

Chapter

1

What Is a Project?

THE PMP GENERAL EXAM CONTENT COVERED IN THIS CHAPTER INCLUDES:

- ✓ 1. Defining a project
- ✓ 2. Defining project management
- ✓ 3. Determining general management skills
- ✓ 4. Identifying organizational structures
- ✓ 5. Defining constraints
- ✓ 6. Defining assumptions
- ✓ 7. Defining project life cycles
- ✓ 8. Defining project management processes



Congratulations on your decision to study for and take the Project Management Institute (PMI)'s Project Management Professional (PMP) certification exam. This book was written

with you in mind. The focus and content of this book revolve heavily around the information contained in *A Guide to the Project Management Body of Knowledge (PMBOK)*, published by PMI. I will refer to this guide throughout this book and elaborate on those areas that appear on the test. Keep in mind that the test covers all the project management processes, so don't skip anything in your study time.

When possible, I'll pass on hints and study tips that I collected while studying for the exam myself. Your first tip is to familiarize yourself with the terminology used in *A Guide to the PMBOK*. PMI has worked hard to develop and define standard project management terms, and these terms are used interchangeably among industries. For example, *resource planning* means the same thing to someone working in construction, information technology, or telecommunications. You'll find *A Guide to the PMBOK* terms explained throughout this book. Even if you are an experienced project manager, you might find that PMI uses specific terms for things that you call by another name. So, step one is to get familiar with the terminology.

This chapter lays the foundation for building and managing your project. We'll address project and project management definitions as well as organizational structures. Good luck!

Is It a Project?

The VP of marketing approaches you with a fabulous idea—"fabulous" because he's the big boss and because he thought it up. He wants to set up kiosks in local grocery stores as mini offices. These offices will offer customers the ability to sign up for new wireless phone services, make their wireless phone bill payments, and purchase equipment and accessories. He believes that the exposure in grocery stores will increase awareness of the company's offerings. After all, everyone has to eat, right? He told you that the board of directors has already cleared the project and he'll dedicate as many resources to this as he can. He wants the new kiosks in place in 12 stores by the end of next year. The best news is he's assigned you to head up this project.

Your first question should be, "Is it a project?" This may seem elementary, but confusing projects with ongoing operations happens often. According to *A Guide to the PMBOK*, page 4, "...a project is a temporary endeavor undertaken to create a unique product, service or result."



Quotations from *A Guide to the PMBOK* are cited in the text with the following abbreviation: *A Guide to the PMBOK*: Project Management Institute, *A Guide to the Project Management Body of Knowledge (PMBOK Guide)* 2000 Edition, Project Management Institute, Inc., 2000.

Projects versus Operations

Projects are temporary in nature, while operations are ongoing. Projects have definitive start dates and definitive end dates. The project is completed when the goals and objectives of the project are accomplished. Sometimes projects end when it's determined that the goals and objectives cannot be accomplished and the project is canceled. Operations involve work that is continuous without an ending date and often repeat the same process.

Projects exist to bring about a product or service that hasn't existed before. In this sense, a project is unique. However, don't get confused by the term *unique*. For example, Ford Motor Company is in the business of designing and assembling cars. Each model that Ford designs and produces can be considered a project. The models differ from each other in their features and are marketed to people with various needs. An SUV serves a different purpose and clientele than a luxury model. The design and marketing of these two models are unique projects. The actual assembly of the cars can be considered an operation—a repetitive process that is followed for most makes and models.

Determining the characteristics and features of the different car models is carried out through what *A Guide to the PMBOK* terms *progressive elaboration*. This means the characteristics of the product or service of the project (the SUV, for example) are determined incrementally and are continually refined and worked out in detail as the project progresses. These product characteristics typically start out very broad-based at the beginning of the project and are progressively elaborated into more and more detail over time. Keep in mind that product characteristics are progressively elaborated, but the work of the project itself stays constant.

Exam Spotlight

Progressive elaboration is a concept you may encounter on the exam.

A project is successful when it achieves its objectives and meets or exceeds the expectations of the stakeholders. *Stakeholders* are those folks with a vested interest in your project. They are the people who have something to either gain or lose as a result of the project.

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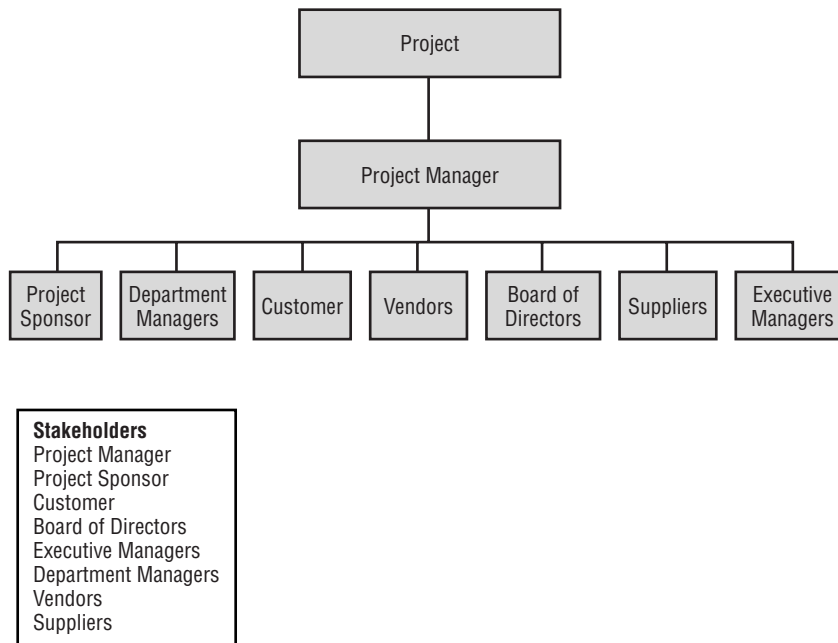
Key stakeholders can make or break the success of a project. Even if all the deliverables are met and the objectives are satisfied, if your key stakeholders aren't happy—nobody's happy.

Stakeholders

The *project sponsor*, generally an executive in the organization with the authority to assign resources and enforce decisions regarding the project, is a stakeholder. The customer is a stakeholder, as are contractors and suppliers. The project manager, project team members, and the managers from other departments in the organization are stakeholders as well. It's important to identify all the stakeholders in your project up front. If you leave out an important stakeholder or their department's function and don't discover the error until well into the project, it could be a project killer.

Figure 1.1 shows a sample listing of the kinds of stakeholders involved on a typical project.

FIGURE 1.1 Project stakeholders



Many times, stakeholders have conflicting interests. It's the project manager's responsibility to understand these conflicts and try to resolve them. Be certain to identify and meet with all key

stakeholders early in the project to understand all their needs and constraints. When in doubt, stakeholder conflicts should always be resolved in favor of the customer.

Project Characteristics

We've just learned that a project has several characteristics:

- Projects are unique.
- Projects are temporary in nature and have a definite beginning and ending date.
- Projects are completed when the project goals are achieved.
- A successful project is one that meets or exceeds the expectations of your stakeholders.

Using these criteria, let's examine the assignment from the VP of marketing to determine if it is a project:

Is it unique? Yes, because the kiosks don't exist in the local grocery stores. This is a new way of offering the company's services to its customer base. While the service the company is offering isn't new, the way they are presenting their services is.

Does the project have a limited time frame? Yes, the start date of this project is today, and the end date is the end of next year. It is a temporary endeavor.

Is there a way to determine when the project is completed? Yes, the kiosks will be installed, and services will be offered from them. Once all of the kiosks are intact and operating, the project will come to a close.

Is there a way to determine stakeholder satisfaction? Yes, the expectations of the stakeholders will be documented in the form of requirements during the planning processes. These requirements will be compared to the finished product to determine if it meets the expectations of the stakeholder.

Houston, we have a project.

What Is Project Management?

You've determined that you indeed have a project. What now? The notes you scratched out on the back of a napkin at coffee break might get you started, but that's not exactly good project management practice.

We have all witnessed this scenario—an assignment is made and the project team members jump directly into the project, busying themselves with building the product or service requested. Often, careful thought is not given to the project-planning process. I'm sure you've heard co-workers toss around statements like, "That would be a waste of valuable time" or "Why plan when you can just start building?" Project progress is rarely measured against the customer requirements. In the end, the delivered product or service doesn't meet the expectations of the customer! This is a frustrating experience for all those involved. Unfortunately, many projects follow this poorly constructed path.

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Project management brings together a set of tools and techniques—performed by people—to describe, organize, and monitor the work of project activities. *Project managers* are the people responsible for managing the project processes and applying the tools and techniques used to carry out the project activities. All projects are composed of processes, even if they employ a haphazard approach. There are many advantages to organizing projects and teams around the project management processes endorsed by PMI. We'll be examining those processes and their advantages in depth throughout the remainder of this book.

Project management involves many skills and techniques. According to *A Guide to the PMBOK*, page 6, "Project management is the application of knowledge, skills, tools, and techniques to project activities to meet project requirements." It is the responsibility of the project manager to ensure project management techniques are applied and followed.

Exam Spotlight

Know the term *project management* as it's described in *A Guide to the PMBOK*.

Project management is a process that includes planning, putting the project plan into action, and measuring progress and performance. Planning is one of the most important functions you'll perform during the course of a project. It sets the standard for the rest of the project's life and is used to track future project performance. Before we begin the planning process, we'll need to look at some of the constraints found on all projects and define the term *programs*.

Project Constraints

In my organization, and I'm sure the same is true in yours, there are far more project requests than we have resources to work on them. In this case, resources are a constraint. You'll find a similar phenomenon occurs on individual projects as well. Almost every project you'll encounter must work within the triple constraint combination of time, money (resources), and quality. Usually one or two of the triple constraints, sometimes all three, are limited, which restricts the actions of the project team. You might work on projects where you have an almost unlimited budget (don't we wish!), but time is the limitation. The computer-programming changes required for the year 2000 are an example of a time-constrained project, because moving the date wasn't an option.

Other projects might present the opposite scenario. You have all the time you need to complete the project, but the budget is fixed. Still other projects may incorporate two or three of the constraints. Government agencies are notorious for starting projects that have at least two and sometimes all three constraints. For example, new tax law legislation is passed that impacts the computer programs, requiring new programs to calculate and track the tax changes. Typically, a due date is given when the tax law takes effect, and the organization responsible is required to implement the changes with no additions to budget or staff. In other words, they are told to use existing resources to accomplish the goals of the project. The specific requirements of the project are such that quality cannot be fudged to try to meet the time deadline.

As a project manager, one of your biggest jobs is to balance the project constraints while meeting or exceeding the expectations of your stakeholders. In most projects, you will usually be faced with balancing only one or two of the triple constraints. For example, if the project goal is a high-quality product, the saying goes, “I can give it to you fast or I can give it to you cheap, but I can’t give it to you fast and cheap.”

Projects are not limited to the triple constraints, but these are typically the most burdensome restrictions you’ll find on a project. We’ll talk more about constraints in Chapter 2, “Initiating the Project.”

Project Assumptions

Assumptions, for the purposes of project management, are things you believe to be true. For example, if you’re working on a large construction project, you might make assumptions about the availability of materials. You may assume that concrete, lumber, drywall, and so on are widely available and reasonably priced. You may also assume that finding contract labor is either easy or difficult, depending on the economic times and the availability of labor in your locale. Each project will have its own set of assumptions, and they should be identified, documented, and updated throughout the project. We’ll talk more about identifying and documenting project assumptions in Chapter 2.

Programs

Programs are groups of related projects that are managed using the same techniques in a coordinated fashion. When projects are managed collectively as programs, they capitalize on benefits that wouldn’t be achievable if the projects were managed separately. Sometimes programs involve aspects of ongoing operations as well. This would be the case where a very large program exists with many subprojects under it—for example, building a new shopping mall. Many subprojects exist underneath this program such as excavation, construction, interior design, store placement, marketing, facilities management, etc. Each of the subprojects is really a project unto itself. Each subproject has its own project manager, who reports to a project manager with responsibility over several of the areas, who in turn reports to the head project manager over the entire program. After the structure itself is built, the management of the facility is considered the ongoing operations part of this program.

Defining Skills Every Good Project Manager Needs

Many times, organizations will knight their technical experts as project managers. The skill and expertise that made them stars in their technical fields are mistakenly thought to translate into project management skills. This is not necessarily so.

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Project managers are generalists with many skills in their repertoire. They are problem solvers who wear many hats. Project managers might indeed possess technical skills, but technical skills are not a prerequisite for sound project management skills. Your project team should include a few technical experts, and these are the people whom the project manager will rely on for technical details. I have seen project managers with many years of experience in the construction industry successfully manage multi-million-dollar information technology projects. This is because project management techniques apply across industries and across projects. Understanding and applying good project management techniques, along with a solid understanding of general management skills, are career builders for all aspiring project managers.

Project managers have been likened to small-business owners. They need to know a little bit about every aspect of management. General management skills include every area of management from accounting to strategic planning to supervision, personnel administration, and more. General management skills are called into play on every project. But some projects require specific skills in certain application areas. Application areas are made up of categories of projects that have common elements due to the disciplines, regulations, or specific needs of the product the project has set out to produce, the customer, or the industry. For example, most governments have specific procurement rules that apply to their projects that wouldn't be applicable in the construction industry. The pharmaceutical industry is acutely interested in regulations set forth by the Food and Drug Administration, whereas the automotive industry has little or no concern for these regulations.

The general management skills listed in this section are the foundation of good project management practices. Your mastery of them (or lack thereof) will likely affect project outcomes. The various skills of a project manager can be broken out in a more or less declining scale of importance. We'll look at an overview of these skills now and discuss each in more detail in subsequent chapters.

Communication Skills

One of the single most important characteristics of a first-rate project manager is excellent communication skills. Written and oral communications are the backbone of all successful projects. Many forms of communication will exist during the life of your project. As the creator or manager of most of the project communication (project documents, meeting updates, status reports, etc.), it's your job to ensure that the information is explicit, clear, and complete so that your audience will have no trouble understanding what has been communicated. Once the information has been distributed, it is the responsibility of the person receiving the information to make sure they understand it.

**NOTE**

There are many forms of communication and communication styles, which Chapter 8, "Developing the Project Team," covers in more depth.

Organizational Skills

Organizational and planning skills are probably the second most important skills a project manager can possess. Organization takes on many forms. As project manager, you'll have project documentation, requirements information, memos, project reports, personnel records, vendor quotes, contracts, and much more to track and be able to locate in a moment's notice. You will also have to organize meetings, put together teams, and perhaps manage and organize media release schedules, depending on your project.

Closely associated with organizational skills are time management skills. Take some time to attend a time management class if you've never attended one. They have some great tips and techniques to help you prioritize problems and interruptions, prioritize your day, and manage your time.

Planning is discussed extensively throughout the course of this book. There isn't any aspect of project management that doesn't first involve planning. Planning skills go hand in hand with organizational skills. Combining these two with excellent communication skills is almost a sure guarantee of your success in the project management field.

Budgeting Skills

Project managers establish and manage budgets and therefore need some knowledge of finance and accounting principles. Especially important in this skill area is the ability to perform cost estimates for project budgeting. There are different methods available to determine the project costs. They range from estimating individual activities and rolling the estimates up to estimating the project's cost in one big chunk. These methods will be discussed more fully in later chapters.

After a budget is determined, you can start spending. This sounds more exciting than it actually is. Reading and understanding vendor quotes, preparing or overseeing purchase orders, and reconciling invoices are budgeting skills that will be used by the project manager on most projects. These costs will be linked back to project activities and expense items in the project's budget.

Problem-Solving Skills

Show me a project, and I'll show you problems. All projects, in fact much of everyday life, have some problems. Isn't that what they say builds character? But I digress.

Problem solving is really a twofold process. First, you must define the problem by separating the causes from the symptoms. Often when defining problems, you end up just describing the symptoms instead of really getting to the heart of what's causing the problem. To avoid that, ask yourself questions like, "Is it an internal or external problem?" or "Is it a technical problem?" or "Are there interpersonal problems between team members?" or "Is it managerial?" or "What are the potential impacts or consequences?" These kinds of questions will help you to get to the cause of the problem.

Next, after the problem has been defined, you have some decisions to make. It will take a little time to examine and analyze the problem, the situation causing it, and the alternatives available.

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After this analysis, the project manager will determine the best course of action to take and implement the decision. The timing of the decision is often as important as the decision itself. If you make a good decision but implement it too late, it may turn into a bad decision.

Negotiation and Influencing Skills

Effective problem solving requires negotiation and influencing skills. We all utilize negotiation skills in one form or another every day. For example, on a nightly basis I am asked, “Honey, what do you want for dinner?” Then the negotiations begin, and the fried chicken versus swordfish discussion commences. Simply put, negotiating is working with others to come to an agreement.

Negotiation on projects is necessary in almost every area of the project, from scope definition to budgets, contracts, resource assignments, and more. This may involve one-on-one negotiation or might involve teams of people, and it can occur many times throughout the project.

Influencing is convincing the other party that swordfish is a better choice than fried chicken, even if fried chicken is what they want. It’s also the ability to get things done. Influencing requires an understanding of the formal and informal structure of all the organizations involved in the project.

Power and politics are techniques used to influence people to perform. *Power* is the ability to get people to do things they wouldn’t do otherwise. It’s also the ability to change minds and the course of events and to influence outcomes. We’ll discuss power further in Chapter 8, “Developing the Project Team.” *Politics* involve getting groups of people with different interests to cooperate creatively even in the midst of conflict and disorder.

These skills will be utilized in all areas of project management. Start practicing now because, guaranteed, you’ll need these skills on your next project.

Leadership Skills

Leaders and *managers* are not synonymous terms. Leaders impart vision, gain consensus for strategic goals, establish direction, and inspire and motivate others. Managers focus on results and are concerned with getting the job done according to the requirements. Even though leaders and managers are not the same, project managers must exhibit the characteristics of both during different times on the project. Understanding when to switch from leadership to management and then back again is a finely tuned and necessary talent.

Team-Building and Human Resources Skills

Project managers will rely heavily on team-building and human resource management skills. Teams are often formed with people from different parts of the organization. These people may or may not have worked together before, so there may be some component of team-building groundwork that will involve the project manager. The project manager will set the tone for the project team and will help them work through the various team-forming stages to become fully functional.

An interesting caveat to the team-building role is that project managers many times are responsible for motivating team members who are not their direct reports. This has its own set of challenges and dilemmas. One way to help this situation is to ask the functional manager to allow you to participate in your project team members' performance reviews. Use the negotiation and influencing skills I talked about earlier to make sure you're part of this process.

A Mile Wide and an Inch Deep

Project managers are an interesting bunch. They know a little bit about a lot of things and are excellent communicators. Or, as one person said, they're "a mile wide and an inch deep." They have the ability to motivate people, even those who have no reason to be loyal to the project, and they can make the hard-line calls when necessary. Project managers can get caught in sticky situations that occasionally require making decisions that are good for the company (or the customer) but aren't good for certain stakeholders. These offended stakeholders will then drag their feet, and the project manager has to play the heavy in order to motivate and gain their cooperation again. Some organizations hire contract project managers to run their large, company-altering projects, just because they don't want to burn out a key employee in this role. Fortunately, that doesn't happen often.

Now that you've been properly introduced to some of the skills you need in your tool kit, you'll know to be prepared to communicate, solve problems, lead, and negotiate your way through your next project.

Understanding Organizational Structures

Just as projects are unique, so are the organizations in which they're carried out. The key to determining the type of organization you work in is by measuring how much authority senior management is willing to delegate to project managers. While uniqueness abounds in business cultures, all organizations are structured in one of three ways: functional, projectized, or matrix. Variations and combinations exist among these three structures, such as a projectized structure within a functional organization, and weak matrix, balanced matrix, and strong matrix organizations.

It pays to know and understand the organizational structure and the culture of the entity you're working with. Companies with aggressive cultures that are comfortable in a leading-edge position within their industry are highly likely to take on risky projects. Project managers who are willing to suggest new ideas and projects that have never been undertaken before are likely to receive a warm reception in this kind of environment. Conversely, organizational cultures that are risk averse and prefer the follow-the-leader position within their industry are highly unlikely to take on risky endeavors. Project managers with risk-seeking, aggressive styles are likely to receive a cool reception in a culture like this.

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The level of authority the project manager enjoys is denoted by the organizational structure. For example, a project manager within a functional organization has little to no formal authority. And their title may not be project manager; instead they might be called a project leader, a project coordinator, or perhaps a project expeditor.

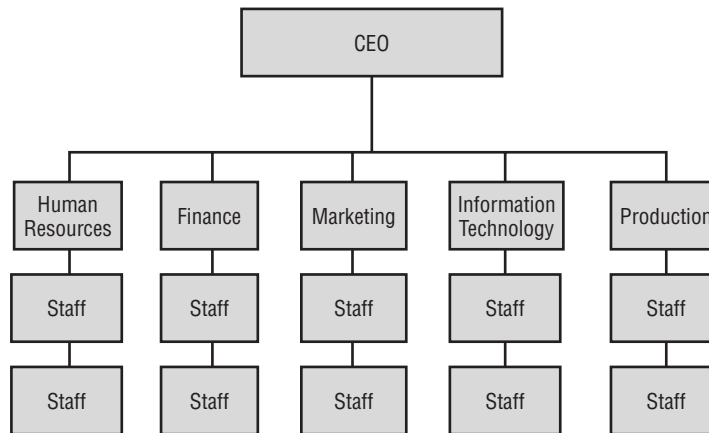
Let's take a look at each of these organizations individually to better understand how the project management role works in each one.

Functional Organizations

One common type of organization is the *functional organization*. Chances are you have worked in this type of organization. This is probably the oldest style of organization and is therefore known as the traditional approach to organizing businesses.

Functional organizations are centered on specialties and grouped by function; hence the term *functional organization*. As an example, the organization might have a human resources department, finance department, marketing department, etc. The work in these departments is specialized and requires people who have the skill sets and experiences in these specialized functions to perform specific duties for the department. Figure 1.2 shows a typical org chart for a functional organization.

FIGURE 1.2 Functional org chart



You can see that this type of organization is set up to be a hierarchy. Staff personnel report to managers who report to department heads who report to vice presidents who report to the CEO. In other words, each employee reports to only one manager; ultimately, one person at the top is in charge. Many companies today, as well as governmental agencies, are structured in a hierarchical fashion. In organizations like this, be aware of the chain of command. A strict chain of command may exist, and the corporate culture might dictate that you follow it. Roughly translated: *Don't talk to the big boss without first talking to your boss who talks to their boss who talks to the big boss*. Wise project managers should determine if there is a chain of command, how strictly it's enforced, and how the chain is linked before venturing outside of it.

Each department or group in a functional organization is managed independently and has a limited span of control. Marketing doesn't run the finance department or their projects, for example. The marketing department is concerned with their own functions and projects. If it were necessary for the marketing department to get input from the finance department on a project, the marketing team members would follow the chain of command. A marketing manager would speak to a manager in finance to get the needed information and then pass it back down to the project team.

Human Resources in a Functional Organization

Commonalities exist among the personnel assigned to the various departments in a functional organization. In theory, people with similar skills and experiences are easier to manage as a group. Instead of scattering them throughout the organization, it is more efficient to keep them functioning together. Work assignments are easily distributed to those who are best suited for the task when everyone with the same skill works together. Usually, the supervisors and managers of these workers are experienced in the area they supervise and are able to recommend training and career enrichment activities for their employees.



NOTE Workers in functional organizations specialize in an area of expertise—finance or personnel administration, for instance—and then become very good at their specialty.

There is a clear upward career path for people in a functional organization. An assistant budget analyst may be promoted to a budget analyst and then eventually to a department manager over many budget analysts.

The Downside of Functional Organizations

Functional organizations have their disadvantages. If this is the kind of organization you work in, you probably have experienced some of them.

One of the greatest disadvantages for the project manager is that they have little to no formal authority. This does not mean that project managers in functional organizations are doomed to failure. Many projects are undertaken and successfully completed within this type of organization. Good communication, interpersonal, and influencing skills on the part of the project manager are required to bring about a successful project under this structure.

In a functional organization, the vice president or senior department manager is usually the one responsible for projects. The title of project manager denotes authority, and in a functional structure, that authority rests with the VP.

Managing Projects in a Functional Organization

Projects are typically undertaken in a divided approach in a functional organization. For example, the marketing department will work on their portion of the project and then hand it off to the manufacturing department to complete their part of the project, and so on. The work the marketing department does is considered a marketing project, while the work the manufacturing department does is considered a manufacturing project.

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Some projects require project team members from different departments to work together at the same time on various aspects of the project. Project team members in this structure will more than likely remain loyal to their functional manager. The functional manager is responsible for their performance reviews, and their career opportunities lie within the functional department—not within the project team. Exhibiting leadership skills by forming a common vision regarding the project and the ability to motivate people to work toward that vision are great skills to exercise in this situation. As previously mentioned, it also doesn't hurt to have the project manager work with the functional manager in contributing to the employee's performance review.

Resource Pressures in a Functional Organization

Competition for resources and project priorities can become fierce when multiple projects are undertaken within a functional organization. For example, in my organization, it's common to have competing project requests from three or more departments all vying for the same resources. Thrown into the heap is the requirement to make, for example, mandated tax law changes, which automatically usurps all other priorities. This sometimes causes frustration and political infighting. One department thinks their project is more important than another and will do anything to get that project pushed ahead of the others. Again, it takes great skill and diplomatic abilities to keep projects on track and functioning smoothly. In a later chapter, we'll discuss the importance of gaining stakeholder buy-in, prioritization, and communication distribution to avert some of these problems.

Project managers have little authority in functional organizations, but with the right skills, they can successfully accomplish many projects. Table 1.1 highlights the advantages and disadvantages of this type of organization.

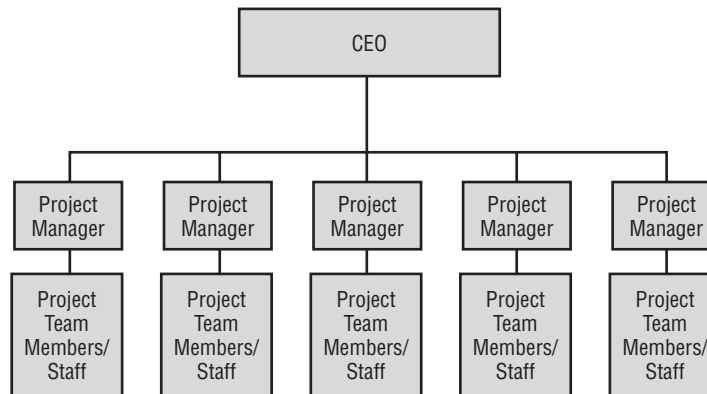
TABLE 1.1 Functional Organizations

Advantages	Disadvantages
Enduring organizational structure.	Project manager has little to no formal authority.
Clear career path with separation of functions, allowing specialty skills to flourish.	Multiple projects compete for limited resources and priority.
Employees have one supervisor with a clear chain of command.	Project team members are loyal to the functional manager.

Projectized Organizations

Projectized organizations are nearly the opposite of functional organizations. The focus of this type of organization is the project itself. The idea behind a projectized organization is to develop loyalty to the project, not to a functional manager.

Figure 1.3 shows a typical org chart for a projectized organization.

FIGURE 1.3 Projectized org chart

Organizational resources are dedicated to projects and project work in purely projectized organizations. Project managers almost always have ultimate authority over the project in this structure and report directly to the CEO. In a purely projectized organization, supporting functions like human resources and accounting might report directly to the project manager as well. Project managers are responsible for making decisions regarding the project and acquiring and assigning resources. They have the authority to choose and assign resources from other areas in the organization or to hire them from outside if needed. However, project managers in all organizational structures are limited by the triple constraints. For example, if the budget doesn't exist to hire additional resources, the project manager will have to come up with alternatives to solve this problem.

Teams are formed and often *collocated*, which means that team members physically work at the same location. Project team members report to the project manager, not to a functional or departmental manager. One obvious drawback to a projectized organization is that project team members may find themselves out of work at the end of the project. An example of this might be a consultant who works on a project until completion and then is put on the bench or let go at the end of the project. Some inefficiency exists in this kind of organization when it comes to resource utilization. If you have a situation where you need a highly specialized skill at certain times throughout the project, the resource you're using to perform this function might be idle during other times in the project.

In summary, projectized organizations are identified in several ways:

- Project managers have ultimate authority over the project.
- The focus of the organization is the project.
- The organization's resources are focused on projects and project work.
- Team members are collocated.
- Loyalties are formed to the project, not to a functional manager.
- Project teams are dissolved at the conclusion of the project.



Real World Scenario

The Projectized Graphic Artist

You've been appointed project manager for your company's website design and implementation. You're working in a projectized organization, so you have the authority to acquire and assign resources. You put together your team, including programmers, technical writers, testers, and business analysts. Debbie, a highly qualified graphic arts designer, is also part of your team. Debbie's specialized graphic arts skills are needed only at certain times throughout the project. When she has completed the graphic design portion of the screen she's working on, there isn't anything else for her to do until the next page is ready. Depending on how involved the project is and how the work is structured, days or weeks might pass before Debbie's skills are needed. This is where the inefficiency occurs in a purely projectized organization. The project manager will have to find other duties that Debbie can perform during these down times. It's not practical to let her go and then hire her back when she's needed again.

In this situation, you might assign Debbie to other project duties when she's not working on graphic design. Perhaps she can edit the text for the web pages or assist with the design of the upcoming marketing campaign. You might also share Debbie's time with another project manager in the organization.

During the planning process, you will discover the skills and abilities of all your team members so that you can plan their schedules accordingly and eliminate idle time.

Matrix Organizations

Matrix organizations came about to minimize the differences between, and take advantage of, the strengths and weaknesses of functional and projectized organizations. The idea at play here is that the best of both organizational structures can be realized by combining them into one. The project objectives are fulfilled and good project management techniques are utilized, while still maintaining a hierarchical structure in the organization.

Employees in a matrix organization report to one functional manager and to at least one project manager. It's possible that employees could report to multiple project managers if they are working on multiple projects at one time. Functional managers pick up the administrative portion of the duties and assign employees to projects. They also monitor the work of their employees on the various projects. Project managers are responsible for executing the project and giving out work assignments based on project activities. Project managers and functional managers share the responsibility of performance reviews for the employee.



NOTE

In a nutshell, functional managers assign employees to projects, while project managers assign tasks associated with the project in a matrix organization.

Project Focus in a Matrix Organization

Matrix organizations allow project managers to focus on the project and project work just like in a projectized organization. The project team is free to focus on the project objectives without distractions from the functional department.

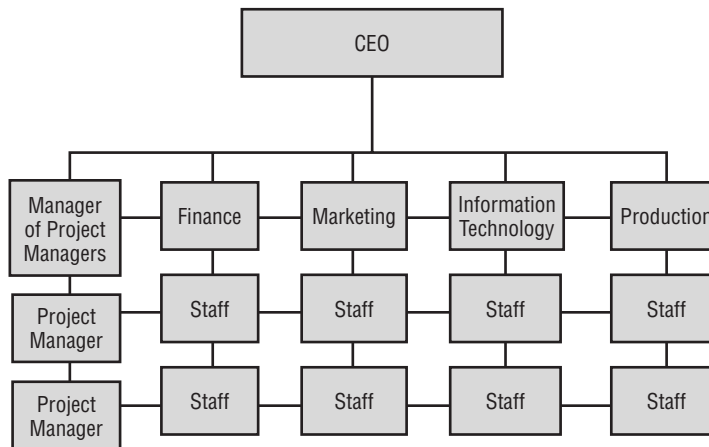
Project managers should take care when working up activity and project estimates for the project in a matrix organization. The estimates should be given to the functional managers for input before publishing. The functional manager is the one in charge of assigning or freeing up resources to work on projects. If the project manager is counting on a certain employee to work on the project at a certain time, the project manager should determine their availability up front with the functional manager. Project estimates might have to be modified if it's discovered that the employee they were counting on is not available when needed.

Balance of Power in a Matrix Organization

As we've discussed, a lot of communication and negotiation takes place between the project manager and the functional manager. This calls for a balance of power between the two, or one will dominate the other.

In a strong matrix organization, the balance of power rests with the project manager. They have the ability to strong-arm the functional managers into giving up their best resources for projects. Sometimes, more resources than necessary are assembled for the project, and then project managers negotiate these resources among themselves, cutting out the functional manager altogether, as you can see in Figure 1.4.

FIGURE 1.4 Strong matrix org chart

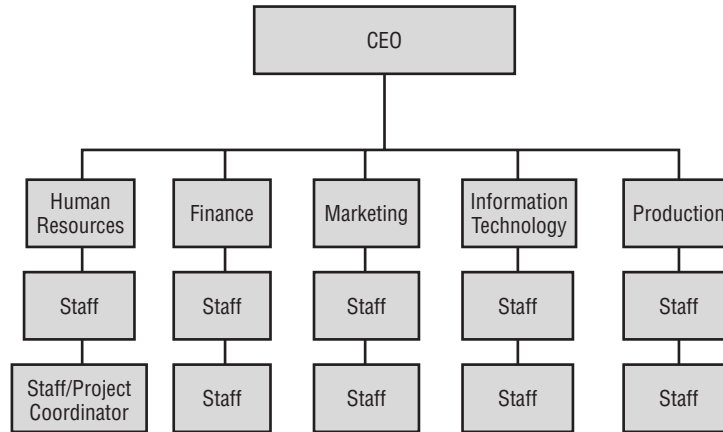


On the other end of the spectrum is the weak matrix (see Figure 1.5). As you would suspect, the functional managers have all the power in this structure. Project managers are really project coordinators or expeditors with part-time responsibilities on projects in a weak matrix organization.

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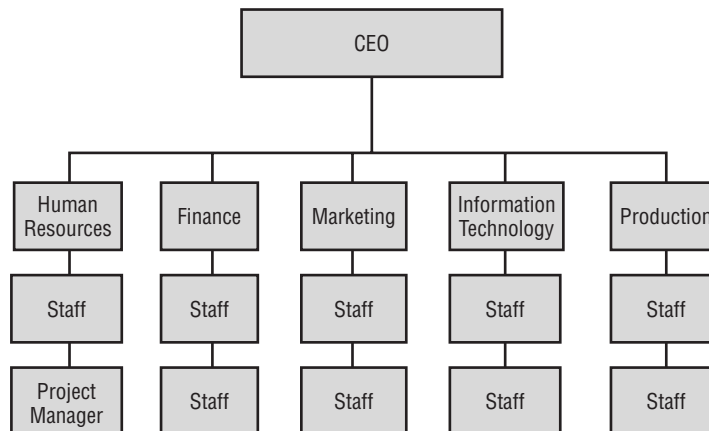
Project managers have little to no authority, just like in the functional organization. On the other hand, the functional managers have a lot of authority and make all the work assignments. The project manager simply expedites the project.

FIGURE 1.5 Weak matrix org chart



In between the weak matrix and the strong matrix is an organizational structure called the *balanced matrix* (see Figure 1.6). The features of the balanced matrix are what we've been discussing throughout this section. The power is balanced between project managers and functional managers. Each manager has responsibility for their parts of the project or organization, and employees get assigned to projects based on the needs of the project, not the strength or weakness of the manager's position.

FIGURE 1.6 Balanced matrix org chart



Matrix organizations have subtle differences, and it's important to understand their differences for the PMP exam. The easiest way to remember them is that the weak matrix has many of the same characteristics as the functional organization, while the strong matrix has many of the same characteristics as the projectized organization. The balanced matrix is exactly that—a balance between weak and strong, where the project manager shares authority and responsibility with the functional manager. Table 1.2 compares all three structures.

TABLE 1.2 Comparing Matrix Structures

	Weak Matrix	Balanced Matrix	Strong Matrix
Project Manager's Title:	Project coordinator, project leader, or project expeditor	Project manager	Project manager
Project Manager's Focus:	Split focus between project and functional responsibilities	Projects and project work	Projects and project work
Project Manager's Power:	Minimal authority and power	Balance of authority and power	Full authority and power
Project Manager's Time:	Part-time on projects	Full-time on projects	Full-time on projects
Organization Style:	Most like functional organization	Blend of both weak and strong matrix	Most like a projectized organization
Project Manager Reports to:	Functional manager	A functional manager, but shares authority and power	Manager of project managers

Most organizations today use some combination of the organizational structures described here. They're a composite of functional, projectized, and matrix structures. It's rare that an organization would be purely functional or purely projectized. For example, projectized structures can coexist within functional organizations.

In the case of a high-profile, critical project, the functional organization might appoint a special project team to work only on that project. The team is structured outside the bounds of the functional organization and the project manager has ultimate authority for the project. This is a workable project management approach and ensures open communication between the project manager and team members. At the end of the project, the project team is dissolved and the project members return to their functional areas to resume their usual duties.

Exam Spotlight

Organizational structure is a topic you may encounter on the exam.

Organizations are unique, as are the projects they undertake. Understanding the organizational structure will help you, as a project manager, with the cultural influences and communication avenues that exist in the organization to gain cooperation and successfully bring your projects to a close.

Understanding Project Life Cycles and Project Management Processes

Project life cycles are similar to the life cycle that parents experience raising their children to adulthood. Children start out as infants and generate lots of excitement wherever they go. However, not much is known about them at first. So you study them as they grow and assess their needs. Over time, they mature and grow (and cost a lot of money in the process), until one day the parents' job is done.

Projects start out just like this and progress along a similar path. Someone comes up with a great idea for a project and actively solicits support for the project. The project, after being approved, progresses through the intermediate phases to the ending phase, where the project is completed and closed out.

Project Life Cycles and Phases

All projects are divided into phases, and all projects, large or small, have a similar life cycle structure. At a minimum, a project will have a beginning or initiation phase, an intermediate phase or phases, and an ending phase. The number of phases depends on the project complexity and its industry. All the collective phases the project progresses through in concert are called the *project life cycle*.

The end of each phase allows the project manager, stakeholders, and project sponsor the opportunity to determine if the project should continue to the next phase. Project phases evolve through the life cycle in a series of *handoffs*. The end of one phase sequence typically marks the beginning of the next. For example, in the construction industry, feasibility studies often take place in the beginning phase of a project. The purpose of the feasibility study might be to determine if the project is worth undertaking and whether the project will be profitable for the construction company. The completion and approval of the feasibility study trigger the beginning

of the planning phase, where requirements are documented and then handed off to the design phase, where blueprints are produced.

You will recognize phase completion, because each phase has a specific *deliverable*, or multiple deliverables, that marks the end of the phase. A deliverable is an output that must be produced to bring the phase or project to completion. Deliverables are tangible and can be measured and easily proved. For instance, a hypothetical deliverable produced in the beginning phase of our construction industry example would be the feasibility study. Deliverables might also include things like design documents, project budgets, blueprints, project schedules, prototypes, etc. This analysis allows those involved with the opportunity to determine if the project should continue to the next phase. The feasibility study might show that environmental impacts of an enormous nature would result if the construction project were undertaken at the proposed location. Based on this information, a go or no-go decision can be made at the end of this phase. The end of a phase also gives the project manager the ability to discover, address, and take corrective action against errors discovered during the phase.

End-of-phase reviews are called by many different names. My organization uses the term *gate review*. On page 11 of *A Guide to the PMBOK* they call these phase end reviews *phase exits*, *stage gates*, or *kill points*.

There are times when phases are overlapped to shorten or compress the project schedule. *A Guide to the PMBOK* terms this *fast tracking*. Fast tracking means that a later phase is started prior to completing and approving the phase, or phases, that come before it.

Most projects follow phase sequences that are completed within the project life cycle and as a result, have the following characteristics in common: In the beginning phase, which is where the Initiation process occurs, costs are low and there are few team members assigned to the project. As the project progresses, costs and staffing increase and then taper off at the closing phase. The potential that the project will come to a successful ending is lowest at the beginning of the project; its chance for success increases as the project progresses through its phases and life cycle stages. Risk is highest at the beginning of the project and gradually decreases the closer the project comes to completion. Stakeholders have the greatest chance of influencing the project and the characteristics of the product or service of the project in the beginning phases and have less and less influence as the project progresses.

To give you a better idea of when certain characteristics influence a project, refer to Table 1.3. A recap of the impacts in the beginning life cycle phase is shown here.

TABLE 1.3 Characteristics of the Initiation Process

Low Impact/Probability	High Impact/Probability
Costs	Risk
Staffing levels	Stakeholder influence
Chance for successful completion	

Project Management Processes

Project management processes, according to *A Guide to the PMBOK*, organize and describe the work of the project. These processes are performed by people and, much like the project phases, are interrelated and dependent on one another. For example, it would be difficult to identify specific project activities without first having an understanding of the project requirements.

PMI Process Groups

A Guide to the PMBOK documents five process groups in the project management process: Initiating, Planning, Executing, Controlling, and Closing. All of these process groups—with the exception of Initiating—have individual processes that collectively make up the group. For example, the Closing process group has two processes: Contract Closeout and Administrative Closure. Collectively, these process groups—including all their individual processes—make up the life cycle of a project. The life cycle starts with the Initiation process and progresses through all the processes in the Planning process group, the Executing process group, and so on until the project is successfully completed or it's canceled. All projects must complete the Closing processes, even if the project is killed. Phase sequences (the design phase handoff to manufacturing, for example) also occur within these life cycles. The project life cycles describe the work to be done within each cycle and the type of resources needed to perform the work. We'll look at an overview of each process here and go into more detail in later chapters.

Exam Spotlight

The five process groups are the heart of *A Guide to the PMBOK*. As you progress through this book, be certain you understand each of these processes as they're described in *A Guide to the PMBOK* also.

Initiation

The Initiation process, as its name implies, occurs at the beginning of the project or phase. Initiation acknowledges that a project, or the next project phase, should begin. Initiation grants the approval to commit the organization's resources to working on the project or phase.

Planning

Planning is the process of formulating and revising project goals and objectives and creating the project plans that will be used to achieve the goals the project was undertaken to address. Planning also involves determining alternative courses of action and selecting from among the best of those to produce the project's goals. This process group is where the project requirements are fleshed out and stakeholders are identified. Planning has more processes than any of the other project management process groups. The Executing, Controlling, and Closing process groups all rely on the Planning processes and the documentation produced during the Planning processes in order

to carry out their functions. Project managers will perform frequent iterations of the Planning processes prior to project completion. Projects are unique, and as such, have never been done before. Therefore, Planning must encompass all areas of project management and consider budgets, activity definition, scope planning, schedule development, risk identification, staff acquisition, procurement planning, and more. The greatest conflicts a project manager will encounter in this process group are project prioritization issues.

Executing

The Executing process group involves putting the project plans into action. It's here that the project manager will coordinate and direct project resources to meet the objectives of the project plan. The Executing process keeps the project plan on track and ensures that future execution of project plans stays in line with project objectives. The Executing process group will utilize the most project time and resources, and as a result, costs are usually highest during the Executing process. Project managers will experience the greatest conflicts over schedules in this cycle.

Controlling

The Controlling process group is where project performance measurements are taken and analyzed to determine if the project is staying true to the project plan. If it's discovered that variances exist, corrective action is taken to get the project activities aligned with the project plan. This might require additional passes through the Planning process to realign to the project objectives.

Closing

The Closing process group is probably the most often skipped process in project management. Closing brings a formal, orderly end to a phase or to the project itself. Once the project objectives have been met, most of us are ready to move on to the next project. However, Closing is important, because all the project information is gathered now and stored for future reference. The documentation collected during Closing processes can be reviewed and utilized to avert potential problems on future projects. Contract closeout occurs here, and formal acceptance and approval are obtained from project stakeholders.

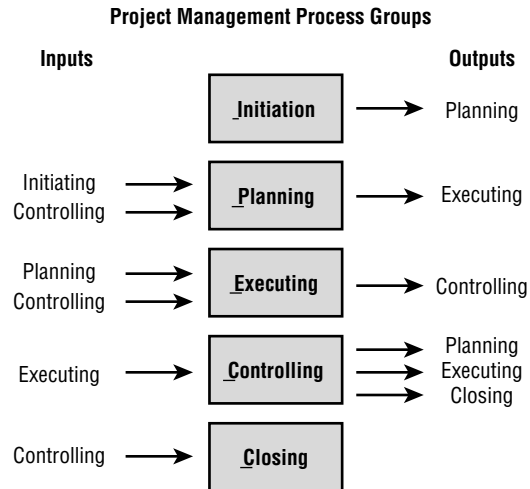
The Process Flow

The five process groups are *iterative* and should not be thought of as one-time processes. These processes will be revisited throughout the project life cycle several times as the project is refined. PMI calls this process of going back through the process groups an *iterative process*. The completion of each process allows the project manager and stakeholders to re-examine the business needs of the project and determine if the project is satisfying those needs. And it is another opportunity to make a go or no-go decision.

Figure 1.7 shows the five process groups in a typical project life cycle. Keep in mind that during phases of a project, the Closing phase can provide input to the Initiation phase. For example, once the feasibility study discussed earlier is accepted or closed, it becomes input to the Initiation phase of design and planning.

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FIGURE 1.7 Project management process groups



It's important to understand the flow of these processes for the exam. If you remember the processes and their inputs and outputs, it will help you when you're trying to decipher an exam question. Sometimes just understanding which process the question is asking about will help you determine the answer. One trick you can use to memorize these processes is to remember syrup of ipecac. (You probably have some of this poison antidote in your medicine cabinet at home.) When you sound out the first initial of each of the processes, it sounds like "ipecac"—IPECC (Initiating, Planning, Executing, Controlling, and Closing).

Processes exist within most of the process groups. For example, the Closing life cycle process group consists of two processes: Contract Closeout and Administrative Closure. Each process takes inputs and uses them in conjunction with various tools and techniques to produce outputs. It's outside the scope of this book to list all the inputs, tools and techniques, and outputs for each process in each process group. You'll find these detailed in *A Guide to the PMBOK*, and I highly recommend you get familiar with them.

Exam Spotlight

Understand each life cycle process group and each of the core and facilitating processes that make up these groups.

There are test questions regarding inputs, tools and techniques, and outputs of many of the processes within each process group. One way to keep them all straight is to remember that tools and techniques usually require action of some sort, be it measuring, applying some skill or technique, planning, or using expert judgment. Outputs are usually in the form of a deliverable.

Remember that a deliverable is characterized with results or outcomes that can be measured, are tangible, and are provable. Last but not least, outputs from one process sometimes serve as inputs to another process.

Establishing the Project Management Office

The concept of a *project management office*, sometimes referred to as the PMO, has been around for several years. You won't need to know anything about PMOs for the exam. However, in practice, you'll find many organizations are establishing PMOs in many different forms. The purposes of establishing a PMO, and its benefits, are many. The most common reason a company starts a project management office is to establish and maintain procedures and standards for project management methodologies to be used throughout the organization. In some organizations, project managers might work directly for the PMO and are assigned from this office to projects as they are initiated. The PMO, depending on its size and function, sometimes has experts available that assist project managers in project planning, estimating, and business assumption verification tasks. They serve as mentors to junior-level project managers and act as consultants to the senior project managers.

The PMO takes responsibility for maintaining and archiving project documentation. All project documentation and information is collected and tracked by the PMO for future reference. This office compares project goals with project progress and gives feedback to the project teams. This office also measures the project performance of active projects and suggests corrective actions. The PMO evaluates completed projects for their adherence to the triple constraints and asks the following: Did the project meet the time frames established, did it stay within budget, and was the quality acceptable?

Project management offices are becoming more common in organizations today, if for no other reason, simply to serve as a collection point for project documentation. Some PMOs are fairly sophisticated and prescribe the standards and methodologies to be used in all project phases across the enterprise. Still others provide all these functions and also offer project management consulting services. However, the establishment of a PMO is not required in order for you to apply good project management practices to your next project.

Summary

Phew! We covered a lot of ground in this chapter. We learned that projects exist to bring about a unique product or service. Projects are temporary in nature and have definite beginning and ending dates.

Stakeholders are those people or organizations that have a vested interest in the outcome of the project. Stakeholders include people like the project sponsor, the customer, key management

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personnel, the project manager, contractors, suppliers, and more. Projects are considered complete when the project meets or exceeds the expectations of the stakeholders.

Project management is a discipline that brings together a set of tools and techniques to describe, organize, and monitor the work of project activities. Project managers are the ones responsible for carrying out these activities.

Every project must work within constraints. The primary constraints that will affect all projects are the triple constraints of budget, time, and quality.

Project managers have a wide variety of skills. Not only should they be versed in the field they're working in, but in general management skills as well. Communication is the most important skill a project manager will use in the course of a project.

Organizational structures come in variations of three forms: functional, projectized, and matrix organizations. Functional organizations are traditional with hierarchical reporting structures. Project managers have little to no authority in this organization. Projectized organizations are structured around project work, and staff personnel report to project managers. Project managers have full authority in this organizational structure. Matrix organizations are a combination of the functional and projectized. A project manager's authority varies depending on the structure of the matrix, be it a weak matrix, a balanced matrix, or a strong matrix.

Projects progress along a life cycle path. The life cycle consists of phases, and the process groups in *A Guide to the PMBOK* are performed throughout the project's life cycle. The process groups described in *A Guide to the PMBOK* are Initiation, Planning, Executing, Controlling, and Closing.

Project management offices (PMOs) are a way to organize and establish standards for project management techniques within an organization. They can also serve as a project library, housing project documentation for future reference.

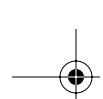
Exam Essentials

Be able to describe the difference between projects and operations. A project is temporary in nature with a definite beginning and ending date. Operations are ongoing.

Be able to denote some of the skills every good project manager should possess. Communication, budgeting, organizational, problem solving, negotiation and influencing, leading, and team building are skills a project manager should possess.

Be able to differentiate the different organizational structures and the project manager's authority in each. Organizations are usually structured in some combination of the following: functional, projectized, and matrix (including weak matrix, balanced matrix, and strong matrix). Project managers have the most authority in a projectized organization and the least amount of authority in a functional organization.

Be able to name the five project management processes. The five project management processes are Initiation, Planning, Executing, Controlling, and Closing.



Key Terms

You've learned a lot of new key words in this chapter. PMI has worked hard to develop and define standard project management terms that apply across industries. Here is a list of some of the terms you came across in this chapter:

balanced matrix

collocated

deliverable

fast tracking

functional organization

handoffs

iterative

leaders

managers

matrix organizations

politics

power

programs

progressive elaboration

project life cycle

project management

project management office

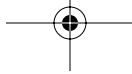
project managers

project sponsor

projectized organizations

projects

stakeholders



Review Questions

1. Which organization has set the de facto standards for project management techniques?
 - A. PMBOK
 - B. PMO
 - C. PMI
 - D. PMA
2. The VP of marketing approaches you and requests that you change the visitor logon screen on the company's website to include a username with at least six characters. This is considered:
 - A. Project initiation
 - B. Ongoing operations
 - C. A project
 - D. Project execution
3. Your company manufactures small kitchen appliances. They are introducing a new product line of appliances in designer colors with distinctive features for kitchens in small spaces. These new products will be offered indefinitely starting with the spring catalog release. Which of the following is true?
 - A. This is a project because this new product line has never been manufactured and sold by this company before.
 - B. This is an ongoing operation because the company is in the business of manufacturing kitchen appliances. Introducing designer colors and features is simply a new twist on an existing process.
 - C. This is an ongoing operation because the new product line will be sold indefinitely. It's not temporary.
 - D. This is not a project or an ongoing operation. This is a new product introduction not affecting ongoing operations.
4. Your company manufactures small kitchen appliances. They are introducing a new product line of appliances in designer colors with distinctive features for kitchens in small spaces. These new products will be offered indefinitely starting with the spring catalog release. In order to determine the characteristics and features of the new product line, you will have to perform which of the following?
 - A. Fast tracking
 - B. Consulting with the stakeholders
 - C. Planning the project life cycle
 - D. Progressive elaboration

5. A project is considered successful when:
 - A. The product of the project has been manufactured.
 - B. The project sponsor announces the completion of the project.
 - C. The product of the project is turned over to the operations area to handle the ongoing aspects of the project.
 - D. The project meets or exceeds the expectations of the stakeholders.
6. The VP of customer service has expressed concern over a project you're involved in. His specific concern is that if the project is implemented as planned, he'll have to purchase additional equipment to staff his customer service center. The cost is substantial and was not taken into consideration in the project budget. The project sponsor insists that the project must go forward as originally planned or the customer will suffer. Which of the following is true?
 - A. The VP of customer service is correct. Since the cost was not taken into account at the beginning of the project, the project should not go forward as planned. Project initiation should be revisited to examine the project plan and determine how changes can be made to accommodate customer service.
 - B. The conflict should be resolved in favor of the customer.
 - C. The conflict should be resolved in favor of the project sponsor.
 - D. The conflict should be resolved in favor of the VP of customer service.
7. Which of the following brings together a set of tools and techniques used to describe, organize, and monitor the work of project activities?
 - A. Project managers
 - B. *A Guide to the PMBOK*
 - C. Project management
 - D. Stakeholders
8. What are the triple constraints?
 - A. Time, schedules, and quality
 - B. Time, availability, and quality
 - C. Time, money, and schedules
 - D. Time, money, and quality

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9. You are the project manager for a large construction project. The project objective is to construct a set of outbuildings to house the Olympic support team that will be arriving in your city 18 months from the project start date. You've been given a budget of \$12 million to complete this project. Resources are easily attained. Which of the triple constraints is the primary constraint for this project?
- A. Time, because the date cannot be moved.
 - B. Money, because the budget is set at \$12 million.
 - C. Resources, because they're not fixed.
 - D. Quality, because the buildings have to be functional and safe.
10. You are the project manager for a large construction project. The project objective is to construct a set of outbuildings to house the Olympic support team that will be arriving in your city 18 months from the project start date. Resources are not readily available as they are currently assigned to other projects. Jack, an expert crane operator, is needed for this project two months from today. Which of the following skills will you use to get Jack assigned to your project?
- A. Negotiation and influencing skills
 - B. Communication and organizational skills
 - C. Communication skills
 - D. Problem-solving skills
11. You are a project manager with technical expertise in the pharmaceutical industry. You've decided to try your hand at project management in the entertainment industry. Which of the following is true?
- A. You will likely be successful because communication skills are your strong suit. You anticipate having technical experts on your project team to address industry specifics that you're not familiar with.
 - B. You will likely be successful because your organizational skills are excellent. You anticipate having technical experts on your project team to address industry specifics that you're not familiar with.
 - C. You will probably be successful because you have a friend in the entertainment industry who has briefed you on all the important aspects of this project that you'll need to know. You anticipate having technical experts on your project team to address industry specifics that you're not familiar with.
 - D. You will probably not be successful because you have little knowledge of the entertainment industry, even though you anticipate having technical experts on your project team to address industry specifics that you're not familiar with.

12. You are managing a project to install a new postage software system that will automatically print labels and administer postage for certified mailings, overnight packages, and other special mailing needs. You've attempted to gain the cooperation of the business analyst working on this project and need some answers. She is elusive and tells you that this project is not her top priority. To avoid situations like this in the future, you should:
- A. Establish the business analyst's duties well ahead of due dates and tell her you'll be reporting on her performance to her functional manager.
 - B. Establish the business analyst's duties well ahead of due dates and tell her you are expecting her to meet these expectations because the customer is counting on the project meeting due dates to save significant costs on their annual mailings.
 - C. Negotiate with the business analyst's functional manager during the planning process to establish expectations and request to participate in the business analyst's annual performance review.
 - D. Negotiate with the business analyst's functional manager during the planning process to establish expectations and inform the functional manager of the requirements of the project. Agreement from the functional manager will assure the cooperation of the business analyst.
13. The amount of authority a project manager possesses can be related to:
- A. The project manager's communication skills
 - B. The organizational structure
 - C. The amount of authority the manager of the project manager possesses
 - D. The project manager's influencing skills
14. What is one of the advantages of a functional organization?
- A. All employees report to one manager and have a clear chain of command.
 - B. All employees report to two or more managers, but project team members show loyalty to functional managers.
 - C. The organization is focused on projects and project work.
 - D. Teams are collocated.
15. You have been assigned to a project in which the objectives are to direct customer calls to an interactive voice response system before being connected to a live agent. You are in charge of the media communications for this project. You report to the project manager in charge of this project and the VP of marketing, who share responsibility for this project. Which organizational structure do you work in?
- A. Functional organization
 - B. Weak matrix organization
 - C. Projectized organization
 - D. Balanced matrix organization

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- 16.** You have been assigned to a project in which the objectives are to expand three miles of the north-south highway through your city by two lanes in each direction. You are in charge of the demolition phase of this project, and you report to the project manager in charge of this project. You have been hired on contract and will be released at the completion of the demolition phase. What type of organizational structure does this represent?
- A.** Functional organization
 - B.** Weak matrix organization
 - C.** Projectized organization
 - D.** Balanced matrix organization
- 17.** What are the five project management process groups, in order?
- A.** Initiation, Executing, Planning, Controlling, and Closing
 - B.** Initiation, Controlling, Planning, Executing, and Closing
 - C.** Initiation, Planning, Controlling, Executing, and Closing
 - D.** Initiation, Planning, Executing, Controlling, and Closing
- 18.** You have been assigned to a project in which the objectives are to expand three miles of the north-south highway through your city by two lanes in each direction. You are interested in implementing a new project process called Design-Build in order to speed up the project schedule. The idea is that the construction team will work on the first mile of the highway reconstruction at the same time the design team is coming up with plans for the third mile of the reconstruction rather than completing all design before any construction begins. This is an example of:
- A.** Managing the projects as a program
 - B.** Fast tracking
 - C.** Progressive elaboration
 - D.** Collocation
- 19.** During which project management process are risk and stakeholder's ability to influence project outcomes the highest at the beginning of the process?
- A.** Planning
 - B.** Executing
 - C.** Initiation
 - D.** Controlling
- 20.** You are a project manager working on gathering requirements and establishing estimates for the project. Which process group are you in?
- A.** Planning
 - B.** Executing
 - C.** Initiation
 - D.** Controlling

Answers to Review Questions

1. C. The Project Management Institute (PMI) is the industry-recognized standard for project management practices.
2. B. Projects exist to create a unique product or service. The logon screen in this question is not a unique product. A minor change has been requested, indicating this is an ongoing operation function. Some of the criteria for projects are that they are unique, temporary with definitive start and end dates, and considered complete when the project goals are achieved.
3. A. This is a project. The product line is new, which implies this is a unique product—it hasn't been done before. We can discern a definite start and end date by the fact that the new appliances must be ready by the spring catalog release.
4. D. Progressive elaboration is the process of determining the characteristics and features of the product of the project. Progressive elaboration is carried out in steps in detailed fashion.
5. D. A project is considered successful when stakeholder needs and expectations are met or exceeded.
6. B. Conflicts between stakeholders should always be resolved in favor of the customer. This question emphasizes the importance of identifying your stakeholders and their needs as early as possible in the project. We'll discuss this more in later chapters.
7. C. Project management brings together a set of tools and techniques to organize project activities. Project managers are the ones responsible for managing the project processes.
8. D. The triple constraints that drive all projects are time, money, and quality.
9. A. The primary constraint on this project is time because the date absolutely cannot move. The Olympics are scheduled to begin on a certain date, and this can't be changed. The budget is also a constraint because it's set at \$12 million, but in this example, it is a secondary constraint. It's important that the project manager understands the priority of the constraints and manages to them.
10. A. Negotiation and influencing skills are needed to convince Jack's boss and come to agreement concerning his assignment.
11. A. Project management processes span industries. A project manager can take these skills across industries and apply them successfully. Technical experience in the industry doesn't hurt, but it's not required. The most important skill any project manager can have is communication skills. Poor communication skills might lead to an unsuccessful conclusion no matter how strong the project manager's other skills are.
12. C. Negotiate with the functional manager to participate in the business analyst's annual performance review.
13. B. The level of authority the project manager has is determined by the organizational structure. For instance, in a functional organization, the project manager has little to no authority, but in a projectized structure, the project manager has full authority.

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14. A. An advantage for employees in a functional organization is that they have only one supervisor and a clear chain of command exists.
15. D. Employees in a balanced matrix often report to two or more managers. Functional managers and project managers share authority and responsibility for projects. There is a balance of power between the functional managers and project managers.
16. C. Projectized organizations are focused on the project itself. One issue with this type of structure is determining what to do with project team members when they are not actively involved on the project. One alternative is to release them when they are no longer needed.
17. D. Remember the acronym that sounds like syrup of ipecac: IPECC.
18. B. Fast tracking is starting a new phase before the phase you're working on is completed. This compresses the project schedule, and as a result, the project is completed sooner.
19. C. The Initiation process is where stakeholders have the greatest ability to influence outcomes of the project. Risk is highest during this stage because of the high degree of unknown factors.
20. A. The Planning process is where requirements are fleshed out, stakeholders are identified, and estimates on project costs and time are made.