

# Managing a Project

In this chapter, you will

- Learn how a project moves through phases
- Learn how to work with project stakeholders
- Understand how different organizations operate
- Know the types of organizational structures and their characteristics

You've got lots of work to do as a project manager: meetings, planning, coordination, leading the project team, and ensuring that the project work is done according to the project plan. You're with the project all the way, from the get-go to the final closure report. You work with project stakeholders to gather requirements, keep them posted on the progress, and manage their influence over the project as much as possible. It's an ongoing job that ends just after the project work does.

While your job as the project manager centers on getting the project work done, we know that it's really more than just doing the project work. Logistics and problem-solving cling to the project like socks to a wool skirt. That's what you'll learn in this chapter (no, not about socks).



**VIDEO** Working through a project's life cycle.

## Identifying the Project Life Cycle (PMBOK, Section 2.1)

Projects are born, they live, and then they die. Morbid, isn't it? But that simple analogy of being born, living, and dying is exactly what the Project Management Institute (PMI) calls the duration of a project: the project life cycle. A project life cycle is the project from start to finish. Every project in the world has its own life cycle. Consider any project you've ever worked on, whether it is in construction, manufacturing, or information technology. Every project was born (initiated), lived (planned, executed, monitored, and controlled), and then died (closing). That's the project life cycle.

If we were to visit a technology guru and check out his projects, he'd have a different life cycle from what a construction company's projects may have. Every project life cycle is unique to the nature of the work being completed.



**EXAM TIP** Because every project has its own life cycle, regardless of the application area, it's tough for PMI to ask specific questions on this subject. You'll likely encounter questions about what a project life cycle is, but not on the activities that would take place in a project's life cycle.

## Examining a Project Life Cycle

A project is an uncertain business: the larger the project, the more uncertainty. It's for this reason, among others, that projects are broken down into smaller, more manageable phases. A project phase allows a project manager to see the project as a whole and yet still focus on completing the project one phase at a time.

A life cycle is almost always comprised of multiple phases. You can identify a project life cycle, most often, by the phases that may exist within the project. A construction project may, for example, move through these phases:

- Research
- Pre-construction
- Site work
- Foundation
- Framing
- Rough-in
- Interior finishes
- Exterior finishes
- Landscaping

The end result of a phase generally creates a project deliverable and allows the project to move toward its completion. Check out the preceding list. Just because a phase has been completed does not necessarily mean that the next phase can automatically begin. A phase-end review is needed to determine that the phase has met all of its obligations and then to authorize the initiation of the subsequent phase. A phase-end review is also known as a phase exit, phase gate, or a kill point.



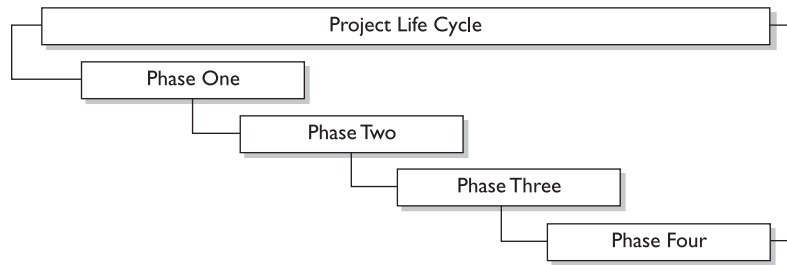
**EXAM TIP** A kill point is an ideal opportunity to “kill” a project at the end of a phase.

Imagine a construction project to build a new sports complex for your city. The foundation of the entire sports complex may not need to be 100 percent complete for the framing of the building to begin. The framing could begin as long as the risk associated with starting this phase of the project was acceptable. The practice of overlapping phases is called fast-tracking (we'll see this again in Chapter 6 in a discussion on project time management). While fast-tracking does save project time, it can increase project risk.



**EXAM TIP** Fast-tracking is an example of schedule compression, but it can increase project risk. Fast-tracking is not the same as lead time, which is negative time between project activities.

In most organizations, regardless of the project manager's experience, management wants to see proof of progress, evidence of work completed, and good news of how well the project is moving. Phases are an ideal method of keeping management informed of the project progression. The following illustration depicts a project moving from conception to completion. At the end of each phase, there is some deliverable that the project manager can show to management and customers.



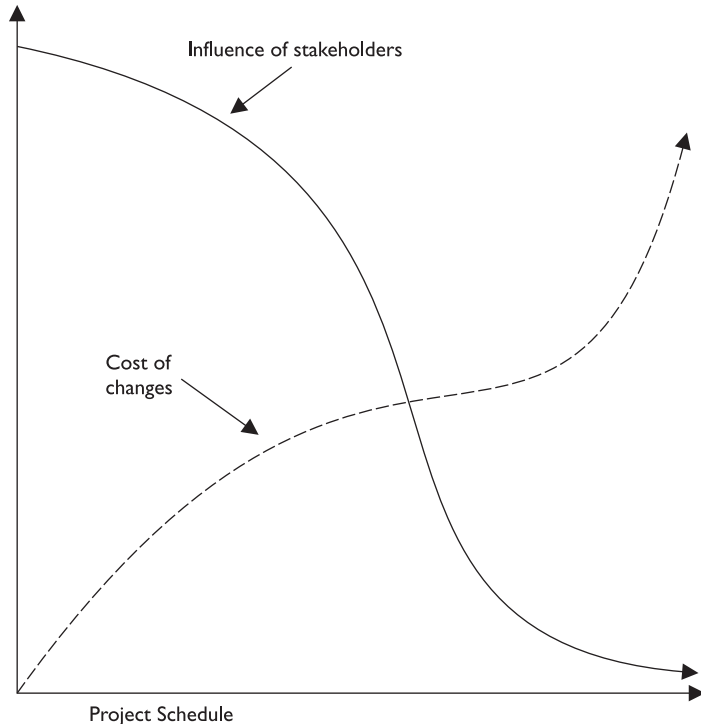
## Project Life Cycle Characteristics

Because every project in the world is unique, it's impossible to say what exactly must happen in every phase of the project life cycle. There are, however, characteristics of every project life cycle that are universal:

- Phases are typically sequential and allow subsequent phases to begin.
- Project costs and staffing requirements are generally low at the project's beginning phases, while costs and resources are highest in the project's intermediate phases. As the project moves towards completion, the cost and resource requirements generally wane.
- The likelihood of the project's success is always lowest during the early phases of the project. As the project moves towards completion, the likelihood of the project success increases.
- Stakeholders have the highest influences on the project's product during the initiating phases, as Figure 2-1 demonstrates.

Every project moves through phases, and phases comprise the project life cycle. Phases are logical approaches to segmenting the work, but they primarily allow management, an organization, or a project manager to have better control over the work done in each phase. Each phase within a project determines:

- The work that will happen in each phase
- The deliverables that will be created as a result of each phase
- How the phase deliverables will be reviewed, approved, and validated
- The needed resources for each phase
- How each phase will be approved to allow successor phases to launch



**Figure 2-1** Stakeholder influence wanes as the project moves towards completion. Cost due to changes increases as the project moves towards completion.

## Comparing Project Life Cycles and Product Life Cycles

There must be some distinction between the project life cycle and the product life cycle. We've covered the project life cycle—the accumulation of phases from start to completion within a project, but what is a product life cycle?

A product life cycle is the whole life of the product the project has created. If your company had a brilliant idea to create a new piece of software, initiated and managed a project to create the software, and then implemented the software, that would be most of the product life cycle. The remainder of the product life cycle is the usage and support of the software until some day, sadly, the software is determined to be out-of-date and retired from your organization. The product life cycle is the whole gosh-darn span of time, from concept to project to usage to retirement.

## Meeting the Project Stakeholders (PMBOK, Section 2.2)

Stakeholders are those fine folks and organizations who are actively involved in the project or who will be affected by its outcome—in other words, people, groups, busi-

nesses, customers, and communities that have a vested interest in the project. If you're a project manager who is working with a senior project manager, or if you are assisting the project manager, you are a stakeholder as well.

Stakeholders may like, love, or hate your project. Consider an organization that is hosting a project to move all their workers to a common word-processing application. Everyone within this organization must now use the same word-processing application. Your job, as the project manager, is to see that it happens.

Now, within your project, you've got stakeholders that like the project; they're in favor of the project deliverable. Other stakeholders love the project—they cannot wait for all of the organization to use the same application for word processing. These people are considered positive stakeholders. And, sigh, there are those stakeholders who hate your project and want to do everything they can to make your project fail. Yep, these people are negative stakeholders.

Stakeholders, especially negative stakeholders, may try to influence the project itself. This can be attempted in many ways:

- Political capital leveraged to change the project deliverable
- Change requests to alter the project deliverable
- Scope addendums to add to the project deliverable
- Sabotage, through physical acts or rumors, gossip, and negative influence



**EXAM TIP** Any stakeholder that is opposed to, threatened by, or wants your project to just go away is a negative stakeholder.

Your role as a project manager is to identify, align, and ascertain stakeholders and their expectations of the project. You may lead the project or work with another project manager to confirm the alignment of stakeholder priorities within the project. Stakeholder identification is not always as clear-cut as in the preceding example. Because stakeholders are identified as people who are affected by the outcome of your project, external customers may be stakeholders in your project, too.

Consider a company that is implementing a frequent customer discount project. External customers will use a card that tracks their purchases and gives them discounts on certain items they may buy. Is the customer in this instance a stakeholder? What if the customer doesn't want to use the card? Is she still a stakeholder?

Stakeholders can go by many different names: internal and external customers, project owners, financiers, contractors, family members, government regulatory agencies, communities, cities, citizens, and more. The classification of stakeholders into categories is not as important as realizing and understanding stakeholders' concerns and expectations. The identification and classification of stakeholders does allow, however, the project manager to deliver effective and timely communications to the appropriate stakeholders.



**NOTE** In high-profile projects, where stakeholders will be in conflict over the project purpose, deliverables, cost, and schedule, the project manager may want to use the Delphi technique to gain anonymous consensus among stakeholders. The Delphi technique allows stakeholders to offer opinions and input without fear of retribution from management.

## Key Project Stakeholders

Beyond those stakeholders affected by the project deliverable, there are key stakeholders on every project. Let's meet them:

- **Project manager** The project manager is the person—which could also be you, the certified associate in project management (CAPM) or project management professional (PMP)—who is accountable for managing the project. He guides the team through the project phases to completion.
- **Customer/user** The customer is the person or group that will use the project deliverable. In some instances, a project may have many different customers. Consider a book publisher for children. The bookstores distribute the children's book; the adults pay for the book; the children read the book. There is also some consideration given to the user versus the customer. The user uses the product; the customer pays for it. A stakeholder can be both a user and a customer.
- **Performing organization** On your project, you'll have a project team. Whom do the team members work for? The performing organization is the entity that employs the people responsible for completing the project work. In some instances, the performing organization can be a vendor whose project team is completing the project work for another entity: the customer.
- **Project team members** The project team is the collection of individuals that will, hopefully, work together to ensure the success of the project. The project manager works with the project team to guide, schedule, and oversee the project work. The project team completes the project work.
- **Project management team** The people on your project team who are involved with the project management activities. Recall the administrative staff in a projectized structure? Those people are also stakeholders; anyone who contributes to the project is a stakeholder.
- **Sponsor** The sponsor authorizes the project. This person or group ensures that the project manager has the necessary resources, including monies, to get the work done. The project sponsor is someone within the performing organization who has the power to authorize and sanction the project work, and who is ultimately responsible for the project's success. Ideally, project sponsors shield the project manager from attacks, scope changes, and authority challenges.
- **Influencers** These are people who may not be directly affected by the project's product, but their position within the organization can influence a project. Consider the purchaser for your client. He or she may not be affected by the outcome of your project, but can influence the purchasing decision of the organization.

- **PMO** The project management office (PMO) is considered a stakeholder of the project it oversees. If an organization does not have a PMO, then this stakeholder, of course, isn't valid.

## Managing Stakeholder Expectations

Have you ever had an experience that didn't live up to your expectations? Not much fun, is it? With project management and the large number of stakeholders, it's easy to see how some stakeholders' expectations won't be realistic due to cost, schedule, or feasibility. A project manager must find solutions to create win-win scenarios between stakeholders.



**EXAM TIP** If you want to manage stakeholders' expectations, you have to know who they are first. Identify the stakeholders, and then you can identify their requirements. Once the expectations are identified, get them on paper! Nothing beats documentation.

## Managing Expectations in Action

Consider a project to implement new Customer Relationship Management (CRM) software. In this project, there are three primary stakeholders with differing expectations:

- The sales director primarily wants a technical solution that will ensure fast output of order placements, proposals, and customer contact information—regardless of the cost.
- The marketing director primarily wants a technical solution that can track call volume, customer sales history, and trends with the least cost to implement.
- The IT director wants a technical solution that will fan into the existing network topology, have considerable ease of use, and be reliable—without costing more than 20 percent of his budget for ongoing support.

In this scenario, the project manager will have to work with each of the stakeholders to determine a winning solution that satisfies all of the project requirements while appeasing the stakeholders' demands. The project manager assistant may interview these stakeholders with the project manager to rank their priorities, along with required and optional results for the project deliverables.

Specifically, the solution for the conflict of stakeholders is to satisfy the needs of the customer first. Customer needs, or the business need of why the project was initiated, should guide the project through its life cycle. Once the project scope is aligned with the customer's needs, the project manager may work to satisfy the differing expectations of the stakeholders.

## Identifying the Organizational Influences (PMBOK, Section 2.3)

Projects happen within organizations, and in most instances, the organization is larger than the project. This means that your project has to answer to someone, some department, or even a customer of the organization. As much as I'd like to call all of the shots

on all the projects I manage, and I'm sure you wish the same, we both know we have to answer to someone within our organization. The people who project managers answer to are the influencers within an organization.

How a project is influenced is largely based on the type of organization that the project is occurring within. Project-centric organizations fall under two big umbrellas:

- Organizations that exist primarily to perform projects for others. Think of architects, IT consulting firms, engineering firms, consultants, and just about any other agency that completes work for others under a contractual basis. (This is what I do as a writer and corporate educator.)
- Organizations that use management by projects to manage their business. These organizations manage their work through their project management system. An IT department, for example, may treat an upgrade of all their network servers as a project. A manufacturer may treat a customer's job as a project. In the traditional sense, these activities are part of their operations, but because there's a definite beginning and ending to that specific work, they're taking advantage of a project management system they've adapted or created.

You also have to consider the maturity of the organization where the project is being hosted. A large internal organization that's been established for years and years will likely have a more detailed project management system than a startup entrepreneurial company. The standards, regulations, culture, and procedures influence how the project should be managed, how the project manager will lead and discipline the project team, reporting relationships, and the flow of communications that will take place. Consider the cultural components within an organization:

- Defined values, beliefs, and expectations of the project work
- Policies and procedures, both within the organization and external to the organization (consider the policies that govern the banking industry, for example)
- Defined authority for the project manager and over the project managers
- Defined working hours and work ethics of the project team, project manager, and management

## **Completing Projects in Different Organizational Structures**

Organizations are structured into one of six models, the organizational structure of which will affect the project in some aspect. In particular, the organizational structure will set the level of authority, the level of autonomy, and the reporting structure that the project manager can expect to have within the project. Figure 2-2 shows the level of authority for the project manager and the functional manager in each of the organizational structures. The organizational structures we'll discuss include:

- Functional
- Weak matrix
- Balanced matrix
- Strong matrix
- Projectized
- Composite



**NOTE** Being able to recognize your organizational structure with regards to project management will allow you to more effectively leverage and position your role as a project manager.

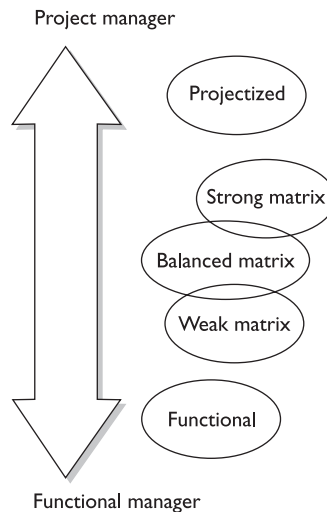
## Functional Organizations

Functional organizations are entities that have clear divisions regarding business units and their associated responsibilities. For example, a functional organization may have an accounting department, manufacturing department, research and development department, marketing department, and so on. Each department works as a separate entity within the organization, and each employee works in a department unique to their area of expertise. In these classical organizations, there is a clear distinction between an employee and a specific functional manager.

Functional organizations do complete projects, but these projects are specific to the function of the department that the project falls into. For example, the IT department could implement new software for the finance department. The role of the IT department is separate from the finance department, but the coordination between the two would be evident. Communication between departments flows through functional

**Figure 2-2**

The organizational structure determines the authority that the project manager and functional manager will have.



managers down to the project team. Project managers in functional organizations have the following attributes:

- Little power
- Little autonomy
- Report directly to a functional manager
- The project manager may be known as a project coordinator or team leader
- The project manager's role is part-time
- The project team is part-time
- The project manager may have little or no administrative staff to expedite the project management activities

### **Matrix Structures**

Matrix structures are organizations that have a blend of departmental duties and employees together on a common project. These structures allow for project team members from multiple departments to work toward the project completion. In these instances, the project team members have more than one boss. Depending on the number of projects a team member is participating in, she may have to report to multiple project managers as well as their functional managers.

### **Weak Matrix**

Weak matrix structures map closely to functional structures. The project team may come from different departments, but the project manager reports directly to a specific functional manager. Project managers in weak matrix organizations have the following attributes:

- Limited authority
- Management of a part-time project team
- Project role is part-time
- May be known as a project coordinator or team leader
- May have part-time administrative staff to help expedite the project

### **Balanced Matrix**

A balanced matrix structure has many of the same attributes as a weak matrix, but the project manager has more time and power regarding the project. A balanced matrix still has time-accountability issues for all the project team members because their functional managers will want reports on their time within the project. Project managers in a balanced matrix have the following attributes:

- Reasonable authority
- Management of a part-time project team
- Full-time role as a project manager
- May have part-time administrative staff to help expedite the project

## Strong Matrix

A strong matrix equates to a strong project manager. In this type of organization, many of the same attributes for the project team exist, but the project manager gains power when it comes to project work. The project team may also have more time available for the project, even though the members may come from multiple departments within the organization. Project managers in a strong matrix have the following attributes:

- A reasonable-to-high level of power
- Management of a part-time to nearly full-time project team
- Full-time role as a project manager
- A full-time administrative staff to help expedite the project

## Projectized Structure

The projectized structure is at the pinnacle of project management structures. This organizational type groups employees, collocated or not, by activities on a particular project. The project manager in a projectized structure may have complete, or very close to complete, power over the project team. Project managers in a projectized structure enjoy a high level of autonomy over their projects, but also have a higher level of responsibility regarding the project's success.

Project managers in a projectized structure have the following attributes:

- High-to-complete level of authority over the project team
- Works full-time on the project with his team (though there may be some slight variation)
- A full-time administrative staff to help expedite the project

## Composite Organizations

On paper, all of these organizational structures look great. In reality, there are few companies that map to only one of these structures all of the time. For example, a company using the functional model may create a special project consisting of talent from many different departments. Such project teams report directly to a project manager and will work on a high-priority project for its duration. These entities are called composite organizations because they may be a blend of multiple organizational types.

Table 2-1 summarizes the most common organizational structures and their attributes.

## Working with Your PMO

Recall that a PMO is a schmancy club where all the project managers get together for cigars and martinis. Not really—I just wanted to see if you were paying attention. The PMO coordinates the activities of all the project managers. Its primary goal is to create a uniform approach on how projects operate within the organization. PMOs can exist in any structure, but are most common in matrix structures and in projectized environments.

	<b>Functional</b>	<b>Weak Matrix</b>	<b>Balanced Matrix</b>	<b>Strong Matrix</b>	<b>Projectized</b>
<b>Project Manager's Authority</b>	Little or none	Limited	Low to moderate	High	High to total
<b>Resource Availability</b>	Little or none	Limited	Low to moderate	High	High to total
<b>Budget Control</b>	Functional manager	Functional manager	Mixed	Project manager	Project manager
<b>Project Manager's Role</b>	Part-time	Part-time	Full-time	Full-time	Full-time
<b>Project Manager's Administrative Staff</b>	Part-time	Part-time	Part-time	Full-time	Full-time

**Table 2-1** Organizational Structures and Their Influence on Project Managers

The role of the PMO is typically to support the project management in the form of templates, project management software, training, leadership, and even granting authority for the project's existence. Often, the PMO provides the administrative support a project manager can expect in a projectized environment.

Here's the big caveat with PMOs: Project team members in a projectized environment are traditionally on one project at a time. A PMO, however, may elect to share project team members between projects if it best serves the organization. So basically, there's no hard and fast rule for the assignment of project team members to an individual project if they are reporting to the PMO rather than directly to the project manager. For your CAPM or PMP exam, keep this in mind: The project managers report to the PMO, and the PMO may exercise its authority over the project managers' control of the project team.

## Defining a Project Management System

A project management system is a collection of tools, resources, a project management methodology, and defined procedures a project manager uses to complete a project. Project management is typically defined for the organization, and the collection of tools and resources is considered the project management system—it's the approach to managing projects within an organization.

Your project management plan defines how your project will work with and utilize the project management system on which your organization relies. Of course, you don't have to have a project management system, but most companies do. A project management system will vary based on the project's application area, organizational structure, and the project complexity.

If an organization is using a PMO, the PMO will likely control and dictate the functions of the project management system. For your PMI exam, know that a project management system defines the processes and procedures a project manager is to follow to complete a project.

## Chapter Summary

Studying for your project management exam can be its own project. You have a sense already where this project is going: to your certification. Sooner or later, your certification project will end and you'll move on to other goals. Projects are the same way. They have a life of their own, and it's called the project life cycle.

Every project, regardless of the application area, follows its own logical path from initiation to closure. Within the project life cycle, there are phases that allow the project to move towards completion. At the end of a phase, the project should create some deliverable or condition that allows the next phase to begin. Sometimes, depending on the associated risk, phases are allowed to begin even when previous phases are not completed; this is fast-tracking.

A project has the most uncertainty of finishing successfully at the beginning because it's a long, long way to completion. As a project moves closer to completion, the likelihood of project success increases because the completion of phases moves the project closer to completing the project objectives. Also, at the start of the project, stakeholders have the highest influence on the project's deliverables. This means they can easily pick and choose and change their minds over and over because nothing has been created yet. When the project begins to create deliverables and move towards closure, it becomes increasingly difficult for stakeholders to change their minds on what the project deliverable should be. Stakeholders can still change their mind (and they often do), but it'll usually cost more time and money the later they wait to announce changes to the project requirements.

Speaking of stakeholders, the folks who have a vested interest in the outcome of a project, it's up to the project management team to define all of the stakeholders within a project. If the project team fails to identify a key stakeholder, trouble and risk can ensue. Recall that stakeholders can also be positive or negative, depending on their position on the project's purpose and the desired project deliverable.

The organizational structure can help the project team identify the stakeholders, but the organizational structure also identifies the project manager's authority. This authority ranks from low to high in the following order of organizational structures: functional, weak matrix, balanced matrix, strong matrix, projectized.

Project management offices support the project manager by providing software, templates, training, and often administrative staffing.

For your exam, pay special attention to the attributes of a project life cycle and its phases. You'll also want to zoom in on the organizational structures and their characteristics. You'll likely encounter questions in which you, as the project manager, will need to respond to a scenario. The response will be determined by the organizational structure within which the project manager is operating.

### Key Terms

**Balanced matrix structure** An organization where organizational resources are pooled into one project team, but the functional managers and the project managers share the project power.

**Composite structure** An organization that creates a blend of the functional, matrix, and projectized structures.

**Customer/user** The person(s) who will use the project's deliverables.

**Deliverable** A verifiable, measurable product or service created by a phase and/or a project.

**Functional structure** An organization is divided into functions, and each employee has one clear functional manager. Each department acts independently of the other departments. A project manager in this structure has little to no power and may be called a project coordinator.

**Influencers** Persons who can positively or negatively influence a project's ongoing activities and/or the project's likelihood of success.

**Kill point** The review of a phase to determine if it accomplished its requirements. A kill point signals an opportunity to kill the project if it should not continue.

**Negative stakeholder** A stakeholder who does not want a project to succeed. He or she may try to negatively influence the project and help it fail.

**Performing organization** The organization whose employees or members are most directly involved in the project work.

**Phase** The logical division of a project based on the work or deliverable completed within that phase. Common examples include the phases within construction, software development, or manufacturing.

**Phase exit** The review of a phase to determine if it accomplished its requirements.

**Phase gate** The review of a phase to determine if it accomplished its requirements.

**Phase-end review** The review of a phase to determine if it accomplished its requirements. A phase-end review is also called a phase exit, a phase gate, and a kill point.

**Positive stakeholder** A stakeholder who wants a project to exist and succeed. He or she may try to positively influence the project and help it succeed.

**Product life cycle** The life cycle of the product a project creates. For example, a project can create a piece of software; the software then has its own life cycle until it becomes defunct.

**Project life cycle** The collection of phases from the start of a project to its completion.

**Project management office (PMO)** A business unit that centralizes the operations and procedures of all projects within the organization. The PMO supports the project manager through software, templates, and administrative support. A PMO can exist in any organizational structure, but it is most common in matrix and projectized structures.

**Project management system** The defined set of rules, policies, and procedures that a project manager follows and utilizes to complete the project.

**Project stakeholder** Anyone who has a vested interest in a project's operation and/or its outcome.

**Projectized structure** An organization that assigns a project team to one project for the duration of the project life cycle. The project manager has high-to-almost-complete project power.

**Strong matrix structure** An organization where organizational resources are pooled into one project team, but the functional managers have less project power than the project manager.

**Weak matrix structure** An organization where organizational resources are pooled into one project team, but the functional managers have more project power than the project manager.

## Case Study

### Managing Projects from Start to Completion

The Riverside Community Park Project was an endeavor to create a 140-acre community recreation park alongside the White River. The project, led by Thomas Stanford and assisted by Jan Steinberg, included many deliverables for the community, including:

- A walkway along the river connecting restaurants and neighborhoods
- Hiking trails
- Baseball and soccer fields
- Water access points
- Picnic areas
- Children's playgrounds
- An indoor family swimming facility
- Parking areas

### Examining the Project Deliverables

The first phase the project moved through was in-depth planning and development. The project scope was broken down into four major categories:

- River-related deliverables, such as docks and fishing areas
- Structural-related deliverables, such as the indoor swimming facility
- Environment-related deliverables, such as the hiking trails
- Common areas, such as the picnic and parking areas

Each of these deliverables was broken down into components that could, in turn, be broken down into exact deliverables for the project. For example, the indoor swimming facility included the excavation of the grounds for the building, the construction of the building, and the indoor swimming pool.

Each deliverable was broken down to ensure that all of the required components were included in the project plan. Each category of deliverables went through a similar process to ensure that all of the deliverables were accounted for and that the project plans were complete. Stanford and Steinberg worked with a large project team that specialized in different disciplines within the project work.

For example, Holly Johnson of EQHN Engineering served as team lead for the river-related deliverables. Johnson has years of experience in construction projects dealing with lakes, rivers, and manufactured waterways. Her expert judgment contributed to the development of the plan and the breaking down of the work.

Don Streepling of RHD Architecture and Construction helped Stanford develop the requirements, features, and components of the indoor swimming facility. RHD Architects designed the building and swimming facilities for the project and helped map out the timeline for a feasible completion and successful opening day.

Grey Jansen with the Department of Natural Resources and Marci Koenig with the Department of Urban Planning worked with Stanford to create several different hiking trails and a pedway along the riverfront. The elaborate trail system offers challenging hikes to pleasant strolls. In addition, the pedway allows visitors to walk through more than 50 acres along the river and to visit restaurants, shopping centers, and other commercial ventures within the park. Without Jansen's and Koenig's expertise, the project would not have been a success.

Finally, John Anderson led the team responsible for the common areas. The children's playgrounds are top-notch, and there is ample parking and access to the park. In addition, Anderson's team created soccer fields and two baseball diamonds for Little League usage.

## **Examining the Project Phases**

When the project was launched, the 140-acre tract was a marshy, brush-filled plot of land that was mostly inaccessible to the general public. In order for this undertaking to be successful, the project had to move through several phases. Many of the deliverables, such as the parking areas and maintenance roads, had to be created first in order to allow the equipment and workers to access the sites throughout the park.

### **Phase One**

The first phase of the project was in-depth planning. Stanford and Steinberg worked with each of the team leaders and other experts to coordinate the activities to create the deliverables in a timely fashion. In order to maximize the return on investment, the project's plan called for immediate deliverables for the public.

The planning phase of the project resulted in:

- The project plan and subsidiary plans, such as cost, risk, and scope management plans
- Design specifications for each of the major deliverables
- A schedule that allows for the deliverables to work in tandem and for them to support one another throughout the project plan
- The creation of a work authorization system
- Continued community buy-in for the project

## Phase Two

Once the project's plan and coordination between teams was realized, John Anderson's crew went to work on Phase Two of the project: creating accessibility. This phase of the project became known as the "Rough-In" phase because roads, parking, and preparation of the park were needed immediately. This phase resulted in:

- Access roads throughout the park
- Entry roads to the park at several points throughout the city
- Junction roads that allowed easy access for construction equipment to be stored on-site for the project's duration

## Phase Three

Phase Three of the project allowed each team to begin its work independently, with an eye towards common delivery dates. For example, Johnson and Jansen had expertise in separate deliverables: the water access points and the trails throughout the park. The project plan called for trails along the river and through the woods, which would be built by Johnson's crew. In tandem with the hiking trails, Johnson's team went to work on the river pedway. At several points along the river pedway, trails from the woods would connect to the paved surface. These two deliverables were timed so that both teams would work together on connecting the nature trails with the river pedway. In addition, caution had to be taken to preserve the environment in the woods and in the water.

Streeping's primary responsibility was the creation of the indoor swimming facility. This deliverable required excavation, the digging and creation of the indoor swimming pool, and the construction of the facility to house the indoor swimming pool. Streeping had to coordinate the construction with Anderson, as the swimming pool needed the largest parking area in the compound. Stanford and Steinberg worked with each team leader to facilitate a common schedule for each of the deliverables.

This phase saw its first completed deliverable for the project: A children's playground was opened near the park entrance that the public could begin using immediately. The playground can easily host up to 75 children at once and has parking for up to 50 cars. In addition, a picnic shelter was opened adjacent to the playground. Because of the proximity of the park and playground to nearby shops and restaurants, this deliverable was well-received from the community, and the public began enjoying the facilities immediately.

Other deliverables in the phase included:

- Restroom facilities installed at several points throughout the park
- Excavation of several water access points
- Excavation for the swimming facility
- Clearing and leveling for the soccer and baseball fields

## Phase Four

Phase Four of the project focused on creating more usable deliverables for the general public. The focus was on the hiking trails throughout the park and partial completion of the river pedway. The hiking trails required brush to be removed, some trees to be

removed, and the land to be graded for passable hiking. The pedway was initially formed as a cement path that will be blacktopped once it is connected throughout the park. Like the hiking trails, the pedway required the removal of brush and trees while considering the environmental preservation of the river.

Jansen's and Anderson's teams worked together to clear the pedway, remove the brush along the riverbank, and preserve the older trees to create a stunning walk along the river. To create maximum deliverables, the pedway was implemented at opposite ends of the 50-acre trail, with plans to be connected at acre 25. This allows the public to enjoy the deliverables in increments from either end of the park.

This phase created these deliverables:

- Seven of the ten hiking trails in the system were cleared and opened for public usage.
- A total of 30 acres of the river pedway were completed (15 acres on both ends of the pedway).
- The swimming pool was excavated and the cement body of the pool was installed.

### **Phase Five**

Phase Five of the project was perhaps the most exciting, as it completed several deliverables:

- The remaining three of the hiking trails were completed. These trails included bridges over small creeks that feed into the White River.
- The remaining 20 acres of the river pedway were excavated and completed with the cement pour. Citizens can now walk or ride their bikes the entire 50-acre length alongside the river.
- The soccer and baseball facilities were installed, which included restrooms, concession stands, bleachers, fences, and dugouts. The fields were also seeded and fertilized, and will be officially open for public use next spring when the grass is healthy.

### **Phase Six**

Phase Six of the project was the longest, but most satisfying. This phase focused on the completion of the indoor swimming facility. The structure includes two Olympic-sized swimming pools, diving boards, locker rooms, sauna and steam facilities, and a restaurant. The building is situated on a hill that overlooks the river pedway—it is the crown jewel of the park. The facility was completed as planned and was opened to the public.

This phase also included:

- The completion of blacktopping the 50-acre pedway along the river
- Closing and sodding of the temporary construction equipment corral
- Installing the remaining playgrounds and picnic areas throughout the park
- Opening the water access points, including a commercial dock for fishermen and boaters
- The official opening of the soccer and baseball fields

## Controlling Project Changes

Throughout the project, the public had many requests for changes to the project scope. The project scope was quite large, and the project budget had limited room for additional changes without requesting additional funds.

When changes were proposed, such as the addition of tennis courts to the common areas, they were considered for validity, cost, risk, and the impact on the project scope. A Change Control Board, which Stanford initiated, considered the proposed changes and then approved or declined the changes based on predetermined metrics, such as time, cost, and overall change on the original project scope.

When the project was initiated, a public meeting was held to gather input from the community on the deliverables they would most like to see in the park. At this point of the project, the stakeholders—the community at large—had a great opportunity to voice their opinions on what the park should and should not include. Once a consensus was created for the park deliverables and a scope was created, it became challenging for anyone to add to it.

Some changes, however, proved valuable and were added to project deliverables. For example, the commercial fishing and boating dock within the park was a viable opportunity for a local businessman to provide a service for boaters and the community at no cost to the project. Koenig and Johnson worked with the business to ensure that it met the city codes, safety regulations, and fit within the scheme and overall effect of the project.

Other changes, such as the tennis courts, were declined. While there very well may be many tennis players in the community, this request was denied for several reasons:

- The city already supports many tennis courts in the community.
- A private tennis club is in the vicinity of the park, and they protested the addition of the tennis courts, as this would have an economical blow to their business.
- No tennis players requested the courts at any of the public meetings discussing the creation of the park.

Changes, especially in a project of this size, had to be tracked and documented. Any changes that were approved or declined were cataloged for reference against future change requests that may have entered the project.

## Questions

1. The project life cycle is comprised of which of the following?
  - A. Phases
  - B. Milestones
  - C. Estimates
  - D. Activities

2. Marci Koening, the project manager for the ERP Project, is about to complete the project phase review. The completion of a project phase is also known as which of the following?
  - A. Lessons learned
  - B. Kill point
  - C. Earned value management
  - D. Conditional advancement
3. Which of the following best describes a project deliverable?
  - A. The resources used by the project to complete the necessary work
  - B. The resources exported from the project as a result of the project work
  - C. The end result of a project planning session
  - D. A verifiable, measurable work product
4. The compilation of all the phases within a project equates to the \_\_\_\_\_.
  - A. Project life cycle
  - B. Product life cycle
  - C. Project completion
  - D. Project processes
5. Which of the following describes the early stages of a project?
  - A. High costs and high demands for resources
  - B. A high demand for change
  - C. A high demand for project team time
  - D. Low costs and low demands for resources
6. At which point is the risk of failure the lowest, but the consequence of failure the highest?
  - A. During the early stages
  - B. During the middle stages
  - C. During the final stages
  - D. Risk of failure is even across all project phases
7. Project team members are most likely to work full-time on a project in which of the following organizational structures?
  - A. Functional
  - B. Weak matrix
  - C. Strong matrix
  - D. Projectized

8. Why would an organization divide a project into phases?
  - A. To provide better management and control of the project
  - B. To identify the work that will likely happen within a phase of the project
  - C. To identify the resources necessary to complete a phase of the project
  - D. To define the cashflow requirements within each phase of the project
9. All of the following are true statements about the project life cycle, except for which one?
  - A. The project life cycle defines the work to be done in each phase of the project
  - B. The project life cycle defines the deliverables that each phase will create
  - C. The project life cycle defines who is involved in each phase
  - D. The project life cycle defines how much each phase will cost
10. You are the project manager of a new project. When is the level of failing to achieve the objectives the highest within your project?
  - A. There is not enough information provided to know for certain
  - B. At the start of the project
  - C. At the end of the project
  - D. During the intermediate phases of the project
11. Which one of the following is an example of a positive stakeholder?
  - A. The comptroller within your organization
  - B. A customer who is eager for your project's deliverable
  - C. An environmental group that has claims against your project
  - D. A union
12. None of the following are key project stakeholders, except for which one?
  - A. Union
  - B. Influencer
  - C. Technical interface
  - D. Inspector
13. You are a project manager acting in a functional organization. The functional manager and you disagree about several deliverables the project will be creating. The functional manager insists that you begin the project work now. What must you do?
  - A. Begin work
  - B. Resolve all of the issues with the functional manager before you begin working
  - C. Continue planning, as you are the project manager
  - D. Begin work as long as the issues don't affect the project deliverables

14. You are a project manager working under a PMO. Your project resources are shared among several projects. To whom will the project team members report?
  - A. The project manager of each project
  - B. The functional managers
  - C. The PMO
  - D. The project manager of their primary project
15. At what point in the project may stakeholders most cost-effectively recommend changes to the project deliverable?
  - A. Before the project charter is created
  - B. At the start of the project
  - C. During the intermediate phases
  - D. During the final phase of the project
16. An organization has elected to kill a project. When is this decision most likely made?
  - A. At the end of a phase
  - B. At the start of a phase
  - C. When the project is not meeting its financial requirements
  - D. When technology has superseded some of the technology used within the project
17. Nancy is a project manager for the NHG Corporation. She has identified several positive stakeholders for her construction project and a few negative stakeholders. Nancy and the project team have been meeting regularly with the positive stakeholders, but have not met with the negative stakeholders. What can happen if Nancy ignores negative stakeholders?
  - A. Her project will likely succeed without any objections
  - B. Her project may suffer poor political capital from the negative stakeholders
  - C. Her project will risk failure to bring the project to a successful end
  - D. The negative stakeholders will not have an opportunity to communicate with the project manager
18. All of the following are cultural attributes of an organization, except for which one?
  - A. Policies and procedures
  - B. Work ethics
  - C. View of authority relationships
  - D. Experience of the project management team

19. The project management plan defines which one of the following?
  - A. Who the project manager will be
  - B. How the project manager will use the project management system
  - C. When the project team will be assembled and released
  - D. How the deliverable will be shipped to the customer
20. Who has full authority over project funding in a weak matrix?
  - A. The project manager
  - B. The functional manager
  - C. The PMO
  - D. The project sponsor

## Answers

1. A. The project life cycle is comprised of phases. B is incorrect because milestones may exist within the project plan, but they do not comprise the project life cycle. C is wrong because estimates are not directly related to the project life cycle. D is incorrect because activities comprise the phases within the project life cycle, but not the project life cycle itself. For more information, see the PMBOK, Section 2.1.
2. B. The completion of a project phase may also be known as a kill point. Lessons learned is a collection of information and knowledge gained through an experience, typically a phase, within the project, so A is wrong. Earned value management can happen at different times throughout the project, not just at the end of a project phase; therefore, C is wrong. D, conditional advancement, is a term that is used to describe the conditions that must be present for the work to continue on a project. Conditional advancement, however, does not have to happen only at the end of a project phase. For more information, see the PMBOK, Section 2.1.2.
3. D. A deliverable is something that can be verified and measured. A defines the resources in order to create the deliverable. B is an inaccurate statement. C defines how the work and resources will be utilized in order to create the project deliverable, not the deliverable itself. For more information, see the PMBOK, Section 2.1.2.
4. A. The project life cycle is comprised of all of the project phases within a project. B describes the life of many projects that create a unique product or service. C and D are incorrect because they do not accurately describe the project life cycle. For more information, see the PMBOK, Section 2.1.
5. D. Projects typically have low costs and low demands for resources early in their life cycle. Choices A, B, and C are incorrect statements in regards to projects. For more information, see the PMBOK, Section 2.1.1.

6. C. As the project moves closer to completion, the likelihood of risk diminishes, but should the project fail, its consequence is the highest because of the time, monies, and effort invested in the project. A, B, and D are incorrect in regards to risk assessment in a project. For more information, see the PMBOK, Section 2.1.1.
7. D. Projectized structures often have project team members assigned to the project on a full-time basis. A, B, and C are incorrect because these structures have part-time project teams. For more information, see the PMBOK, Section 2.3.3.
8. A. Organizations often divide projects into phases to make the management and control of the project easier and more productive. B and C are incorrect because these statements identify an attribute of a phase, not the reason to create all phases. D is incorrect because this statement is not true for all projects; in addition, cash flow forecasting is part of planning and is not universal to all project phases. For more information, see the PMBOK, Section 2.1.
9. D. The project life cycle does not define how much each phase of the project will cost. The project life cycle does define the work to be done in each phase, the deliverables each phase will create, and the resources needed in each phase, so choices A, B, and C are incorrect. For more information, see the PMBOK, Section 2.1.1.
10. B. Projects are most likely to fail at the start of the project. As the project moves closer to the project completion, its odds of finishing successfully increase. A is not an accurate statement. C is incorrect because the project is more likely to finish successfully at the end of the project. D is also incorrect because the intermediate phases show progress towards project completion. The closer the project moves away from its start and towards completion, the higher the odds of success are. For more information, see the PMBOK, Section 2.1.1.
11. B. The eager customer is an example of a positive stakeholder. A, the comptroller, is usually an influencer and not a positive or negative stakeholder for most projects. C, the environmental group that has claims against your project, is an example of a negative stakeholder. D, the union, is another example of a project influencer. In this example, the union is neutral, but there are instances when a union could become either a positive or negative stakeholder. For more information, see the PMBOK, Section 2.2.
12. B. An influencer is the only key stakeholder the PMBOK specifically addresses out of those listed within this question. A, the union, and C, the technical interface, could be examples of influencers, but not in every project. D, an inspector, is not a key stakeholder in every project, although an inspector could be considered an influencer if one were involved with your project. For more information, see the PMBOK, Section 2.2.
13. A. Because you are working within a functional organization, you have little to no power, and the functional manager has all of the power. You must obey the functional manager and get to work. B, C, and D are all incorrect choices for the project manager in a functional structure. For more information, see the PMBOK, Section 2.3.3.3.

14. C. When resources are shared and a PMO exists, the project resources report to the PMO. A is true in a matrix structure without a PMO. B is correct in a functional structure. D is not valid. For more information, see the PMBOK, Section 2.3.4.
15. B. It's easiest and least costly for stakeholders to ask for changes at the start of the project. A is incorrect, as changes can easily be requested after the charter is created but before the project work begins. C is not true, as changes may affect work that has already been completed. D is absolutely false, as these changes may have the highest cost on the project.
16. A. The end of a phase is also known as a kill point. B is inaccurate, as projects are most likely killed at the end of a project phase, not its start. C is incorrect, as the most likely answer is A. D is also incorrect, as technology may change, but the demand for the project deliverable may not. If technology has changed, the project may elect to upgrade the technology being used to the newer available technology. For more information, see the PMBOK, Section 2.1.2.
17. C. Nancy cannot simply ignore the negative stakeholders. Their influence on the project may cause the project to fail. Nancy must work with the negative stakeholders to squelch their protests, or consider their demands to ensure compliance or agreement with their issues. A, B, and D are all inaccurate outcomes of ignoring the stakeholders. For more information, see the PMBOK, Section 2.2.
18. D. The experience of the project management team is not a cultural attribute of an organization. A, B, and C—the policies and procedures, the work ethics, and the view of authority relationships—are all classic examples of an organization's culture. For more information, see the PMBOK, Section 2.3.2.
19. B. The project plan defines how the project management system will be used. A is incorrect; the project charter defines the project manager. C is incorrect because the staffing management plan (see Chapter 9) defines how the project team will be assembled and managed. D is incorrect because not every project will need to ship a deliverable to a customer. For more information, see the PMBOK, Section 2.3.5.
20. B. The functional manager has the power over the project funding, not the project manager. A, C, and D are all incorrect statements, as these do not define the authority of the project manager in a weak matrix structure. For more information, see the PMBOK, Section 2.3.3 and Figure 2-6 in the PMBOK.

