

WorkSmart

SIMPLE SOLUTIONS FOR BUSY PEOPLE

Fundamentals of PROJECT MANAGEMENT

FOURTH EDITION



Joseph Heagney

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Fundamentals of Project Management

Fourth Edition

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Fourth Edition

JOSEPH HEAGNEY

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*To the memory of Mackenzie Joseph Heagney,
sleeping with the angels.*

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Preface to the Fourth Edition

Sending a satellite to Mars? Planning a conference or implementing new software? You have chosen the right book. The great value of project management is that it can be applied across industries and situations alike, on multiple levels. It would be difficult to find a more nimble organizational discipline. Whether or not your title says project manager, you can benefit from the practical applications presented in this book, which is intended as a brief overview of the tools, techniques, and discipline of project management as a whole. Three notable topics have been expanded for this edition, with new chapters on the project manager as leader, managing project risk, and the change control process. Although each topic is important individually, together they can establish the basis for project success or failure.

Projects are often accomplished by teams, teams are made up of people, and people are driven by . . . project leaders. Conspicuously absent from the preceding is the term “manager,” as in “project manager.” If project managers manage projects, what do they do with the people who make up their teams or support networks in the absence of a formal team? Successful project leaders *lead* the people on their teams to consistent goal attainment and

enhanced performance. They combine a command of project tools and technical savvy with a real understanding of leadership and team performance. Consistently successful projects depend on both. It is a balancing act of execution and skilled people management. Ignoring one or the other is inviting project failure and organizational inconsistency regarding project performance.

Risk is an element inherent in every project. The project manager must consider several variables when determining how much to invest in the mitigation and management of that risk. How experienced is my team or support personnel? Do I have the appropriate skill sets available? Can I count on reliable data from previous projects, or am I wandering in the wilderness? Whatever the assessment, project risk is something that needs to be addressed early in the life of the project. As with any other process you will be introduced to in this book, risk must be managed formally, with little deviation from the template, while allowing for some flexibility. Project managers cannot afford to wait for bad things to happen and then fix them. Reactive management is too costly. The practical Six-Step process presented on pages 57–62 can and should be applied to any project. How it is applied directly depends on the variables that confront that project.

Death, taxes, and change. Project managers need to expand the list of certainties in life. To paraphrase James P. Lewis, author of the first three editions of this book, in Chapter 3, project failures are caused primarily by the failure to plan properly. I often tell my seminar attendees that planning is everything and that most projects succeed or fail up front. This is not an overstatement. But what often gets lost in project execution is the absolute necessity to keep the plan current based on the changes that have affected the project from day one. Have the changes affected the scope of the project? Has the schedule or budget been impacted in any significant way? These are the questions that must be asked and answered when applying effective change control to the project. Failure to manage and communicate change results in serious misalignment and probably failure. Chapter 10 presents the reader

with a practical change control process that can help ensure project success.

As a former Global Practice Leader for project management at the American Management Association, I had the luxury of benchmarking multiple organizations worldwide and identified several project-related best practices. The applications discussed here represent some of those practices, as well as those presented in the latest version of the *PMBOK® Guide*. With this expanded edition of *Fundamentals of Project Management*, I hope to enhance your chances of bringing projects in on time, on budget with an excellent deliverable—every time.

Joseph J. Heagney
Sayville, NY
February 2011

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Fourth Edition



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An Overview of Project Management

W

hat's all the fuss about, anyway? Since the first edition of this book was published, in 1997, the Project Management Institute (PMI®) has grown from a few thousand members to nearly 450,000 in 2011. For those of you who don't know, PMI is the professional organization for people who manage projects. You can get more information from the institute's website, *www.pmi.org*. In addition to providing a variety of member services, a major objective of PMI is to advance project management as a profession. To do so, it has established a certification process whereby qualifying individuals receive the Project Management Professional (PMP®) designation. To do so, such individuals must have work experience (approximately five thousand hours) and pass an online exam that is based on the *Project Management Body of Knowledge*, or the *PMBOK® Guide*.

A professional association? Just for project management? Isn't project management just a variant on general management?

Yes and no. There are a lot of similarities, but there are enough differences to justify treating project management as a discipline separate from general management. For one thing, projects are more schedule-intensive than most of the activities that

general managers handle. And the people in a project team often don't report directly to the project manager, whereas they do report to most general managers.

So just what is project management, and, for that matter, what is a project? PMI defines a project as “a temporary endeavor undertaken to produce a unique product, service, or result” (*PMBOK® Guide*, Project Management Institute, 2008, p. 5). This means that a project is done only one time. If it is repetitive, it's not a project. A project should have definite starting and ending points (time), a budget (cost), a clearly defined scope—or magnitude—of work to be done, and specific performance requirements that must be met. I say “should” because seldom does a project conform to the desired definition. These constraints on a project, by the way, are referred to throughout this book as the PCTS targets.

Dr. J. M. Juran, the quality guru, also defines a *project* as a problem scheduled for solution. I like this definition because it reminds me that every project is conducted to solve some kind of problem for a company. However, I must caution that the word “problem” typically has a negative meaning, and projects deal with both positive and negative kinds of problems. For example, developing a new product is a problem, but a positive one, while an environmental cleanup project deals with a negative kind of problem.

PMI defines a project as “. . . a temporary endeavor undertaken to produce a unique product, service, or result.”

A project is a problem scheduled for solution.

—J. M. Juran

Project Failures

In fact, the Standish Group (www.standishgroup.com) has found that only about 17 percent of all software projects done in the

United States meet the original PCTS targets, 50 percent must have the targets changed—meaning they are usually late or over-spent and must have their performance requirements reduced—and the remaining 33 percent are actually canceled. One year, U.S. companies spent more than \$250 billion on software development nationwide, so this means that \$80 billion was completely lost on canceled projects. What is truly astonishing is that 83 percent of all software projects get into trouble!

Now, lest you think I am picking on software companies, let me say that these statistics apply to many different kinds of projects. Product development, for example, shares similar dismal rates of failure, waste, and cancellation. Experts on product development estimate that about 30 percent of the cost to develop a new product is rework. That means that one of every three engineers assigned to a project is working full time just redoing what two other engineers did wrong in the first place!

I also have a colleague, Bob Dudley, who has been involved in construction projects for thirty-five years. He tells me that these jobs also tend to have about 30 percent rework, a fact that I found difficult to believe, because I have always thought of construction as being fairly well defined and thus easier to control than might be the case for research projects, for example. Nevertheless, several colleagues of mine confirm Bob's statistics.

The reason for these failures is consistently found to be inadequate project planning. People adopt a ready-fire-aim approach in an effort to get a job done really fast and end up spending far more time than necessary by reworking errors, recovering from diversions down "blind alleys," and so on.

I am frequently asked how to justify formal project management to senior managers in companies, and I always cite these statistics. However, they want to know whether using good project management really reduces the failures and the rework, and I can only say you will have to try it and see for yourself. If you can achieve levels of rework of only a few percent using a seat-of-the-pants approach to managing projects, then keep doing what you're doing! However, I don't believe you will find this to be true.

The question I would ask is whether general management makes a difference. If we locked up all the managers in a company for a couple of months, would business continue at the same levels of performance, or would those levels decline? If they decline, then we could argue that management must have been doing something positive, and vice versa. I doubt that many general managers would want to say that what they do doesn't matter. However, we all know that there are effective and ineffective general managers, and this is true of project managers, as well.

What Is Project Management?

The *PMBOK® Guide* definition of *project management* is “application of knowledge, skills, tools, and techniques to project activities to meet the project requirements. Project management is accomplished through the application and integration of the 42 logically grouped project management processes comprising the 5 Process Groups: initiating, planning, executing, monitoring and controlling, and closing” (*PMBOK® Guide*, Project Management Institute, 2008, p. 6). Project requirements include the PCTS targets mentioned previously. The various processes of initiating, planning, and so on are addressed later in this chapter, and the bulk of this book is devoted to explaining how these processes are accomplished.

Project management is application of knowledge, skills, tools, and techniques to project activities to achieve project requirements. Project management is accomplished through the application and integration of the project management processes of initiating, planning, executing, monitoring and controlling, and closing.

It would be better if the *PMBOK® Guide* specified that a project manager should *facilitate* planning. One mistake made by inexperienced project managers is to plan the project for the team. Not only do they get no buy-in to their plan, but that plan is usually full of holes. Managers can't think of everything, their estimates of task durations are wrong, and the entire thing falls apart after the project is started. The first rule of project management is that the people who must do the work should help plan it.

The role of the project manager is that of an enabler. Her job is to help the team get the work completed, to “run interference” for the team, to get scarce resources that team members need, and to buffer them from outside forces that would disrupt the work. She is not a project czar. She should be—above everything—a *leader*, in the true sense of the word.

The best definition of leadership that I have found is the one by Vance Packard, in his book *The Pyramid Climbers*. He says, “Leadership is the art of getting others to *want* to do something that you believe should be done.” The operative word here is “want.” Dictators get others to do things that they want done. So do guards who supervise prison work teams. But a leader gets people to want to do the work, and that is a significant difference.

The planning, scheduling, and control of work represent the management or administrative part of the job. But, without leadership, projects tend to just satisfy bare minimum requirements. With leadership, they can exceed those bare minimums. I offer a comprehensive application of project leadership techniques in Chapter 13.

The first rule of project management is that the people who must do the work should help plan it.

“Leadership is the art of getting others to want to do something that you believe should be done.”

—Vance Packard

It Is Not Just Scheduling!

One of the common misconceptions about project management is that it is just scheduling. At last report, Microsoft had sold a huge number of copies of Microsoft Project®, yet the project failure rate remains high. Scheduling is certainly a major tool used to manage projects, but it is not nearly as important as developing a shared understanding of what the project is supposed to accomplish or constructing a good work breakdown structure (WBS) to identify all the work to be done (I discuss the WBS in Chapter 6). In fact, without practicing good project management, the only thing a detailed schedule is going to do is allow you to document your failures with great precision!

I do want to make one point about scheduling software. It doesn't matter too much which package you select, as they all have strong and weak points. However, the tendency is to give people the software and expect them to learn how to use it without any training. This simply does not work. The features of scheduling software are such that most people don't learn the subtleties by themselves. They don't have the time, because they are trying to do their regular jobs, and not everyone is good at self-paced learning. You wouldn't hire a green person to run a complex machine in a factory and put him to work without training, because you know he will destroy something or injure himself. So why do it with software?

One-Person Projects

When is managing a project not project management? When only one person is involved.

A lot of people are sent to my seminars to learn how to manage projects, but they are the only person working on their projects. Now it is true that a one-person job can be called a project, because it has a definite starting point, target, end date, specific performance requirements, defined scope of work, and a budget. However, when no one else is working on the project (including outside vendors), there is no need for a critical path schedule. A critical

path schedule is one that has a number of parallel paths, and one of them is longer than the others and determines how long it will take to complete the job or, ultimately, whether the given end date can be met. When you're working on a job by yourself, there aren't any parallel paths—unless you are ambidextrous!

One-person projects do require good self-management, or good time management, but all you need is a good to-do list, which comes from a task listing. However, unless you are coordinating the work of other people, you aren't practicing true project management.

The Big Trap—Working Project Managers

It is common to have individuals serve as project managers and require also that they do part of the actual work in the project. This is a certain prescription for problems. If it is a true team, consisting of several people, the project manager inevitably finds herself torn between managing and getting her part of the work done. Naturally, the work must take precedence, or the schedule will slip, so she opts to do the work. That means that the managing does not get done. She hopes it will take care of itself, but it never does. After all, if the team could manage itself, there would be no need for a project manager in the first place (remember our argument about whether project management matters?).

Unfortunately, when the time comes for her performance evaluation, she will be told that her managing needs improving. Actually, she just needs to be allowed to practice management in the first place.

Yes, for very small teams—perhaps up to three or four people—a project manager can do some of the work. But, as team sizes increase, it becomes impossible to work and manage both, because you are constantly being pulled away from the work by the needs of your team members.

One of the reasons for this situation is that organizations don't fully understand what project management is all about, and they think that it is possible for individuals to do both. The result is that nearly everyone in the company is trying to manage projects, and,

as is true in every discipline, some of them will be good at it and others will have no aptitude whatsoever. I have found that a far better approach is to select a few individuals who have the aptitude and desire to be project managers and let them manage a number of small projects. This frees “technical” people (to use the term broadly) to do technical work without having to worry about administrative issues and allows project managers to get really good at their jobs.

It is outside the scope of this book to discuss how to select project managers, but, for the interested reader, the topic is covered in a book by Wysocki and Lewis titled *The World-Class Project Manager* (Perseus, 2001).

You Can’t Have It All!

One of the common causes of project failures is that the project sponsor demands that the project manager must finish the job by a certain time, within budget, and at a given magnitude or scope, while achieving specific performance levels. In other words, the sponsor dictates all four of the project constraints. This doesn’t work.

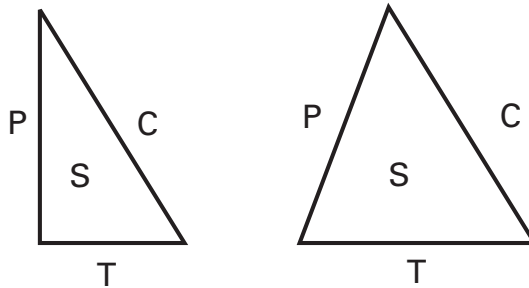
The relationship among the PCTS constraints can be written as follows:

$$C = f(P, T, S)$$

In words, this says, “Cost is a function of Performance, Time, and Scope.” Graphically, I like to show it as a triangle, in which P, C, and T are the sides and S is the area. This is shown in Figure 1-1.

In geometry, we know that if we are given values for the sides of a triangle, we can compute the area. Or, if we know the area and the length of two sides, we can compute the length of the remaining side. This translates into a very practical rule of project management: The sponsor can assign values to any three variables, but the project manager must determine the remaining one.

Figure 1-1. Triangles showing the relationship between P, C, T, and S.



So let's assume that the sponsor requires certain performance, time, and scope from the project. It is the project manager's job to determine what it will cost to achieve those results. However, I always caution project managers that they should have a paramedic standing by when they give the cost figure to the sponsor because she will probably have a stroke or heart attack, and the paramedic will have to revive her.

Invariably, the sponsor exclaims, "How can it cost that much?" She had a figure in mind, and your number will always exceed her figure. And she may say, "If it's going to cost that much, we can't justify doing the job." Exactly! And that is the decision she should make. But she is certain to try to get the project manager to commit to a lower number, and, if you do, then you only set up yourself—and her—to take a big fall later on.

It is your *obligation* to give the sponsor a valid cost so that she can make a valid decision about whether or not the project should be done. If you allow yourself to be intimidated into committing to a lower number, it is just going to be a disaster later on, and you are far better off taking your lumps now than being hanged later on.

Of course, there is another possibility. If she says she can afford only so much for the job, then you can offer to reduce the scope. If the job is viable at that scope level, then the project can be done. Otherwise, it is prudent to forget this project and do something else that can make profits for the company. As someone has said,

there is a higher probability that things will accidentally go wrong in a project than that they will accidentally go right. In terms of cost estimates, this means that there is always a higher likelihood that the budget will be overrun than that the project will come in below budget. This is just another way of stating Murphy's law, that "whatever can go wrong will go wrong."

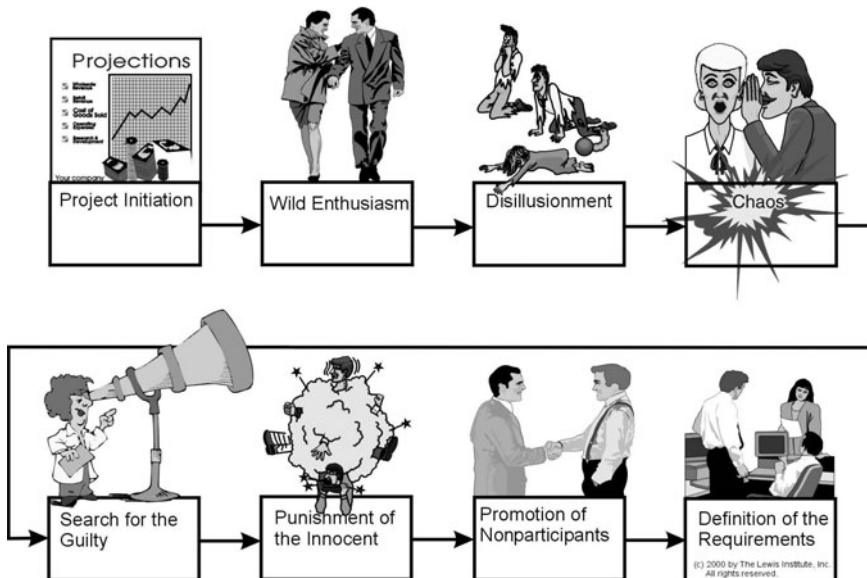
There is a higher probability that things will accidentally go wrong in a project than that they will accidentally go right.

The Phases of a Project

There are many different models for the phases a project goes through during its life cycle. One of these captures the all-too-frequent nature of projects that are not managed well and is shown in Figure 1-2.

I have shown this diagram to people all over the world, and they invariably laugh and say, "Yes, that's the way it works."

Figure 1-2. Life cycle of a troubled project.



I suppose the comfort I can take is that we Americans are not the only ones who have the problem, but the bad news is that there are a lot of dysfunctional projects if everyone recognizes the model.

At the simplest level, a project has a beginning, middle, and end. I prefer the life-cycle model shown in Figure 1-3, but there are other versions that are equally valid. In my model, you will notice that every project begins as a concept, which is always “fuzzy,” and that the project team must formalize the definition of the job before doing any work. However, because of our ready-fire-aim mentality, we often start working on the job without ensuring that we have a proper definition or that the mission and vision for the job are shared by everyone. This invariably leads to major problems as the project progresses. This is illustrated by the example that follows.

Definition Phase

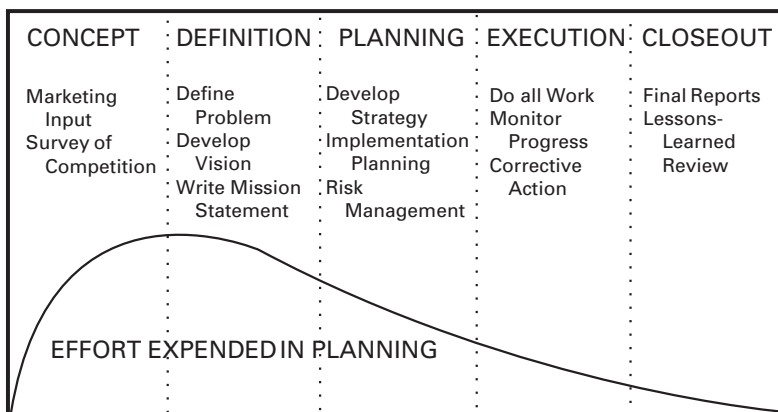
Some years ago, a project manager in one of my client companies called me and said, “I’ve just had a conference call with key members of my project team, and I realized that we don’t agree on what the project is supposed to accomplish.”

I assured him that this was common.

“What should I do?” he asked.

I told him that he had no choice but to get the team members

Figure 1-3. Appropriate project life cycle.



all going in the same direction by clarifying the mission of the project. He asked me to facilitate a meeting to do this.

At the meeting, I stood in front of a flip chart and began by saying, “Let’s write a problem statement.” Someone immediately countered by saying, “We don’t need to do that. We all know what the problem is.”

I was unmoved by this comment. I said, “Well, if that is true, it’s just a formality and will only take a few minutes, and it would help me if we wrote it down, so someone help me get started.”

I’m going to be a little facetious to illustrate what happened next. Someone said, “The,” and I wrote the word on the chart, and someone else said, “I don’t agree with that!”

Three hours later, we finally finished writing a problem statement.

The project manager was right. The team did not agree on what the problem was, much less how to solve it. This is fundamental—and is so often true that I begin to think we have a defective gene in all of us that prohibits us from insisting that we have a good definition of the problem before we start the work. Remember, project management is solving a problem on a large scale, and the way you define a problem determines how you will solve it. If you have the wrong definition, you may come up with the right solution—to the wrong problem!

In fact, I have become convinced that projects seldom fail at the end. Rather, they fail at the definition stage. I call these projects *headless-chicken projects* because they are like the chicken that has had its head chopped off and runs around spewing blood everywhere before it finally falls over and is “officially” dead. Projects work the same way. They spew blood all over the place, until someone finally says, “I think that project is dead,” and indeed it is. But it was actually dead when we chopped off its head in the beginning—it just took a while for everyone to realize it.

Once the project is defined, you can plan how to do the work. There are three components to the plan: strategy, tactics, and logistics. Strategy is the overall approach or “game plan” that will be followed to do the work. An example of strategy was related to me by a friend who is into military history.

Strategy

During World War II, defense contractors were under great pressure to build weaponry at an intense level. To accelerate construction of ships and planes in particular, many new assembly methods were invented. Avondale shipyards, for example, worked on the method of building ships. The traditional way had always been to build the ship in an upright position. However, ships built from steel required welding in the bottom, or keel area of the boat, and this was very difficult to do. Avondale decided to build its ships upside down, to make the welding easier, and then turn them over to complete the structures above the top deck. This strategy was so effective that Avondale could build boats faster, cheaper, and of higher quality than their competitors, and the strategy is still being used today, nearly seventy years later.

Implementation Planning

This phase includes tactics and logistics. If you are going to build boats upside down, you must work out the details of how it will be done. A fixture must be constructed that will hold the boat and allow it to be turned over without being damaged. This is called “working out the tactics.” It also includes the sequence in which the work will be done, who will do what, and how long each step will take.

Logistics deal with making sure the team has the materials and other supplies needed to do their jobs. Ordinarily we think about providing teams with the raw materials they need, but if the project is in a location where they can’t get food, work will soon come to a grinding halt. So provisions must be made for the team to be fed—and possibly housed.

Execution and Control

Once the plan has been developed and approved, the team can begin work. This is the *execution* phase, but it also includes control, because, while the plan is being implemented, progress is monitored to ensure that the work is progressing according to the plan. When deviations from the plan occur, corrective action is

taken to get the project back on track, or, if this is not possible, the plan is changed and approved, and the revised plan becomes the new baseline against which progress is tracked.

Closeout

When all the work has been completed, the *closeout* phase requires that a review of the project be conducted. The purpose is to learn lessons from this job that can be applied to future ones. Two questions are asked: “What did we do well?” and “What do we want to improve next time?”

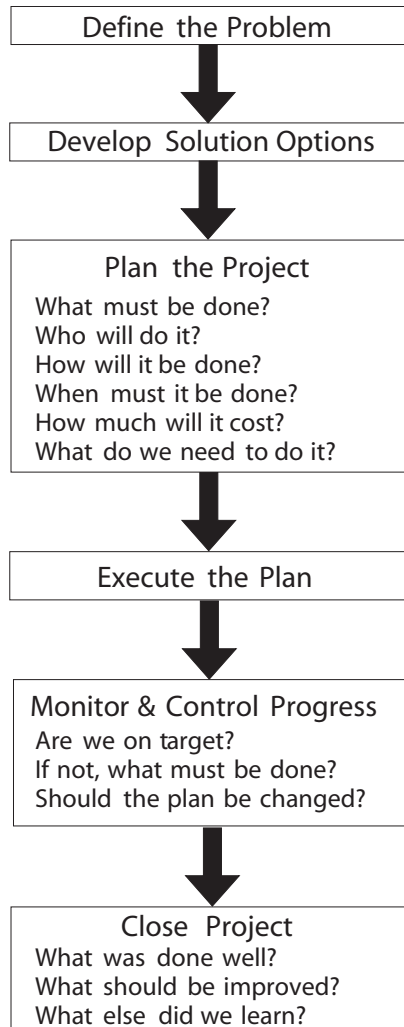
Notice that we don’t ask what was done wrong. This question tends to make people defensive, and they try to hide things that may result in their being punished. In fact, a lessons-learned review should never be conducted in a blame-and-punishment mode. If you are trying to conduct an inquisition, that’s different. The purpose of an inquisition is usually to find who is responsible for major disasters and punish them. Lessons-learned sessions should be exactly what the words imply.

I have learned during the past few years that very few organizations do regular lessons-learned reviews of their projects. There is a reluctance to “open a can of worms.” And there is a desire to get on with the next job. The problem is that you are almost sure to repeat the mistakes made on the previous project if no one knows about them or has an understanding of how they happened so that they can determine how to prevent them. But, perhaps most important, you can’t even take advantage of the good things you did if you don’t know about them.

It has been said that the organizations that survive and thrive in the future will be those that learn faster than their competitors. This seems especially true for projects.

The Steps in Managing a Project

The actual steps to manage a project are straightforward. Accomplishing them may not be. The model in Figure 1-4 illustrates the steps.

Figure 1-4. The steps in managing a project.

Subsequent chapters of this book elaborate on how each step is accomplished. For now, here is a brief description of the actions involved.

Define the Problem

As was discussed previously, you need to identify the problem to be solved by the project. It helps to visualize the desired end result. What will be different? What will you see, hear, taste, touch, or smell? (Use sensory evidence if things can't be quantified.) What client need is being satisfied by the project?

Develop Solution Options

How many different ways might you go about solving the problem? Brainstorm solution alternatives (you can do this alone or as a group). Of the available alternatives, which do you think will best solve the problem? Is it more or less costly than other suitable choices? Will it result in a complete or only a partial fix?

Plan the Project

Planning is answering questions: what must be done, by whom, for how much, how, when, and so on. Naturally, answering these questions often requires a crystal ball. We discuss these steps in more detail in Chapters 2 through 4.

Execute the Plan

Obvious. Once the plan is drafted, it must be implemented. Interestingly, we sometimes find people going to great effort to put together a plan, then failing to follow it. If a plan is not followed, there is not much point in planning, is there?

Monitor and Control Progress

Plans are developed so that you can achieve your end result successfully. Unless progress is monitored, you cannot be sure you will succeed. It would be like having a roadmap to a destination but not monitoring the highway signs along the way.

Of course, if a deviation from the plan is discovered, you must ask what must be done to get back on track, or—if that seems impossible—how the plan should be modified to reflect new realities.

Close the Project

Once the destination has been reached, the project is finished, but there is a final step that should be taken. Some people call it an audit, others a postmortem (sounds a bit morbid, doesn't it?). Whatever you call it, the point is to learn something from what you just did. Note the way the questions are phrased: What was done well? What should be improved? What else did we learn? We can always improve on what we have done. However, asking "What did we do wrong?" is likely to make people a bit defensive, so the focus should be on improvement, not on placing blame. More on this later.

The Project Management Body of Knowledge (PMBOK®)

The Project Management Institute has attempted to determine a minimum body of knowledge that is needed by a project manager in order for him or her to be effective. As I mentioned earlier when I defined project management, there are five processes defined by the *PMBOK® Guide*, together with nine general areas of knowledge, and I will give brief summaries of them. If you want a complete document, you can get one by visiting the PMI website: www.pmi.org.

Project Processes

A *process* is a way of doing something. As previously mentioned, the *PMBOK® Guide* identifies five processes that are used to manage projects. Although some of them will be predominant at certain phases of a project, they may come into play at any time. Broadly speaking, however, they tend to be employed in the sequence listed as the project progresses. That is, initiating is done first, then planning, then executing, and so on. In the event that a project goes off course, replanning comes into play, and if a project is found to be in serious trouble, it may have to go all the way back to the initiating process to be restarted.

Initiating

Once a decision has been made to do a project, it must be *initiated* or launched. There are a number of activities associated with this. One is for the project sponsor to create a project charter, which defines what is to be done to meet the requirements of project customers. This is a formal process that is often omitted in organizations. The charter should be used to authorize work on the project; define the authority, responsibility, and accountability of the project team; and establish scope boundaries for the job. When such a document is not produced, the team members may misinterpret what is required of them, and this can be very costly.

Planning

One of the major causes of project failures is poor *planning*. Actually, I am being kind. Most of the time the problem is caused by there being no planning! The team simply tries to “wing it,” to do the work without doing any planning at all. As I have explained earlier in this chapter, many of us are task oriented, and we see planning as a waste of time, so we would rather just get on with the work. As we will see when we turn to controlling the project, failing to develop a plan means that there can be no actual control of the project. We are just kidding ourselves.

Executing

There are two aspects to the process of project *execution*. One is to execute the work that must be done to create the product of the project. This is properly called technical work, and a project is conducted to produce a product. Note that we are using the word “product” in a very broad sense. A product can be an actual tangible piece of hardware or a building. It can also be software or a service of some kind. It can also be a result—consider, for example a project to service an automobile that consists of changing the oil and rotating the tires. There is no tangible deliverable for such a project, but there is clearly a result that must be achieved, and if it is not done correctly the car may be damaged as a result.

Executing also refers to implementing the project plan. It is amazing to find that teams often spend time planning a project, then abandon the plan as soon as they encounter some difficulty. Once they do this, they cannot have control of the work, since without a plan there is no control. The key is to either take corrective action to get back on track with the original plan or to revise the plan to show where the project is at present and continue forward from that point.

Monitoring and Controlling

Monitoring and *controlling* can actually be thought of as two separate processes, but because they go hand in hand, they are considered one activity. Control is exercised by comparing where project work is to where it is supposed to be, then taking action to correct for any deviations from target. Now the plan tells where the work should be. Without a plan, you don't know where you should be, so control is impossible, by definition.

Furthermore, knowing where you are is done by monitoring progress. An assessment of quantity and quality of work is made using whatever tools are available for the kind of work being done. The result of this assessment is compared to the planned level of work; if the actual level is ahead or behind of the plan, something will be done to bring progress back in line with the plan. Naturally, small deviations are always present and are ignored unless they exceed some pre-established threshold or show a trend toward drifting further off course.

Closing

In too many cases, once the product is produced to the customer's satisfaction, the project is considered finished, or *closed*. This should not be the case. A final lessons-learned review should be done before the project is considered complete. Failing to do a lessons-learned review means that future projects will likely suffer the same headaches encountered on the one just done.

Knowledge Areas

As previously mentioned, the *PMBOK® Guide* identifies nine knowledge areas that project managers should be familiar with in order to be considered professionals. These are as follows.

Project Integration Management

Project integration management ensures that the project is properly planned, executed, and controlled, including the exercise of formal project change control. As the term implies, every activity must be coordinated or integrated with every other one in order to achieve the desired project outcomes.

Project Scope Management

Changes to project scope are often the factors that kill a project. *Project scope management* includes authorizing the job, developing a scope statement that will define the boundaries of the project, subdividing the work into manageable components with deliverables, verifying that the amount of work planned has been achieved, and specifying scope change control procedures.

Project Time Management

I consider this a bad choice of terms, as “time management” implies personal efforts to manage one’s time. *Project time management* specifically refers to developing a schedule that can be met, then controlling work to ensure that this happens! It’s that simple. Because everyone refers to this as scheduling, it should really be called *schedule management*. (I know, I may be booted out of PMI for such heresy!)

Project Cost Management

This is exactly what it sounds like. *Project cost management* involves estimating the cost of resources, including people, equipment, materials, and such things as travel and other support details. After this is done, costs are budgeted and tracked to keep the project within that budget.

Project Quality Management

As I have commented earlier, one cause of project failure is that quality is overlooked or sacrificed so that a tight deadline can be met. It is not very helpful to complete a project on time, only to discover that the thing delivered won't work properly! *Project quality management* includes both quality assurance (planning to meet quality requirements) and quality control (steps taken to monitor results to see if they conform to requirements).

Project Human Resources Management

Project human resources management, often overlooked in projects, involves identifying the people needed to do the job; defining their roles, responsibilities, and reporting relationships; acquiring those people; and then managing them as the project is executed. Note that this topic does not refer to the actual day-to-day managing of people. The *PMBOK® Guide* mentions that these skills are necessary but does not attempt to document them. Given that these are the most important skills that a project manager must have, the *PMBOK® Guide* is deficient in omitting them.

Project Communications Management

As the title implies, *project communications management* involves planning, executing, and controlling the acquisition and dissemination of all information relevant to the needs of all project stakeholders. This information might include project status, accomplishments, and events that may affect other stakeholders or projects. Again, this topic does not deal with the actual process of communicating with someone. This topic is also mentioned but not included in the *PMBOK® Guide*.

Project Risk Management

Project risk management is the systematic process of identifying, quantifying, analyzing, and responding to project risk. It includes maximizing the probability and consequences of positive events and minimizing the probability and consequences of adverse events

to project objectives. This is an extremely important aspect of project management that sometimes is overlooked by novice project managers.

Project Procurement Management

Procurement of necessary goods and services for the project is the logistics aspect of managing a job. *Project procurement management* involves deciding what must be procured, issuing requests for bids or quotations, selecting vendors, administering contracts, and closing them when the job is finished.

Key Points to Remember

- ▶ A project is a temporary endeavor undertaken to produce a unique product, service, or result.
- ▶ A project is also a problem scheduled for solution.
- ▶ Project management is application of knowledge, skills, tools, and techniques to project activities to meet project requirements. Project management is accomplished by applying the processes of initiating, planning, executing, monitoring and controlling, and closing.
- ▶ All projects are constrained by Performance, Time, Cost, and Scope requirements. Only three of these can have values assigned. The fourth must be determined by the project team.
- ▶ Projects tend to fail because the team does not take time to ensure that they have developed a proper definition of the problem being solved.
- ▶ The major phases of a project include concept, definition, planning, execution and control, and closeout.

Questions for Review

1. Project management is not just:
 - a. planning
 - b. rework
 - c. scheduling
 - d. controlling

2. The problem with being a working project manager is that, in a conflict between working and managing:
 - a. You don't know what priorities to set.
 - b. Your boss will think you're slacking off.
 - c. There will never be enough time to do both.
 - d. The work will take precedence and managing will suffer.

3. The *PMBOK® Guide* refers to:
 - a. The body of knowledge identified by PMI as needed by project managers to be effective.
 - b. A test administered by PMI to certify project managers
 - c. An acronym for a special kind of risk analysis, like FMEA (Failure Mode and Effects Analysis)
 - d. None of the above

4. Project scope defines:
 - a. A project manager's visibility to the end date.
 - b. The magnitude or size of the job.
 - c. How often a project has been changed.
 - d. The limits of a project manager's authority.

The Role of the Project Manager

The role of project managers seems to be very misunderstood throughout the world. Because many project managers arrive at their position as a natural progression from their jobs as engineers, programmers, scientists, and other kinds of jobs, both they and their bosses see the job as a technical job. This simply isn't true.

If you remember that every project produces a product, service, or result, then there is a technical aspect to the job. However, it is a question of who is responsible for what, and project managers who must manage the project and handle technical issues are set up to fail from the beginning. I will explain this later on. For now, suffice it to say that the primary responsibility of the project manager is to ensure that all work is completed on time, within budget and scope, and at the correct performance level. That is,

The primary responsibility of the project manager is to ensure that all work is completed on time, within budget and scope, and at the correct performance level.

she must see that the PCTS targets are met. Her primary role is to manage the project, not do the work!

What Is Managing?

The PMI definition of project management does not completely capture the true nature of project management. Remember, it says that “project management is application of knowledge, skills, tools, and techniques to project activities to meet the project requirements. Project management is accomplished through the application and integration of the 42 logically grouped project management processes comprising the 5 Process Groups: initiating, planning, executing, monitoring and controlling, and closing” (*PMBOK® Guide*, Project Management Institute, 2008, p. 6). That sounds nice on paper, but what is it that a person really does when he manages?

I don’t know if it is really possible to convey what managing actually is. One reason is that project management is a *performing art*, and it is difficult to convey in words what an actor, athlete, or artist does. However, we can describe the various roles of a project manager, and that is the focus of this chapter. What should be clear is that you can’t very well become something if you can’t describe and define it, so this is a necessary exercise.

Definitions of Management

One common definition of management says that a manager gets work done by other people. Only a bit of thought is needed to realize how useless this definition is. Dictators get work done by other people, but I wouldn’t call that management. Dr. Peter Drucker, whom many credit with being the “father” of management because he first made people realize that management was a profession, rather than a job, has said that a manager is supposed to make an unsolicited contribution to the organization. That is, a manager looks around to see what needs to be done to advance the cause of the organization and does it without asking

permission or having to be told to do it. This is often called being proactive, as opposed to reactive, and it is.

But, most important, a manager can't do this unless she understands the mission and vision for the organization and takes initiative to help achieve these. And I believe this applies equally well to project managers. First, they must understand the mission and vision of the organization; then they must see how the project they are managing meshes with the organization's mission; then they must steer the project to ensure that the interests of the organization are met.

It's about People!

In addition, I said earlier that the job is not a technical job. It is about getting people to perform work that must be done to meet the objectives of the project. In that respect, the classical definition is correct, but Drucker has pointed out that the manager must get people to perform above the minimum acceptable performance level. The reason is that this minimum level is the survival level for the organization, and any company that just manages to survive will not do so for long. Eventually the competition will pass it by, and the organization will die.

So the first skills that a project manager needs are *people skills*. Herein lies the source of major problems for many project managers—and general managers, too, for that matter. I have found that most managers know more about getting performance from computers, machines, and money than they do about getting people to perform. There are many reasons for this, but chief among them is that nobody has ever taught them practical methods for dealing

Project managers must understand the mission and vision of the organization first, then they must see how the project they are managing meshes with the organization's mission, and they must steer the project to ensure that the interests of the organization are met.

with people, and we simply aren't born knowing how. So far as I know, the geneticists have not yet found a people-skills gene that endows a person with these skills.

Furthermore, many project managers who have strong technical backgrounds find it difficult to deal with people effectively. They are "things oriented," not people oriented, and some will even go so far as to say that they hate this aspect of the job. My recommendation is that they forget about being project managers if this is true. You usually aren't very effective at something you hate doing, but, beyond that, why spend your life doing something you hate?

The Working Project Manager

In fact, one of the biggest traps for project managers is to be what is euphemistically called a *working project manager*. This means that the project manager is indeed responsible for performing technical work, in addition to managing the job. The problem with this is that when there is a conflict between managing and doing work—and there always is such a conflict—the work will take priority and the managing will be neglected. However, when it comes time for the manager's performance appraisal, he will be told that his technical work was okay, but the managing was inadequate. This is a double bind that should not exist.

Authority

The universal complaint from project managers is that they have a lot of responsibility but no authority. It is true, and it is not likely to change. It is the nature of the job, I'm afraid. However, you can't delegate responsibility without giving a person the authority commensurate with the responsibility you want him to take, so, while the project manager's authority might be limited, it cannot be zero.

A word to project managers, however. I learned early in my career as an engineer that you have as much authority as you are willing to take. I know that sounds strange. We see authority as something granted to us by the organization, but it turns out that

those individuals who take authority for granted usually get it officially. Of course, I am not advocating that you violate any of the policies of the organization. That is not a proper use of authority. But when it comes to making decisions, rather than checking with your boss to see if something is okay, make the decision yourself, take action that is appropriate and does not violate policy, and then inform your boss what you have done. Many managers have told me that they wish their people would quit placing all decisions on their shoulders to make. And they wish their people would bring them solutions, rather than problems. In other words, your boss is looking for you to take some of the load and leave her free to do other things.

A Moment of Truth

Jan Carlzon was the youngest ever CEO of Scandinavian Airlines, and he successfully turned around the ailing airline. He did so in part by empowering all employees to do their jobs without having to ask permission for every action they felt they should take to meet customer needs. He pointed out that every interaction between an employee and a customer was a *moment of truth* in which the customer would evaluate the airline's service. If that service was good, then the customer would be likely to fly SAS again; conversely, if it wasn't good, the customer would be less likely to do so. As Carlzon pointed out, from the customer's point of view, the SAS employee *is* the airline.

Furthermore, Carlzon revised the standard organization chart, which is typically a triangle with the CEO at the apex and successive levels of managers cascading down below, eventually to the front-line employees at the very bottom. This implies that there is more and more authority as you go from the bottom toward the apex at the top and that the people at the lowest level have almost no authority at all.

Carlzon simply inverted the triangle, placing the apex at the bottom and the front-line employees at the top. In doing so, he said that the job of managers is to make it possible for the front line to

deliver the services that the customer expects. The manager is an *enabler* of employees. They are actually servants of employees, not their masters, when you look at it this way.

This is, to me, the essence of the project manager's role. Since you have very little authority anyway, consider that your job is to ensure that everyone in the project team has what he needs to do his job well. If you do, then most of your team will perform at appropriate levels.

Leadership and Management

Finally, because the project manager's job is mostly about dealing with people, it is absolutely essential that you exercise leadership as well as management skills (see Chapter 13). I have defined management as making an unsolicited contribution to the organization. The definition of leadership that seems to me to best express the meaning of the word is this (from *The Pyramid Climbers*): "Leadership is the art of getting others to *want* to do something that you believe should be done." The operative word in the definition is "want."

As I said previously, dictators get people to do things. Leaders get them to *want* to do things. There is a big difference. As soon as the dictator turns her back, people quit working. When the leader turns her back, people continue working, because they are working willingly.

Clearly, a project manager needs to exercise leadership, since he lacks authority. But, most important, the dictator can control only those people within his immediate range of sight. The leader can get people to perform without having to closely supervise them. And this is necessary in projects.

However, a project manager must also exercise management

Since you have very little authority anyway, consider the job to ensure that everyone in the project team has what they need to do their job well.

skills. In fact, the two sets of skills must be integrated into the job of project management because management deals with the administrated aspects of the job—budgets, schedules, logistics, and so on—while leadership gets people to perform at optimum levels. If you exercise one set of skills to the exclusion of the other, the outcome will be far less effective than if you integrate the two skill sets.

Do You Want to Be a Project Manager?

Project management is not for everyone. I emphasized earlier that it is not a technical job. It is about getting people to perform work that must be done to meet the objectives of the project. So when I am asked what I consider to be the most important attributes for project managers to have, I always say that people skills are number one through three. Then, below that, comes everything else. If you can deal with people, you can either learn to do everything else or delegate it to someone who can do it. But being able to do everything else without being good at dealing with people just won't cut it.

Now the question is, do you really want to be a project manager? Do you like having responsibility with very limited authority? Do you enjoy working to impossible deadlines, with limited resources and unforgiving stakeholders? Are you, in other words, a bit masochistic? If you are, then you will love being a project manager.

If you are the boss of project managers, these are things you should consider in selecting people for the job. Not everyone is cut out for the job.

So when I am asked what I consider to be the most important attributes for project managers to have, I always say that people skills are number one through three.

Key Points to Remember

- ▶ A project manager must understand the mission and vision of the organization first, see how the project they are managing meshes with the organization's mission, and then steer the project to ensure that the interests of the organization are met.
- ▶ The first skills a project manager needs are people skills.
- ▶ One of the biggest traps for project managers is to perform technical work in addition to managing the job, because, when there is a conflict between performing the two, the project manager cannot neglect the management aspects.
- ▶ Instead of asking for authority, make decisions yourself, take action that is appropriate and does not violate policy, and then inform your boss what you have done.
- ▶ The project manager's job is to ensure that everyone in the project team has what he needs to do his job well.
- ▶ A project manager must exercise both leadership and management skills.