

# OVERVIEW

CHAPTER 2

OVERVIEW AND ENVIRONMENT

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## OVERVIEW AND ENVIRONMENT

Chapters 1 and 2 of the *PMBOK® Guide* provide a basic structure for the field of project management. These chapters introduce project management and the context or environment in which projects operate. Together, these first two chapters contain many important definitions and concepts that must be understood before attempting the remaining chapters of the *PMBOK® Guide*.

Project management overview questions on the CAPM exam mainly cover definitions, concepts, and approaches. You must be very familiar with PMI terminology. Projects, programs, portfolio management, stakeholders, project and product life cycles, organizational structures, and influences are among the topics covered.

### EXAM TIP

Reference the Glossary of the *PMBOK® Guide* frequently to learn PMI terminology.

PMI has created a standard which documents the processes needed to manage a project. These processes are based on good practices that are practiced on most projects, most of the time. However, the *PMBOK® Guide* states that not all the processes need be, or even should be, applied to all projects all of the time. The project managers and their teams need to consider each process and determine if it is appropriate to their specific situation. This procedure is called **tailoring** by PMI.

PMI feels that the processes and interactions among processes described in the *PMBOK® Guide* should serve as a standard for project management. An organization's **project management methodology** documents the variances from the *PMBOK® Guide* standard.

Operations management, although it may be impactful to the daily activity of a project manager, is considered outside the scope of formal project management.

## Key Definitions

**Assumption:** a factor in the planning process that is considered to be true, real, or certain, without proof or demonstration.

**Benefits management plan:** the documented explanation defining the processes for creating, maximizing, and sustaining the benefits provided by a project or program.

**Business case:** a documented economic feasibility study used to establish validity of the benefits of a selected component lacking sufficient definition and that is used as a basis for the authorization of further project management activities.

**Business value:** the net quantifiable benefit derived from a business endeavor. The benefit may be tangible, intangible, or both.

**Colocation:** project team members are physically located close to one another in order to improve communication, working relations, and productivity.

**Constraint:** a limiting factor that affects the execution of a project, program, portfolio, or process.

**Enterprise environmental factors:** conditions, not under the immediate control of the team, that influence, constrain, or direct the project, program, or portfolio.

**Good practice:** a specific activity or application of a skill, tool, or technique that has been proven to contribute positively to the execution of a process.

**Input:** a tangible item internal or external to the project that is required by a process before that process proceeds.

**Needs assessment:** a systematic process for determining and addressing needs, or “gaps,” between current conditions and desired conditions or “wants.” The discrepancy between the current condition and wanted condition must be measured to appropriately identify the need.

**Operation:** ongoing work performed by people, constrained by resources, planned, executed, monitored, and controlled. Unlike a project, operations are repetitive; for example, the work performed to carry out the day-to-day business of an organization is operational work.

**Organizational knowledge base:** an integral component of knowledge management systems. A knowledge base is used to optimize information collection, organization, and retrieval for an organization, or for the general public.

**Organizational process assets:** plans, processes, policies, procedures, and knowledge bases that are specific to and used by the performing organization.

**Output:** a product, result, or service generated by a process. May be an input to a successor process.

**Phase:** one of a collection of logically related project activities usually resulting in the completion of one or more major deliverables. A project phase is a component of a project life cycle.

**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 modifications, or to end a project or program.

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

**Process:** a systematic series of activities directed towards causing an end result such that one or more inputs will be acted upon to create one or more outputs.

**Process Group:** a logical grouping of project management processes to achieve specific project objectives. There are five Process Groups, and all are required to occur at least once for every project.

**Product life cycle:** the series of phases that represent the evolution of a product, from concept through delivery, growth, maturity, and to retirement.

**Program:** related projects, subsidiary programs, and program activities that are managed in a coordinated manner to obtain benefits not available from managing them individually.

**Progressive elaboration:** the iterative process of increasing the level of detail in a project management plan as greater amounts of information and more accurate estimates become available.

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

**Project life cycle:** the series of phases that a project passes through from its start to its completion.

**Project management:** the application of knowledge, skills, tools, and techniques to project activities to meet the project requirements.

**Project management information system:** the information system consisting of the tools and techniques used to gather, integrate, and disseminate the outputs of the project management processes.

**Stakeholders:** an individual, group, or organization that may affect, be affected by, or perceive itself to be affected by, a decision, activity, or outcome of a project, program or portfolio.

**Standard:** a document established by an authority, custom, or general consent as a model or example.

**Subproject:** a component of a project. Subprojects can be contracted out to an external enterprise or to another functional unit.

**Tailoring:** determining the appropriate combination of processes, inputs, tools and techniques, outputs, and life cycle phase to manage a project.

**EXAM TIP**

Read the *PMI Lexicon of Project Management*. It provides the foundational professional vocabulary.

**Technique:** a defined systematic procedure employed by a human resource to perform an activity to produce a product or result or deliver a service, and that may employ one or more tools.

**Tool:** a tangible item such as a checklist or template used in performing an activity to produce a product or result.

### PROJECTS VERSUS PRODUCTS

A project is a temporary endeavor that is undertaken to create a unique product, service, or result. When the outcome of a project is related to a product, the outcome of the project could, for instance, be:

- The development of a new stand-alone product
- The addition of new functions or features to an existing product
- The development of a component or segment of a product or of an aspect of a product such as a prototype or installation at a new location

A product is an artifact that is produced and is quantifiable. It can either be an end item such as an airplane, or a software application, or it can be a component item such as an engine, or a software feature.

### RELATIONSHIPS BETWEEN PROJECT MANAGEMENT, PROGRAM MANAGEMENT, AND PORTFOLIO MANAGEMENT

Many organizations use the terms project, program, and portfolio very loosely. For the exam, you must understand the specific definitions of each term and how they relate to one another. In addition, you must recognize that a project manager's function is very different from the function of a program manager or portfolio manager.

## Projects, Programs, and Portfolios

**Projects** are unique, one-time endeavors with a defined beginning and end. They have specific objectives to fulfill, which are achieved through the coordination of inter-related tasks and activities.

Projects are not independent events within an organization. They are one piece of an overall strategic plan. The projects that an organization undertakes should facilitate the achievement of that strategic plan. They should be prioritized so that the most important projects are given every opportunity to succeed and should regularly be re-assessed as to their impact on the overall corporate vision.

A **program** is a collection of related projects, subsidiary programs, and program activities that are interdependent, and are all necessary to optimally deliver on the program objectives.

Managing projects within a program adds complexity and requires additional coordination between the projects within the program. However, program management can enhance the value of projects by coordinating seemingly independent activities. Programs may include elements of related work outside of the scope of the discrete projects in the program.

A **portfolio** is a group of projects, programs, subsidiary portfolios and operations that are coordinated to execute on **business strategy** and **organizational vision**. The projects or programs in the portfolio may not be interdependent or directly related.

There is usually no lack of projects within an organization, but every organization has a limited amount of time, money, staff, expertise, assets, and other resources. Two aspects that are most important in choosing projects are critical, specialized resources and money. There are always more “good” projects that could be selected than there are resources.

**Portfolio management** is the centralized management of one or more portfolios to achieve strategic objectives. Organizations strive to have a balanced portfolio of projects. The balance comes from comparing several factors, which may include:

- External market-driven costs versus internal cost reduction
- Enterprise versus business unit benefit
- Research and development versus existing product lines
- Short-term versus long-term goals
- High risks versus low risks

**EXAM TIP**

Read Table 1-2 of the *PMBOK® Guide* to understand the different functions performed by project managers, program managers, and portfolio managers within each Knowledge Area.

Portfolio management will aid in managing **scarce resources**. It benefits business units as they plan and execute projects. It provides senior management a way to compare projects across the organization and to consider new prospects that arise during the course of business. It also assists in managing project and organization risks.

Organizations that manage portfolios of projects and programs have a greater capability to plan and predict their financial results. When projects and programs are defined in terms of their contribution to the organization, senior management makes better decisions about the mix of projects and programs and their associated values. Portfolio management helps all levels and business units communicate, which increases the probability that the organization will have long-term financial success.

## PROJECT MANAGEMENT IN OPERATIONS MANAGEMENT AND ORGANIZATIONAL STRATEGY

The *PMBOK® Guide* emphasizes the role projects play within an organization's operations and in strategic planning, and it has also made a clear distinction between operations and project management. You must understand how projects are critical to the operations of a business in achieving organizational goals and how project management supports operations.

No organization will grow without an excellent execution of strategy. An organization chooses projects that directly deliver components of an organizational strategy.

### Project and Development Life Cycles

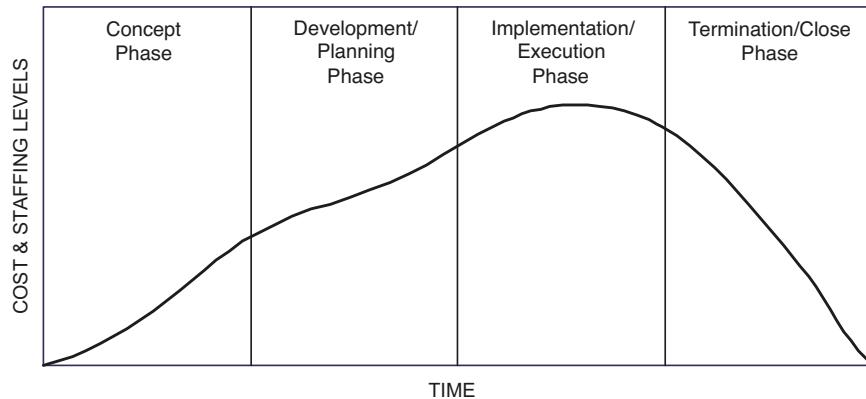
A project life cycle defines:

- The phases that a project goes through from initiation to closure (the *PMBOK® Guide* states that a project contains an initial phase, one or more intermediate phases, and a final phase)
- The work to be done in each phase
- The skills involved in each phase
- The deliverables and acceptance criteria for each phase
- How each phase will be monitored, controlled, and approved before moving to the next phase

A typical project life cycle contains the following four phases, as shown in Figure 2-1.

- **Starting the project (the concept phase):** the problem to be solved is identified. Deliverables from this phase could be:
  - Feasibility studies that clarify the problem to be solved
  - Order of magnitude forecasts of cost
  - A project charter to grant permission for the project to proceed

Figure 2-1  
Project Life Cycle



- **Organizing and preparing (the development and planning phase):** what needs to be done is identified. Deliverables created here include:
  - The scope statement
  - A work breakdown structure (WBS)
  - A schedule baseline
  - A determination of budgetary costs and a developed budget
  - The identification of resources and team members with levels of responsibility
  - A risk assessment
  - A communications management plan
  - The project management plan
  - Control systems and methods for handling change control
  
- **Carrying out the work (the implementation and execution phase):** the actual work of the project is carried out. Deliverables include:
  - Execution results for work packages
  - Status reports and performance reporting
  - Procurement of goods and services
  - Managing, controlling, and redirecting (if needed) scope, quality, schedule, and cost
  - Resolution of problems
  - Integration of the product into operations and the transferral of responsibility

- **Closing the project (the termination and close phase):** the product is finalized, evaluated, and rejected or accepted. Deliverables include:
  - Formal acceptance
  - Documented results and lessons learned
  - Reassignment or release of resources

The *PMBOK® Guide* describes two types of project life cycles—predictive or adaptive.

**Predictive life cycles** are generally used when the product is well understood and the scope, time, and cost of the project can be determined early.

**Adaptive life cycles** allow for iterations of delivery when the details of the project are not well defined and the iterations allow for further discovery in order to determine an appropriate scope, schedule, or cost.

Within these project life cycles, there are various phases which aid in the development of the product, service, or result. These **development life cycles** can be predictive, iterative, incremental, adaptive, or hybrid.

**Predictive development life cycles** are generally used when scope, schedule, and cost are well defined.

**Iterative development life cycles** may be leveraged when each iteration forces a review of schedule and cost estimates.

**Incremental development life cycles** are a planned set of successive deliverables increasing the functionality until the final product is delivered.

**Adaptive development life cycles** allow for a detailed scope definition to be approved before the start of an iteration.

And a **hybrid development life cycle** combines a predictive and an adaptive life cycle.

### Stakeholder Influence

The curve in Figure 2-2 below demonstrates how important it is for organizations to plan projects. Note that the ability of a stakeholder to influence a change is high at the beginning of a project and decreases as the project progresses. Conversely, the impact or cost of a change is low at the beginning of a project and increases as the project progresses.

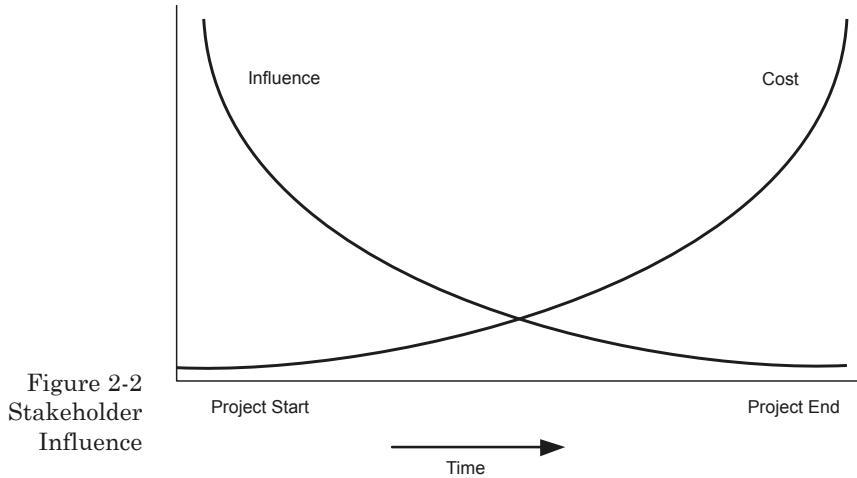


Figure 2-2  
Stakeholder  
Influence

### Relationship of Project Life Cycle to Product Life Cycle

The life cycle of a project is only one aspect of the overall **product life cycle**, as Figure 2-3 shows. A project can be initiated to determine the feasibility of a product in the introductory stage of a product life cycle. There may be a second project to address the design and development of the product once the feasibility study has determined the viability of the product.

The number of projects initiated to support the product life cycle will vary from organization to organization and from product to product.

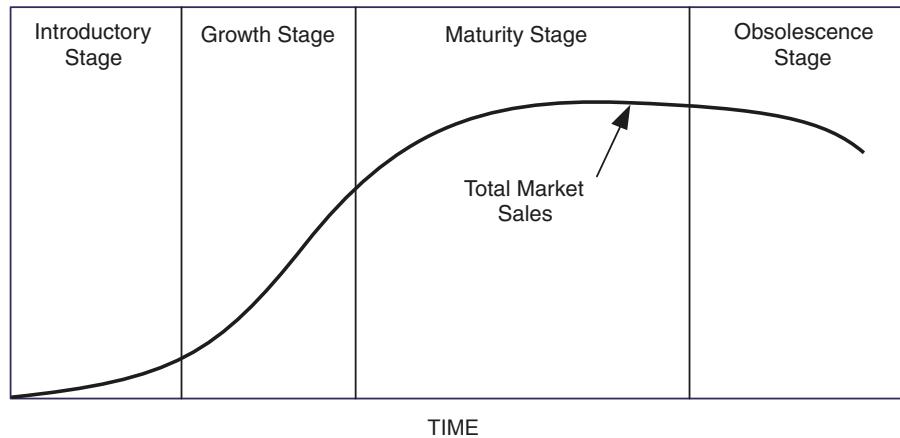


Figure 2-3  
Product Life Cycle

Project life cycle phases and product life cycle phases are often defined similarly. For example, a project life cycle may start with a feasibility phase to determine if the project can achieve its objectives while the first phase in a product life cycle might consist of a market study to determine if the product will meet sales goals.

Phases of a product life cycle are generally performed in sequence. Although the phases in a project life cycle can be performed sequentially, it is increasingly common that phases overlap or are **iterative**. In an overlapping relationship, the next phase of the product life cycle is initiated before the closing of the previous phase.

**Project phases** are a collection of logically related project actions. Phases can be used in many ways. Like projects and programs, phases allow for a distinct stop and start, allowing for the opportunity to assess progress and determine if any corrective action is needed.

## PROJECT MANAGEMENT PROCESSES AND PROCESS GROUPS

The *PMBOK*<sup>®</sup> *Guide* defines five Process Groups required for any project. They are:

- **Initiating:** defining and authorizing the project (or phase of the project)
- **Planning:** defining objectives, refining them, and planning the actions required to attain them
- **Executing:** integrating all resources to carry out the plan
- **Monitoring and Controlling:** measuring progress to identify variances and taking corrective action when necessary
- **Closing:** bringing the project or phase to an orderly end, including gaining formal acceptance of the result

The Process Groups are NOT project phases. In fact, it is not unusual to see all of the Process Groups represented within a single phase of a larger project.

Each Process Group contains a number of processes. There are ten topic-related groupings for the processes called **Knowledge Areas**. The processes associated with a particular Knowledge Area all address a single topic. For example, the processes within the schedule Knowledge Area address defining and planning the project schedule.

The *PMBOK*<sup>®</sup> *Guide* is organized around these Knowledge Areas; Chapters 4 through 13 define each of the processes within a Knowledge Area in detail, covering the Knowledge Areas of Integration Management, Scope Management, Schedule Management, Cost Management, Resource Management, Quality Management, Communications Management, Risk Management, Procurement Management, and Stakeholder Management. This study guide is organized the same way to facilitate the exam candidate's study effectiveness.

The Process Group lists below show the Process Group, the processes in that group, and, in parentheses, the Knowledge Area in which that process is described.

### Initiating Process Group

1. Develop Project Charter (Integration)
2. Identify Stakeholders (Stakeholder)

### Planning Process Group

1. Develop Project Management Plan (Integration)
2. Plan Scope Management (Scope)
3. Collect Requirements (Scope)
4. Define Scope (Scope)
5. Create WBS (Scope)
6. Plan Schedule Management (Schedule)
7. Define Activities (Schedule)
8. Sequence Activities (Schedule)
9. Estimate Activity Durations (Schedule)
10. Develop Schedule (Schedule)
11. Plan Cost Management (Cost)
12. Estimate Costs (Cost)
13. Determine Budget (Cost)
14. Plan Quality Management (Quality)
15. Plan Resource Management (Resource)
16. Estimate Activity Resources (Resource)
17. Plan Communications Management (Communications)
18. Plan Risk Management (Risk)
19. Identify Risks (Risk)
20. Perform Qualitative Risk Analysis (Risk)
21. Perform Quantitative Risk Analysis (Risk)
22. Plan Risk Responses (Risk)
23. Plan Procurement Management (Procurement)
24. Plan Stakeholder Engagement (Stakeholder)

**EXAM TIP**

There are three categories of processes—those used only once, those used periodically, and those used continuously.

**EXAM TIP**

Review Figure 1-7 in the *PMBOK® Guide* to better understand Process Group interaction.

**Executing Process Group**

1. Direct and Manage Project Work (Integration)
2. Manage Project Knowledge (Integration)
3. Manage Quality (Quality)
4. Acquire Resources (Resource)
5. Develop Team (Resource)
6. Manage Team (Resource)
7. Manage Communications (Communications)
8. Implement Risk Responses (Risk)
9. Conduct Procurements (Procurement)
10. Manage Stakeholder Engagement (Stakeholder)

**Monitoring and Controlling Process Group**

1. Monitor and Control Project Work (Integration)
2. Perform Integrated Change Control (Integration)
3. Validate Scope (Scope)
4. Control Scope (Scope)
5. Control Schedule (Schedule)
6. Control Costs (Cost)
7. Control Quality (Quality)
8. Control Resources (Resource)
9. Monitor Communications (Communications)
10. Monitor Risks (Risk)
11. Control Procurements (Procurement)
12. Monitor Stakeholder Engagement (Stakeholder)

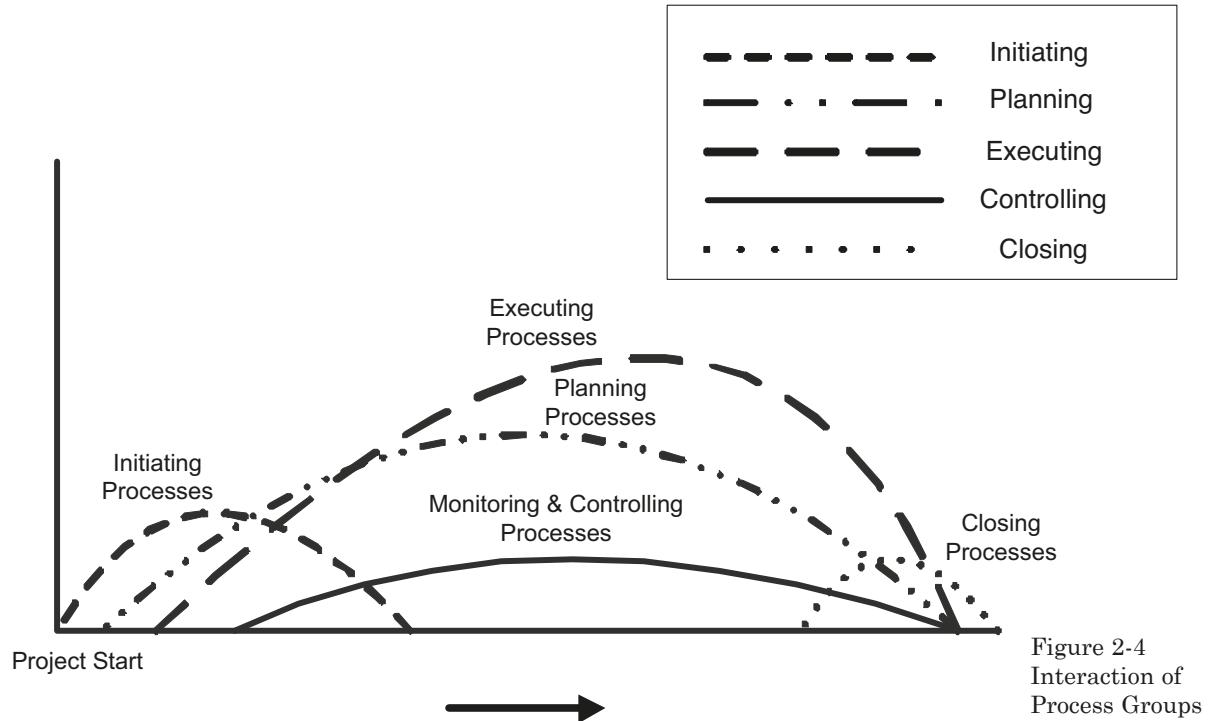
**Closing Process Group**

1. Close Project or Phase (Integration)

**Project Management Process Interactions**

Each process has **inputs, tools, techniques, and outputs** as defined in the *PMBOK® Guide*. You should take the time to learn the flow of the processes within each Process Group, the relations of processes across Process Groups, and how the outputs of one process become the inputs to other processes.

In order to help you understand how Process Groups flow and interact with one another, refer to Figure 2-4.



### Work Performance Data, Work Performance Information, and Work Performance Reports

In the *PMBOK® Guide*, a very specific distinction is made between work performance data, information, and reports.

- **Data** are raw observations and measurements that are identified as activities being performed
- **Information** is data that has been analyzed in context
- **Reports** are the physical or electronic representation of work performance information compiled in project documents

#### EXAM TIP

An easy way to remember the difference between data and information is that data is typically an output while information is an input.

## Tailoring

Since no two projects are identical, and each project brings with it new challenges and risks, the project manager must consider how standard or unique a project is and determine whether or not tailoring is needed.

It can be expected that the **organizational process assets** we use for a project will be available to be used, re-used, or modified to accommodate the uniqueness of a project. This is a form of tailoring.

A project manager may also have significant experience in a particular type of project, such as software implementations, but each project has different stakeholders with different needs; therefore, there could be many unique attributes to a project which need to be considered. A project manager must make tailoring decisions and balance the project constraints as well as meet the acceptance criteria of the deliverables.

## Project Constraints

Projects are often performed under many constraints that could impinge on the project's successful completion. These constraints interact and require tradeoffs or decisions that must be made to fulfill project objectives.

Constraints can come from many different sources. Schedules can constrain resources, risk responses can constrain timelines, quality requirements can constrain the type of resources needed on the project, and resource constraints can impact the ability of the project team to deliver on schedule. **Enterprise environmental factors** may also constrain or limit the project team's ability to function.

For example, additional scope requirements will usually mean either more time to complete those requirements or more resources to work on these requirements, thereby increasing project cost as well as creating additional project teams. It is important for the project team to identify known constraints early so that planning can be aligned.

## PROJECT MANAGEMENT BUSINESS DOCUMENTS

### Business Value

Every organization has value. If there were no value in a business, it would not exist. Some businesses provide commercial value, while others benefit the community or stockholders. Each organization's value is unique, just as each project is unique. For any project to be successful, the project manager and project team must understand how the project relates to the value of the business. Understanding the business value of an organization will make project managers' responses to varying situations more effective.

Two key documents that help project managers understand the value, or the "why," of the project are the **business case** and the **project benefits management plan**.

### Business Case

An organization often has many identified projects; usually, more projects exist than available resources can handle. Therefore, it is a good practice to follow a project selection and prioritization process in which justification and **cost benefit analysis** of the project are evaluated. The business case is the document that justifies why a project should be accomplished. In most cases, the project sponsor or requesting organization writes the business case. Projects come about based on business needs such as:

- **Market demand:** for the organization to stay in business, it must produce competitive products
- **Customer request:** the sponsoring organization needs and is willing to pay for new functionality
- **Legal or social requirements:** Laws can impose deadlines on organizations that increase the urgency of certain projects

It is important to review the business case at the end of each phase to ensure that the business need for the project still exists.

### Project Benefits Management Plan

All projects provide benefit to an organization. A project benefits management plan describes how and when the benefits of the project will be delivered. Most often benefits are not realized until after a project is completed and transitioned to operations.

#### EXAM TIP

PMI emphasizes that successful projects are not just about delivering on time, cost, and scope. It is about delivering business value by achieving project objectives.

A critical input to project planning, the project benefits management plan outlines the ultimate impact the project has on the organization. PMI stresses that success is not only about delivering on time, on budget and within scope. It is more about delivering value to the organization and the project benefits management plan describes this.

### Project Charter and Project Management Plan

Two of the most important documents for managing a project are the project charter and the project management plan. The project charter authorizes the project and the project manager to apply organizational resources to the project activities. The charter is a living document guiding the project team in the delivery of the overall project objectives.

#### EXAM TIP

A project management plan is not the same as a project schedule.

The project management plan describes how the project will be executed, monitored, and controlled.

In many organizations, a template can be used and **tai-  
lored** to the unique characteristics of the project. These characteristics are generally described within the project charter.

## Project Success Measures

It is important to define clearly what project success looks like and how it will be measured.

Project success measures, or objectives, can vary greatly from project to project. Ill-defined or vague criteria can lead to project failure. Some examples of success measures include:

- Delivering an agreed-upon return on investment
- Fulfilling contract terms and conditions
- Delivering on end-user adoption
- Satisfying stakeholder expectations

In order to ensure project success, project **objectives** must be defined. Good objectives should be clear, well defined, and feasible. Project objectives should follow the SMART guideline that objectives must be:

- **Specific** — clear with no ambiguity
- **Measurable** — with quantifiable indicators of success
- **Assignable** — with responsibility resting on an individual or organization
- **Realistic** — achievable within the constraints
- **Timely** — with specific duration and due dates

If the project is part of a program, project success measures can be driven by the needs of the program.

### ENTERPRISE ENVIRONMENTAL FACTORS (EEF)

The workplace has changed tremendously in the past two decades, forcing organizations to compete in a global economy. Various internal and external factors can and often do contribute to, or detract from, a project's success. The following are examples of situations in which a project manager can be impacted by an enterprise environmental factor:

- Does the company allow for external resources and does it have a standard way to contract with third party vendors?
- Does the company hire employees from different time zones and countries and how does that affect the way the project is managed?
- Is there an external market demand for your product and is it critical for the project to be delivered on time in order to achieve the revenue goals?
- Is there a regulation that constrains what can be or cannot be delivered for a project or when the project must be delivered?

Organizational culture, an enterprise environmental factor, is a big part of today's environment. Every organization is different, and what works in one organization may not work in another. The project manager must be able to assess the environmental factors of both the performing organization as well as external organizations that they may be interacting with on the project, such as the customer or vendor.

Knowing the **vision**, **values**, **regulations**, **risk appetite**, and **work ethic** of an organization, to name a few, will change how a project manager manages and responds to situations on the project.

## ORGANIZATIONAL PROCESS ASSETS (OPA)

An organizational process asset can be any tangible property or resource of the organization that the project team has access to use, re-use, **tailor**, or modify to support the project effort. The following are examples of situations in which a project manager can utilize organizational process assets:

- Using a schedule template for an information technology project within the same organization as the starting point for the WBS development activities
- Using a prior quality control plan as the basis for another project's quality control plan
- Inserting current human resource guidelines for hiring and managing contractor resources for the project within the resource management plan
- Reviewing a prior project's lessons learned document to trigger thought and discussion on potential risks that could be encountered on the existing project

Use of organizational process assets can greatly minimize the time and effort a project team needs in putting together a comprehensive project management plan.

**Knowledge repositories** are organizational process assets that are designated for storing and retrieving information. Successful and unsuccessful projects can provide critical information to future project leaders on how to succeed or to avoid failure. Repositories can include:

- Versions of software and hardware
- Past labor hours, costs, and budgets
- Historical closure information and lessons learned documentation
- Issues and defect status, resolution, and action item results
- Past metrics on processes and products
- Project files from previous projects

### EXAM TIP

For the exam, you should know the various elements that could be included in a governance framework.

### EXAM TIP

The *PMBOK® Guide* places emphasis on the social, economic, and environmental influences on projects. A key influence on the role and authority of the project manager is the organizational structure. Anyone wishing to pass the exam must understand organizational influences.

## ORGANIZATIONAL SYSTEMS

As we understand that each project is unique, organizations themselves are unique and have their own set of constraints. The policies, procedures, processes and assets that work in one organization will not necessarily work in any other organization.

Successful navigation of these organizational systems by the project manager is necessary to succeed. These organizational systems define the responsibility, accountability and authority within the organization.

**Project governance** is an **oversight function** that provides the organization's project teams direction and structure for successfully delivering projects. **Project management offices, program management offices, and portfolio management offices** are all forms of governance; however, within an organization, how each office provides value to the project teams will vary from company to company. These frameworks influence how:

- Objectives are set and achieved
- Risks are monitored and assessed
- Performance is optimized

### Organizational Structure Types

The *PMBOK® Guide* stresses the importance of organizational structures because the organizational structure will often constrain the availability of resources for a project.

The primary organizational structures, used by most companies, are functional, matrix, and project-oriented. Additionally, many organizations have project management offices to govern project management processes.

### Functional Organization

In a functional organization, each employee is in a hierarchical structure with one clear superior. Staff is grouped by specialty, such as accounting, marketing, or engineering. The pros and cons of a functional organization are shown in Figure 2-5. Included in a functional organization is the use of a **project expeditor** or a **project coordinator**.

PROS	CONS
<ul style="list-style-type: none"> <li>• Flexibility in staff use</li> <li>• Availability of experts for multiple projects</li> <li>• Grouping of specialists</li> <li>• Technological continuity</li> <li>• Normal advancement path</li> </ul>	<ul style="list-style-type: none"> <li>• Client is not the focus of activity</li> <li>• Function rather than problem oriented</li> <li>• No one fully responsible for the project</li> <li>• Slow response to the client</li> <li>• Tendency to suboptimize</li> <li>• Fragmented approach to the project</li> </ul>

Figure 2-5  
Functional  
Organization  
Pros and Cons

### Matrix Organization

Understand the matrix organizations—weak, balanced, and strong—and how they differ. The pros and cons of a matrix organization are listed in Figure 2-6. Matrix organizations have:

**EXAM TIP**  
 Become very familiar with Table 2-1 in the *PMBOK® Guide*, Influences of Organizational Structures on Projects.

- High potential for conflict
- Team members who are borrowed from their functional groups and who are therefore caught between their functional manager and their project manager (but as projects draw to a close, these team members know they have a “home” with their functional groups)
- Team members who only see pieces of the project and may not see the project to completion
- An advantage in relatively complex projects in which cross-organizational knowledge and expertise are needed
- Project managers whose authority and time on a project increases from weak matrix (lowest) to balanced matrix to strong matrix (highest)

PROS	CONS
<ul style="list-style-type: none"> <li>• Project is the point of emphasis</li> <li>• Access to a reservoir of technical talent</li> <li>• Less anxiety about the team’s future at project completion</li> <li>• Quick client response</li> <li>• Better firm-wide balance of resources</li> <li>• Minimizes overall staff fluctuations</li> </ul>	<ul style="list-style-type: none"> <li>• Two-boss syndrome</li> <li>• More time and effort needed to acquire team members</li> <li>• Functional managers may be reluctant to share top performers</li> <li>• Conflicts of authority between project manager and functional manager</li> <li>• Careful project monitoring required</li> <li>• Political infighting among project managers</li> </ul>

Figure 2-6  
 Matrix Organization  
 Pros and Cons

### Project-Oriented Organization

In project-oriented organizations, team members are often colocated and the project manager has a great deal of independence and authority. Team members worry about their jobs as a project draws to a close. Figure 2-7 shows the pros and cons of project-oriented organizations.

PROS	CONS
<ul style="list-style-type: none"> <li>• One boss</li> <li>• Project manager has a great deal of independence and authority</li> <li>• Team members are often colocated</li> <li>• Team members are treated as insiders</li> <li>• Most resources are involved in project work</li> </ul>	<ul style="list-style-type: none"> <li>• If not tracked closely, hourly costs may become inflated while specialists are waiting between assignments or are on call</li> <li>• Bureaucracy, standards, procedures, and documentation may result in an abundance of red tape</li> </ul>

Figure 2-7  
Projectized  
Organization  
Pros and Cons

### Project Management Office (PMO)

The project management office is an additional layer of organization dedicated to helping project managers. Although most often found in matrixed or projectized organizations, a project management office may exist in any type of organizational structure.

There are different types of PMOs. It is important to understand the difference between **supportive**, **controlling**, and **directive** PMOs.

- Supportive provide consultation on tools, templates, and best practices without much authority
- Controlling have more authority in ensuring project teams comply with agreed-upon standard
- Directing actually manage the project managers and their associated projects

Figure 2-8 shows the pros and cons of adding a PMO layer of organization.

PROS	CONS
<ul style="list-style-type: none"> <li>• Emphasis on project management career paths</li> <li>• Less anxiety among project managers about the next assignment at project completion</li> <li>• Centering of project management competencies</li> <li>• Standardization of the project management system</li> <li>• Centralized management</li> </ul>	<ul style="list-style-type: none"> <li>• Additional layer of hierarchy</li> <li>• Some of the adverse aspects of a matrix organization</li> <li>• All of the adverse aspects of a projectized organization</li> <li>• Lack of application knowledge by the project managers</li> </ul>

Figure 2-8  
PMO  
Pros and Cons



5. What is likely to take place during the executing processes?
  - a) Completing the work defined in the project management plan
  - b) Obtaining authorization for the project
  - c) Tracking, reviewing, and regulating progress and performance of the project
  - d) Defining the course of action required to attain the objectives of the project
  
6. There are two categories of organizational process assets. The category that is typically not updated as part of project work is called:
  - a) Processes, policies, and procedures
  - b) Resource availability
  - c) Organizational knowledge bases
  - d) Employee capabilities
  
7. A \_\_\_\_\_ is a collection of various components that together can produce results not obtainable by the individual components alone.
  - a) Portfolio
  - b) Project
  - c) Program
  - d) System
  
8. When a project is divided into phases, how do the Process Groups apply?
  - a) It's usually not necessary to go through the Initiating Process Group again
  - b) Planning of a prior phase will probably be sufficient for the next phase
  - c) Monitoring and controlling will be simplified because of your experience in a prior phase
  - d) All Process Groups may be repeated for each phase

Notes:

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**ANSWERS AND REFERENCES FOR SAMPLE  
CAPM EXAM QUESTIONS ON  
OVERVIEW AND ENVIRONMENT**

Section numbers refer to the *PMBOK® Guide*.

1. **A Section 2.2 and 2.3 – Initiating**  
Organizational process assets are specific to and are used by the performing organization, while enterprise environmental factors are not under the control of the project team, however they do influence, constrain, or direct the project.
2. **C Section 1.2.3.1 – Initiating**  
Know the differences between projects, programs, and portfolios.
3. **C Section 1.2.4.1 – Planning**  
Predictive life cycles include the traditional waterfall type.
4. **C Section 1.2.4.3 – Initiating**  
A phase gate is a decision point to determine continuance of the project by reviewing performance against the plan and ensuring that the project continues to deliver value.
5. **A Section 1.2.4.5 – Executing**  
B) takes place in initiating processes; C) takes place in monitoring and controlling processes; and D) takes place in planning processes.
6. **A Section 2.3 – Initiating**  
B) and D) are enterprise environmental factors; C) is the second category of organizational process assets.
7. **D Section 2.4.1 – Initiating**  
A) portfolios are project, programs, and operations managed together to achieve a strategic objective; B) projects are initiated to meet project objective; and C) programs are a group of projects and other programs to meet program objectives.

**8. D Section 1.2.4.5 – Initiating**

A) some sort of initiating process is preferred at the start of each phase; B) and C) prior phases are likely to be very different and potentially use different resources, so the planning and monitoring and controlling are not likely to be the same or easier.

**9. B Section 2.4.4.3 – Executing**

A) is a PMO that ensures compliance and conformance to governance frameworks; C) is a type of project life cycle, and D) is a PMO that plays a more consultative role.

**10. C Section 2.4.2.1 – Initiating**

A governance framework influences how objectives of the organization are set and achieved, how risk is monitored and assessed, and how performance is optimized.

**11. A Section 1.2.4.1 and Appendix X3 – Planning**

This life cycle is also called agile, or change driven.

**12. A Section 2.3 – Initiating**

B), C), and D) are all enterprise environmental factors.

**13. C Section 1.2.4.4 – Initiating**

A) product management processes don't reflect how projects are managed; B) may be true, but it will be accidental; D) projects don't exist in a closed environment, they require input from the organization and beyond.

**14. D Section 1.2.4.5 – Planning**

A) is a benefit of the executing processes; B) is a benefit of the monitoring and controlling processes; and C) is a benefit of the initiating processes.

**15. B Section 2.4.4.2 - Planning**

Team members in a matrix organization are accountable to both the functional manager and the project manager, which can cause conflicting loyalties.

