3 Project Management Foundations

This is a very important chapter. Yes, we could say that about every chapter in this book, as they all will add to your understanding of project management. But this chapter is especially important because it provides the foundation for understanding the other chapters in this book. Use the Quicktest to look for gaps in your knowledge and work on filling those gaps as you read the rest of the chapter.

Project Management's Organizational Context

Successful projects provide business value and deliver benefits defined in a business case and a benefits management plan. Projects are designed to bring value to an organization and its stakeholders by adding or improving products or services, and in some cases to satisfy regulatory or other legal requirements. They are selected, initiated, and exist within an organizational context that influences their desired outcomes and what is needed (inputs) to work to achieve these outcomes. Organizational context includes an organization's operations and projects, its governance, and its organizational structure.

Organizational context also includes what the *PMBOK® Guide* calls influences: enterprise environmental factors (EEFs) and organizational process assets (OPAs). EEFs are outside the control of the project team but impact its work, like an organization's culture, technology, and external governmental standards, rules, and regulations. OPAs are an organization's processes, procedures, and policies, along with organizational knowledge repositories — things within the organization that can facilitate the work of project management and product development. A project manager and team use these and update them for the organization. We will discuss other aspects of project management's organizational context when we discuss the Business Environment domain of the PMP *Examination Content Outline* (ECO).

Operations and Projects

Most work done in organizations can be described as either operational or project work. Operational work is ongoing work to support the business and systems of the organization, whereas project work ends when the project is closed. People often see their work as a project when it is not.

Example A person who processes payroll every month may consider this a monthly project. Technically, this repeatable process is part of operations. Now, what's wrong with this thinking or with using project management techniques to get the job done? Nothing. In fact, project management methods can be used in many areas of work and life. But for the exam, you should understand the distinction.

A project has a distinct beginning and end, and is an effort to produce something that has not been done before. When a project is finished, the deliverables are transitioned to ongoing business operations so the value and benefits of the project work can be integrated into the organization, permanently or until another change to that operation is needed. A successful transition may require employee training or adjustments to operational processes.

Example An insurance company's internal project to develop a new caseload tracking system is completed. As part of the same project or as a different project, the new system has to be launched. Employees will need to be trained on how to use the system and to adjust their ways of working to incorporate the new system into their daily work so the benefits can be realized. And this relationship goes both ways. While a project may develop a product or service to be used in operational work, the need for change to operational work may prompt the initiation of a project. Here are ways that could happen in the caseload tracking system example:

- The need for a new caseload tracking system may have arisen from problems occurring in the organization's business operations.
- Imagine the caseload tracking system has moved into operations and users have started working with it, but some bugs have been identified. Fixing these bugs would likely be addressed as the operational work of maintaining business systems rather than as a new project.
- The organization decides to add new features to the caseload tracking system after it is in operation. This would prompt a new project.

Projects, Programs, and Portfolios

The PMP exam mostly focuses on project management, but understanding a bit about how projects fit into programs and portfolios will help you approach the exam with a holistic understanding of the context in which projects are managed.

Project and Program Management

On the exam, a project is assumed to have the following characteristics:

- It is a temporary endeavor—with a beginning and an end.
- It creates a unique product, service, or result.
- It is undertaken to drive a change in a product or process from a current state to a future state, to achieve a specific objective.
- It is undertaken to create business value for the organization and its stakeholders. PMI's *Process Groups: A Practice Guide* defines business value as "the net quantifiable benefit derived from a business endeavor." The benefit may be tangible, intangible, or both.

Does the exam ask, "What is a project?" No. But it will describe scenarios and your answer will be different if the scenario is not describing a project. If your manager walked into your office today and said, "The system is broken. Can you figure out what is wrong with it and fix it?" Would this be a project?

It depends. On the exam, the right answer will depend upon the evidence given in the question. In this book, we will give you some tricks about answering questions.

Projects are selected among many possible business endeavors for a variety of reasons including:

- Stakeholder (customer) needs and requests for new or improved products or services, often initiated by market forces or by the stakeholders themselves
- Improvements to the performing organization's business or technology strategies and/or their products or services
- Satisfy regulatory, legal, or social requirements

A program is a group of related, sub-projects and other program-related activities, organized and managed into a coordinated set of efforts. In addition to the work required to complete each individual project, the program also includes a program manager's coordination and management activities. The project manager will collaborate with a program manager if the project is part of a program. If the assigned work involves more than one project, the project manager can manage the projects as a program if they determine the program approach adds value. Figures 3.1 and 3.2 illustrate program and portfolio management. Portfolio management and PMI's Organizational Project Management (OPM) framework are discussed in the sections that follow.

FIGURE 3.1   *Program management*

FIGURE 3.2   *Portfolio management*

Portfolio Management

A portfolio includes programs, projects, and related operational work, all prioritized and implemented to achieve a specific business objective (see figure 3.3). Programs and projects that make up a portfolio may not be related, other than by their relationship to this common business objective. A portfolio may also include smaller, subsidiary portfolios. Combining programs, projects, and operations into one or more portfolios helps to manage the dependencies between them and the individual projects. It also optimizes the use of resources, enhances the value they produce for the organization and its stakeholders, and reduces risk. The work of an organization comprises one or multiple portfolios. A project is included in a portfolio based on potential return on investment, strategic benefits, alignment with corporate strategy, and other factors critical to organizational success.

Organizational Project Management (OPM)

Organizational project management (OPM) serves as a guide or driver for project, program, and portfolio management as well as other organizational practices. It is a framework for keeping the organization focused on overall strategy. OPM provides direction for how portfolios, programs, projects, and operational work should be prioritized, managed, executed, and measured to best achieve business objectives and value for the organization and its stakeholders.

Think About It. Take a couple of minutes to think about the information depicted in figure 3.3, which shows how OPM drives an organization to achieve business objectives.

A key point to understand is that all efforts in the organization—whether they are part of project, program, portfolio management, or operational work—should be guided by the organization and support its business objectives. Changes to organizational strategy will necessitate changes to the affected work in each of these areas—both ongoing efforts and future initiatives.

Example If a project no longer aligns with organizational strategy, the project may be changed midcourse to bring it into alignment, or it may be terminated.
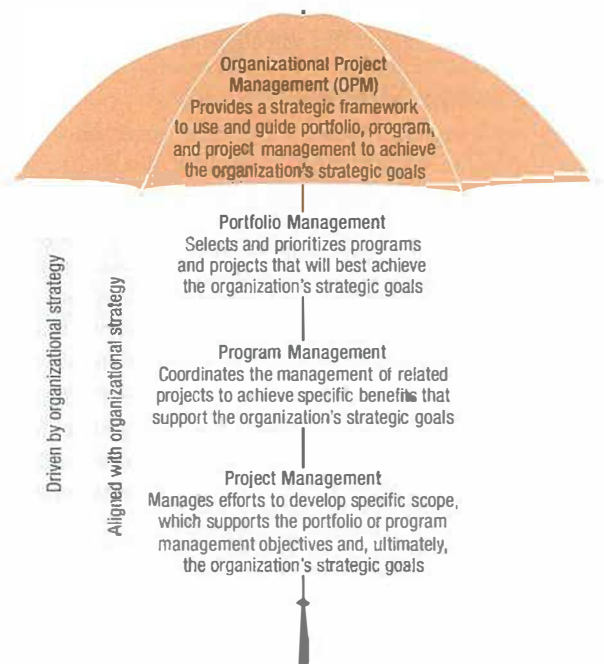

FIGURE 3.3   *Organizational project management*

Organizational and Project Governance

Every organization is different, and organizational governance is designed to support the specific culture and attributes of the organization. Organizational governance affects and is affected by project governance, the organization's culture and structure, and the business environment.

Organizational Governance

Organizational governance refers to the the way an organization sets the policies and procedures for how work will be performed to meet business objectives and to support decision-making. Generally, a board of directors is responsible to ensure that work throughout the organization conforms to external (government or regulatory) and internal standards and requirements. Internal requirements include policies and procedures regarding portfolio, program, project, and operations work to ensure that these are all within the strategic plan of the organization and that they contribute to the delivery of business objectives while meeting ethical, social, and environmental sustainability obligations.

Project Governance

In the *Examination Content Outline* (ECO), task 14 of the Process domain is to establish project governance structure. It requires project managers to ensure their project management practices align with organizational governance. Do you establish a project governance structure on your projects? Regardless of what type of project you are managing, you are still responsible to understand your organization's governance and align your project's governance to it.

Project governance can be established and administered by a project management office (PMO—see the PMO section later in this chapter). It may involve defining a project manager's authority and the creation or enforcement of organizational processes and policies regarding areas such as risk, resources, communications, and change management.

Governance may also involve planning and managing project compliance in regulations, security, and safety. The awareness of these requirements helps shape the best approach for a project.

Example Potential regulatory restrictions on a new energy project might inform the project manager as to when a project must be completed. It may also help determine the approach and methodology for developing the product of the project.

How does governance differ between predictive and adaptive projects? Predictive governance typically involves formal documentation and upfront analysis and agreement. Agile governance, in contrast, is generally less structured but still aligns with the necessary policies and procedures of the organization.

Agile
Focus

Organizational Structure

Along with organizational and project governance, a primary form of influence on projects is how the company is structured. The organizational structure establishes who the project manager goes to for help with resources, how communications must be handled, and other aspects of project management.

An answer to a question on the exam can change depending on the structure of the organization being discussed. Exam questions are sometimes phrased in terms of the project manager's level of authority and how the form of organization impacts their management of projects. Exam questions may deal with who has the power in a particular type of organization or situation (the project manager or the functional manager), or they may require you to understand the advantages and disadvantages to the project manager in each type of organization.

As you read through the following sections defining the different organizational structures, take time to think about how each form would impact your work as a project manager and how you would solve problems in different situations within each structure. In the real world individual organizational structures can vary within these general models, but on the exam you will be able to see clear distinctions between them in the scenarios given in the questions.

Functional Organizations

Functional organizations are common and are grouped by areas of specialization, such as accounting, marketing, or manufacturing. Projects generally occur within a single department, so when you see "functional" on the exam, think "silo." If information or project work is needed from another department, employees transmit the request to the head of the department (one silo) who communicates the request to the other department head (another silo). Team members complete project work in addition to normal departmental work.

Project-oriented Organizations

In a project-oriented or projectized organization, the entire company is organized by projects. The project manager has complete project control and project resources are assigned and report to them. When you see "project-oriented" on the exam, think "no home." Team members complete only project work, so when the project is over, they do not have a department to go back to. They need to be assigned to another project or get a job with a different employer. Communication primarily occurs within the project.

Matrix Organizations

This organizational model seeks to maximize the strengths of both the functional and project-oriented models. When you see "matrix" on the exam, think "two managers." Team members report to two managers: the project manager and the functional manager (e.g., the engineering manager). Communication goes from team members to both managers. Team members do project work in addition to operations work. Following are the different subcategories of matrix organizations:

- A **balanced matrix** shares the power between the functional manager and the project manager.

- In a **strong matrix** power rests with the project manager.

- In a **weak matrix** power rests with the functional manager, and the power of the project manager is comparable to that of a coordinator or expediter:

  ✓ A **project coordinator** has some authority and can make some decisions but reports to a higher-level manager

  ✓ A **project expediter** organizes communications and assists administratively but cannot make or enforce decisions.

TRICKS OF THE TRADE® Exam questions typically do not identify the form of organization being discussed; in which case you should assume matrix. This is most common and will help you answer questions correctly.

TRICKS OF THE TRADE® A "tight matrix" has nothing to do with a matrix organization. It simply refers to colocation—the practice of locating workspaces for the project team in the same room. Because it sounds similar to other forms, it has sometimes been used as a fourth choice for multiple choice questions on the exam.

3.1 Exercise

Test yourself! In your Exercise Notebook, list the advantages and disadvantages of each organizational structure: functional, project-oriented, and matrix. Understanding the differences between these structures will help you evaluate scenarios presented on the exam, and you'll be able to choose the right answer within that context.

Answer

Functional Organizations

Advantages

- Easier management of specialists
- Team members report to only one supervisor
- Similar resources are centralized, as the company is grouped by specialties
- Clearly defined career paths in areas of work specialization

Disadvantages

- People place more emphasis on their functional specialty to the detriment of the project
- Limited career path in project management
- The project manager has little or no authority

Project-Oriented Organizations

Advantages

- Efficient project organization
- Team loyalty to the project
- More efficient communications than functional
- Project manager has more power to make decisions

Disadvantages

- No "home" for team members when project is completed
- Lack of specialization in disciplines
- Duplication of facilities and job functions
- May result in less efficient use of resources

Matrix Organizations

Advantages

- Highly visible project objectives
- Improved project manager control over resources (as compared to functional)
- More support from functional areas
- Maximum utilization of scarce resources
- Better coordination
- Better horizontal and vertical dissemination of information
- Team members maintain a "home"

Disadvantages

- Extra administration is required
- Project team members have more than one manager
- More complex to monitor and control
- Resource allocation is more complex
- Extensive policies and procedures are needed
- Functional managers may have different priorities than project managers
- Higher potential for conflict

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The Project Management Office (PMO)

The PMO is a department within an organization that can take a number of different forms based on an individual organization's structure. A PMO supports projects, helps the organization mature its project management capabilities, and helps ensure compliance with project governance. The PMO oversees and standardizes project management practices for the organization.

Depending on the structure of the organization and its PMO, the PMO may:

- Be a stakeholder
- Prioritize projects
- Monitor compliance with organizational governance
- Facilitate the achievement of project outcomes with the project manager
- Analyze project information to assess whether it is achieving its objectives and aid in continuous improvement
- Recommend the termination of projects when appropriate
- Have representation on the change control board; help with change management
- Provide guidance for the project manager and sponsor in decision making

- Help provide project resources
- Manage the interdependencies among projects, programs, and portfolios
- Provide centralized communication about projects
- Provide project artifact templates (e.g., work breakdown structures, user stories, communications management plans)
- Provide training and support for the acquisition of project management skills
- Help gather lessons learned into a repository and make them available to other projects
- Assist in selection of project development approach and life cycle
- Assist in tailoring strategies and tactics

A PMO can take one of several forms. A PMO may be described as supportive, controlling, or directive based on the level of control it maintains over the management of projects, or it may take on a variety of these roles based on the size and complexity of the organization and its structure. Following are scenarios that describe ways in which a PMO may operate:

- A **supportive** PMO provides the policies, methodologies, templates, and lessons learned for projects within the organization. It typically exercises a low level of control over projects.
- A **controlling** PMO provides support and guidance on how to manage projects, trains others in project management software and other tools, and ensures compliance with organizational policies. It typically has a moderate level of control over projects.
- A **directive** PMO provides project managers for different projects and is responsible for the results of those projects. All projects, or projects of a certain size, type, or priority are managed by this office. A directive PMO has a high level of control over projects.
- Characteristics of above types may be combined depending on the organization's needs.
- A functional organization may have departments that control how projects are run within them, but may get support from a central PMO for various needs like those services described for a supportive PMO. The PMO may also provide help with other things—for example risk assessment based on internal and external environmental conditions, or project performance tracking where the project manager or team may need help with it.

Value Delivery Office (VDO) Some organizations with less hierarchical structures and more adaptive project management environments have a value delivery office or Agile Center of Excellence (ACoE) to better enable project management in this type of environment.

Agile Focus

TRICKS OF THE TRADE® When answering exam questions, assume there is a PMO, unless the question indicates otherwise. Read questions carefully to determine if the PMO is supportive, controlling, or directive.

3.2 Exercise

Read each description of a PMO. Determine whether it is likely to be supporting, controlling, directive, or a combination of two or three. Write the answers in your Exercise Notebook.

Description

1. Manages all projects throughout the organization
2. Provides support and guidance; requires all projects within the organization to use designated project management software and templates, but doesn't otherwise exert control over the project
3. Coordinates all projects within the organization
4. Recommends common terminology, templates, reporting, and procedures to be used on projects throughout the organization to promote consistency and streamline efforts
5. Appoints project manager
6. Prioritizes projects
7. Has the highest level of control over projects

Answer

1. Directive
2. Controlling
3. Controlling or Directive
4. Supportive
5. Directive
6. Controlling or Directive
7. Directive

Project Selection

A project manager should know a project's history in order to manage it effectively and achieve its intended deliverables and outcomes. Departments and individuals within your company present management with requests for many different initiatives (potential projects), all of which would require an investment of corporate resources. When answering questions on the exam, assume that the organization has a formal process to review and analyze potential projects and select the projects that best align with the business objectives of the organization and its stakeholders. There might even be a project selection committee in place to evaluate project proposals.

How Projects Are Selected

A project manager is not typically involved in project selection. So you might ask, "Why is this an important topic to understand?" Good question! Think of it as one element of understanding the business environment. The reasons a project is selected and the value it is expected to deliver indicate its significance to the organization. As a few common examples, as a project manager you need to know if your project:

- Was selected because it will establish a new area of business
- Is being implemented to meet regulatory or compliance requirements
- Was chosen because it was the least expensive or most feasible solution to a problem

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The reasons a project was selected can impact which constraints are most flexible and will influence how the project manager plans and manages the project. A project manager must keep the reasons the project was selected in mind throughout the project to ensure the objectives are achieved.

For the exam, you should be familiar with the project selection methods described next. Just knowing that such activities occur prior to initiating a project will help you. Project selection activities fall outside the project boundaries (or period from project authorization through closure).

Economic Measures for Project Selection

The following sections discuss several economic measures that can be used for analyzing potential projects for selection. Some of these measures are also used in processes such as quality, cost, and risk management, and in integrated change control. The measures take a comparative approach and can be used to develop project metrics, determine when changes to the plan are needed, and evaluate progress, changes, and overall project success.

An organization would likely consider more than one of these measures (along with other factors) when selecting a project, rather than any one measure on its own.

Return on Investment (ROI)

Return on investment determines the potential profitability of an investment by calculating the benefits received in relation to the cost.

Present Value (PV)

You may encounter a question on the exam that requires you to calculate present value. Present value means the value today of future cash flows, and it can be calculated using the formula shown in figure 3.4.

$$PV = \frac{FV}{(1 + r)^n}$$

FV = future value
r = interest rate
n = number of time periods

FIGURE 3.4   *Present value formula*

The acronym PV is also used for planned value (described in the "Cost" chapter). You can avoid confusing these terms by considering the context in which they are used:

- If the question is discussing how the project was evaluated for selection or funding, PV represents present value.
- If the question involves project work that has started and schedule or cost performance is being evaluated, then PV represents planned value within earned value management (EVM).

Think About It. Think about the following question:

Question:

Is the present value of $300,000 to be received three years from now, with an expected interest rate of 10 percent, more or less than $300,000?

Answer:

Less. You can put an amount of money less than $300,000 in the bank and in three years have $300,000.

To perform the calculation: $\$300{,}000/(1 + 0.1)^3 = \$300{,}000/1.331 = \$225{,}394$.

Net Present Value (NPV)

NPV is the present value of the total benefits (income or revenue) minus the costs over many time periods. You will not have to calculate NPV. Know that generally, if the NPV is positive, the investment is a good choice — unless an even better investment opportunity exists. The project with the greatest NPV is typically selected.

Think About It. Do you already have a good understanding of this topic? Think about the following question.

Question:

An organization has two projects from which to choose. Project A will take three years to complete and has an NPV of $45,000. Project B will take six years to complete and has an NPV of $85,000. Which one is a better investment?

Answer:

Project B. The number of years is not relevant, as that would have been considered in the calculation of the NPV (remember, over many time periods).

Internal Rate of Return (IRR)

To understand internal rate of return, think of a bank account. You put money in a bank account and expect to get a return—for example, 1 percent. You can think of a project in the same way. If a company has more than one project in which it could invest, the company may look at the returns of the different projects and then select the project with the highest return.

IRR does get confusing when you give it this formal definition: The rate (interest rate) at which the project inflows (revenues) and project outflows (costs) are equal. Calculating IRR is complex and requires the aid of a computer.

You will not have to perform any IRR calculations on the exam. Simply know that the higher the IRR number, the better.

Think About It. An example is always a good way to remember something so think about the next example.

Question:

An organization has two projects from which to choose: Project A with an IRR of 21 percent and Project B with an IRR of 15 percent. Which one is a better option?

Answer:

Project A

Payback Period

The term payback period refers to the length of time it takes for the organization to recover its investment in a project before it starts accumulating profit.

Think About It. Here is an example to think about for the concept of payback period.

Question:

There are two projects from which to choose: Project A with a payback period of six months and Project B with a payback period of eighteen months. Which one should the organization select?

Answer:

Project A

Based on the information given in this example, the project with the shorter payback period is the best choice, but that payback period is likely to be one of several financial factors, along with other considerations used in selecting a project. Remember to look at all the factors given in an exam question scenario. The best choice might be a project that has a longer payback period but has other advantages.

Cost-benefit Analysis

A cost-benefit analysis compares the expected costs of a project to the potential benefits it could bring the organization or its stakeholders. This analysis results in a calculated benefit-cost ratio, which can be expressed as a decimal or a ratio.

TRICKS OF THE TRADE® The resulting "benefit-cost" ratio flips the terms in the more familiar "cost-benefit analysis." Don't be distracted by that on the exam.

A benefit-cost ratio of:

- Greater than 1 means the benefits are greater than the costs.
- Less than 1 means the costs are greater than the benefits.
- Exactly 1 means the costs and benefits are equal.

Think About It.

Question:

What does a benefit-cost ratio of 1.7 mean?

    A.   The costs are greater than the benefits.
    B.   Revenue is 1.7 times the costs.
    C.   Profit is 1.7 times the costs.
    D.   Costs are 1.7 times the profit.

Answer:

B. The benefits, or revenue, the project brings to the organization are 1.7 times the cost of the initiative. Remember, the benefit-cost ratio calculation is looking at revenue, not the smaller figure of profits.

Other things to know about this concept are:

- The organization may use the benefit-cost ratio to help choose from many potential projects.
- A project manager may perform cost-benefit analysis to determine the best solution approach to a selected project. The project manager may perform the analysis at a high level during initiating and at a more detailed level during planning. This information helps determine things such as what level of quality efforts are appropriate for the project, what equipment or technology should be purchased, and whether it would be best to outsource certain pieces of work.

3.3 Exercise

Remember, you do not have to use accounting formulas to pass the exam (aside, possibly, from a present value question). But you do need to have a general understanding of what the terms mean. Test yourself! For each row of the following chart, write in your Exercise Notebook which project (A or B) you would pick based on the information provided.

	Project A	Project B
1. Net Present Value	$95,000	$75,000
2. IRR	13 percent	17 percent
3. Payback period	16 months	21 months
4. Benefit-cost ratio	2.79	1.3

Answer:

    1. A
    2. B
    3. A
    4. A

The following are some additional accounting terms related to project selection. Each one you are familiar with could mean a point or more on the exam.

Economic Value Added (EVA)

For project selection, EVA asks whether the project returns more value than it costs.

Note: This is a different concept than earned value analysis (also known as earned value management or EVM), which can also have the acronym EVA. Earned value analysis (EVA) (in the "Cost" chapter) is more frequently mentioned on the exam, whereas economic value added appears rarely.

Opportunity Cost

The term opportunity cost refers to the opportunity given up by selecting one project over another. This does not require any calculation.

> **Think About It.** Think about the following example.
>
> **Question:**
>
> An organization has two projects to choose from: Project A with an NPV of $45,000 and Project B with an NPV of $85,000. What is the opportunity cost of selecting Project B?
>
> **Answer:**
>
> $45,000. The opportunity cost is the value of the project not selected.

Sunk Costs

Sunk costs are expended costs — what you already spent, in other words. Sunk costs should not be considered when deciding whether to continue with a troubled project.

> **Think About It.** Those who are unfamiliar with accounting standards have trouble with the following question.
>
> **Question:**
>
> An organization has a project with an initial budget of $1,000,000. It is half complete and has spent $2,000,000. Should the organization consider that it is already $1,000,000 over budget in determining whether to continue with the project?
>
> **Answer**
>
> No. The money spent is gone.

Law of Diminishing Returns

This law states that after a certain point, adding more input (for example, programmers) will not produce a proportional increase in productivity (such as modules of code per hour). A single programmer may produce at a rate of 1 module per hour. With a second programmer, the two may produce at a rate of 1.75 modules per hour (0.75 increase). With a third programmer, the group may produce at a rate of 2.25 modules per hour (0.5 increase). This disparity may be due to many factors. For example, additional coordination is required as more programmers are added to a project.

Working Capital

This term refers to an organization's current assets minus its current liabilities. In other words, it is the amount of money the company has available to invest, including investing in projects.

Depreciation

Large assets, such as equipment, lose value over time. This is called depreciation. Several methods are used to account for depreciation. The exam may ask you what they are. You will not have to perform any calculations. (See, we said we could make this easy for you!) Rather, you should simply understand the following about the two forms of depreciation:

- **Straight-line depreciation** With straight-line depreciation, the same amount of depreciation is taken each year.
  Example A $1,000 item with a 10-year useful life and no salvage value (the value of an item at the end of its life) would be depreciated at $100 per year.

- **Accelerated depreciation** Just know the following. You will not be questioned in further detail.
  - ✓ There are two forms of accelerated depreciation:
    - − Double declining balance
    - − Sum of the years' digits
  - ✓ Accelerated depreciation depreciates faster than straight-line depreciation.

Think About It. Here's an example: $1,000 item with a 10-year useful life and no salvage value would be depreciated at $180 the first year, $150 the second, $130 the next, and so on.

TRICKS OF THE TRADE® The exam may present information about project selection in the following ways.

- **Business cases and project selection methods** You need to understand that the project must support the company's strategic goals, there is a selection process for projects, and generally how the selection process works.
- **Project selection concepts** An example is using internal rate of return (IRR) as an answer to a question or as a distractor. A concept like this may be provided in the question even when you do not need it to answer the question. Read the questions carefully to pick out the relevant data.

In summary, the project selection process includes the development of a business case and evaluating specific metrics as described in this section. The business case describes the business need, the proposed solution, and the expected value of the change the project will deliver to the organization and its stakeholders. It includes both tangible and intangible costs and benefits of the proposed solution. The business case will influence how you approach every project management process covered in this book, beginning with the creation of a project charter — the first of many processes that facilitate the success of a project.

Project Methods and Artifacts

We briefly discusses OPAs and EEFs at the beginning of this chapter. In this section, we look at them in more detail and discuss some methods that are frequently used in project management.

Organizational Process Assets (OPAs)

Most organizations maintain two types of OPAs: processes, procedures, and policies; and organizational knowledge repositories.

Processes, Procedures, and Policies Over time, organizations develop or adopt processes, procedures, and policies for projects. Collectively, these processes, procedures, and policies are referred to as organizational process assets, and they apply to aspects of the project such as quality, procurement, and resource management, as well as change control, safety, compliance, and more. Artifacts from projects may recommend changes or ways to increase the efficiency of these processes and procedures, but they are generally owned by the project management office or other departments responsible for organizational governance.

Organizational Knowledge Repositories The other type of organizational process asset is organizational knowledge repositories, which include information on many facets of projects.

Historical knowledge bases are maintained and updated by every project and made accessible to the rest of the organization as part of organization repositories. Historical information can be used to plan and manage projects, thereby improving the process of project management and avoiding challenges experienced by past projects. Here are examples of historical information:

- Activities
- WBSs
- Backlogs
- Benchmarks
- Reports

- Risks and risk response plans
- Estimates
- Retrospective findings
- Resources used
- Project management plans

- Project documents
- Prototypes
- Baselines
- Correspondence

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Another aspect of historical information is lessons learned. We will discuss lessons learned in more detail in the "Integration" chapter. For now, you need to know that lessons learned, which are created throughout projects, document what went right, what went wrong, and what the team would do differently if they had the opportunity to start the project over again. Lessons learned from each project become part of the lessons learned repository after project closure.

Other organizational knowledge repositories include:

- Configuration management, including file structure, file-naming conventions, baselines of organizational standards, and templates of project documents
- Financial data, including budgets and actual costs of completed projects
- Issue logs and documentation regarding defects on projects
- Metrics that may be useful for other projects
- Project management plans and baselines, as well as project documents, such as network diagrams, risk registers, and stakeholder registers

When answering questions on the exam, assume the organization has historical records and lessons learned from previous projects and that the company has incorporated these records into an indexed organizational knowledge repository available to all.

Enterprise Environmental Factors (EEF)

EEFs are similar to organizational process assets as they provide context within which to plan the project. However, enterprise environmental factors are generally outside the control of the project team.

Enterprise environmental factors external to the organization include governmental or other rules and regulations that apply to the performing organization. Internal enterprise environmental factors include the structure, governance, culture, systems, and geographic location(s) of the organization. Resource-related EEFs include the technology and resources available for assignment to projects, such as documentation of the skills and abilities of internal and preapproved external resources that are available through approved agreements. EEFs related to project management may include a resource management system, a procurement system, and a quality management system.

When answering questions on the exam, assume that the impacts and limitations imposed by enterprise environmental factors are taken into consideration during planning and as the work is carried out.

Since EEFs and OPAs contribute to and are influenced by the organizational context in which projects exist, they are essential to understanding domain III (Business Environment) in the Examination Content Outline (ECO). For a complete view of the project environment, you should also understand that these factors influence and are influenced by a set of frequently used tools and techniques available within the organization and developed through individual experience.

Assumption Log The assumption log is a repository of both assumptions and specifics related to constraints. It is started at the time the project charter is developed. Assumptions and constraints are first identified at a high level in the business case and project charter. They will receive further attention as the project progresses. The assumption log is an input to many project processes, and assumption log updates are a frequent output.

Assumptions are comparable to expectations, as they may not be entirely based on fact. Stakeholders may not realize they are making assumptions, and therefore may not articulate them when communicating their requirements. Incorrect assumptions introduce risk to the project, so they must be identified and managed by the project manager.

Constraints Constraints are easier to identify than assumptions, as they are usually clearly imposed by management or the sponsor. A project manager must juggle many things on a project, including project constraints such as schedule, cost, risk, scope, quality, resources, customer satisfaction, and any other factors that limit options (see figure 3.5). For example, the date a milestone deliverable is due, the date by which the project must be completed, and the maximum allowable risk a project may have are all constraints.

FIGURE 3.5 *Project constraints*

Management directly or indirectly sets the priority of each constraint. This prioritization is then used to plan the project, evaluate the impact of changes, and prove successful project completion. It is important to evaluate the effect a change to one constraint has on another. Changes to the project plan generally impact multiple constraints.

Take time to really understand the discussion of integrated change control in the "Integration" chapter. Understanding the relationship between the constraints and how they impact a project can help you get several questions right on the exam.

Frequently Used Methods

There are over 100 tools and techniques in the *PMBOK® Guide*, and there are many more that we discuss in this book. It's important to use the right method for the right purpose under the right conditions. It is also important to realize methods can have multiple applications throughout the project management process.

You don't have to be an expert at using all of them, but you do need to understand the purpose of each method. The following are categorized by their function.

Data Gathering If you need to collect input from stakeholders, you can use one or more of the following data-gathering methods:

- Benchmarking
- Brainstorming
- Prompt lists
- Checklists
- Check sheet
- Cost of quality
- Interviews
- Market research
- Questionnaires and surveys

Data Analysis Depending on the type of data you are working with and the depth of analysis you need to do, you can choose from many data analysis methods, including the following:

- Alternative analysis
- Assumptions and constraints
- Business justification analysis
  - ✓ Payback period
  - ✓ Internal rate of return
  - ✓ Return on investment
  - ✓ Cost-benefit analysis
- Decision tree analysis
- Document analysis
- Earned value analysis
- Expected monetary value
- Forecasting
- Performance reviews
- Reserve analysis
- Root cause analysis
- Simulation
- SWOT
- Trend analysis
- Value stream mapping
- Variance analysis
- What-if analysis

Data Representation Throughout the project, you will gather and generate data from various sources for a number of purposes and transform that data to information through data analysis. This category includes options for representing, or communicating, data and information. Data representation methods include the following:

- Affinity diagrams
- Cause-and-effect diagrams
- Control charts
- Flowcharts
- Hierarchical charts
- Histograms
- Logical data models
- Matrix diagrams/charts
- Mind mapping
- Probability and impact matrices
- Release maps
- Scatter diagrams
- Stakeholder engagement assessment matrices
- Stakeholder mapping/representation
- Text-oriented formats

Decision-Making   Throughout the project, you will have to make countless decisions, often with the input of the project team. The use of data analysis and representation all support decision making. There are many approaches to decision-making, including the following methods, which are used in many project management processes:

- Fist of five
- Multicriteria decision analysis
- Voting

Communication   As you will read later in this book, a great deal of a project manager's time is spent communicating with management, the team, the customer, and other stakeholders. The following are several important communication methods and concepts you will use throughout the project:

- Active listening
- Appreciative inquiry
- Daily standup
- Feedback

- Presentations
- Meeting management
- Communication methods
- Communications technology

Interpersonal and Team Skills   Interpersonal and team skills are elements of the art of project management. Closely related to the communication methods and concepts listed above, the following skills are essential for project success:

- Conflict management
- Cultural awareness
- Decision-making
- Emotional intelligence
- Facilitation
- Influencing
- Leadership

- Meeting management
- Motivation
- Negotiation
- Networking
- Observation/conversation
- Political awareness
- Team building

Estimating   The project manager is responsible for leading estimating efforts for many aspects of the project, including schedule, cost, and resources. The following are common estimating methods you will learn about in this book:

- Analogous
- Bottom-up
- Parametric

- Top-down
- Expert judgment
- Planning poker

Project Management Information System (PMIS)   An organization's project management information system is part of its enterprise environmental factors. The PMIS includes automated tools, such as scheduling software, a configuration management system, shared workspaces for file storage or distribution, work authorization software, time-tracking software, and procurement management software, as well as repositories for historical information. The PMIS is used in many planning, executing, and monitoring and controlling processes.

Expert Judgment   Sometimes, the easiest way to get information is to consult experts. Often, those with expertise needed by the project are working on the team, or at least within the organization. Expert judgment is a common tool of the project management planning processes, although it is not frequently discussed in this book.

Meetings   Meetings are often used in the planning processes of a project, although you will not always see meetings discussed in this book as a planning tool. Meetings can be an effective way to get input or feedback from groups of people, but they can be overused. The project manager is responsible for determining whether a meeting is worth the time of those who would attend it, or if there is a more efficient way to achieve an objective.

Work Performance Data, Information, and Reports   A great deal of data and information is generated, considered, and communicated throughout the life of a project, from initial observations and measurements to analyzed content and reports. The *Process Groups Model: A Practice Guide* uses these three terms to identify the stages through which this data and information move.

Work performance data includes the initial measurements and details about activities gathered during the Direct and Manage Project Work process in executing. When monitoring and controlling a project, work performance data is analyzed to make sure it conforms to the project management plan. It is also assessed to determine what the data means for the project as a whole. The result is known as work performance information. Work performance information can then be organized into work performance reports, which are distributed to the various stakeholders who need to receive and possibly act on the information.

For example, let's say a project team performs their assigned work according to the project management plan. A certain activity took 10 hours and was completed on July 21. This is work performance data. The next step is to look at how this data compares to the project management plan (in this case, the project schedule). The activity was estimated to take 12 hours, with an estimated completion date of July 22. The project manager can analyze why this activity took less time than planned and what this will mean for the rest of the project. Why was the work completed early? Will this mean improved performance for the rest of the project? Did the team follow the communications management plan and notify resources assigned to successor activities about the anticipated early completion so they could start their work early? Should future activities be re-estimated if similar resources will be performing similar work?

If the activity was on the critical path and had taken longer than scheduled, a formal change request might have been required to adjust the rest of the schedule.

Project Roles

Who are the people involved in delivering a project and what should they each be doing? This section will help you understand the roles of the project manager, agile coach (or team lead or Scrum Master), the product owner, sponsor, team, and other stakeholders, as well as functional (resource) managers and program and portfolio managers. Read each role overview and then examine the more specific activities listed for each role.

> **Think About It.** Responsibilities vary by organization so think about your own experience, but be sure you understand roles as described here for exam purposes. Use each of these overviews to gain a general understanding of each role on a project and for understanding roles as used in the rest of this book. Responsibilities are further elaborated on in the section following this one. Also keep in mind that these overviews and the responsibilities lists that follow are not exhaustive but are certainly more than sufficient to help you correctly answer exam questions.

The Project Manager Role
You no doubt understand that a project manager is accountable for ensuring a project meets its objectives and delivers its value and benefits to the organization and its stakeholders. Collectively, of course, the entire project team is responsible for making this happen, and other stakeholders have responsibilities to this goal too. But how is the project manager referred to in exam questions?

> **TRICKS OF THE TRADE®** Do not assume that if you recognize a question as describing an agile or hybrid environment, you will not see the term "project manager" used in the question or answers. The exam may use the term "project manager" in questions regardless of whether it is referring to a predictive, adaptive, or hybrid project.

Predictive Project Environments The project manager's role includes gathering information to initiate the project, ensuring that the project's scope is completed on time and within budget. This includes approved changes, which go through a formal change control process. This work includes ensuring that the project meets other objectives related to communications, stakeholder, risk, quality, and procurement management. The project manager directs and contributes to planning and manages the team's work and physical resources while the team works to build the product of the project.

Adaptive Project Environments In addition to the agile coach (described next), there is often the need for the project manager on agile projects. For example, the product owner (described next) and the rest of the team are focused on project risk as it relates to product features and stories (increments of work broken down from features). What happens if the organization moves in a direction that may mean the project will be cancelled or changed in a significant way? This strategic information is something the project manager pays attention to and negotiates within the business environment. The project manager then circles back to the team on what should be done on the project moving forward.

The project manager will also be focused on organizational change management that may result from the project while the team is focused on building the product and not these broader changes.

The Process Groups Model In a predictive environment the project manager is responsible to plan the project with help of the team and other stakeholders, communicate with the project sponsor and other stakeholders who may represent the customer or organizational point of view. The project manager is accountable to ensure that the project is properly initiated, planned, executed, monitored and controlled, and closed according to the Process Groups model or whatever plan-driven methodology an organization uses.

> **TRICKS OF THE TRADE®** When you see a question on the exam about a project that clearly uses a plan-driven methodology, think "Process Groups." An answer that fits the scenario in question whose terminology adheres to Process Groups model practices is correct over one that appears to fit with agile methods. For example, a plan-driven project question will not have an answer that includes the terms "iteration" or "retrospective," but instead will include terms like "phase" or lessons learned.

The Agile Team Leader Role

The term "agile coach" is one of several terms used to refer to an agile team's servant leader, and it is the one we will use in this book unless we are specifying a Scrum Master. These are the relevant terms to understand in the context of the exam:

- **Agile coach** This is as a servant leader whose responsibility is to ensure that the adaptive methods and processes to be used on the project are well understood and being followed, and to help the team by removing impediments to building and delivering the product of the project. The agile coach is also a member of the team where everyone is collectively responsible for all stages of the project and the building and delivery of the product.

- **Team lead** You may or may not see this term on the exam, but it is generally considered to be synonymous with "agile coach."

- **Scrum Master** By definition the term "Scrum Master" is used to refer to the servant leader of an agile project that is using the specific agile methodology known as Scrum (see "Common Agile Methodologies" chapter). But in practice people mix the terms "agile coach" and "Scrum Master" all the time. So it may be used on the exam to refer specifically to a Scrum scenario, or it may be used as a synonym for "agile coach."

> **TRICKS OF THE TRADE®** On the exam, you may see more general terms referring to "agile" projects and methods mixed with those referring to "Scrum Master" or other Scrum-specific terms. PMI may mix and match these terms so don't let that distract you from the correct answer!

The Product Owner Role

This role was originally associated with Scrum although all types of agile teams may utilize it. The product owner (representing value management on the project) is responsible for maximizing the value of the product to the customer and return on investment for the organization. They prioritize all work in the backlog to realize the business value of the product as quickly as possible. In this respect the development team members take direction from the product owner on work item priority, pulling from the top of the backlog (or worklist) that the product owner has prioritized. The team also assists the product owner in prioritization by sharing technical requirements, dependencies, and work estimates.

The product owner is a team member and works with the team daily. While the team is building the product during a given iteration (or sprint in Scrum), the product owner is answering questions and getting stories prepared for the next iteration.

The Product Manager Role

The term "product manager" is not limited to agile or even project environments and its exact meaning may depend on organizational culture. While you are not likely to see a specific question about this on the exam you should understand it as distinguished from the product owner role on agile projects. There are usually multiple projects over any one product's life cycle. A product manager is the liaison between an organization's business strategy, its design and development subject matter experts (SMEs), and it's customers (internal or external). You can think of the product manager optimizing value to the customer and return on investment for the organization over a product's life, while a product owner does this in service to a particular project. The product manager may lead product owners within an organization or within the needs of a specific product, depending on the size and complexity of the organization and its products.

The Project Sponsor/Initiator Role

A sponsor is one who represents organizational leadership and supports the project, both financially and to help the project manager and team with decisions outside of the project manager's and team's authority. The sponsor partners with the team to facilitate their success and can protect the project from unnecessary changes. In procurement situations, the selling organization should also have a sponsor.

The sponsor is accountable to ensure that the project and its product delivers the business value for which it was undertaken. In this respect, in agile and hybrid approaches, the product owner's role is in some ways analogous to that of a sponsor, being responsible for ensuring the project delivers value and benefits. But this is a shared responsibility and the project should still have a sponsor in organizational leadership. Notice that the product owner was also described as having a role similar in some ways to that of a project manager. For the exam, be careful to think about the role being described in the question. While there is overlap, the roles are distinct.

Think about your organization's leadership as you read this. Do your projects have sponsors, and do they know what their role is on your projects? Someone must serve as a protector of the project and its priorities as long as the project continues to meet the organization's strategic goals.

The Project Team Role

The project team is a group of people, including the project manager, who will complete the work of the project. Team members can change throughout the project as people are added to and released from the project. An agile environment may include the concept of keeping stable teams within an organization and bringing projects to the team, while more traditional approaches tend to assemble teams as new projects are initiated.

Generally, it is the team's role to help plan what needs to be done by creating the WBS or backlog and estimates for work packages or activities. Team members complete activities to produce the deliverables represented as work packages or features and help look for deviations from the project management plan during project executing and monitoring and controlling. In agile environments, team members are responsible for clarifying user stories with the customer so they can estimate and plan the releases and iterations, hold reviews and retrospectives, and update the project information using tools like Kanban boards and burndown charts.

On large projects, the project manager may select team members to help perform project management activities. This group is known as the project management team. Members of this team must have project management training. For the exam the term "project management team" refers to this subset of the team or project team, and it includes the project manager.

The Stakeholder Role

A stakeholder is anyone who will be impacted by the project or may positively or negatively impact the project. This includes the customer or end user, the project manager and team, the project's sponsor, program and portfolio managers, the project management office, functional or operational managers within the organization, other departments or groups within the organization (such as business analysis, marketing, procurement, quality, or legal), and external sellers that provide services or materials for the project. Questions about the role of stakeholders and how they or their work should be managed appear throughout the exam.

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Stakeholders may be actively involved in the project work or may fill an advisory role. The stakeholders' role on a project is determined by the project manager and the stakeholders themselves. Stakeholders should be involved in planning the project and managing it more extensively than many people are accustomed to on their projects. For example, project managers should involve the customer in planning and controlling a project.

Customer representation is built into agile environments through the role of product owner or value management team, and this is increasingly so on hybrid and traditional projects. The product owner role can be filled by someone from the business who is responsible for working with the team to prioritize features.

Agile
Focus

A project manager should analyze and manage the needs and levels of influence of stakeholders throughout a project and in balance with project constraints. Although the "Stakeholders" chapter includes an in-depth discussion of stakeholder management, stakeholders are discussed throughout this book.

The Functional or Resource Manager Role

A functional or resource manager is responsible for the human and physical resources in a specific department, such as IT, engineering, public relations, marketing, etc., and for working with the project manager to meet the needs of the project. As managers of people, facilities, or equipment, functional or resource managers maintain a calendar indicating availability of these resources for projects and organizational work. This might involve negotiation if people, facilities, or equipment are needed by more than one project at the same time. If there are issues with resources provided by the functional manager, project managers collaborate with them to resolve the issues.

Earlier in this chapter we discussed different organizational structures. The degree that functional managers are involved in a project depends on whether the organization has a matrix, project-oriented, or functional organizational structure. To avoid conflict, the project manager and functional managers must balance their respective needs regarding the use of resources to complete project and operational work. It is generally the responsibility of the project manager to manage this relationship by using clear communication and interpersonal and team skills, such as conflict management and emotional intelligence.

The Program and Portfolio Manager Roles

These roles are not likely to have a big impact on exam questions but they should be understood in terms of the environment where projects take place.

Program Manager This person is responsible for managing a group of related projects, combined into programs to provide coordinated control, support, and guidance. The program manager provides oversight to meet both project and program goals.

Portfolio Manager This person is responsible for governance at an executive level of the programs, projects, and operational work that make up a portfolio.

3.4 Exercise

The following lists contain the responsibilities for each of the project roles. Read these lists carefully and check off each responsibility you think you truly understand. Completing this exercise will help you identify gaps so you can pay particular attention to understanding those responsibilities as you read the rest of this book. You will want to come back to this exercise after you have completed your studies and ensure you can check off all the responsibilities, meaning you understand them all in the project context. Getting some exam questions right will depend upon your understanding or "who is responsible for what" on a project.

Note: Each of these lists should give you a good sense of the respective role, but they are not all-inclusive or presented in a particular order.

Responsibilities Lists by Role

Now that you understand the fundamentals of each role on a project, use these lists to think more specifically about what a person in each of these roles should be doing on a project.

Project Manager Responsibilities List (in collaboration with the team)

- ☐ Assigned to the project no later than initiating
- ☐ Be a servant leader
- ☐ Apply project management knowledge and interpersonal and leadership skills to achieve project success
- ☐ Assist the team and other stakeholders
- ☐ Identify and analyze constraints and assumptions
- ☐ Lead and direct project planning
- ☐ Control the project but not necessarily the resources
- ☐ Help identify dependencies between activities
- ☐ Take action to produce a realistic schedule
- ☐ Develop time and cost reserves for the project
- ☐ Understand and foster professional and social responsibility
- ☐ Control the project by measuring performance and determining variances from the plan
- ☐ Integrate project components into a cohesive whole that meets the customer's needs
- ☐ Determine the need for change requests, including recommended corrective and preventive actions and defect repair
- ☐ Influence team success by promoting good communication, enhancing positive aspects of cultural differences, and resolving team issues
- ☐ Understand how cultural differences may impact the project (including global teams, virtual teams, or projects involving multiple organizations)
- ☐ Spend more time being proactive than dealing with problems
- ☐ Perform project closing at the end of each phase and for the project as a whole
- ☐ Select appropriate processes for the project
- ☐ Write the project charter
- ☐ Identify stakeholders, support stakeholder engagement, and manage stakeholder expectations throughout the project
- ☐ Identify and deliver required levels of quality
- ☐ Manage project knowledge, including sharing lessons learned
- ☐ Use rewards and recognition
- ☐ Solve problems and remove impediments to the team's progress
- ☐ Demonstrate ethics and leadership
- ☐ Manage and control resources
- ☐ Keep team members focused on risk management and risk responses
- ☐ Coordinate interactions between the project team and key stakeholders
- ☐ Monitor risk, communications, and stakeholder engagement to ensure they're in conformance with requirements
- ☐ Finalize and gain approval of the project management plan
- ☐ Use metrics to identify variances and trends in project work, and be responsible for analyzing the impact of variances and trends
- ☐ Work with the team to resolve variances from the project management plan
- ☐ Approve or reject changes as authorized, facilitate change control, and sit on the change control board (Note for agile this is the product owner)
- ☐ Ensure professional interactions between the team and other stakeholders

Agile Team Leader Responsibilities List

- ☐ Be a servant leader
- ☐ Ensure the processes to be used on the project are understood and being followed
- ☐ Remove impediments for the team
- ☐ Help identify requirements
- ☐ Help identify and analyze project constraints and assumptions
- ☐ Help identify, analyze, and engage stakeholders
- ☐ Participate in the risk management process
- ☐ Attend team meetings such as daily standups, iteration planning, reviews, and retrospectives
- ☐ Apply ground rules or team charter
- ☐ Help resolve conflict where appropriate
- ☐ Help ensure a common understanding of the project and product visions
- ☐ Influence the team and environment by facilitating communication and enhancing positive aspects of cultural differences

Product Owner Responsibilities List

☐ Represent value management for the team and stakeholders

☐ Help identify and engage stakeholders

☐ Help identify requirements

☐ Help identify constraints and assumptions

☐ Prioritize product and iteration backlogs for the project

☐ Keep the backlog updated

☐ Attend team meetings such as daily standups, iteration planning, reviews, and retrospectives

☐ Serve as spokesperson for the project

☐ Help ensure a common understanding of the project and product visions

☐ Participate in the risk management process

☐ Accept product increments or describe what is missing or inadequate during reviews

☐ Enforce ground rules or team charter

Project Sponsor Responsibilities List

During Initiating (or before):

☐ Provide high-level scope and requirements

☐ Participate in developing the business case and vision for the project

☐ Guide the process to get the project approved

☐ Help to define the measurable objectives

☐ Determine (with the customer) priorities between project constraints

☐ Maintain support for the project

☐ Serve as spokesperson for the project, including to upper management

☐ Facilitate buy-in throughout the organization

☐ Provide funding

☐ May (with the customer) dictate milestones, key events, or the project end date

☐ Help to set priorities between projects

☐ Advocate for or champion the project

☐ Provide information that helps develop the project charter

☐ Approve the project charter

☐ Give the project manager authority as outlined in the project charter

☐ Encourage the finalization of high-level requirements and scope by stakeholders

During Planning:

☐ Communicate the project vision to the project manager and team

☐ Provide the project team with time to plan

☐ Determine the reports needed by management to oversee the project

☐ Help identify project risks

☐ Help the project manager and team to balance stakeholder priorities

☐ May review the WBS

☐ Help evaluate trade-offs during crashing, fast tracking, and re-estimating

☐ Approve the final project management plan

During Executing and Monitoring & Controlling:

☐ Support the efforts of the project manager and team

☐ Protect the project from outside influences and unnecessary changes

☐ Enforce quality policies

☐ Provide expert judgment

☐ Help evaluate trade-offs during crashing, fast tracking, and re-estimating

☐ Clarify project vision and project scope questions

☐ Approve, reject, or defer changes, or authorize a change control board to do so

☐ May direct that a quality review be performed

☐ Resolve conflicts that extend beyond the project manager's control

☐ Support the project manager in monitoring project progress

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During Closing:

- ☐ Provide formal acceptance of the deliverables (if they represent the customer)
- ☐ Enable an efficient and integrated transfer of deliverables to the customer
- ☐ Support the collection of historical records from the project
- ☐ Provide rewards and recognition

Team Responsibilities List

- ☐ Help identify and involve stakeholders
- ☐ Help identify requirements
- ☐ Help identify constraints and assumptions
- ☐ Help create the WBS or product backlog
- ☐ Decompose work packages into activities, or decompose stories into tasks
- ☐ Identify dependencies between activities
- ☐ Provide schedule and cost estimates
- ☐ Participate in the risk management process
- ☐ Comply with quality and communications plans
- ☐ Apply ground rules or team charter
- ☐ Execute the project management plan to accomplish the project scope
- ☐ Attend project team meetings
- ☐ Recommend project changes, including corrective and preventive actions
- ☐ Implement approved changes
- ☐ Share acquired knowledge
- ☐ Contribute to the lessons learned register

Stakeholder (Customer) Responsibilities List

- ☐ Help create the project charter
- ☐ Be involved with governance
- ☐ Approve project changes
- ☐ Attend reviews and accept or reject deliverables presented; provide feedback
- ☐ Be a risk owner
- ☐ Participate in phase gate reviews
- ☐ Identify issues
- ☐ Identify constraints and assumptions
- ☐ Identify requirements and project scope
- ☐ Manage risk
- ☐ Help develop the project management plan or the backlog and release roadmap
- ☐ Help document lessons learned
- ☐ Provide expert judgment
- ☐ Participate as a member of the change control board

Functional or Resource Manager Responsibilities List

- ☐ Assign specific individuals to the team and negotiate with the project manager regarding team and physical resources
- ☐ Manage activities within their functional area
- ☐ Participate in project planning until work packages or activities are assigned
- ☐ Provide subject matter expertise
- ☐ Participate in risk identification
- ☐ Approve the final schedule during schedule development when it involves team or physical resources under their control
- ☐ Recommend project changes including preventive and corrective actions
- ☐ Inform the project manager of other projects or departmental work demands that may impact the project
- ☐ Sit on the change control board
- ☐ Participate in rewards and recognition for team members
- ☐ Improve resource utilization
- ☐ Participate in quality management
- ☐ Approve the final project management plan or backlog/release roadmap when it involves team or other resources under their control
- ☐ Assist with issues related to team or physical resources under their control

Program Manager Responsibilities List

- ☐ Manage related projects to achieve results not obtainable by managing them separately
- ☐ Ensure selected projects support strategic goals of the organization

- ☐ Provide oversight to adjust projects for the program's benefit
- ☐ Guide and support individual project managers' efforts

Portfolio Manager Responsibilities List

- ☐ Direct projects and programs that may be largely unrelated
- ☐ Ensure selected projects provide value to the organization

- ☐ Work with senior executives to gather support for individual projects
- ☐ Get the best return from resources invested