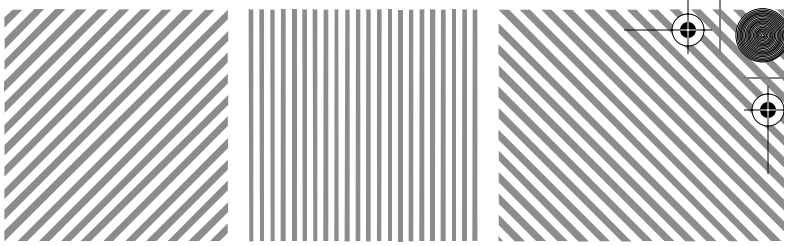


Chapter 1

Building the Foundation

In This Chapter

- The definition of project management
- Different organizational structures
- The project management process groups
- Project criteria
- Constraints and their impacts
- Project management certification

Welcome to the world of project management. Chances are you've already had some experience with project management, whether you've called it that or not. Maybe you've helped organize your company's annual conference or been involved with a new product launch. At some point in your personal or professional life, you've probably used some sort of process to get from the beginning of the project to the end results.

You'll discover through the course of this book that you may already use some of the processes we'll talk about, but you may never have realized they were formalized procedures. I'll add some new twists and tricks to those processes that you'll want to try out. You'll also learn some new techniques and procedures that will enhance your project management experiences and help you run your next project smoothly and effortlessly. (Okay, that might be stretching it a bit, but your project will run more efficiently.)

In this chapter, we'll start building the foundation of good project management processes.

The Project Management Journey

Start your engines—we're ready to lay the foundation for building and managing your project. In this chapter, we'll start with a definition of a project and then we'll take a high-level look at some of the processes and plans you'll build throughout the rest of the book and how you'll benefit from using solid project management techniques when managing your next project. We'll also cover organizational foundations before moving on to the project processes themselves. Here we go.

Is It a Project?

project management
The process of fulfilling the requirements of the project to the customer's satisfaction through planning, executing, monitoring, and controlling project results.

How do you know whether your new work assignment is a project or whether it's going to benefit from *project management* techniques? If you're like most of us, once you get to work and settle in for the day, you check your e-mail and voice mail and touch base with some of the other folks on your team. The boss may drop by and ask for a status report on a problem you've been working on, gently nudging you to get back to it. All of these tasks are everyday work. They don't really have a beginning or end; they're ongoing. Projects are not everyday work. In order for work to be considered a project, it must meet a certain set of criteria.

Projects set out to produce a unique product or service that hasn't been produced before. They have a limited timeframe and are temporary in nature. This means that projects have a definite beginning and ending. You can determine that a project is complete by comparing it to the objectives and deliverables stated in the project plan.

Everyday work is ongoing. Production processes are an example of ongoing operations. Maybe you love popping a handful of chocolate drops into your mouth mid-afternoon for a quick treat. Producing those chocolate drops is an example of ongoing operations. The company knows how many candies to produce, what colors they should be coated with, how many go in a package, and so on. Every day, hundreds of thousands of those little drops make their way into bags, onto the store shelves, and eventually into our mouths—yum. But the production of these candies is not a project.

Now let's say that the management team has decided that it's time to introduce a new line of candy. You've been tasked with producing the new candy flavor and shape. You assemble a research team to come up with a new candy formula. The marketing team gathers some data, which shows that the new candy has real potential with the consumers. The candy is produced according to plan, monitored for adherence to the original formula and design, and shipped to the stores. Is this a project or ongoing operations?

The answer is, this is a project even though candy making is something the company does every day. The production of chocolate drops is considered an ongoing operation. The new candy, however, is a unique product because the

company has never produced this flavor and shape of candy. Remember that projects are originated to bring about a product or service that hasn't existed before. The new candy project was kicked off, carried out, monitored, and then ended when all the requirements were met. Candy production didn't stop there though. At the end of this project the production of the candy was turned over to ongoing operations and absorbed into the everyday work of the company. The project ended in this case by being assimilated into the ongoing operations of the company. Table 1.1 recaps the characteristics of projects versus ongoing operations.

Table 1.1 Projects versus Ongoing Operations

Projects	Ongoing Operations
Definite beginning and end.	No definitive beginning and end.
Temporary in nature.	Ongoing.
Produces a unique product or service.	Produces the same product or service over and over.
Resources are dedicated to the project.	Resources are dedicated to operations.
Ending is determined by specific criteria.	Processes are not completed.

Where Are We Going?

When you start out on a journey, it helps to have the destination in mind. We've embarked on a project management discovery journey, so I'd like to start out by describing where we'll be when we've finished.

The end of the project is the time to reflect on the processes used to complete the activities, to determine whether the *customer* is satisfied with the product the project set out to produce, and to document the lessons learned throughout the course of the project (among other things). You will be able to use this book to guide you from start to finish through your next small or medium-sized project so that you can easily assess those factors not only at the end of the project but as you progress through the project as well. (I consider large projects to be along the lines of building rocket ships, constructing major highways, or writing the latest, greatest software program that will automatically do your grocery shopping and monitor your golf swing all at the same time.) If you're just starting out in project management, you probably aren't heading up a large-scale project. But rest assured that all those small and medium-sized projects will teach you a great deal about project management and will start you well on the way to bigger and better opportunities as your experience grows.

customer
The end user or recipient of the product or service of the project. Customers may be internal or external to the organization.

NOTE

When you're just starting out, don't discount the experience you'll gain by working on small projects. Large projects are really a lot of smaller projects all lumped into one. The stepping stones to large project work are created by a history of success with small and medium-sized projects.

Included in this and each subsequent chapter you'll find discussions of the process at hand, examples so that you can apply what you're learning, and templates that you can use or modify to complete your project documentation. Now let's take a high-level look at a completed project.

A Bird's-Eye View

Our first example of a project is this book you're holding. You haven't yet read the entire book (unless, of course, this is your second time through). No doubt you're asking yourself, "Will this book give me the information I'm looking for?" or perhaps, "Will I be able to run my next project more efficiently as a result of reading this book?" Of course, I think the answer to both of these questions is, "Yes," but you don't know that yet. After you've finished the book, you'll know the answers to these questions and be able to reflect and discover that you did learn some new things and your project management tool bag is much better equipped for your next project. In other words, you've satisfied your curiosity and increased your knowledge of project management.

Projects work the same way. As the project manager, your primary concern throughout the project and particularly at the end of the project is, "Did I meet the customer's requirements to their satisfaction?" If you've followed the appropriate project management processes correctly, you're well on your way to having a successful answer to that question. At the end of the project, you'll document the things you've learned for use in future projects, which will help you to improve the process next time around.

Projects come about as a result of a need, and that need relates to the customer's expectations concerning the end result. But how do we get there? How do we know the customer is going to be satisfied? Table 1.2 is a bird's-eye view checklist that outlines the plans we'll create and the processes we'll practice during the course of a project. Don't worry that you may not understand everything on this list—I'll describe each of these areas in detail as we go. We'll revisit this list in a similar format one more time later in this book in Appendix C, "Sample Project Management Checklists."

NOTE

You can also download the Checklist of Project Processes from `www.sybex.com` or `www.harborlightpress.com`.

Table 1.2 Checklist of Project Processes

Complete	Process or Document Name	Notes
☐	Project charter	Created by project sponsor. Describes project purpose and outcomes.
☐	Cost benefit analysis	Created by project manager with stakeholder input. Determines whether the project is financially beneficial to the organization. Sometimes this is done prior to the project to determine whether the project should even be undertaken.
☐	Assumptions and constraints	Created by project manager with stakeholder input. Describes assumptions and project constraints.
☐	Project scope statement	Created by project manager. Signed by project sponsor and stakeholders. Project manager works with project team and stakeholders to define and document project deliverables in the scope statement.
☐	Critical success factors	Defines what must be done to determine whether the project will be deemed successful. Can be included with the scope statement.
☐	Communications plan	Created by project manager. Describes the information needs of stakeholders and the project team and how the information is distributed.
☐	Work breakdown structure (WBS)	Created by project manager. Formatted as a deliverables-oriented hierarchy that defines the work of the project.
☐	Roles and responsibility matrix	Created by project manager. Ties roles and responsibilities of project team members with WBS elements.
☐	Resource plan	Created by project manager. Describes physical resources and human resources needed to complete the project.
☐	Procurement plan	Created by project manager or procurement team. Describes resources or services to be purchased from an outside provider.

Table 1.2 Checklist of Project Processes *(continued)*

Complete	Process or Document Name	Notes
☐	Risk management plan	Created by project manager or risk analysis team. Identifies, describes, and plans for project risks.
☐	Quality plan	Created by project manager or quality team. Describes how quality will be assured and measured.
☐	Project schedule	Created by project manager. Displays task dependencies, task durations, and milestones. Used to determine the critical path.
☐	Project budget	Created by project manager or financial team. Determines targeted costs of project.
☐	Change management plan	Created by project manager. Describes how changes will be identified and managed.
☐	Implementation checklist	Created by project manager. Describes issues to be discussed at turnover to internal departments or the customer.
☐	Project feedback	Provided by sponsor, stakeholders, and team members. Provides information to improve performance on future projects.

Charters and schedules and budgets, oh my! If you're thinking this looks like a great deal of work, you're correct. But anything worth doing is worth the time and effort to perform correctly and thoroughly. And remember that the size of the project will dictate how much effort should go into each of the items on the checklist. You might be happy to know that some of these processes can be combined or scaled back for small projects, depending on the project and the impact on your career growth if the project isn't successful.

This list may appear daunting right now, but by the end of this book you'll have a better understanding of the importance of each of these elements and why you need to incorporate them into your next project.

Know the Structure of Your Organization

It's important for project managers to understand the kind of organization they work in. Each structure has its own pluses and pitfalls that influence your effectiveness as a project manager. Organizations and their cultures are as unique as the projects they carry out. Functional organizations are the most traditional company structure. However, there can be deep layers of bureaucracy in this type of culture, and project managers may find themselves having little to no authority to make work assignments or complete the tasks needed to finish the project. Projectized organizations are structured with a project-oriented focus, but they also have their own unique advantages and disadvantages. Matrix organizations are yet another type of structure that mixes some of the features of the functional organization with the projectized organization. Let's take a further look at each of these organizational structures.

Functional Organizations

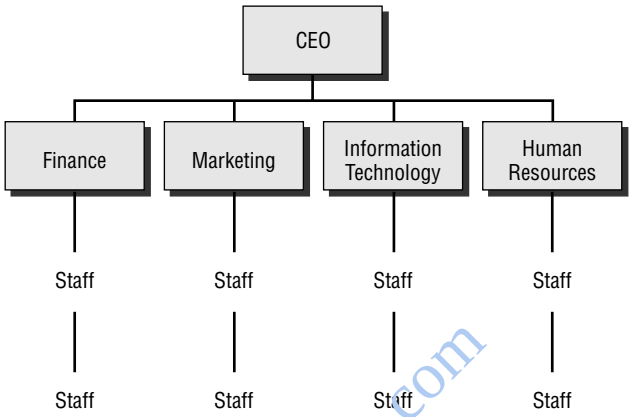
Functional organizations are structured in a way that groups similar work operations together into departments. For example, there's an accounting department, staffed with folks who know how to count the money and keep track of expenditures and such, maybe a human resources department, an information technology department, and so on in this type of organization. The departments themselves are organized around similar work processes, and the employees who work in these departments have similar skill sets, albeit ranging from beginners in the field to seasoned experts.

functional organizations
A traditional organizational structure that is hierarchical in nature. Employees report to one manager who reports to a higher level manager.

Chances are you work for a person known as the boss, who has some level of authority over your work assignments. Chances are your boss works for a boss who works for the big boss. This is an example of a functional organization. All the employees report up through their own departments to bosses who report to the big cheese at the top. Most organizations are structured this way; it's the most common form of organizational structure.

Project managers who work in functional organizations usually have other responsibilities besides the project at hand. When the manager of human resources receives approval to undertake a project implementing an automated leave request system, she'll not only have to manage the project, but she'll also continue to manage the duties of her regular position. This makes the project management tasks easier since she's the one who assigns the work to her staff, but her job responsibilities become more complicated since she's

juggling functional duties and project management duties. Here is a typical organizational chart for a functional organization:



If you find yourself working as a contract project manager in this type of organization, be aware that corporate culture may dictate strict adherence to the chain of command. This means you must speak with the functional managers directly and should not go over their heads for answers unless they instruct you to do so. And rather than taking the initiative and rallying the employees in the department around the project, you'll likely need to get permission from their boss before you speak to them.

Advantages of a functional organization include the following:

Clear chain of command Project team members have one supervisor, and they clearly understand the lines of authority.

Cohesive team Team members know one another because they work in the same department. Because their skills and talents are known, task assignment is easier.

Separation of functions This setup allows team members to fine-tune specific skills and eventually become experts.

Disadvantages of a functional organization are as follows:

Project managers are typically functional managers also. This arrangement tends to pull a manager in several directions and can cause projects to suffer from lack of attention. If the PM is not a functional manager, the project team may not respect their authority, which can lead to poor project performance.

Layers of bureaucracy This structure slows down the project progress because of the time it takes to get approval or make decisions.

Competition for resources When multiple priorities and projects are undertaken, the department can become stretched thin under the load, which can adversely affect all the work of the department. (To be honest, this problem can occur under any organizational structure.)

Project managers have limited authority. Project managers in a functional organization usually have to rely heavily on negotiating skills in order to obtain resources from functional managers. They also typically have little or no authority to hold team members accountable.

Projectized Organizations

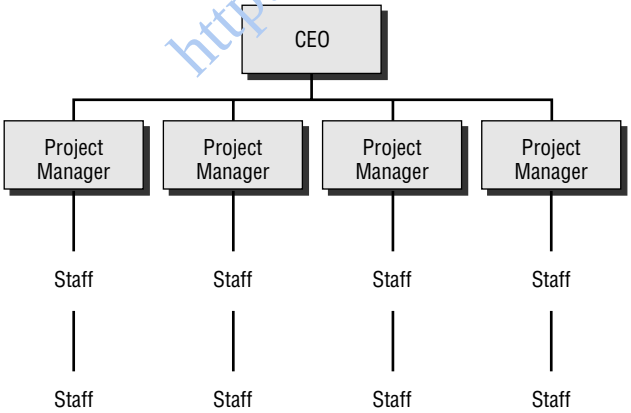
projectized organizations
Projectized organizations focus on the project itself, not on the work of the functional department. Project managers have the most authority in this type of structure, and other functions, such as accounting or human resources, may report to the project manager.

Projectized organizations are structured just the opposite of functional organizations. If you're a project manager in this type of organization, you probably report directly to a vice president of project managers or perhaps to the CEO.

In this type of environment, the project manager has full authority over the project, and supporting functions like accounting and human resources report to the project manager instead of to a functional manager in that area of expertise. Organizational structures like this focus on projects as their top priority. As a result, project managers have the authority to form project teams, assign resources, and focus on the work of the project. All the team members assigned to the project report directly to the project manager, and their sole responsibility involves project-specific activities. At the conclusion of the project, team members are assigned to new projects or to other assignments.

collocated
Project team members are physically located together at the same site.

Project teams are typically *collocated* in a projectized environment. This facilitates communication and decision-making processes because everyone works together and reports to the same project manager. The following graphic is a typical org chart for a projectized organization:



NOTE

Projectized structures can exist within an otherwise functional organization. Perhaps the company is undertaking a mission-critical project and needs a dedicated team of folks to work on nothing but that project. A project manager is appointed who reports directly to an executive manager, the team is chosen and assigned, and off you go with a projectized team structure within the functional organization.

Advantages of a projectized organization include the following:

Project managers have ultimate authority. Team members have one boss (you and only you) and clearly understand the lines of authority. Teams are typically collocated, which makes communication very clear.

Project managers are the primary decision makers. This makes communication, problem resolution, and priority setting clear-cut. The buck stops here.

The focus of the organization is project work. Resources are focused on the projects and the work of the project. Loyalties are formed to the project and to you as the project manager.

Disadvantages of a projectized organization are as follows:

Reassignment of team members When the work of the project is complete, team members need to find new assignments. There may not be another project available to the team members right away.

Idle time Team members with highly specialized skills may be required only at certain times or for specific activities on the project. What they do with their time otherwise is a tough issue to resolve in this type of organization.

Competition Project managers compete against each other for the best resources available within the organization when forming their teams and acquiring materials. This could have a negative affect on the external customer who is unfortunate enough to have the project manager who drew all the short straws for their project.

Matrix Organizations

matrix organizations
An organizational structure where employees report to multiple managers, including one functional manager and at least one project manager.

No, this isn't a remake of a movie where we get to watch projects play out in slow motion, upside-down, and sideways. *Matrix organizations* are a result of combining the best of the functional and projectized organizations while downplaying the disadvantages inherent in both. Many organizations use this type of structure for project work. Like the projectized organization, projects are the focus of the work in a matrix structure.

NOTE

The biggest disadvantage of this type of structure is that project team members report to more than one manager. I don't know about you, but having one boss is difficult enough, let alone two or three. (Sorry, boss!)

The idea here is that project team members are assigned to the project and thus report to the project manager for all project activities. They may still have duties to fulfill back at their old functional job and thus report to their functional manager regarding those duties.

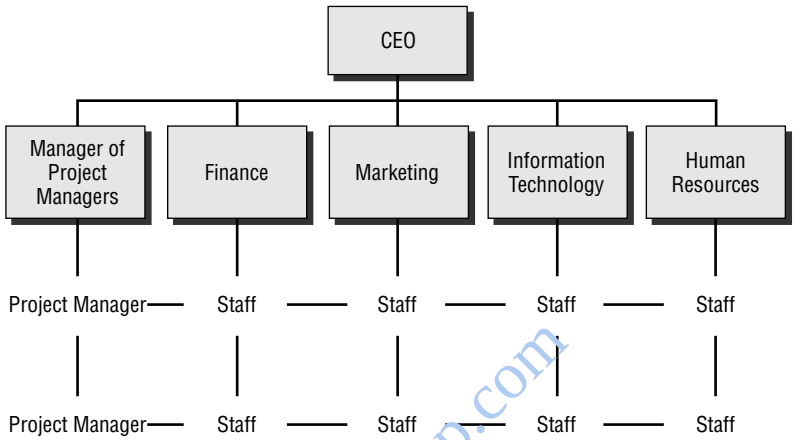
Let me give you an example. Suppose your project is to install a new piece of equipment in the remittance processing area. (They're the folks who take your money and credit your account for making the payment.) This project cuts across the lines of several departments: remittance processing, information technology, customer service, and accounting. In order to accomplish this project, team members from each of these functional areas are assigned to the project. Let's say that you're the project manager and must make sure all the team members focus on this project to meet the implementation deadline. However, Sara in accounting really doesn't want to work on this project and has a particular loyalty to her functional manager. She spends most of her time on her functional duties, claiming priority issues or emergencies, and never seems to get her project activities completed on time. I think you're getting the picture.

Organizations operating under a matrix structure that place a strong emphasis on project work can eliminate the problem discussed in the preceding paragraph. When the emphasis is on project work, team members are relieved of their old functional duties during the course of the project. Functional managers are responsible for collecting time reports and monitoring the low-level administrative type work of their team members. However, project assignments come from the project manager. At review time, the project manager will deliver an evaluation of project team members to their respective functional managers. This becomes input into the employee's annual review. Functional managers are responsible for holding formal reviews and rating their employees.

Project managers working in this environment should be certain to work closely with the functional managers when preparing project plans, setting schedules, and determining the staff members needed for specific activities. If you don't work closely with the functional manager or are lacking in negotiating skills, you may mysteriously find that the resources you need are never available when you need them.

When the functional department managers have good working relationships with the project managers and the company culture is focused more on the work of the project than on departmental work, this structure can work well. A project-focused matrix organization is known as a strong matrix organization. Project managers usually have more authority in a strong matrix structure than the functional department managers, and that makes it easier to settle disputes, assign

resources, and focus on the work of the project. Here is a typical org chart for a matrix organization:



Advantages of a strong matrix organization include the following:

The focus of the organization is project work. Resources are focused on the work of the project.

Specialty skills can flourish. Employees with specialized skills are able to use these skills across the organization in various projects and remain up to date in their specialty. This benefits both the employee and the organization.

Opportunities for growth Employees just starting out their careers are exposed to various departments within the organization, which isn't as easy to do in a functional organization. They become well rounded in their perspectives and have a better understanding of how the organization operates.

Disadvantages of a strong matrix organization are as follows:

More than one boss Team members report to more than one manager, which can lead to conflicts or delayed project activities down the road if they feel a strong loyalty to one manager.

Confusing duties Team members may be easily confused about their work priorities if the project managers and functional managers are not working together well.

Conflicts between managers Struggles over resources and priorities can affect the relationships between project managers and functional managers, thereby jeopardizing the project. If the managers have a particular dislike for one another, things can get very interesting.

As a project manager, it's important for you to understand the kind of organization, or project reporting structure, you're working under. Knowing the structure will help you understand your level of authority and why it's harder to get things done in certain organizations. Just being aware of the advantages and disadvantages of each type of organization will help you to navigate through some of the bumps in the road that you'll inevitably encounter.

Benefiting from Project Management Practices

We'll begin our journey into the world of project management by discussing what project management is and how to take advantage of established practices and tools of the trade. Perhaps you've been recruited to work on your organization's upcoming annual conference. You're working as an assistant to the project manager in charge of making arrangements for the vendors to attend, assigning their exhibit spaces on the conference room floor, and assisting them in making arrangements with the hotel for their hospitality functions on different evenings during the conference. Things progress relatively well until the evening before the conference begins and you discover that several of the vendors' booths are not wired for electricity. To make matters worse, the hotel informs you that they have another conference going on at the same time in another area of the hotel and all their personnel are busy working on those issues and they'll get to you when they get to you.

Applying good project management processes and techniques to your project could have prevented this mishap. That's not to say you'll never experience problems during your projects, but using good project management techniques will make you much better equipped to deal with problems as they arise. And, if you've really done a good job with project planning in particular, you won't be taken by surprise because you will have already accounted for the unexpected.

Project management means applying skills, knowledge, and established project management tools and techniques to your project and the processes used to carry out the project to produce the best results possible. You're going to learn all about those tools and techniques throughout the remainder of this book. Applying these skills once you've learned them is up to you. One thing I can assure you, if you're currently practicing project management by the seat of your pants, you'll notice a big difference in the way your projects play out, and in their success, if you'll apply some of the things outlined here (particularly the planning processes). If you haven't yet delved into project management, following the processes and techniques you're about to learn will make you look like an old pro.

You might be thinking that this whole project management process sounds like a lot of extra time added to the project. Why not just jump in and get started with the real work? In reality, that thinking is incorrect. Remember that time is money, as the old saying goes. Properly planning, executing, and monitoring your project along the way will save you lots of time in the long run. You'll have

the tools at hand to measure your success as you go (and to know what you're looking for in the first place). Proper planning and follow-up will prevent mistakes or unplanned events that could creep up on you unexpectedly. At the very least, the impact of those unplanned events (also known as risks) is lessened if they do occur. And if you've saved the company time, what else have you saved?

NOTE

Utilizing good project management techniques puts you in the driver's seat. Instead of your project running wildly out of control and bumping into every obstacle in its path, you'll steer it to a successful completion by applying the tools and techniques of an established project management process.

Again, good project management techniques put you in the driver's seat. They allow you to control and apply the resources of the project and assure that you and your team are headed for the right destination. As the project manager, you'll realize several advantages when working through your next project by employing good project management techniques. Here's a brief list of the advantages of establishing sound processes in your organization:

- Improves overall project performance
- Reduces the time to complete projects
- Reduces project risk
- Increases quality
- Improves communication and provides an open environment for communication
- Provides standard methodologies for everyone in the organization to follow
- Ensures consistency in reporting
- Improves accuracy of project reports

Today, there are several established project management processes to pick from. A host of vendors and companies exists solely to sell you their solution, and/or consulting time, to establish project management procedures in your organization. If your company doesn't have an in-house project management expert, this might be one way to get a framework for project management established. Most of these products and processes are easily adaptable to your organization's needs. There are also consultants aplenty who will gladly come in and organize project management processes for your company.

Project Management Institute (PMI)
Project Management Institute is a worldwide organization dedicated to promoting the use of standardized project management techniques across industries.

You don't have to purchase someone else's solution, however. With a little time and some elbow grease, and the blessing of your management team, you can develop your own procedures following standards already set out by such organizations as the *Project Management Institute (PMI)*. PMI is the international de facto standard for project management, and I'll rely heavily on PMI guidelines, process, and terminology throughout the rest of this book. There are other project management methodologies besides PMI that will work just as well. In a

later section in this chapter, I'll list several websites you can visit to look at their ideas and approaches to project management.

Keep in mind that the exact process you use isn't what's important. What is important is that you follow an established procedure and that you properly plan and monitor the work of your project and follow through with good communicating skills and documenting techniques.

Tools of the Trade

Just as there are established project management standards and practices in existence today, there are several tools and resources available to assist you in various stages of the project. Project management tools are no different than the tools you'd buy if you were building a shed out in your backyard. You should know how the tool is used to derive the most benefit from it, and you shouldn't expect one tool to do everything. You wouldn't use a hammer to screw hinges to the doorframe; in the same way, you shouldn't expect a project scheduling tool to perform risk analysis for you. Above all, no tool takes the place of a good project plan. You can pick up that hammer and start nailing away at boards all day long, but if you don't have a good plan to work from, you may end up with a doghouse instead of a shed.

NOTE

No tool, no matter how whiz-bang it is, will take the place of good project management practices.

With that caveat behind us, let's take a look at a few of the tools available to help make your next project a success.

Project Management Software

Go ahead, check it out for yourself. Bring up your favorite Internet search engine and type in the words "project management software." You'll be greeted with a host of products from scheduling to time tracking to risk assessment and more. The products abound. Are they all necessary? Are they all good? Well, that depends.

Way back in ancient times, there weren't any computers and thus no computer software programs. People did everything on…can you guess…paper! The point here is that the tool is only as good as the effort you put into it. Automating processes certainly helps your scheduling, planning, and tracking functions (to name a few), but you still need an understanding of how the results you see on the screen are produced. Elementary schools all over the country today teach children how to perform math calculations by hand and require them to memorize the multiplication tables. Why do they do that when they could issue calculators to every child on the first day of school? Because the kids need to understand why 4 pops up on the calculator screen when they plug in 2×2. (And that always brings up the question, what happens when the aliens invade and mess with Earth's electromagnetic

field and all the computers become art deco paperweights? Who will do all those calculations?) If you understand the formulas, processes, and theories used to produce the results, you'll have a much better grasp of the impact changes and risk may have on the project.

NOTE

One of the best-known project management software tools is Microsoft Project. In some later chapters, we'll be looking at different aspects of this software and how it can make project scheduling easier for you. This product is widely used in many different industries today and has practically made "Gantt chart" a household term. The strongest features of this product are its scheduling ability and its resource assignment and usage functions. We'll dive into these functions in a later chapter.

Other software packages are available that perform some of the same functions as Microsoft Project, and I encourage you to check them out. Remember that the outputs from these software packages are not the project plan itself—they are part of the overall project plan. One more thing you should remember is that if you plug bad information into the tool, you're going to get bad information out.

Templates for Project Forms

Did you ever play with stencils when you were a kid? You'd take your trusty number two pencil in one hand, hold the stencil down tight against your paper, and trace away, drawing almost perfect shapes. Templates are like stencils. They provide a consistent format to follow for everything from scope statements to progress reporting and are reusable from project to project. You'll be seeing several examples of templates throughout this book. If these whet your appetite and you'd like to see more, there are several good websites you can search for templates, information, and articles on project management. Here are a few to check out:

```
www.gantthead.com
www.techrepublic.com
www.4pm.com
www.tenstep.com
www.pmi.org
```

Pull up your favorite search engine and see if you can find more.

Project Notebooks

This is one of my favorite tools. Project notebooks are a handy way to maintain all of your project documentation and archive projects in the project library. You can quickly pull them off the shelf when the boss pops in unexpectedly asking about the project.

Project notebooks should be organized the way your project logically unfolds. Order a few of those trusty three-ring binders, available in any office supply store, and some divider tabs. Start out the notebook with a minimum of eight tabs, adding more as you build the project. The first section contains all the documents pertaining to the origination of the project, the next section contains the project planning documents, and so on. You'll get more familiar with each of these documents and the project notebook sections as we proceed through the coming chapters.

If you're opposed to printing all that information on paper, you can maintain a project notebook on a network server or the department's intranet site and gain the same benefits. Set up separate folders that correspond to the sections and save your documents to them as they're created and modified. The goal is to maintain all the project information in one place that's easily accessible to the people who need it.

For long-term archiving, I recommend saving all project information onto a CD or DVD and filing it in a safe place. It's not a bad idea to tuck a CD into the pocket in the front of the notebook as well to remind yourself to back up your material often.

Understanding Project Processes

All projects progress through five project management process groups: Initiating, Planning, Executing, Monitoring and Controlling, and Closing. We'll take a closer look at each of these momentarily. First, let's see how they all work together in the big picture.

The production and printing of this book is an example of a project. This book started with an idea that was submitted for approval and then given the "go" after examination and selection based on various selection criteria (Initiating). Then a plan was produced that also received a review and approval (Planning). Each chapter was written (Executing) and reviewed by technical experts for accuracy. When errors were found or passages discovered that could be clarified, notification was sent to the author for correction (Monitoring and Controlling). Corrections were made and resubmitted for review and approval (repeat of the Executing and Monitoring and Controlling processes). Finally, the book was completed, reviewed, approved, printed, and distributed to local booksellers (Closing).

project life cycle
All the phases of a project when taken together from the beginning of the project through the end.

Every project, whether it's building a bridge, publishing a book, constructing a building, or creating a new software program, progresses through a *project life cycle*. The phases of the life cycle will differ depending on the industry. For example, the construction industry has phases within a project life cycle with titles like initiating, designing, building, and so on. At the end of each phase, the project manager and others determine whether the project should continue on to the next phase. This phase-to-phase progression is called a *handoff*. Each phase serves as a checkpoint of

sorts to determine whether the project is on target before the handoff to the next phase occurs. If things are not progressing as planned, decisions need to be made to determine whether some of the phases should be repeated or the project should be scrapped altogether.

handoff
The transition between each phase of the project life cycle.

The project management process groups work much the same way. Each process has its own characteristics and produces outputs that serve as inputs into the next group of processes or, in the case of the Closing process, serve as the final approval for the project. Let's take a quick look at the purpose for each process and what it produces.

Initiating Process

Initiating process
Initiating is the first process group and is where the project is requested, approved, and begun.

Project initiation begins at the beginning. The *Initiating process* determines which projects should be undertaken. It examines whether the project is worth doing and if it is beneficial to the company when all is said and done. Most important, the Initiating process acknowledges that the project should begin and commits the organization's resources to working on the project. Some of the things that are accomplished during this process are

- Defining the major goals of the project
- Determining project selection criteria
- Assigning the project manager
- Writing the project charter
- Obtaining sign-off of the project charter

Planning Process

Planning process
Project plans are documented, the project deliverables and requirements defined, the project budget is established, and the project schedule created.

Project planning is the heart of the project management processes. The Planning process tells everyone involved where you're going and how you're going to get there. I'm a strong advocate for a good project plan. It isn't unheard of to spend a good deal of project time in the Planning process; however, for the record, the majority of project time and costs is usually spent in the Executing process. The documents produced during the *Planning process* will be used throughout the remaining project processes to carry out the activities of the project and monitor their progress. Some of the things that are accomplished during this process are

- Determining project deliverables
- Writing and publishing a scope statement
- Establishing a project budget
- Defining project activities and estimates
- Developing a schedule
- Determining the special skills and resources needed to accomplish project tasks

Executing Process

Executing process
In this process group, team members perform the work of the project. Teams are assembled, the task assigned, and the work carried out.

Executing is the process where the work of the project is produced. Here, you'll put all the plans you devised during the planning processes into action. Your team members are assigned and raring to go, and the project manager keeps them on task and focused on the work of the project. The *Executing process* is where most of the project resources are utilized and most of the budget is spent. Be aware that this process is where you'll likely run into scheduling conflicts. Some of the things that are accomplished during this process are

- Developing and forming the project team
- Directing and leading the project team
- Obtaining other project resources
- Conducting status review meetings
- Communicating project information
- Managing project progress
- Implementing quality assurance procedures

Monitoring and Controlling Process

Monitoring and Controlling process
This process group concerns monitoring project performance to make certain that the outcomes meet the requirements of the project. Change requests are monitored and reviewed during this process.

The *Monitoring and Controlling process* of the project is where performance measures are taken to determine whether the project deliverables and objectives are being met. If not, corrective actions are taken to get the project back on track and aligned with the project plan. This means that you might have to revisit the project Planning and Executing processes in order to put the corrective actions into place. Change management also takes place during this process and involves reviewing, managing, and implementing changes to the project. Some of the things that are accomplished during this process are

- Measuring performance against the plan
- Taking corrective action when measures are outside the limits
- Evaluating the effectiveness of the corrective actions
- Ensuring that project progress continues according to the plan
- Reviewing and implementing change requests

Many project managers, including myself, sometimes collapse the Executing and the Monitoring and Controlling processes into one process. Some projects, especially small projects, lend themselves well to this approach. My projects are information technology–based and usually involve some type of new programming and/or the installation of hardware and such. Combining Executing with Monitoring and Controlling makes a lot of sense on this type of project because you need to test and control outcomes as you go. Other projects or industries may not lend themselves well to this structure. Be aware that these processes are not set in stone, nor are the templates that you'll come across throughout the book. Use good judgment to decide

what's appropriate for your project. If you're in doubt, it's better to err on the side of too much planning and monitoring throughout the project than too little.

Closing Process

Closing process
The last process group, where final approval is obtained for the project, the books are closed, and project documentation archived for future reference.

The *Closing process* is the process that is most often skipped. It seems that once the product of the project has been produced and the customer is satisfied, the books are closed and everyone moves on to the next project. However, closing is an important process. It's during this process that you'll want to celebrate the success of the project, document what you've learned, and obtain a final sign-off on the project deliverables. Some of the things that are accomplished during this process are

- Obtaining acceptance of project deliverables
- Documenting the lessons learned over the course of this project
- Archiving project records
- Formalizing the closure of the project
- Releasing project resources

TIP

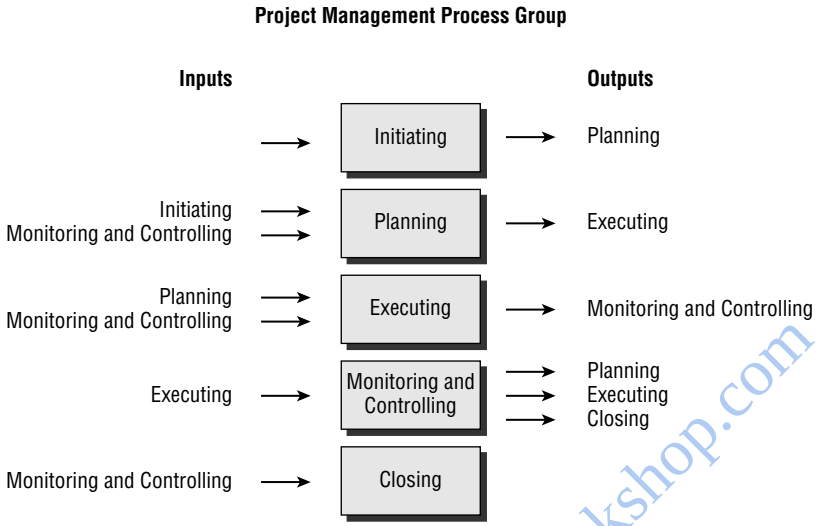
You may have a substance for poison control hiding in the back of your medicine cabinet called syrup of ipecac. You can easily remember the project management process groups with this mnemonic: IPECC (Initiating, Planning, Executing, Controlling, Closing), which sounds like the syrupy lifesaver. (Note, you'll have to drop "Monitoring" from the Controlling process group to make this work.) Effectively using these processes on your next project could be a project lifesaver.

As stated earlier, project phases recur throughout the project. As an example, let's say our book project has progressed to the Controlling group. While reviewing one of the chapters, an editor discovers that an important topic was missed. In order to determine where the topic should be inserted, she revisits the Planning processes. After she figures out where to insert the new information, the Executing group is also repeated (the new material is written) and then the Monitoring and Controlling process is performed again to review the new additions for accuracy. At the end of the project, the Closing processes are performed and signoff is achieved. All projects follow this kind of process. The most often repeated processes are the Planning, Executing, and Monitoring and Controlling processes.

When you're performing a multi-phase project, the Closing process feeds back into the Initiating processes. At the conclusion of each phase of the project, there's an additional opportunity to make a go/no-go decision. Closing is the time to examine the project objectives and the progress to date and determine if the next phase should be initiated.

The next image shows how these process groups interact. Initiating has outputs that become inputs into the Planning process, Planning outputs are inputs to Executing, and so on. You'll notice on the following graphic that the Monitoring and

Controlling process has outputs that are inputs back into the Planning and Executing processes. This shows their recurring nature.



Some project management methodologies combine the Executing and the Monitoring and Controlling processes. There's nothing wrong with that as long as you're careful not to skip anything along the way. We'll discuss each of these processes later in the book as separate processes so you can see the unique characteristics of each. Then you can decide for yourself if you'd like to combine these processes into one.

Twenty-first Century Project Management

Is project management different today than it was hundreds of years ago? My guess is there probably isn't a lot of difference in the way the projects are managed today than when Noah built the ark or when the medieval castles were designed and constructed. We have many more tools available to us today, such as computers and software planning tools, than our ancient counterparts did, but I believe the core processes we use now are the same as they were then.

Ancient project management went something like this: Someone with lots of time and money on their hands thought up the project—they didn't need approval for the project because the project requestor was usually the ruler of the kingdom and you don't argue with someone like that. An expert was hired (or "recruited") to manage and monitor the execution of the project and then beheaded when it was completed. Okay, fortunately we don't behead project managers today, or you and I wouldn't be very interested in this topic. But I can't help but believe that the core processes themselves were the same. The idea was hatched, a plan formed, the work carried out, and the project closed out.

What's Old Is New Again

Even though we may perform some of the same basic processes as our ancient counterparts did, we probably call them by different names. PMI has worked hard to establish project management standards, guidelines, and terminology that can be used across industries. Putting official names to processes and project details helps everyone involved on the project to understand the topic at hand. When you tell me you're having a problem scheduling resources for tasks, I know what process you're talking about and where it falls in the project management process.

stakeholder
Anyone who has a vested interest in the project.

The formula for project success is simple, and it hasn't varied since project work began. Successful projects meet or exceed the expectations of the stakeholders. *Stakeholders* can be anyone from the king or queen who commanded that the project be completed to the customer who is paying you to complete the project for them. As the project manager, you are a stakeholder, as are other department managers, the project team members, vendors, the customer, and so on. Stakeholders have different parts to play in the project. We'll talk more about stakeholders and their roles in Chapter 3, "Initiating the Project."

Constraints

Let's go back to our candy project. The boss comes in and starts giving you some high-level ideas about this project and what the end product should look like. You diligently take notes, and the wheels in your head start spinning as he's talking. Then he says something that astonishes you: "You have an unlimited budget and all the time you need to get this project completed and into production. And quality really isn't a big concern, nor are we that worried about what the end customer thinks of the new candies. Just get the project done and the candies rolling off the line."

constraint
Anything that limits the actions of the project team.

Did you have to reread that to believe it? I know what you're thinking and you're right, this is the stuff of B-grade sci-fi movies! Each of the things the boss mentioned in this unbelievable statement is called a *constraint*. No project manager anywhere has ever worked on a project under conditions like these. All projects have constraints.

Not too long ago, the big three constraints, also known as the triple constraints, were *the* project management doctrine preached from the lips of all experienced project managers. The big three constraints are time, resources, and quality. However, because the definition of a constraint is anything that restricts or dictates the actions of the project team, you can see that there are probably many more constraints than just these three. These three, plus customer satisfaction, probably have the biggest impact on project outcomes, and that's why they get so much attention. We'll examine each of these in a little more detail.

Time

Most projects operate under some type of deadline. If your project entails building a new shopping center that must open in time for the holiday shopping season, your project is said to be time constrained. This time deadline determines the way project activities are scheduled and completed.

The stakeholders, or perhaps the project requestor, have stated that the new center must open by October 1. You work hard on the project schedule and come up with a plan that allows for all the activities to complete by the deadline. Be aware that time constraints, which usually involve scheduling activities, can cause some interesting problems for the project manager. If your schedule calls for paving crews at a specific point in the plan but no paving crews are available at the scheduled time, you'll have a dilemma on your hands. We'll talk about how to solve dilemmas like this when we look at project scheduling in depth in a later chapter.

Resources

All projects require resources in order to carry out the project plan. Resources can include people, equipment, materials, and money. Project budgets are a constraint because they restrict the team's ability to obtain resources to fulfill project activities. As a result, budget constraints have the potential to limit the scope of the project. In other words, some of the things the project requestor would like to have delivered with the project will not be included because the budget can't support the additional resources needed to complete those pieces.

Budget constraints aren't something that should take the project manager by surprise. One of the things you'll develop during the project Planning process is a resource plan. You'll have the opportunity to discuss this plan with the stakeholders and determine whether budget adjustments or project adjustments are required.

Quality

Quality is the last of the triple constraints but by no means the least important. Quality assures that the end product conforms to the requirements and the product description that's defined during the Planning process.

The shopping center example has many quality constraints. For example, during construction there are industry, state, and local regulations that must be met. The building structure may require a specific type of stone on the sides facing the street. The building entrances may require marble floors in designated areas and a specific type of tile in other areas, and so on.

Taking quality measurements and performing quality control assure that requirements like those stated here have been met. They also assure that the project measures up to the original requirements.

Customer Satisfaction

Customers are the reason companies are in business. Even though we've all had those experiences where we could swear otherwise, customers, and their satisfaction with the company's products or services, are the key to achieving success. This is true for project management as well. Time, budget, and quality can all track exactly as planned, but if the customers aren't satisfied, they aren't going to come back.

You might be thinking that if quality is okay, which means the requirements of the project have been met according to the product description, and if the product or service was delivered on time and under budget, how could the customer not be satisfied?

I'll answer that question two ways: first, communication problems, and second, relationship building. These two topics go hand in hand. If a project manager alienates the customer because of poor communication skills or poor people skills, the customer will not be satisfied with the project. They might love the product but dislike the way the project process was carried out. When you dig deep enough, you'll see that the roots of customer dissatisfaction (when they are otherwise happy with the product itself) can be attributed to communication problems and differences in interpersonal skills. We'll devote entire sections of this book to these topics later, but for now keep in mind that good communication skills can avert a host of problems on your project. Commit yourself to brushing up and improving these skills soon.

Juggling Acts

Managing under the triple constraints may seem like a real juggling act for project managers. One minute all the balls are in the air, and the next minute one of them drops to the floor and bounces into the corner. Typically though, constraints are give and take. If budget is the primary constraint, then time and/or quality may have to give a little. If time is the biggest constraint, then it might take more money than originally thought to complete the project according to the deadline. You can keep all the balls in the air and manage project outcomes by understanding the constraints and their impacts. Constraints limit every project, but they shouldn't prevent you from accomplishing the work of the project.

An important step you can take early on in the project process is to determine which of the constraints is the primary constraint. Knowing that time is the primary constraint, for example, will help you address issues concerning budgets and quality as they come up.

It's sometimes difficult to determine which constraint is the primary driver. Here's an example: Your boss has assigned you to a new project to get the company network upgraded. He tells you that you have until November 1 to get the network converted to the latest technology, and the budget for the project cannot exceed one nickel over $150,000. How do you know which of these is the primary constraint? At first glance, you don't. Both time and budget are constraints

on this project. To determine which one is the most important, ask the boss this question, "Boss, if you could have only one of these two alternatives—project completion by November 1 or we won't exceed the budget—which would you choose?" If the boss answers that you must stick to the budget, you know that money is the primary constraint for this project. Does that mean you shouldn't try to meet the deadline? No, but it does mean that if there are problems down the road, you might be able to convince the boss to bend a little on the deadline, whereas you know the budget is not going to change.

Constraints can include things other than the triple constraints. The management team may issue directives that restrict the project team. Technology may dictate what type of equipment must be used for your particular project. Government regulations may dictate the actions of the project team. What's important is that you're aware of the project constraints so that you can plan, estimate, and control your project activities appropriately. Constraints are one of the items documented and filed in your project notebook.

And don't forget to continue to communicate the condition or status of the constraints with your sponsor. We'll cover this again in the Planning phase of the project.

Where Do You Go from Here?

Once you've gained some experience in the project management field, you may want to consider becoming a formal project manager by way of a postgraduate certificate program or a professional certification. Many industries are realizing the importance of project management and project management certification, and many organizations are now requiring certification as part of their hiring criteria.

Many colleges now offer project management certificate programs. Just like any academic program, it consists of a series of courses, some of which may require a dictated amount of outside project time, and multiple exams. These programs (or even a few courses) are excellent additions to any professional's resume. Those who are serious about becoming a formal project manager will likely be targeting certification. It could be, though, that the effort of obtaining certification might not appeal to you. In this case, a few courses may suit your needs. Either way, many college extension programs are recognized PMI providers, so your option of certification is readily available.

PMI's Project Management Professional (PMP®) certification is the most recognized certification in the field. I highly recommend obtaining the PMP certification if you're serious about the project management field. Becoming PMP certified assures potential employers and customers that you have a firm understanding of project management practices and disciplines and that you have experience putting it all into practice. Having the PMP designation will open up doors for career advancement, and it gives your customers, and your company, confidence that you've mastered and established the standard project management processes and disciplines.

There are other certifications besides the PMP that you might want to think about as well. CompTIA Project+ is a project management certification that you might want to consider either independently or to augment the PMP certificate.

Becoming PMP Certified

The Project Management Institute was founded in 1969 with the goal of developing standards for project management practices across industries. They've been successful at their goal, as PMI has set the standard for project management techniques worldwide. They've outlined processes and techniques in their own publication, *A Guide to the Project Management Body of Knowledge (PMBOK Guide)*. Numerous other books exist that explore PMI techniques in depth that you might want to peruse after sparking your interest with this book. As previously mentioned, this book follows the techniques and processes defined by PMI because their methods are the industry standard.

PMI requires you to fill out an application to sit for the PMP exam. You can submit your application online at `www.pmi.org`. In addition to the application, you need to meet a few other requirements. You'll need to document 35 hours of formal project management education. This can include a combination of seminars, workshops, college classes, or training sessions. You'll need to list course titles, dates, and the numbers of hours you spent in training on your application.

PMI also requires that you have a certain number of hours of project management experience. At the time of the publication of this book, PMI requires 4,500 hours of project management experience if you hold a bachelor's degree. You'll need to provide proof of your degree as part of your application process. If you do not have a bachelor's degree, you'll need to verify 7,500 hours of project management experience. Visit the PMI website to get the all the forms needed to verify your project management experience.

The exam itself is held in testing centers in major cities across the country. You can find a center near you by contacting PMI or looking it up on their Internet site. At the testing center, you are required to show identification and to place your personal belongings in a locker. You are not allowed to take anything with you into the testing area. The testing center will furnish you with a calculator, pencil, and scrap paper. The exam is scored when you've finished, so you'll know whether you passed before leaving the center. You have up to four hours to complete the exam, which consists of 200 randomly generated questions on the five process groups (Initiating, Planning, Executing, Monitoring and Controlling, and Closing) and an area called Professional Responsibility. You must score 70 percent or better to pass the exam. All unanswered questions are scored as incorrect answers, so it benefits you to answer them all even if you have to guess at an answer.

If you're seriously considering taking the PMP exam, I recommend that you pick up a copy of another Sybex book titled *PMP: Project Management Professional Study Guide* (written by yours truly) to help you prepare for the exam. It has hundreds of sample questions, many real-life examples that help you apply

what you've learned, and a project case study at the end of every chapter that applies the project management processes talked about in the book.

PMI has several requirements for certification. You should check their website for the most up-to-date information regarding the requirements.

NOTE

Even if you aren't going to sit for the exam, consider becoming a PMI member and getting involved with a local chapter. (You do not have to be PMP certified to become a member of PMI.) Today, PMI has over 86,000 members from 125 different countries. Local chapters exist in most major cities in America. You can visit the PMI website (`www.pmi.org`) to find a chapter that meets near you. I encourage you to get involved with your local chapter. You'll have the opportunity to share experiences with other project managers and learn new skills and techniques. PMI works hard to maintain standards and promote ethics, and they offer a host of publications, training, seminars, and more to train new project managers and keep experienced project managers current in the latest processes.

Certifying with CompTIA's Project+

CompTIA is an organization dedicated to certifying individuals in the general principles and knowledge of the information technology (IT) industry. They do not test on any particular brand of hardware or software (with the exception of the Linux tests) but instead test on general knowledge regarding these topics. (As an example, you may have heard of CompTIA's A+ certification test regarding general knowledge of PC hardware.)

CompTIA has recently changed the focus of their exam to make it non-IT specific. The Project+ exam tests on general knowledge and principles of project management based on PMI's project management methodology. The Project+ test is ideal for people who are new to project management. You might consider taking this exam first to get yourself acquainted with certification testing because it's not as intense as the PMP exam.

CompTIA does not have any specific requirements to sit for the exam other than a strong knowledge of PMI's project management techniques and terminology. You can visit their website at `www.comptia.com` to get further information.

If you're considering taking the Project+ exam, you might want to get a copy of the Sybex book titled *CompTIA Project+ Study Guide* to help you study.

Formal Education Programs

There are numerous educational programs on the topic of project management. Many institutions offer everything from certificates in project management to master's degrees. Whatever your interest level, you can find educational programs to meet it. Try your local colleges and universities to see what they offer. If going back

to the classroom doesn't sound like something you want to do, then search the Internet for an institution that offers online classes on project management. You'll be amazed at the number of classes available to you in this format.

Terms to Know

Closing process
collocated
constraints
customer
Executing process
functional organizations
handoff
Initiation process
matrix organizations
Monitoring and Controlling process
Planning process
project life cycle
project management
Project Management Institute (PMI)
projectized organizations
stakeholder

Review Questions

1. What is project management?
2. What are some of the benefits of a projectized organization?
3. What are the five project management process groups?
4. Name three of the things that you'll accomplish during the Planning process.
5. Name three of the things that you'll accomplish during the Executing process.
6. Which project management process is the one most often skipped?
7. Name at least three criteria for determining whether your work assignment is a project.
8. What is the definition of a constraint?
9. Name the triple constraints.
10. What does it mean when a person has a PMP?