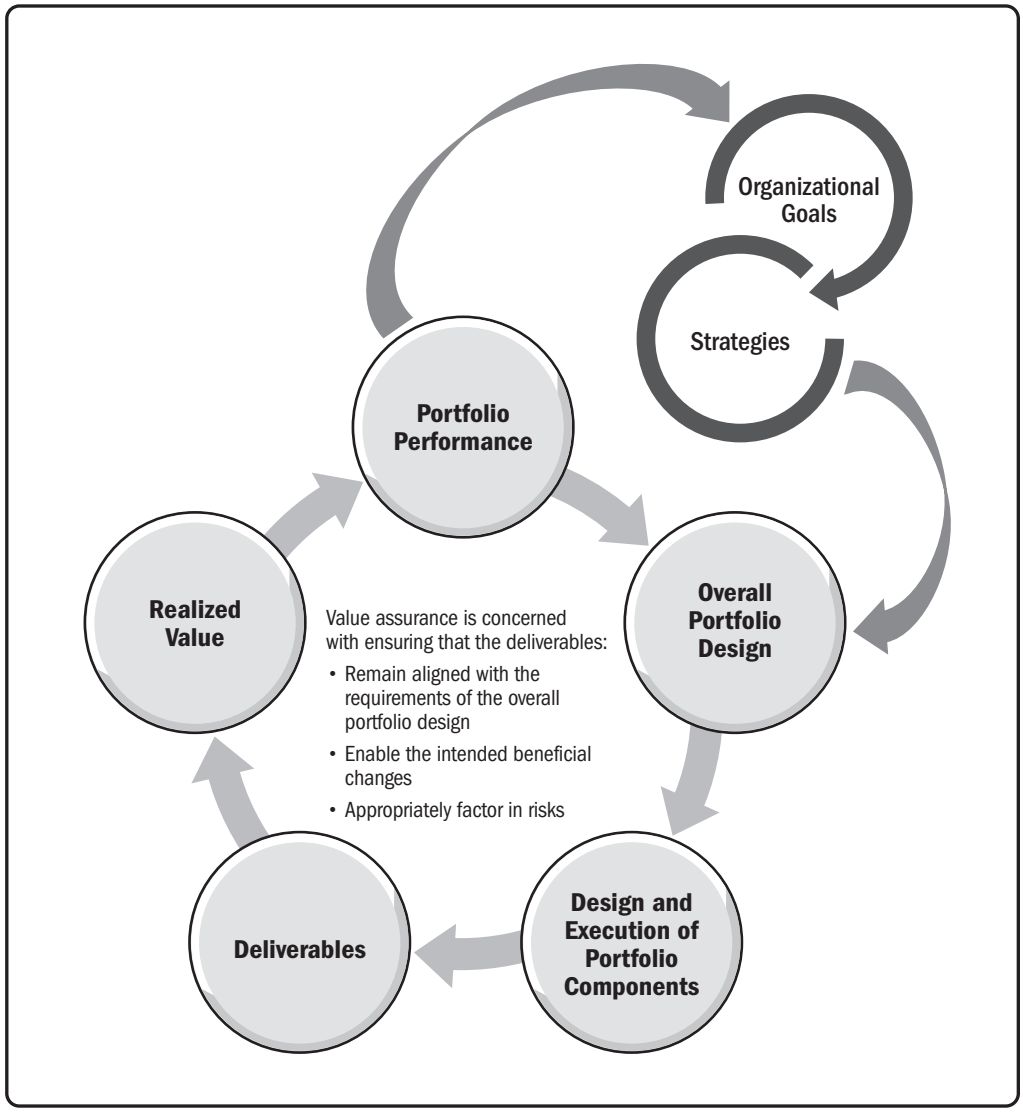

Figure 7-2. The Link Between Strategy and Portfolio Performance via Component Deliverable

The portfolio manager inherits a set of principles and constraints related to the approach to value assurance, adapts those for the nature of the portfolio, and then communicates them to the components. Although the results of value assurance are addressed at the portfolio level on a continuing basis, value assurance is enacted at a detailed level within each component, appropriately considering risks at all levels, from component to overall portfolio. Referring back to the loyalty program example in Section 7.3, each component contributes to one or more deliverables, each of which contributes to the achievement of the expected value. The contribution runs from specific component deliverables via the outcomes that those deliverables enable to a benefit—in this case, a change in the membership numbers to the realized value, which is the number of members. For each component in progress, the key is to ensure, on a continual basis, that the component will provide the anticipated deliverable(s). There are four approaches to accomplish this where the portfolio manager requires action by the components. While details related to them can be found in other PMI standards, they are touched on briefly here to illustrate the portfolio manager's interest:

- **Requirements tracing.** The portfolio manager should require that each component relate its requirements to its constituent work packages and require reporting on the results to provide early and continual confirmation

that the component will address its assigned scope, with the appropriate level of risk response activity consistent with the organization's risk appetite.

- **Acceptance criteria.** Every requirement needs one or more acceptance criteria. Acceptance criteria are not the same as completion criteria. Completion criteria define when a task is finished; acceptance criteria describe when work on the task can stop. For example, there may be a task for which the completion criterion is "plan agreed upon." In this case, the acceptance criterion defines the nature of the agreement. Reported agreement of acceptance criteria provides a portfolio manager with an indication of component risk. When acceptance criteria cannot be readily agreed upon, this suggests that there are some fundamental disagreements in the component's stakeholder community that risk undermining the component's contribution to the portfolio's expected return.
- **Gated reviews.** At various defined points, the work within a component should be reviewed and evidence provided of the satisfaction (or not) of requirements, together with confirmation of the work still required to meet the requirements. The reported results of gated reviews provide the portfolio manager with an indication that the component is on course to meet its required scope. The key here is to get the right number of gates in the right place in the component's life cycle, with the appropriate cost of change comprehension factored into the risk equation.
- **Quality assurance.** The previous three concepts described help underpin a robust quality management regime, but that needs to be supported, in turn, by effective quality assurance to ensure compliance. Quality assurance provides a key, value-related risk indicator to the portfolio manager who should have significant input into shaping it for the needs of the portfolio.

7.8 REALIZING VALUE

Portfolio managers should be responsible for ensuring that the overall portfolio realizes its negotiated required value. Therefore, they need to ensure that the components receiving outputs from other components in the portfolio exploit those outputs effectively and deliver the targeted benefits so that the portfolio's expected value continues to align with the requirement. It should be noted that accountability for ensuring that the overall portfolio realizes its required value lies with the sponsors of the portfolio.

For example, an organization might set out to increase its profitability by consolidating its real estate. It could choose to start down that path by ensuring that individual members of staff no longer rely on access to a specific desktop PC at a specific desk and, instead, use a laptop or access a virtual desktop. To do this, it could task one component in the related portfolio with developing the virtual desktop solution. In this case, the intent behind value realization would be that those parts of the organization targeted to use the laptops and virtual desktops would actually do so and do so in a manner that would allow for the retirement of individually dedicated desktop computers in the anticipated number and with no adverse impact on the organization's operations.

Successful realization of value is essentially concerned with management of change in the target components, ensuring that the required changes around a component are identified, planned, and executed effectively. The term *management of change* is used in this context to refer to people-centric changes aimed at driving and embedding change in response to the outputs of the portfolio. This is distinct from the change management tasks that portfolio, program, and project managers carry out as they navigate the execution of planning and delivery. Realization takes place in the service components of a portfolio: The program and project components are about enablement. The expected value of components can change as portfolio components are planned, developed, and executed. Changes in actual scope, schedule, cost, or performance can affect the expected value. External factors such as market

conditions, competitor actions, laws and regulations, risks realized, and other factors can also affect whether the expected value at delivery of the products, services, or assets created or enhanced has changed.

Risk management and risk impact also contribute to the final value of the portfolio. As execution of the portfolio unfolds, the portfolio manager can update the forecast of the portfolio's value and maintain that forecast over time in light of progress and changes in the environment using the same techniques that were used initially to estimate.

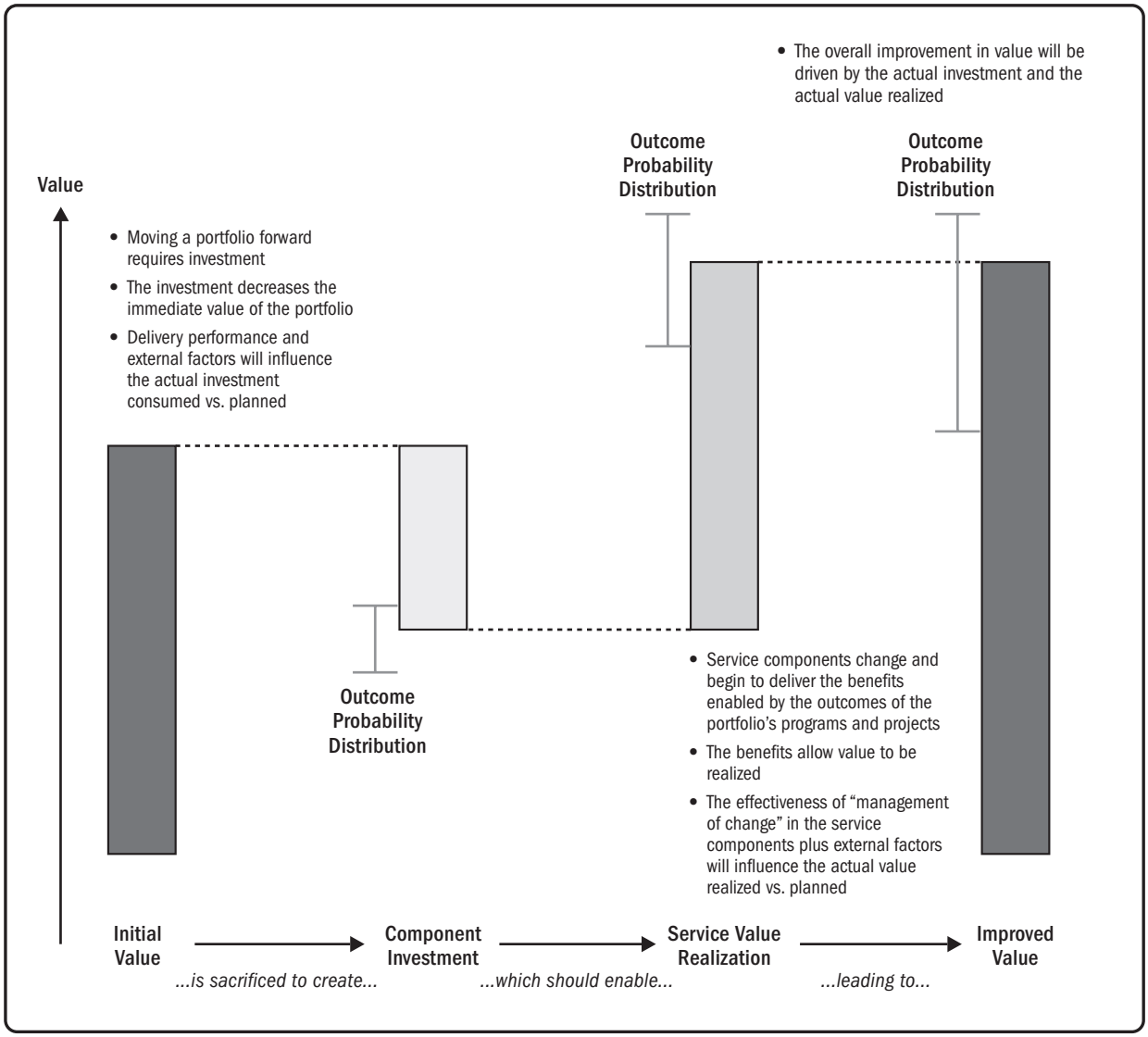

Figure 7-3. Value Realization Chain

Portfolio value, or performance, is an aggregation of the value of the portfolio's components plus synergy effects and effects that occur from having an optimal mix of resources aligned to the portfolio components. Figure 7-3 shows how investment degrades the value of the portfolio. The amount of investment may be fixed, but change control and the consumption of risk budgets may allow for some variation in the actual investment. Value realization enhances the overall value of the portfolio. Although there is a target to be achieved, variation is likely. Therefore, the overall impact of the value realization chain should be to enhance the value of the portfolio, though likely by an amount other than the anticipated target.

7.9 MEASURING VALUE

The value measurement framework defines how value will be measured for the portfolio (see Section 7.4). Recognizing that reporting value is essentially an act of organizational politics, the keys in measuring performance are compliance with the agreed-upon value measurement framework, effective stakeholder buy-in, and transparency in execution. Within program components, value is usually defined by the benefit that the program yields, making benefits realization analysis an important technique. As executable components, such as programs and projects, begin to deliver, it becomes possible to start making immediate measures of the benefits of those deliverables. The portfolio manager should require appropriate measurement approaches to be in place in the components that are impacted by the deliverables and have them report, on a continual basis, progress in realizing the benefit against the plan.

7.10 REPORTING VALUE

Portfolio value reporting will provide information about the performance and forecasts of the portfolio. These reports also include identification of variances, analysis of variances, and recommendations for corrective action or optimization. Each portfolio component will actively track its delivered value and will forecast value risk tolerance and the current assessed risk level. Reporting will address a number of topics, each more political than its predecessors, including but not limited to the following:

- **Risk reporting.** This includes the risk status and probable impact on portfolio value should it occur.
- **Costs required to achieve required portfolio outcomes.** These costs should be an objective fact.
- **Reasons for any shift in those costs.** There may be some objective facts in the mix, but in many organizations, it may be difficult to establish a universally agreed-upon view as to the reasons for the shift.
- **Cost synergies achieved between portfolio components.** Synergies can be positive (reduce the cost) or negative (increase the cost). In any case, their identification and reporting is unlikely to be entirely objective. The invest/divest decision process is likely to result in an amalgamation of leadership intuition along with empirical data where sunk costs in resources used across various portfolio components may result in net cost savings across the entire portfolio or across multiple portfolios.
- **Value achieved by the portfolio.** This is unlikely to be entirely objective. This section has explained how environmental complexity can undermine isolating the impact of the portfolio from other factors. Stakeholder buy-in for the value measurement framework and consistent and transparent execution help achieve consensus.
- **Reasons for any shift in value.** These are unlikely to be objective. Service performance is squeezed both by the performance of the programs designed to enable increased value and by changes in the environment, including organizational strategy, none of which can be controlled.

8

PORTFOLIO RISK MANAGEMENT

The primary objective of Portfolio Risk Management is to make sure that portfolio components will achieve the best possible success according to the organization's strategy and business model. From a risk perspective, this is done through the balancing of risks, both positive (opportunities) and negative (threats). The managing of risks below the portfolio level is usually thought of as exploiting opportunities and avoiding threats. However, when dealing with complexity at the portfolio level, the simple approach of avoiding threats and exploiting opportunities may not result in a complete balancing of portfolio risks. Portfolio Risk Management aligns portfolio components, organizational strategy, the business model, and environmental factors toward the objective of portfolio value optimization and results in a synchronized portfolio execution across portfolio components. Risk and change should be embraced and navigated within an environment of nonlinear interactions. Within this nonlinear environment, specific portfolio-level risks are addressed by the portfolio management team with the goal of optimizing value for the organization. Risk and change are thus embraced and navigated within an environment of nonlinear interactions with the goal of maximizing value for the organization.

The following major sections are addressed:

8.1 OVERVIEW

Risk management involves the identification and balancing of risk factors (environmental, human, legislation, compliance, etc.) to efficiently and effectively enable portfolio value delivery. At and above the portfolio level, value is measured by how well the portfolio supports organizational strategic goals and objectives. These goals and objectives are achieved, in part, by aligning responsibility and accountability for risk management with the organizational business model. The dependencies among diverse risk factors result in emergent risks that require a holistic Portfolio Risk Management approach. Therefore, a simple decomposition approach to risk management, as seen at the program and project level, is not appropriate when dealing with portfolio-level risk factors.

Portfolio Risk Management is a domain composed of models and cross-functional processes. The portfolio risk management framework enables portfolio managers to allocate current capital and resources within the capacity constraints of the organization and in harmony with organizational risk governance to obtain future benefits. Factors considered include, but are not limited to, overall risk appetite, frequency, severity, the specific risk thresholds, key

portfolio stakeholder makeup, and diversification. For example, when a choice needs to be made with regard to certain portfolio models or statistical techniques, such as expected monetary value (EMV), EMV may be used to calculate metrics to help the decision maker arrive at a decision. The goal is to balance the risk reward or value options in order to optimize the delivery of value while maintaining an acceptable level of risk exposure. Other models may also be used; however, the process is similar. The decision maker selects a course of action based on modeling used within the organization's portfolio risk management framework and aligned with the organization's risk governance processes.

The primary objective of Portfolio Risk Management is to meet the value proposition of the portfolio while aligning to an agreed-upon confidence level and/or portfolio-level risk threshold. This is usually done through the balancing of both positive (opportunities) and negative (threats) risks. The key is that at the portfolio level, risk elements are balanced and not necessarily maximized or minimized against various parameters.

8.2 GUIDING PRINCIPLES

Risk principles are based on transparency, integrity, and organizational objectivity. Principles that guide portfolio risk management include: (a) management considerations, and (b) a need to step beyond mechanical calculations of risk exposure. At the portfolio level, risk management includes both the internal and external factors of the portfolio. Complexity drives risk management beyond isolated response strategies requiring a balancing of risk to achieve an equilibrium between threats and opportunities. The objective of portfolio risk management is to meet the value proposition of the portfolio while aligning to an agreed-upon confidence level and/or portfolio-level risk threshold through a balancing process of both threats and opportunities. Risk balancing thus contributes to maximizing the probability that the portfolio will support strategic objectives within the value proposition constraints.

Section 1.7 lists eight fundamental principles that are central to the management of portfolios. All eight principles apply to risk management. However, the following principles are central to risk management processes at the portfolio level:

- Maximize portfolio value while balancing risks;
- Foster a culture that embraces change and risk; and
- Navigate complexity to enable successful outcomes.

The result of the combination of these three principles, from a holistic perspective, allows a balancing of portfolio components through an organized risk assessment process. This process should be proactively implemented by portfolio management to prevent or minimize loss and encourage opportunity exploitation.

8.2.1 MANAGING PORTFOLIO RISK

Portfolio risk management processes help managers identify and analyze portfolio risks. The goal of risk management at the portfolio level is to maximize the probability that the portfolio will meet its strategic goals and objectives within the organization's strategic vision. The objective of balancing threat and opportunity is to maximize the potential to deliver optimum value to the organization in the short-, medium-, and longer-term time frames.

Portfolio risk management differs from project risk management in that the goal of risk management at the project level is to minimize threats and maximize opportunities. Additionally, a program or project is concerned with risks and issues that arise inside the specific program or project. Portfolios are concerned with (a) maximizing the value of the portfolio; (b) tailoring the fit of the portfolio to the organizational vision, strategy, and objectives by aligning with the business model; and (c) determining how to balance the programs and projects within the portfolio given the organization's capacities and capabilities.

As the value and size of a component increases, risk impact increases in relative proportion depending on severity and frequency parameters. For example, within a portfolio, threats may not be minimized if there is potential for value by taking on additional negative risks. Under the right circumstances, the organization may choose to actively embrace appropriate threats in anticipation of high rewards. Take the case of investing in new, unproven technology with a view of being "first in the market" in anticipation of highly profitable sales. It is possible that the technology may not work, and that the market may not accept the new product; alternatively, the product may be successful and highly profitable. The portfolio manager should balance the possibility of the technology failing (experiencing a program or project failure within the portfolio) with the potential for future profits (other program or project successes within the portfolio). The technology development program may deliberately accept threats to cost, schedule, and scope in anticipation of being able to deliver the benefit of new technology that could support other programs or projects in the portfolio or even other portfolios. The value realization extends beyond the program or project to the organization. Finally, there is also the consideration of the effects of very low probability, but high-impact threats. Portfolio managers should be aware of the possible catastrophic results of very low probability but high-impact threats as exemplified by the recent collapse of mortgage sector securities.

Risk conditions include aspects of an organization's environment that may contribute to portfolio risk, such as poor management practices (negative risk), integrated management systems (positive risk), lean processes (positive risk), an excessive number of concurrent projects (negative risk), or dependency on external participants who are highly specialized (positive or negative risk). These conditions are not in and of themselves risks; however, these conditions may result in an environment where risks have a great potential to materialize into issues. For example, an organization that is highly dependent on external specialized participants may have a greater probability of losing those participants (negative risk). Because these individuals are specialized, there is a greater probability that their inputs will be key and critical to managing portfolio actions (positive risk). The portfolio manager weighs both the positive and negative aspects of risk associated with having external participants. This is not a simple minimization or maximization problem.

Portfolio risk management also includes providing reserves (management or contingency) across the risk pool to cover both a portion (if not all) of aggregate portfolio risks and risks within the component programs and projects. The portfolio manager is in a position to hold an aggregate contingency to cover threats and/or opportunities where the expected monetary value is an unreliable guide for contingency or reserve calculation because of a less than statistically significant number of risks within an individual portfolio component. Expected monetary value is unreliable when dealing with risks that have very high impact and very low probability. A portfolio manager may also aggregate risk responses by using some common characteristic (i.e., impact or consequence of the threat or opportunity when describing positive risk). In other words, portfolio contribution to risk management is primarily to exploit the opportunity of economic scale. It is a contingency provision for the constituent programs and projects in cases where each component cannot economically fund protection from threats.

In other words, the portfolio management role in risk management is primarily to exploit the opportunity offered by the economies of scale and trade-offs between components through the balancing of positive and negative risks. One key contribution, but not the only one, is the provision of a shared contingency for the constituent components (programs, projects, and operations) to address cases where the impact of a common threat or opportunity is accepted at the strategic level but is greater than any single component can tolerate or exploit. This provision is called the management reserve. In the case of opportunities, the potential impact of the opportunity being addressed at the strategic level is the planned value of the corresponding initiative as defined in the business justification document that was approved to sanction its inclusion in the portfolio. It is also possible that reserves could be used for positive risk responses to enhance value. This is particularly true across a portfolio where component programs or projects may be changed or initiated to exploit positive risks. So, reserves are usually seen as a threat response endeavor. However, the use of reserves could support both threat and opportunity responses across the portfolio.

8.2.2 BALANCING RISK

Risk appetite of the key portfolio stakeholders in terms of the balance between opportunities and threats is a factor that needs to be taken into account when managing portfolio risk. The balancing of risks is challenging because of the complex nature of portfolios and the inherent characteristic of uncertainty associated with risk. Also, the portfolio manager should take a proactive approach in responding to risks to ensure that the potential negative impacts of threats remain acceptable with respect to the benefits expected from pursuing the opportunities. On the threat side, organizations will try to prevent losses through risk-mitigation actions, while on the opportunity side, actions to enhance outcomes will be taken to maximize one or more benefits, such as return on investment or profitability. Further, because portfolios are complex, there is often no single optimal solution.

The tradeoffs between threats and opportunities, short- and long-term impacts, and environmental considerations (including the market and available technologies) have a fundamental impact on the selection or termination of portfolio components. The interrelationships of these factors drive the complexity of portfolio risk management. Balancing dependencies and priorities among portfolio components is often conflicting and underlines the subjective perception of risk. In addition, the absence of a deterministic environment makes the decision-making process more difficult because of uncertainties that limit effective response strategies.

In most cases, the portfolio manager is faced with several suboptimal solutions where all solutions have various strengths and weaknesses, but there is no clear path to an optimized management approach. To simply assume that the risk exposure of a portfolio is the sum of its constituent parts misses the interrelationships among the portfolio's component parts and the external influences that are prevalent at the portfolio level of management.

Because of the complexity associated with risk management at the portfolio level, communications and stakeholder engagement is a primary concern of the portfolio management team. A robust communications effort with senior management up the chain, program and project management down the chain, and the portfolio management and operations staff (if contained within the portfolio) allows a common vision toward shared goals. This provides a framework to link the portfolio risk management effort to subordinate risk management efforts within the elements of the portfolio.

8.3 PORTFOLIO RISK MANAGEMENT

Managing risks at all levels is an active process involving continuous planning, analysis, response, and monitoring and control. The execution of response strategies should be anticipatory and implemented by trigger events that launch response actions before the risk materializes so that opportunities (positive risks) may be enhanced or threats (negative risks) may be diminished. Even within an active process of continuous risk identification, risk management at the program, project, and operations areas are traditionally approached from a prescriptive, process-based perspective. However, within complex systems such as portfolios, risks may not be managed in the traditional or simple sense. Complexity requires a less prescriptive approach. In many cases, the execution of risk response strategies at the portfolio level involves the establishment of projects within the portfolio's component programs or as part of continuing operations to address specific opportunities or threats (positive or negative risks) that have either materialized or have had a significant increase in the probability of occurrence as indicated by a trigger event occurring. There is an important distinction between portfolio risk management and risk management at the program or project level. In many cases, the portfolio manager should delegate risk response measures to subordinate programs or projects within the portfolio. A desired outcome from portfolio risk management is to utilize a structured risk planning and response effort in order to reduce management inaction and decision delay. Risk identification analysis and response planning acknowledge the limits of data and the lack of clear, unambiguous, and actionable information concerning many management factors at the portfolio level. Various possible risk scenarios are studied and response plans developed to limit the impact of the data and information disconnect described above. Through portfolio risk management, senior leadership and portfolio management staff are provided with courses of action or management options that assist in making decisions involving risk with incomplete information.

8.4 KEY PLANNING ELEMENTS

At the portfolio level, all risk elements should be addressed. Risks not addressed at the portfolio level could be addressed through governance processes at the strategic level. In the final analysis, if a risk becomes an issue, that issue may be handled through the organization's portfolio, program, and project structure, and not at the strategic governance level.

8.4.1 PORTFOLIO RISK MANAGEMENT FRAMEWORK

There are four key elements in Portfolio Risk Management: risk management planning, risk identification, risk analysis, and risk response. These elements are shown in Figure 8-1. The double arrows represent feedback loops between various planning information views, such as the portfolio risk management plan and the functions that support the creation of these data views. Within a data-centric information structure, reports and plans are presented in certain formats. With regard to risk management, these views or formats take the form of the portfolio risk management plan, risk response plans, portfolio confidence level or percent confidence, risk register, subordinate risk management and response plans, and other risk-related data elements of concern at the portfolio level. Risk response planning, monitoring, and controlling requires a structure to provide portfolio managers with a flexible risk management and response capability. A data-centric approach to reporting and documenting promotes a self-updating structure.

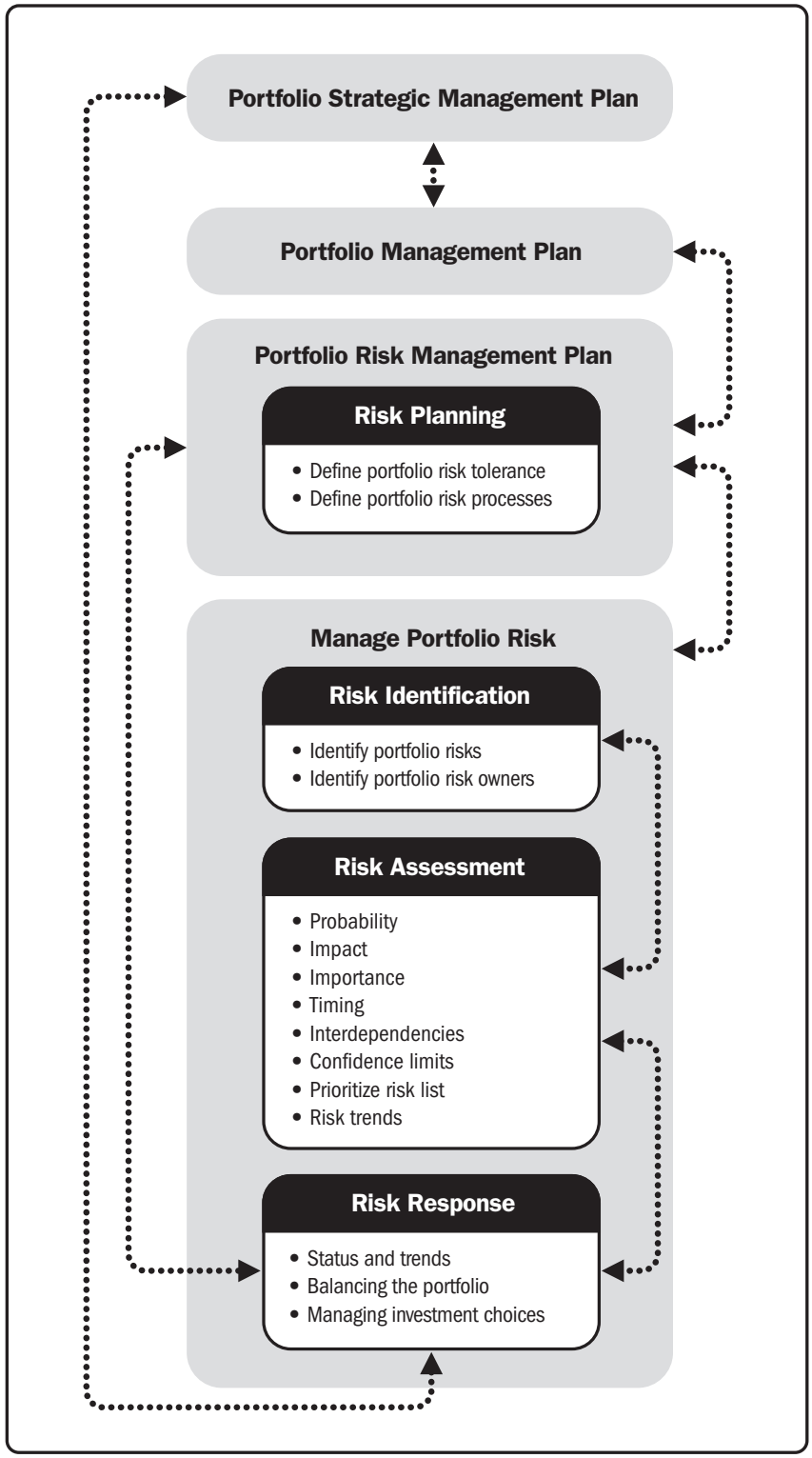

Figure 8-1. Elements of Portfolio Risk Management

Figure 8-1 is a notional picture of various elements of Portfolio Risk Management. Risk identification, assessment, and response elements are pictured within the element of manage portfolio risks to show how the risk identification and assessment elements inform a specific risk response. For consistency between portfolio, program, and project risk elements, the term *manage portfolio risk* is used as a portfolio risk element. At the portfolio level, risks are usually not "controlled"—they are managed within a comprehensive risk strategy. The risk environment shown at the portfolio level is dynamic, complex, and nonlinear in nature, as indicated by the multiple double arrows in the figure.

Risks that were identified during portfolio risk planning may arise from either external or internal sources (enterprise environmental risks) and may be identified by anyone in the organization, including executive management, operations management, the portfolio manager, program or project management teams, and stakeholders. Each executive (portfolio, program, project, and operations) has a different perspective of the portfolio's risk, and senior executives' influences can differ. For example, for senior executives, risk concerns generally involve portfolio value, time to market, and funding and investment measures. These may include customer brand and organization reputation, organizational operating model, impact on organizational strategy and objectives, and existing products and services that will be impacted by the portfolio. Senior executives often focus on safeguarding the shareholders' investments, company assets, detecting and preventing fraud, and identifying and managing liabilities.

At the portfolio level, both structural and execution risks are driven predominantly by individuals. That is not to say, for example, that external factors such as environmental issues, organizational policies, contextual changes, cross-component technical dependencies or interfaces, and aggregation or escalation of technical risks across multiple components do not impact risks at the portfolio level. However, these factors play less of a role at the portfolio level than at the program or project levels in directly driving risks.

Linking both structural and execution considerations from the perspective of change is described as dynamic capacity, or the potential of an organization to adapt. Organizational adaptation or management agility is driven not by process or technical considerations, but by the individual manager and subordinates working within the organization. Risk associated with dynamic capacity is people centric. An organization's attitude to risk and its risk appetite is based on the individual risk attitudes of those who work within the management structure.

The individual positive or negative effect of any single risk, if materialized, may impact not only the portfolio of programs and projects, but also the existing services, products, forecasted results, and benefits that the programs and projects generate because one risk affects other risks. As impacts propagate through the organization, they result in changes affecting the organization's stakeholders, its reputation, and its position in the market. However, what happens to an individual component or constituent part of a portfolio is secondary given that threats that occur should be compensated for by opportunities in other areas. What's important is the overall value delivered as a result of risk diversification in the portfolio mix. If the resultant effect is aligned with the organization's vision, strategy, and business model, then the portfolio may be considered productive irrespective of the final status of some individual portfolio components.

8.4.2 RISK PERCEPTION

It is important for organizations to establish a common understanding of risk and be prepared for the likelihood and impact of known threats or opportunities. The risk appetite statement should be based on a review of the perspectives and concerns of all stakeholders and should address the implications of current organizational strategies and practices. This enables the organization to develop risk appetite statements and set internal risk appetite limits. Risk appetite is defined by risk thresholds, which become a measurable metric for the otherwise subjective risk appetite

statement. Organizations should also define risk tolerance bands in each risk area before acting. These define levels of acceptable risk variation around defined strategic objectives. It is important for an organization to establish clear and agreed risk appetite statements in order to guide risk-based decision making and to set the scope for overall risk management activities. Risk data, including reports and formal documents, are maintained and updated by the portfolio manager to maintain alignment with organizational strategy and other direction. Most risk management at the portfolio level involves the setting of the organization's risk culture as defined by the risk appetite of senior executives and subordinate managers. Traditional risk response planning, monitoring, and response is usually performed within the portfolio components through the execution of some program or project or as an ongoing operation within the portfolio.

However, risk perception and management decisions on risk are based on the individuals' risk attitudes and appetite as well as the collective risk appetite of the organization. Portfolio management risks may be identified by anyone in an organization, including executive management, operations management, the portfolio manager, and program management and project teams. Each organizational level has a different perspective of the portfolio's risk. Organizational levels include the executive management, operations management, portfolio manager, program component, and project and small team levels. At all levels, both positive (opportunities) and negative (threats) risks are factors. Perception is, by nature, hard to quantify and is based on many factors dealing with an individual's psychological approach to risk. Because of the underlying human psychological nature of risk perception, risk response at the portfolio level has a level of complexity and uncertainty that is generally greater than what is found at the program or project level, where the focus is on benefit and product or service delivery, respectively.

As uncertainty grows, risk attitude perception becomes more important. Uncertainty arises from imperfect or incomplete information. Uncertainty is greatest at the portfolio level because of the impact of uncontrolled variables on the portfolio. Projects and, to a lesser extent, programs may be shielded from some uncontrolled variables. As a result, senior managers and the portfolio management team work in an environment that is more uncertain than that of program and project managers. Faced with growing uncertainty, senior and portfolio managers rely on their perceptions to fill in imperfect or incomplete information. Therefore, risk appetite and risk attitude become crucial to the risk management effort.

Value delivery at the portfolio level is also driven by perceptions. The meeting of measurable objectives by a portfolio's programs, projects, or operations does not completely define the value delivery equation for the portfolio. Simply stated, the sum of benefits among the component elements of the portfolio or the delivery of specific capabilities via projects or ongoing operations does not fully define the delivered value of the portfolio. The perception of value is always cast within a risk-reward context. The overriding perception is that for greater risk, the rewards and the value achieved by the portfolio should be greater.

Because of the importance of individuals' risk perceptions in shaping the benefits to value equation, analysis of the individual stakeholders' risk appetite is key to managing risk at the portfolio level. As stated previously, risk management at the portfolio level is a balancing of opportunities and threats (positive and negative risks) to maximize the probability that the portfolio will meet its strategic goals and objectives within the organization's vision. The value of the portfolio is determined by measuring the success of meeting or exceeding these strategic goals and objectives against the backdrop of risks taken to gain desired results.

Individuals make up the organization, and it is through the combination of individual risk perceptions and risk appetite that an organizational risk attitude or risk culture is formed. This does not imply that the formation of an

organizational risk attitude is simply the sum of all the attitudes of the organization's employees and managers. The process of forming an organizational attitude is complex, and sometimes best communicated in terms of percent confidence in achieving the requisite goals and objectives. The attitude of the organization toward the positive or negative effects of risks on the organization's portfolio is called the organization's risk appetite. A risk-tolerant organization is willing to take more risks, such as moving more quickly into new markets, expanding products more quickly, or investing more heavily in new product development. A risk-averse organization is less likely to move quickly. Organizational risk appetite affects or influences individual risk attitudes. Individuals who are less risk averse may tend not to take on more risk, whereas those individuals who are less conservative may take on some risk. Organizational risk appetite also affects the adaptability or agility of the organization. Change contains risk, and those organizations that are risk averse will be less likely to adapt and respond quickly to change. This affects the portfolio risk management approach and, specifically, the portfolio risk management framework.

8.5 PORTFOLIO RISK MANAGEMENT FRAMEWORK AND PORTFOLIO RISK MANAGEMENT PLAN

Planning is key to successful portfolio management, just as it is to successful program and project management. The portfolio risk management plan should fit into the overall portfolio risk management framework. The portfolio risk management plan describes how risks will be managed within the portfolio. The portfolio risk management plan does not contain risk analysis, but it provides the structure for risk-related data management. These data make up the risk analysis, and the portfolio risk management plan describes how the data are used by senior managers and portfolio managers. A data-centric approach to planning allows continuous reviewing, updating, and responding (when required) to risk trigger events.

8.5.1 PORTFOLIO RISK MANAGEMENT FRAMEWORK

The portfolio risk management framework or architecture supports the overarching principles of risk management and provides the vision for risk management within the portfolio. The portfolio risk management framework is an outline that links organizational risk management processes within the portfolio. Additionally, the portfolio risk management framework links program, project, and operational risk management to the portfolio risk management structure, thus providing a link between the risk concerns that transcend the portfolio and the component risk concerns contained within the portfolio. A common set of risk-related definitions and the establishment of risk categories or a risk breakdown structure should be provided by the portfolio management team as part of developing the portfolio risk management framework. From a data-centric perspective, the portfolio risk management framework defines the overarching risk environment in which portfolio risk processes operate.

Differences are expected between the portfolio, program, project, and operations risk management areas. At the program or project level or when dealing with operations, the focus is on management of negative risks (threats) through avoidance, transfer, or mitigation, as well as managing positive risks (opportunities) through exploitation, sharing, or enhancement. At the portfolio level, the focus should be on balancing positive and negative risks to support the organizational vision, strategic goals, and objectives of the organization, thus realizing value to the organization. At the portfolio level, risk acceptance may be a more common strategy because many risks are outside of the planning ability or control of the organization.

On the positive side of risk, organizations may exploit, enhance, or share a positive risk. When dealing with an increased product demand, for example, the risk response actions would usually be part of a planned portfolio strategy or marketing effort.

Complex projects may require balancing risks and risk strategies that go beyond simple risk response strategies. The key lies in what the organization should focus on. In general, portfolio managers focus on risk balancing beyond what is usually done at the program and project levels; this is due to the wider scope of portfolio management, added complexity at senior levels of management, decreased control, and a generally broader vision across the management structure.

Risk-based decision making facilitates the separation of various risks into risk categories. Risk categories provide a structure that ensures a comprehensive process for systematically identifying risks to a consistent level of detail and that contributes to the effectiveness and quality of risk identification. An organization can use a previously prepared categorization framework that may take the form of a simple list of categories. Some categories of risks are shown in Figure 8-2. An alternative method of risk categorization may be a risk breakdown structure. Categories may be organized by the phase of the effort, the source of the risk, or any other organizational structure that makes sense to management. Additionally, a risk breakdown structure may result in a more granular listing of risk categories. The approach chosen depends on the risk appetite of the organization and its senior management team in addition to the overall granularity of the management approach taken.

Sample Risk Categories
Portfolio component risk
Organizational risk
Performance risk
Resource risk
Financial/budget risk
Market risk
Regulatory risk
Data/information quality
Stakeholder risk
Procurement risk
Supply chain risk
Image and public relations risk
Environmental risk
Natural factors risk

Figure 8-2. An Example of Risk Categorization

8.5.2 PORTFOLIO RISK MANAGEMENT PLAN

The portfolio risk management plan is a component of the portfolio management plan. It describes how risk management activities will be structured and performed within the portfolio. It also includes references to risk management guidelines, policies, and procedures that define the organization's risk strategy and appetite, which includes thresholds and confidence limits. The portfolio risk management plan provides the approach that is used by governing bodies for assessing risk in portfolio components. The portfolio risk management plan is not a collection of portfolio component risk management plans or a summary of those plans, although there should be common elements between the risk management approach within the portfolio components and the overall portfolio management plan. For example, when the culture of the organization is one of risk taking, then the portfolio risk approach should be more tolerant of risks, and the embracing of risks should be a common theme throughout the components of the portfolio.

Programs, projects, and operations within the portfolio may have different approaches to risk management, and individual program, project, and operations managers will have differences in their risk appetites and their attitudes toward risk. These differences should not prevent the concept of a common theme for risk management across the portfolio and should not be restrictive on individual component planning. The portfolio risk management plan includes references to risk management guidelines, policies, and procedures that define the organization's risk strategy, and presents the organization's risk appetite and risk tolerance thresholds. Within various approaches to risk management as explained by the previously mentioned management guidelines (see Section 8.2.1), there should be commonality regarding how risk management is seen and how risk is monitored and controlled. For example, within the nuclear power industry, each organization implements risk management practices differently depending on the local regulations and the organization's processes. However, the overall theme of risk management within the industry is one of zero tolerance of threats associated with nuclear material.

The portfolio risk management plan extends the vision articulated within the portfolio risk management framework. The portfolio risk management plan outlines the processes by which risk will be managed at the portfolio level. However, the portfolio risk management plan should not be prescriptive down to the project level or define how operations will be managed with respect to risk within the portfolio. Managers working within portfolio components should align risk plans to the portfolio risk management framework, and the individual component risk management plans should support the portfolio risk management plan. While management concerns within portfolio components often differ from concerns at the portfolio level (i.e., time, impact, span of effect, or complexity), the risk management plan of each component is not a mere subset of the portfolio risk management plan for an entire portfolio.

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APPENDIX X1
FOURTH EDITION CHANGES

This appendix provides a detailed explanation of the changes made to *The Standard for Portfolio Management*—Fourth Edition to help readers understand the differences between editions, the rationale for the standard, and to provide historical continuity.

The project committee was chartered to update and enhance *The Standard for Portfolio Management*—Third Edition, but with the challenge of developing a principle-based document. This was a paradigm shift away from a process-based standard as previously published. The following sources and criteria were used to determine requisite changes to the standard:

- Recommendations deferred from *The Standard for Portfolio Management*—Third Edition;
- Results of a portfolio management market research study that validated proposed changes to *The Standard for Portfolio Management*—Third Edition;
- Harmonization of key sections and concepts with the other PMI foundational standards;
- Recommendations from subject matter expert review;
- Alignment with the *PMI Lexicon of Project Management Terms*;
- Recommendations from public standards program working sessions;
- Recommendations from public exposure draft comments; and
- Alignment with ISO 21504:2015 on *Project, Programme and Portfolio Management—Guidance on Portfolio Management*.[1]

  The ISO/TC258 working group that developed ISO 21504 was provided with a copy of *The Standard for Portfolio Management—Third Edition* as a reference for its development of ISO 21504. Further, ISO 21504 was one of the references used by the standards core committee in developing the update to *The Standard for Portfolio Management*. The concepts in *The Standard for Portfolio Management*—Fourth Edition complement and harmonize with ISO 21504. *The Standard for Portfolio Management* elaborates the applicable principles of ISO 21504 and key concepts, such as alignment to the organization's strategic plan, implementation of capacity and capability management, use of portfolio governance, the need for active stakeholder engagement, a focus on value management, and the overall portfolio life cycle.

[1] International Organization for Standardization. 2015. ISO 21504:2015 *Project, Programme and Portfolio Management—Guidance on Portfolio Management*. Geneva: Author.

X1.1 STRUCTURAL CHANGES

There are key differences in the structure. *The Standard for Portfolio Management* – Fourth Edition is structured to integrate the expansion of Knowledge Areas and Process Groups for Portfolio Management to those in *The Standard for Portfolio Management*–Third Edition, as described in the side-by-side comparison of distinctions in Table X1-1.

Table X1-1. Structural Changes

2013 Revision	2017 Revision
Section 1 Introduction Section 2 Portfolio Management Overview and Organization	Section 1 Introduction
Section 3 Portfolio Management Process Groups: • Defining Process Group • Aligning Process Group • Authorizing and Controlling Process Group	Section 2 The Portfolio Life Cycle
Section 4 Portfolio Strategic Management	Section 3 Portfolio Strategic Management
Section 5 Portfolio Governance Management	Section 4 Portfolio Governance
Section 6 Portfolio Performance Management	Section 5 Portfolio Capacity and Capability Management Section 7 Portfolio Value Management
Section 7 Portfolio Communication Management	Section 6 Portfolio Stakeholder Engagement
Section 8 Portfolio Risk Management	Section 8 Portfolio Risk Management

X1.2 WRITING STYLES

PMI standards committees use a style guide provided by PMI to create and finalize the content. PMI standards are developed using "active voice" language and are intended to provide consistent content throughout the document. Special attention is paid to uniformity with other PMI standards.

X1.3 SECTION 1—INTRODUCTION CHANGES

Fundamental changes to the standard are described in Section 1, which was revised to reflect the standard principles overview. Table X1-2 summarizes the changes between editions:

Table X1-2. Section 1 Changes

2013 Revision	2017 Revision
1.1 Purpose of *The Standard for Portfolio Management* 1.1.1 Audience for *The Standard for Portfolio Management*	1.1 Purpose of *The Standard for Portfolio Management* 1.2 Audience for *The Standard for Portfolio Management*
1.2 What is a Portfolio? 1.2.1 Relationships Among Portfolios, Programs, and Projects	1.3 What is a Portfolio? 1.4 Relationships Among Portfolios, Programs, Projects, and Operations
1.3 What is Portfolio Management?	1.5 What is Portfolio Management?
1.4 Relationships between Portfolio Management, Program Management, Project Management, and Organizational Project Management	1.6 Relationships Among Portfolio Management, Program Management, and Project Management
	1.7 Principles of Portfolio Management
1.5 Portfolio Management and Organization Strategy 1.6 Business Value	1.8 Relationships Among Portfolio Management, Organizational Strategy, Strategic Business Execution, and Organizational Project Management
1.7 Portfolio Component Management Relationships	1.9 Portfolio Components and Their Interrelationships
1.8 Role of the Portfolio Manager	1.10 Role of the Portfolio Manager
1.9 Role of the PMO in Portfolio Management	1.11 Other Roles in Portfolio Management
1.10 Portfolio Management Body of Knowledge	

X1.4 SECTION 2—THE PORTFOLIO LIFE CYCLE

The fourth edition introduces the concept of the portfolio life cycle—an ongoing, iterative process. It incorporates the activities organized as Process Groups in the third edition, but focuses on the essential activities that occur as needed rather than approaching it as a predictive sequence of activities.

X1.5 SECTION 3—PORTFOLIO STRATEGIC MANAGEMENT

Section 3 in the fourth edition updates Section 4 in the previous edition. This ties the work within the components of the portfolio to the strategic direction and goals of the organization. Table X1-3 summarizes the changes between editions.

Table X1-3. Section 3 Changes

2013 Revision	2017 Revision
4.1 Develop Portfolio Strategic Plan	3.1 Overview
4.2 Develop Portfolio Charter	3.2 Guiding Principles
4.3 Define Portfolio Roadmap	3.3 Portfolio Strategic Objectives
4.4 Manage Strategic Change	3.4 Developing Portfolio Strategic Objectives
	3.5 Strategic Risk Appetite
	3.6 Portfolio Charter
	3.7 Portfolio Roadmap
	3.8 Key Portfolio Components
	3.9 Portfolio Optimization
	3.10 Managing Strategic Alignment

X1.6 SECTION 4—PORTFOLIO GOVERNANCE

Section 4 in the fourth edition updates Section 5 in the previous edition. Table X1-4 summarizes the changes between editions.

Table X1-4. Section 4 Changes

2013 Revision	2017 Revision
5.1 Develop Portfolio Management Plan	4.1 Overview
5.2 Define Portfolio	4.2 What Is Portfolio Governance?
5.3 Optimize Portfolio	4.3 Guiding Principles
5.4 Authorize Portfolio	4.4 The Concept of Governance
5.5 Provide Portfolio Oversight	4.5 Effective Portfolio Governance Design Factors
	4.6 Portfolio Governance Roles

X1.7 SECTION 5—PORTFOLIO CAPACITY AND CAPABILITY MANAGEMENT

Section 5 in the fourth edition is comparable to Section 6 in the previous edition. Table X1-5 summarizes the changes between editions.

Table X1-5. Section 5 Changes

2013 Revision	2017 Revision
6.1 Develop Portfolio Performance Management Plan	5.1 Overview
6.2 Manage Supply and Demand	5.2 Guiding Principles
6.3 Manage Portfolio Value	5.3 Capacity Management
	5.4 Capacity Planning
	5.5 Supply and Demand Management
	5.6 Supply and Demand Optimization
	5.7 Organizational Capabilities
	5.8 Capability Assessment
	5.9 Capability Development
	5.10 Performance Reporting and Analytics
	5.11 Balance Capacity and Capability

X1.8 SECTION 6—PORTFOLIO STAKEHOLDER MANAGEMENT

Section 6 in the fourth edition is comparable to Section 7 in the previous edition. Table X1-6 summarizes the changes between editions.

Table X1-6. Section 6 Changes

2013 Revision	2017 Revision
7.1 Develop Portfolio Communication Plan	6.1 Overview
7.2 Manage Portfolio Information	6.2 Guiding Principles
	6.3 Definition and Identification of Portfolio Stakeholders
	6.4 Analysis of Portfolio Stakeholders
	6.5 Stakeholder Engagement Planning
	6.6 Identifying Communications Management Approaches
	6.7 Manage Portfolio Communications

X1.9 SECTION 7—PORTFOLIO VALUE MANAGEMENT

Section 7 in the fourth edition introduces concepts that are presented throughout the third edition, but not in any singular location or fashion. As such, there is no comparison to the third edition sections.

X1.10 SECTION 8—PORTFOLIO RISK MANAGEMENT

Section 8 in the fourth edition is comparable to Section 8 in the previous edition. Table X1.7 summarizes the changes between editions.

Table X1-7. Section 8 Portfolio Risk Management Changes

2013 Revision	2017 Revision
8.1 Develop Portfolio Risk Management Plan	8.1 Overview
8.2 Manage Portfolio Risks	8.2 Guiding Principles
	8.3 Portfolio Risk Management
	8.4 Key Planning Elements
	8.5 Portfolio Risk Management Framework and Portfolio Risk Management Plan

APPENDIX X2
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APPENDIX X3
CONSIDERING THE PORTFOLIO AS A COMPLEX SYSTEM

X3.1 A HOLISTIC APPROACH TO PORTFOLIOS AND THEIR MANAGEMENT

Portfolio management practitioners work in a complex environment with overlapping and often conflicting interests. Under such conditions, practitioners are often challenged by too much nonfiltered information and not enough relevant communication. To comprehend such an environment and be in a position to anticipate behavior, it is necessary to study the portfolio system as a whole. This involves the application of a systems thinking approach in parallel to the prevailing linear thinking. This simply means, further to examining and understanding portfolio components individually, also analyze the whole portfolio and focus on the effects of the interactions between the portfolio components. This parallel approach may prove very beneficial to the portfolio manager, particularly when dealing with human-made systems, and especially those involving many human beings. Very often, portfolio components are the transient vehicles that deliver change for the whole organization. A systems perspective allows for better understanding of the goals of the change initiatives and of the vehicles delivering these goals, the components of the portfolio, as well as better understanding of the functioning of the portfolio system within the whole organizational system.

Under a systems approach, the following factors are applicable:

- **Portfolio component connectivity and dependence.** There will always be interactions between the portfolio components, creating reinforcing and balancing loops. The properties, capabilities, and behavior of the portfolio system are derived from its components, from interactions between those components, and from interactions with other systems.
- **Holism.** A portfolio system should be considered as a single entity, a whole, not just a set of components.
- **Historicity and time.** The past influences the present.
- **Boundaries.** The boundaries of the entire portfolio system may be chosen and defined at a level suitable for the particular purpose under consideration. Boundaries are created for management purposes; in reality, the portfolio is an open system always interacting with its environment.
- **Change.** Change is a continuous process; emergence is inevitable.
- **Cause-and-effect relationships.** Nonproportionality in cause-and-effect relationships may often occur within the portfolio; cause and effect may not be closely linked in time.

- **Disorder.** If the disorder in the portfolio system is high, portfolio component self-adjustment to environmental conditions may occur. It is important to note that the self-adjustment process may not be efficient; usually unmanaged equilibrium positions are not the best choice.
- **Flexibility/adaptability.** Face uncertainty, embrace and manage change, and embrace team learning.

A portfolio is a system of interconnected components interacting with each other and their environment. Each component, when changed, affects other components or subcomponents of the portfolio to which the component is connected. A portfolio managed in a complex environment usually exhibits behaviors that closely resemble those of a complex system of systems constantly interacting with its environment—not just those of a simple system (which is fully explainable in terms of its components). In order to build resilience and system stability, dependencies and their effects as well as the interfaces between portfolio components and between portfolio components and their environment, need to be better understood by portfolio management practitioners.

Mastery of the dynamics of the whole organizational system plus knowledge about stakeholder requirements, resource capacity management, change management capability, benefits realization process maturity, component dependency management, etc., are essential for the portfolio manager. The portfolio manager should be aware of and recognize dependencies as well as causes and effects that interconnections between portfolio components (e.g., portfolio stakeholders, the portfolio environment, etc.) introduce at any point in time. Such awareness allows the practitioner to introduce contingencies for emergent issues and risks arising from the aforementioned dependencies that introduce complexity.

The navigation of complexity focuses attention on those aspects of organizational life that trouble portfolio managers—mostly disorder, irregularity, and randomness. Navigating complexity means achieving portfolio objectives while accepting instability, change, and unpredictability throughout the portfolio life cycle. Navigating complexity of the portfolio helps to avoid stabilizing the crisis without eliminating its causes[1]. Navigating complexity and portfolio management have a strong bilateral relationship. The establishment and implementation of portfolio management in an organization reduces and harnesses complexity considerably.

Within the portfolio external environment, complexity affects primarily strategic planning, portfolio sponsorship, and portfolio governance. For strategic planning, practitioners need to consider the following factors as complexity drivers:

- Duration of portfolio components,
- Dynamics of portfolio ecosystem,
- Effects of many small changes that may transform the portfolio and its environment, and
- Changes associated with competitive situations among key stakeholders.

[1] It is better not to use the term "root cause" instead of "cause." Within a complex environment, usually there is not a single cause that impacts the portfolio. Multiple causes impact the portfolio system through various dependencies and should be dealt with from a holistic perspective.

For portfolio sponsorship and portfolio governance, the following considerations are important:

- As complexity increases, the lack of predictability increases. Thus, as complexity increases portfolio governance should adapt toward exhibiting anticipatory, change-oriented behavior and situational response (or swift decision making). Governance should also endorse proactivity so that the portfolio system does not jump into a nonanticipative state. It is the responsibility of the portfolio manager to ensure that the processes used to accumulate the status of all components and convey the status of the whole portfolio-to-portfolio governance and executive management should be well documented, tested, and validated.
- Long-term planning has its limits. That is why seasoned portfolio managers look for patterns in the whole and seek small changes in strategic objectives that can have the largest possible impact on unfavorable patterns. Such an approach enhances the development of flexible and adaptable alternative plans. Portfolios represent what the organization will be in the future. Portfolios co-evolve with changes in strategy and strategic objectives. Analyzing and planning the portfolio roadmap, along with deviations to be enacted when necessary, proactive behavior, resilience, but also flexibility and adaptability under certain circumstances, are essential. If executive management cannot see their strategy continuously reflected in the portfolio management process, they will not champion portfolio management even though, by not adopting such management techniques, they will have little chance of eventually achieving that strategy.
- A complex, adaptive system approach applied in parallel and enhancing the technical portfolio management principles described in this standard have been proven to help portfolio governance to develop a birds-eye view of the whole portfolio management process. Management of complexity is concentrated on the portfolio's main objectives, which are the most beneficial to the organization and which aid in a deeper understanding of program and project work throughout the organization. A complex, adaptive systems approach toward portfolio management has to accept that the long-term future is inherently unknowable, and strategically plan accordingly.

It is also important for executives and portfolio management practitioners to appreciate that successful portfolio management is a key driver toward navigating complexity of the whole organizational system. Executive management needs to support those efforts through communication, investment, dedicated resources, knowledge management, and talent management. It is paramount to consider the consequences of ill-navigated portfolio component interdependencies. This may lead to several undesirable effects for the portfolio, including the problems of resource waste, schedule slippage, budget waste, and intercomponent competition.

The proposed approach unites a holistic approach (i.e., a systems-thinking approach and recognition of complexity). It primarily helps the portfolio practitioner to be aware of what is done, what is not known, and how to investigate issues within a complex environment. The complexity of managing portfolio component interdependencies can significantly increase with an increasing number of portfolio components. Similarly, the higher the degree of interdependency between the portfolio components and its environment and the rate of change in that environment, the greater the complexity. Complexity awareness also helps balance the need for innovation with the organization's risk appetite and set constraints.

One of the key benefits of a systems approach and portfolio complexity awareness is the ability to deal more effectively with change and to compensate for the ineffectiveness of immediately apparent solutions that don't consider emergent issues and risks.

GLOSSARY

Authorization. The process of approving, funding, and communicating the authorization for initiating work on a component included in a portfolio.

Authorize Portfolio. Process of allocating resources to execute selected portfolio components and to formally communicate portfolio-balancing decisions.

Capability Assessment. The internal analysis of what an organization has or does not have and what it can and cannot do with respect to resources.

Capacity and Capability Analysis. A technique performed to understand the human, financial, and asset capacity and capability of an organization in order to select, fund, and execute portfolio components.

Capacity Management. The processes for managing overall resource demands of portfolios and their components.

Capacity Planning. The analysis of resource needs based on component demand and the available capacity of an organization's resources.

Category. A predetermined key description used to group potential and authorized components to facilitate further decision making. Categories are linked to components with a common set of strategic goals.

Component. A discrete element of a portfolio that is a program, project, or operations work related to the achievement of the portfolio's strategic objectives.

Component Proposal. A recommendation or plan, business case, or feasibility study, developed by stakeholders or sponsors, to introduce or change a portfolio component or components.

Cost/Benefit Analysis. A technique that weighs expected costs against expected financial and nonfinancial benefits (value) to determine the best (according to relevant criteria) course of action.

Enterprise Environmental Factors. Conditions, not under the immediate control of the team, that influence, constrain, or direct the project, program, or portfolio.

Evaluation. The process of scoring specific potential components using key indicators and their related weighted criteria for comparison purpose for further decision making.

Goals. The general statements that indicate what is to be achieved relative to an organization's vision.

Governance Decisions. Portfolio-governing body decisions based on portfolio performance, component proposals, and risks as well as capacity and capability of resources, funding allocations, and future investment requirements.

Governance Recommendations. Portfolio-governing body recommendations based on portfolio performance, component proposals, and risks as well as capability and capacity of resources, funding allocations, and future investment requirements.

Inventory of Work. A list of active work that may be potential portfolio components and a starting point to develop a portfolio.

Key Criteria. Predetermined measures, values, or conditions used in a scoring model to measure alignment with strategic goals.

Key Descriptors. A set of characteristics used to categorize and document a portfolio component for further decision making.

Mission. The statement that explains the overall approach for achieving an organization's vision.

Objectives. The outcomes developed from the strategic goals of an organization that are specific, measurable, and time bound.

Operations. The business function responsible for planning, coordinating, resourcing, and controlling the repeatable, usually cyclical, day-to-day activities of an organization.

Organizational Capabilities. The ability of an organization through its people, processes, and systems to execute an entire portfolio of initiatives for delivering goods and services.

Organizational Governance. The process by which an organization directs and controls its operational and strategic activities, and by which the organization responds to the legitimate rights, expectations, and desires of its stakeholders.

Organizational Process Assets. Plans, processes, policies, procedures, and knowledge bases specific to and used by the performing organization.

Organizational Project Management. A framework in which portfolio, program, and project management are integrated with organizational enablers in order to achieve strategic objectives.

Organizational Strategy and Objectives. An organizational document that contains the mission and vision statements as well as goals, objectives, and strategies intended to achieve the vision.

Phase Gate. A review at the end of a phase in which a decision is made to continue to the next phase, to continue with modification, or to end a project or program.

Portfolio. Projects, programs, subsidiary portfolios, and operations managed as a group to achieve strategic objectives.

Portfolio Audit. A process for reviewing compliance with the governance principles and practices as carried out by the portfolio, program, and project management teams.

Portfolio Authorization. The formal process to authorize portfolio components, allocate funding, and assign resources.

Portfolio Balancing. The process of optimizing the mix of portfolio components to further the strategic objectives of an organization.

Portfolio Capacity and Capability Management Domain. A comprehensive framework based on a set of guiding principles consisting of a set of tools and practices to identify, allocate, and optimize resources for maximizing resource utilization and minimizing resource conflicts in portfolio execution.

Portfolio Charter. A document issued by a sponsor that authorizes and specifies the portfolio structure and links the portfolio to an organization's strategic objectives.

Portfolio Communication Management. The processes required to develop the portfolio communication management plan and manage the dissemination of portfolio information.

Portfolio Communication Management Plan. A subsidiary plan or component of the portfolio management plan that defines all communication needs, establishes communication requirements, specifies frequency, and identifies recipients for information associated with the portfolio management process.

Portfolio Component Reports. Status reports from the portfolio's program and project managers.

Portfolio Governance Body. The group, often referred to as the governance board, authorized by an organization to establish the portfolio framework, functions, and processes to guide portfolio management activities and make decisions about investments and priorities for the portfolio. It provides leadership, oversight, and decision-making support for portfolio management.

Portfolio Governance Domain. A set of practices, functions, and processes within a framework based on a set of principles that are fundamental norms, rules, or values that guide portfolio management activities in order to optimize investments and meet organizational strategic and operational goals.

Portfolio Life Cycle. The ongoing processes and functions that occur to a set of portfolios, programs, projects, and operations within a continuous time frame.

Portfolio Management. The centralized management of one or more portfolios to achieve strategic objectives.

Portfolio Management Information System. Tools and techniques used to gather, integrate, visualize, preserve, and disseminate the outputs of organizational portfolio management.

Portfolio Management Office. An entity responsible for the centralized management and coordination of the portfolio(s) within its domain.

Portfolio Management Plan. A formal, approved document that defines how the portfolio will be executed, monitored, and controlled to meet organizational strategy and objectives.

Portfolio Manager. The person or group assigned by the performing organization to establish, balance, monitor, and control portfolio components in order to achieve strategic business objectives.

Portfolio Optimization. The ongoing practice by which benefits, risks, and resources are balanced and optimized.

Portfolio Performance Management Plan. A subsidiary plan or component of the portfolio management plan that describes performance measures, reporting (on scope, cost, schedule, and resources), resource optimization, and benefits realization.

Portfolio Periodic Reporting and Review. The process of reporting on the portfolio components as a whole using key indicators and reviewing the performance of the component mix by comparing actual with anticipated evolution, value, risk level, spending, and strategic alignment.

Portfolio Process Assets. Portfolio plans, processes, policies, procedures, and knowledge bases used by the portfolio manager and stakeholders.

Portfolio Reports. Reports that provide information on performance, risks, resources, and governance decisions.

Portfolio Risk. An uncertain event, set of events, or conditions that, if they occur, have one or more effects, either positive or negative, on at least one strategic business objective of the portfolio.

Portfolio Risk Management. The utilization of a structured risk planning and response effort that enables rapid and effective decision making to pursue opportunities and minimize the threats to the portfolio.

Portfolio Risk Management Domain. The activities related to identifying and balancing risk factors to efficiently and effectively enable portfolio value delivery.

Portfolio Risk Management Framework. The defined process by which the portfolio manager plans, identifies, analyzes, and responds to risks. It is often defined as part of the portfolio governance framework.

Portfolio Risk Management Plan. A subsidiary plan or component of the portfolio management plan that describes how risk management activities will be structured and performed.

Portfolio Roadmap. A visual, high-level artifact that details how the portfolio and its relevant components are tied to the strategic goals of an organization. It provides the portfolio information in a chronological fashion and ensures dependencies within the portfolio are established and evaluated.

Portfolio Sponsor. The role that champions the application of organizational resources and supports portfolio management to help meet the portfolio's goals and objectives and realize its intended value contribution.

Portfolio Stakeholder Engagement Domain. The activities related to the direct and indirect communication between the stakeholders and portfolio management to gain and maintain stakeholder buy-in for the portfolio's goals, objectives, and strategies.

Portfolio Strategic Management Domain. The management of intended and emergent initiatives identified by an organization's executive management.

Portfolio Strategic Objectives. The desired portfolio outcomes derived from an organization's strategic plan. The strategic objectives guide the development of the overall portfolio strategic management plan.

Portfolio Strategic Plan. A formal, approved document that describes the portfolio vision, objectives, and goals to achieve organizational strategy and objectives.

Portfolio Value Management Domain. The activities related to ensuring the realization of the intended value of the portfolio through its components.

Program. Related projects, subsidiary programs, and program activities managed in a coordinated manner to obtain benefits not available from managing them individually.

Program Management. The application of knowledge, skills, tools, and techniques to a program to meet the program requirements and to obtain benefits and control not available by managing projects individually.

Program Manager. The person authorized by the performing organization to lead the team or teams responsible for achieving program objectives.

Project. A temporary endeavor undertaken to create a unique product, service, or result.

Project Management. The application of knowledge, skills, tools, and techniques to project activities to meet the project requirements.

Project Manager. The person assigned by the performing organization to lead the team that is responsible for achieving the project objectives.

Risk. An uncertain event or condition that, if it occurs, has a positive or negative effect on one or more project objectives.

Risk Acceptance. A risk response strategy whereby the project team decides to acknowledge the risk and not take any action unless the risk occurs.

Risk Appetite. The degree of uncertainty an organization or individual is willing to accept in anticipation of a reward.

Risk Avoidance. A risk response strategy whereby the project team acts to eliminate the threat or protect the portfolio from its impact.

Risk Mitigation. A risk response strategy whereby the team acts to reduce the probability of occurrence or impact of a threat.

Risk Transference. A risk response strategy whereby the project team shifts the impact of a threat to a third party, together with ownership of the response.

Sponsor. See portfolio sponsor.

Stakeholder. An individual, group, or organization who may affect, be affected by, or perceive itself to be affected by a decision, activity, or outcome of a project, program, or portfolio.

Stakeholder Analysis. A technique to identify stakeholders by individual or group and determine their concerns, interests, influence, expectations, and requirements.

Stakeholder Engagement. The means by which the portfolio manager supports the achievement of excellence in executing defined strategies through transparency, responsibility, accountability, and fairness when interacting with stakeholders.

Strategic Alignment. The process of evaluating new or changing strategic objectives and goals to determine where, if any, gaps may exist in the portfolio and adjusting accordingly.

Strategic Change. Any change in the strategic intentions and plans of an organization that can impact the contents of component definition, categories, filters, key indicators, and other decision-making parameters used for portfolio management.

Strategic Initiatives. Programs and projects implemented to achieve a defined future state.

Strategic Plan. A high-level document that explains an organization's vision and mission, plus the approach that will be adopted to achieve this mission and vision, including the specific goals and objectives to be achieved during the period covered by the document.

Strategy and Objectives. The definition of an organization's intended achievements in terms of business results interpreted from various perspectives—financial, customer, infrastructure, products and services, or by cultural outcomes that are measurable.

Subsidiary Portfolio. A collection of components which includes programs, projects, and other work grouped together within a larger portfolio.

Supply and Demand Allocation. The effective utilization of organizational resources based on decision criteria in an effort to balance supply against portfolio demand.

Supply and Demand Analysis. The evaluation of human, financial, assets, and intellectual capital capacity and capability accessible in order to select, fund, and execute portfolio components.

Supply and Demand Management. The balancing of the portfolio components' need for resources (demand) against the available resources (supply) such that neither exceeds the other.

Supply and Demand Optimization. The ongoing measurement and monitoring of resources for needed course corrections and adjustments during portfolio execution.

Value. The entire quantifiable and qualifiable benefits, worth, and usefulness of an organization—the total sum of all tangible and intangible elements.

Value Management. Ensuring the realization of the intended value of the portfolio through its components in alignment with an organization's strategy.

Vision. The description of where an organization sees itself as a result of the chosen strategy.

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In today's environment of rapid change and constant disruption, highly mature portfolio management practices have proven to be a vital tool to organizational success.

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