FOURTH EDITION

SUCCESSFUL PROJECT MANAGEMENT

A Step-by-Step Approach with Practical Examples

MILTON D. ROSENAU, JR.
GREGORY D. GITHENS

Successful Project Management

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Fourth Edition

Milton D. Rosenau, Jr.
Gregory D. Githens

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Preface

WHO THIS BOOK IS FOR

This book is for anyone interested in a pragmatic approach to managing projects and programs. We have found that the material is valuable as a refresher for the experienced manager and as a primer for the person who wants an introduction. The factors that lead to project success are known and knowable regardless of the industry, the size of the project, or its technology. Good project performance can be ensured with the skillful application of the processes, tools, techniques, and concepts of project management.

A natural and primary audience for this book is the person named as ''project manager.'' (In some cases, the label may be ''project leader,'' ''project engineer,'' or similar variants.) It is common to find individuals who have been trained in a technical skill (e.g., engineering, science, accounting, and programming) thrust into management roles with little training, coaching, or mentoring. We often will address the reader as ''you'' in recognition of this important audience.

Another important audience is project team members. Over the years, we have seen many situations where the project manager was well trained in the tools and principles of project management but became frustrated when he or she tried to engage the project team to help them apply the tools. Projects are a collaborative activity. This book will help team members understand their roles and responsibilities in supporting the development and execution of project plans.

In recent years, the ''process view'' of the enterprise has shown the value of improving performance of complex work activities. It is the job of senior management to help create the system that allows for the consistent and systematic development and delivery of projects. We wrote this book so that people with only

limited time but with a need for a strategic perspective can identify the success factors for delivering projects. Thus, another important audience for this book is executive sponsors and customers as well as functional managers.

Many organizations now have adopted the concept of a project office. This book will provide important insights to those people who are organizing or operating a project management office.

THIS BOOK'S APPROACH TO PROJECT MANAGEMENT

This book is useful for any type of project, regardless of size, technology, or industry. In addition, we address portfolio management and program management of integrated collections of projects.

We organized this book to provide a simple model of the fundamentals of project management. Our straightforward approach is based on a combined 70 years of experience with new product development for consumer and industrial markets, chemical formulation, engineering, government contracts, research, management consulting, and volunteer organization projects.

This book divides the management of projects into five general managerial functions and emphasizes the importance of integration, as illustrated in Figure P-1.

1. *Defining.* Defining the project's goals.
2. *Planning.* Planning how you and your team will satisfy the Triple Constraint (goal) of performance specification, time schedule, and money budget. The plan depends on the mix of human and physical resources to be used.

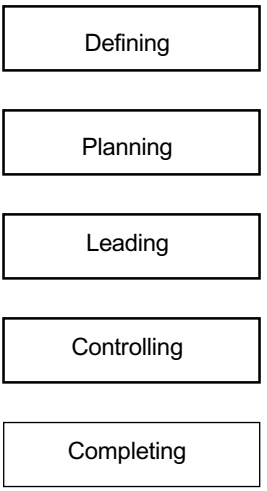

FIGURE P-1. *The five activities are different but interdependent.*

3. *Leading.* Providing managerial guidance to human resources, subordinates, and others (including subcontractors) that will result in their doing effective, timely work.
4. *Controlling.* Measuring the project work to find out how progress differs from plan in time to initiate corrective action. This often leads to replanning, which may force a goal (definition) change, with a consequent need to change resources.
5. *Completing.* Making sure that the job that is finally done conforms to the current definition of what was to be done, and wrapping up all the loose ends, such as documentation.

Although these are distinct, they are interrelated, as shown by the arrows in Figures P-2, P-3, and P-4.

The first two steps are not necessarily separate and sequential, except when the project initiator issues a firm, complete, and unambiguous statement of the desired project output, in which case the organization that will carry out the project may start to plan how to achieve it. It is more common to start with a proposed work definition, which is then jointly renegotiated after preliminary planning elucidates some consequences of the initially proposed work definition. The definition must be measurable (specific, tangible, and verifiable) and attainable (in the opinion of the people who will do the work) if you want to be successful. Being successful also requires that management agrees that the project is justified and that the resources the project team needs will be available.

Thus, in fact, the resources to be dealt with in the leading phase often must be considered before planning can be finished (Figure P-2). For instance, you might need engineers familiar with carbon fibers if the plan for a materials study project includes the study of that kind of material, whereas you would use a metallurgist if the project were to study only metals.

No project goes in accordance with your plan. What you don't know when you start is where it will go awry. Consequently, as you will see in later chapters, replanning is almost always required, thus frequently amending the negotiated def-

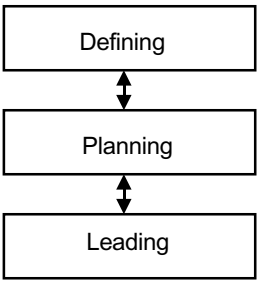

FIGURE P-2. *Defining, planning, and leading activities often must be considered simultaneously.*

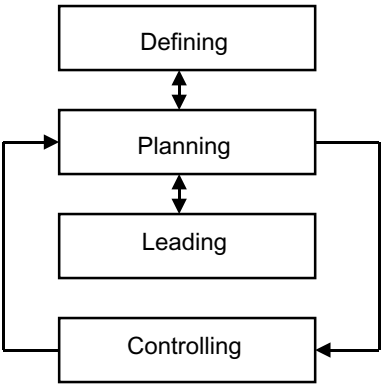

FIGURE P-3. *Controlling (or monitoring) is carried out to detect deviations from planning.*

inition (Figure P-3). Ultimately, the project can be completed when the work that is done satisfies the current requirement (Figure P-4).

Nevertheless, the five-step managerial activity process covers each required action and is a useful conceptual sequence in which to consider all project management. Thus, this book is organized according to it.

Each chapter is short and can be absorbed in 1 to 2 hours. The chapter sequence is a good match for the chronological concerns during a typical project. We caution you, however, that there is no single ''cookbook'' or template to follow. We encourage you to scan the chapter highlights and use the index.


Because projects are complex and strategic, they require an appropriately sophisticated set of managerial tools. A tool icon is inserted at points where

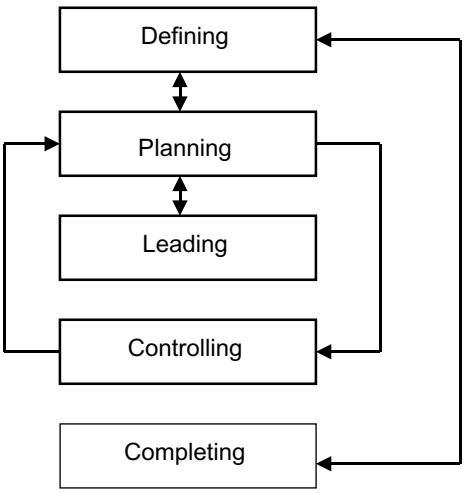

FIGURE P-4. *Completing depends on the current defining basis.*

we describe what we consider to be a particularly useful tool that you may want to use. Some of these are simple to use, and some will require practice. Perhaps a few will never be right for your management style. Because not all these tools will be useful for you in specific situations that you encounter, you will have to pick and choose which tools to use when.

We tried to use graphics and examples liberally. This book contains several illustrations of computer project management and other software outputs, most from the widely used shrink-wrap project software package Microsoft Project. We are not endorsing this product, nor are we discouraging its use. There are other widely used and effective single user and enterprise computing systems. Our goal is to explain a few of the key useful aspects of this class of software. Employing such software will not make a person a successful project manager, and using it is not the same as being a project manager. Software is a tool to help but not a solution, especially to ''people'' problems. Nevertheless, you can be a more effective project manager if you employ such software in situations where it will be helpful to you.

CHANGES IN THIS FOURTH EDITION

The first three editions of *Successful Project Management* proved the value of the book's approach to helping readers improve project management skills. In the two decades that followed the publication of the book's first edition, people have increasingly come to regard project management as a ''profession'' instead of a ''job.'' A short list of developments in the field of project management would include the process view, virtual teams, new theories and practices of motivation, the quality view, project management offices, and so on. Practitioners have developed and documented a recognized body of knowledge and an ability to certify individuals and to recognize organizational capability (also called *maturity*) in the process of project management.

Reflecting the explosion of documented project management knowledge and standards, we have made extensive changes to this fourth edition. This edition clarifies some of the previous material, brings it up to date, and eliminates some material made obsolete or irrelevant by the growing sophistication and professionalization of the project management field.

We rewrote a number of chapters to bring these up to date with contemporary concepts, standards, and practices of project management. We have incorporated and reflected the standards that groups such as the Project Management Institute (PMI) have publicized. Throughout this book, we have used standard language, enhanced and corrected the graphics, and recognized the use of enterprise computing, networks, and the World Wide Web.

Readers familiar with the earlier editions of this book will notice that there have been substantial changes to the book. Five of the first six chapters have been rewritten to better describe the role of integration in project planning. Chapter 11 on risk and issues management is also completely rewritten. Moreover, all the

remaining chapters have been augmented to reflect contemporary thinking and practices in the project management field.

Greg Githens joins Mickey Rosenau as coauthor for this fourth edition of *Successful Project Management.* He brings a substantial background as a project management practitioner, consultant, trainer, and professional contributor to the project management field.

PROJECT MANAGEMENT AS A DISCIPLINE

It is an exciting time to be in project management. There has been an explosion of knowledge and tools for the field and increasing recognition of ''good'' and ''bad'' practices. Organizations who have embraced it are achieving outstanding results. Yet, successful project management has been and will be based on people. Project management is a *discipline,* a word that has its semantic roots in the ideas of teaching and learning. As an individual and organizational competency, project management discipline involves leadership from individuals who have the personal backbone to withstand the criticism of undisciplined, impatient people. It requires an organizational commitment to investing sufficient up-front time and to involving other people, recognizing that different points of view result in more creative, optimal outcomes.

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1

Projects, Project Management, and Program Management

Projects are a kind of work that is temporary, unique, and progressively elaborated. Accordingly, project management is a discipline that includes a specific body of knowledge as well as a specialized set of tools. In this chapter, we explain how project management is different from process management and ad hoc management, the nine knowledge areas—stressing the importance of integration and managing expectations—and overview five managerial functions.

Project success doesn't just ''happen''; it comes from people using commonsense tools that are suited for the special nature of projects and applied in an organizational environment that accepts discipline and rigor. To understand what makes project management ''successful,'' we need to start with its basic unit, which is the project. In this chapter, we will explain what a project is and isn't and describe the foundations of project management as a discipline.

PROJECTS ARE A TYPE OF WORK

It is important to understand what a project is so that the project manager and project team can select appropriate project management tools. This section provides a basic definition of a project.

First, let's examine some characteristics of *any kind* of work activity, including projects. Thus, *all work,* including projects:

- *Uses resources.* For the purpose of this definition, resources include people, capital, equipment, ideas, and so forth. Whether the organization is refining

oil, building a building, programming a computer, conducting a management consulting assignment, designing an instrument for a satellite, developing a new product or service, or surgically removing a cancerous tumor, a manager is responsible for the effective application of resources.

- *Is requested or needed.* Customers, and their willingness to spend their scarce money for goods and services, are the lifeblood of any organization, be it government, business, or charity. Successful organizations pay attention to customer needs to deliver goods and services that customers' value.
- *Has goals.* Generically, management is a process of establishing goals and directing resources to meet those goals.

These three factors are descriptive of projects but are not sufficient to distinguish a project from a nonproject. The accepted definition of a project is that it is a temporary work effort that produces a unique result. Let's look at each of the three characteristics that distinguish projects from other kinds of work:

- *Projects are temporary.* Temporary means that there is a beginning and end to the project. Projects start when the sponsoring organization authorizes the project, and projects end when the project meets the requirements. All well-managed projects must come to an end! For example, the project of constructing a major downtown hotel would take one or two years to complete, but the project would complete the work.
- *Projects are unique.* Unique means that the work product or processes that create it are novel or different. Even though a second software project to write an accounts payable system is very similar to the first such project, there will be some differences, perhaps something as simple as the format of reports. The same is true of digging two ditches (the purpose or terrain may vary) or organizing two conventions (the sites or programs may differ), and so on. For example, while hotels may have similar layouts (''footprints''), the people and materials involved in the construction are different for each hotel.

A project is a temporary work effort that produces a unique result.

- *Projects are progressively elaborated.* This means that a project proceeds in steps or stages. Most well-managed projects use a phased approach, where the project defines the phases according to its control needs. For example, real estate developers often acquire land speculatively and then put together deals to construct hotels, restaurants, and convention centers according to the needs of the local market. We will describe more on the project life cycle phase in Chapter 5 and later chapters.

Now let us see how a typical organization might use this definition of projects as temporary, unique, and progressively elaborated to identify work activities that would best benefit from the project management tool set. Figure 1-1 shows three

	Definitely *Is* a Project	Might Be a Project	Definitely *Is* Not a Project
Example	Constructing a hotel.	Painting a bedroom	Processing employee time data to produce payroll checks
Rationale	Meets the generally accepted definition of a project. It is a one-of-a-kind product It started from a piece of ground and was developed into a complex.	Is probably better to call this work a task because of its simplicity. Extensive formal documentation, status meetings, and so forth are probably not necessary.	Better thought of as process or operations management. Making a major change to upgrade the payroll system *could* become a project.

FIGURE 1-1. *Identifying a project, nonproject, and possible project.*

types of work that might take place in an organization. The first and third columns are straightforward. To define what something *is,* it is helpful to define what it *isn't.* Let us look at the column headed, ''Might Be a Project.'' The ''Might Be'' column is important in addressing a common complaint about project management, which is project management is bureaucratic, involves many meetings, and so forth. The difference (and need for sophisticated project management) arises from the need to manage across interfaces and deal with complexity.

Not everything individuals or organizations do is a project, but some things are a project

Why should you care about distinguishing projects versus nonprojects? Not everything individuals or organizations do is a project, but *some* things are a project. The things that are projects are typically not the day-to-day work of people but have to do with creating a new outcome. Projects are strategic! Because projects are complex and strategic, they require a particular and sophisticated set of managerial tools.

While the term *project* refers to work activities, people also commonly use the term to refer to organizations of resources. Hence, projects perform work: After initiating the project, they ''plan their work and work their plan,'' make changes as necessary, and close out the project.

Contemporary thinking identifies projects as essential components of enterprise strategy. Projects are one important kind of organizational work because they create change. Because projects create change, good organizations explicitly align their projects with the investment policies and intention of management. We explore the selection and definition of projects further in the next and subsequent chapter.

PROJECTS DISTINGUISHED FROM TASKS AND FROM PROCESSES

Projects are different for other work activities and require different tools.

It is important to distinguish projects from other kinds of work. A project is *more complex* than a task and *more unique* than a process. There are not clear-cut distinctions, and each individual and organization will develop and apply judgment on where and how to clarify the differences.

Projects are more complex than tasks. For an individual, going to work on some mornings might seem to be a major undertaking. It is something that the individual must do in order to maintain employment, it requires resources, and it has a goal. The individual needs to apply some forethought to identify the best route considering the risks involved. He or she could even create a ''to do'' checklist for the undertaking to help him or her remember all the steps.

However, from the perspective of an enterprise, an individual's commute to work is a task and not a project. It does not involve the coordination of people (although organizing a car pool could be an exception), does not require capital investment, and does not benefit from managerial oversight. In most organizations, a task is something that an individual can accomplish by himself or herself in a few hours or a few days of time.

While both projects and tasks have an end-state goal and use resources, there is little value in developing a project management approach for the *task* of going to work. We think it is important to include in the definition of a project—at least for purposes of this book—those endeavors where project management tools add value. There is no sense in adding the sophistication of project management tools for work that simply does not require sophistication.

We want to stress that project management is *not* managing your ''to do'' list. In Chapter 6, we again turn to the discussion of tasks but examine them as the activities that the project organizes into a work breakdown structure.

Considerable progress has been made in identifying the factors that lead to successful project management.

Some organizations fail to recognize the distinction between tasks and projects. An *ad hoc* approach is suitable for a task but not for a project. In these organizations, a mixture of effort and luck drives performance. Organizations get inconsistent results from their projects and tend to attribute the result (good or bad) to the individual. In the past 10 years, however, there has been a growing movement within the project management profession to measure and develop ''project management maturity'' systematically at the enterprise level. It is now much easier to identify the causes and consequences of successful project management.

Now let's examine how projects differ from processes. Processes have three components: inputs, transformations, and outputs. From an organizational standpoint, processes are mostly repetitive and produce common outputs. Projects are

different from processes because they have less consistency in inputs, transformations, and outputs. For example, if the individual's project is to build an amplifier circuit, at some point, building a second, third, or fourth amplifier circuit ceases to be a project and becomes a repetitive activity. If each amplifier is virtually identical, we have a production line; thus we are managing a process, not a project. The lesson here is that the individual should determine if the requestor's requirement is to build a single amplifier, or to build a batch of amplifiers, to build an amplifier production line. Often, the individual performs unwanted or unbudgeted work, a phenomenon known in the project management community as *scope creep.*

Refer back to the right-hand column of Figure 1-1. Other examples of processes are manufacturing, payroll processing, and building maintenance. Process management focuses on standardization, particularly of the output. To achieve consistent, high-quality, standardized outputs, process management places requirements on the inputs (the raw materials) and the production that transforms the inputs to the outputs. High-volume, high-quality output is typically a goal of process management.

The disciplines of ''process management'' and ''project management'' differ in goals and metrics. In process management, goals and metrics are set up to eliminate variation within the process because variation is wasteful. A new product development example is instructive on this point. If a person is purchasing an automobile, he or she assumes that any car that he or she purchases will be consistent with other like models and will meet the advertised performance specifications. Managers design the manufacturing process to eliminate variation in order to produce automobiles of an expected, consistent quality. Henry Ford's famous quotation about the Model T, that ''a customer can have any color that they want as long as it is black,'' is an extreme example of the efficiency mind-set. On the other hand, customers desire variety and have requirements for an automobile with features and functionality that make it distinctive, for example, new and different colors. Ford's competitors were able to create distinctiveness that the customer valued and gained market share in part because of Ford's rigidity in the use of process management and metrics.

Thus, projects allow organizations to give customers new and value-added choices. In this sense, variation is good, because customer-perceived value is a source of competitive advantage.

In recent years, the project management literature has contained considerable discussion of the process view of project management. Projects *do* involve repeatable activities such as capturing requirements, building teams, and publishing reports, but the processes are not high-volume, long-term production lines. Except for very large aerospace and construction projects, projects seldom perform high-volume work activities. More typically, projects use process management to develop routines so that people can manage frustrations or focus on creative tasks. For example, project status meetings are a repetitive activity within projects. Project status meetings can benefit from standardizing on agendas, goals, time, and so forth.

Then the project effort can focus on creating unique and sometimes first-of-a-kind items.

Finally, don't confuse a procedure with a process. A *procedure* is a job instruction for accomplishing an operation. For example, in a chemical processing plant, there are standard ''lock-out, tag-out'' rules for shutting off equipment or entering a confined space. Technical and process-oriented organizations have volumes and volumes of procedures for people to follow. Some people often use the term *methodology* to describe a system of procedures. These procedures are necessary because of the following:

- There is a considerable amount of detail that a person must remember.
- The operation must be performed in a specific sequence.
- Failing to complete *all* steps in the proper sequence could cost lives or significant money. In some cases procedures are subject to government regulation and oversight, for instance, in the development and manufacture of a new drug or medical device.

It follows naturally that organizations would want to exert some similar types of control over the initiation, planning, execution, controlling, and closing processes of their projects.

Attempts to control projects through procedural control seldom work as well as the designers of the control process desire.

However, these attempts to control projects through procedural control seldom work as well as the designers of the control process desire. Once the documents are written, organizations place them in a library to indoctrinate people in the procedures. However, in practice, people do not pay attention to the procedures and soon start ignoring them. When people deviate from the rules (often for a very good reason), the ''methodologist'' typically writes a new rule. This expansion of ''methodology'' can grow to a multivolume set that people view with cynicism. For example, one organization developed a binder of procedures for new product development activities that was so thick and heavy that people developed the slang name ''Thud Document'' because of the ''thud'' sound the book made when a person dropped it on a table.

Here are a few commonsense observations about the difference between a process and a procedure:

- Projects have many unique facets, so many of the procedures do not apply or only apply partially.
- Projects are more complex than tasks, so projects require knowledge of many things.
- People have limited capacity to absorb abstract information.

- People are under pressure to get to work and deliver visible results quickly.

Project management is fundamentally a commonsense approach that depends on the good judgment of people.

The best organizations avoid a rigid set of step-by-step procedures for project management. Instead, the best organizations educate all stakeholders on the principles and allow for discretion and common sense. To be sure, templates and checklists are helpful job aids for the novice; just don't become a slave to your tools.

PROGRAMS ARE COLLECTIONS OF PROJECTS

A program is a collection of projects grouped together to get advantage from their combined management.

A program is a collection of projects grouped together to get advantage from their combined management. For example, the trans-Alaska pipeline and the manned lunar landing projects required many years and billions of dollars. The overall success of such programs depends on hundreds or thousands of projects. Programs usually are larger than projects and are collections of projects that come to an end when the sponsoring organization makes a determination to end the program *and* when the projects that make up the program are completed.

Better organizations make a distinction between *program* and *project* and between *program management* and *project management.* These are not interchangeable terms.

The reader should have some awareness of a phrase related to program management that is a set of practices for understanding the relationship of projects to an organization's strategies: *project portfolio management.* People and organizations use this phrase to portray projects as assets invested by the organization to achieve its goals. Project portfolio management includes concepts such as the following:

- Setting priorities across all projects
- Allocating resources across all projects, including project managers and project participants
- Project selection and deletion
- Understanding that projects are different and require different approaches (For example, there are capital equipment projects, innovation projects, regulatory compliance projects, system support projects, and so forth.)

If you work for a large organization, you should find out if your organization has a project or project management office and consult with its leaders to understand how your own organization defines projects, programs, and portfolios. In

addition, find out what kinds of job aids, training, coaching, and support are available to project managers and project participants.

PROJECT MANAGEMENT MATURITY

Humankind has performed and managed projects since the earliest of times. People have looked on the artifacts of projects—both from earlier civilizations and from contemporary periods—with amazement. Was ''project management'' used to create these wonders? In a sense, yes. History shows that people used many advanced insights in their planning and logistical practices. Still, we can't help but visualize a brutal taskmaster with a whip standing over cowering laborers and know that this type of coercive power would be an inappropriate ''people skill'' in today's organizations.

The project manager is not the schedule mechanic.

In the three decades that followed World War II, organizations found significant economies of scale and centralized massive ''mainframe'' computation capabilities, leading to the development of sophisticated techniques for task scheduling, estimating, and resource management. The ''project manager'' often was the only person with the training and desire to use this system, which unfortunately caused many people to regard the project manager as the ''schedule mechanic.'' The use of information technology continues to be important to project management because it has changed and even eliminated many of the middle management roles. Organizations have decentralized steadily and have become more networked. Now, any person with access rights can view and update the project documentation instead of waiting for a directive from their manager. Information technologies have allowed all project team members to multitask and contribute to a number of work activities in a number of different ways. This decentralization has led to more empowerment and more accountability for results at the individual and team level of the project. The project manager is the person we look to help the team achieve the results.

In recent years, it has been popular to say that project management is the ''accidental profession,'' but that is changing. Most project managers did not start their careers as project managers. Most people get exposure to projects early in their careers as technical contributors, and gravitate (or are pushed) into taking on a more systematic view of projects. As they gain experience with projects, individuals often decide that the project management career path is more to their liking than the technical path.

Now, in the twenty-first century, there is a solid and global recognition of the importance of project management as an explicit organizational activity with best practices and skills. One source of support for this statement is standards developed and publicized by such groups as the Project Management Institute (PMI). Through PMI and other similar organizations, people increasingly have developed and documented a recognized body of knowledge and an ability to certify individuals and