Part I

Defining and Using Project Management Process Groups

The purpose of Part I is to provide you with a working knowledge of the five Process Groups and nine Knowledge Areas that make up the Project Management Body of Knowledge (PMBOK). For each Process Group, the tools, templates, and processes aligned with that Process Group are explained in detail. This is very much an application orientation. Part II discusses how to use the Process Groups (and the tools, templates, and processes aligned with them) in specific situations, when to use them, and how to adapt them to meet your project needs. This is consistent with the bottom-up learning model used in this book.

Upon completing Part I, you will have a working knowledge of all the contemporary tools, templates, and processes used to scope, plan, launch, monitor, control, and close projects.

Overview of Part I

The following chapters comprise Part I and should be read and studied in the order presented.

Chapter 1: What Is a Project?

To be called a *project*, an undertaking must meet a specific set of conditions. If an undertaking meets those conditions, then it must follow the prescribed project

management methodology defined by the organization. A formal definition is put forth and the characteristics of the project are explored. Project management methodologies are often defined for specific types of projects. Project classification rules are explored.

Chapter 2: What Is Project Management?

In the last 10 years project management has undergone significant change. Chapter 2 introduces contemporary project management at a high level. Rather than having just one approach, you now have a variety of approaches, all based on the characteristics of the project. So in effect the uniqueness of the project translates into the uniqueness of the best-fit approach for managing it. The purpose of this chapter is to establish a landscape that categorizes projects and then define project management life cycle (PMLC) models that align with each type of project. The taxonomy I use allows all known project management approaches to be classified in this landscape.

Chapter 3: Understanding the Project Management Process Groups

This chapter aligns with the PMBOK defined by the Project Management Institute (PMI). PMBOK is the standard by which project management methodologies are gauged. PMBOK defines five Process Groups and nine Knowledge Areas, which are discussed in this chapter. The tools, templates, and processes used in each Process Group are presented. A common misconception is that the five Process Groups define a project management methodology. They do not. The discussion of methodologies is taken up in Part II.

Chapter 4: How to Scope a TPM Project

Unless you know where you are going, how will you know if you ever get there? Completely and clearly documenting the client's requirements is difficult and many would say impossible. The degree to which that exercise is satisfactorily done will be the major factor in deciding how the project should be managed.

Chapter 5: How to Plan a TPM Project

For some projects, a complete plan can be generated before any work begins. For others, planning is done just in time. The specific approach for your project depends on the completeness of the requirements specification.

Chapter 6: How to Launch a TPM Project

Assembling the team, establishing how it will function, and finalizing the project schedule are the major topics of this chapter.

Chapter 7: How to Monitor and Control a TPM Project

If you can't measure it, you can't manage it. Status reporting and other control tools are discussed in this chapter.

Chapter 8: How to Close a TPM Project

The project is done when the client says it is done. The acceptance criteria should have been defined during the planning phase and maintained throughout the project. The steps to closing the project are discussed in this chapter.

CHAPTER

1

What Is a Project?

Things are not always what they seem.
—Phaedrus, Roman writer and fabulist

CHAPTER LEARNING OBJECTIVES

After reading this chapter, you will be able to:

- **Define a project, program, and portfolio**
- **Understand the scope triangle**
- **Envision the scope triangle as a system in balance**
- **Prioritize the scope triangle for improved change management**
- **Apply the scope triangle**
- **Manage the creeps**
- **Know the importance of classifying projects**

To put projects into perspective, you need a definition — a common starting point. All too often, people call any work they have to do a "project." Projects actually have a very specific definition. If a set of tasks or work to be done does not meet the strict definition, then it cannot be called a project. To use the project management techniques presented in this book, you must first have a project.

Defining a Project

DEFINITION: PROJECT **A project is a sequence of unique, complex, and connected activities that have one goal or purpose and that must be completed by a specific time, within budget, and according to specification.**

This is the commonly accepted definition of a project and tells you quite a bit about it. This is a good place to start this discussion but I will improve upon it later with a more business-focused definition. To appreciate just what constitutes a project, take a look at each part of the definition.

Sequence of Activities

A project comprises a number of activities that must be completed in some specified order, or *sequence*. An *activity* is a defined chunk of work.

CROSS-REFERENCE **Chapter 5 expands on this informal definition of an activity.**

The sequence of the activities is based on technical requirements, not on management prerogatives. To determine the sequence, it is helpful to think in terms of the following inputs and outputs:

- What is needed as input in order to begin working on this activity?
- What activities produce those deliverables as output?

The output of one activity or set of activities becomes the input to another activity or set of activities.

Specifying a sequence based on resource constraints or statements such as "Pete will work on activity B as soon as he finishes working on activity A" should be avoided because this establishes an artificial relationship between activities. What if Pete wasn't available at all? Resource constraints aren't ignored when you actually schedule activities. The decision of what resources to use and when to use them comes later in the project planning process.

Unique Activities

The activities in a project must be *unique*. A project has never happened exactly in the same way before, and it will never happen again under the same conditions. Something is always different each time the activities of a project are repeated. Usually the variations are random in nature — for example, a part is delayed, someone is sick, or a power failure occurs. These are random events

that can happen, but you never are sure of when or how, and what impact they will have on the schedule. These random variations are the challenge for the project manager and what contributes to the uniqueness of the project.

Complex Activities

The activities that make up the project are not simple, repetitive acts, such as mowing the lawn, painting the house, washing the car, or loading the delivery truck. Instead they are *complex*. For example, designing an intuitive user interface to an application system is a complex activity.

Connected Activities

Connectedness implies that there is a logical or technical relationship between pairs of activities. There is an order to the sequence in which the activities that make up the project must be completed. They are considered connected because the output from one activity is the input to another. For example, you must design the computer program before you can program it.

You could have a list of unconnected activities that must all be complete in order to complete the project. For example, consider painting the interior rooms of a house. With some exceptions, the rooms can be painted in any order. The interior of a house is not completely painted until all its rooms have been painted, but they may be painted in any order. Painting the house is a collection of activities, but it is not considered a project according to the definition.

One Goal

Projects must have a single *goal* — for example, to design an inner-city playground for AFDC (Aid to Families with Dependent Children) families. However, very large or complex projects may be divided into several *subprojects*, each of which is a project in its own right. This division makes for better management control. For example, subprojects can be defined at the department, division, or geographic level. This artificial decomposition of a complex project into subprojects often simplifies the scheduling of resources and reduces the need for interdepartmental communications while a specific activity is worked on. The downside is that the projects are now interdependent. Even though interdependency adds another layer of complexity and communication, it can be handled.

Specified Time

Projects have a specified *completion date*. This date can be self-imposed by management or externally specified by a client or government agency. The deadline

is beyond the control of anyone working on the project. The project is over on the specified completion date whether or not the project work has been completed.

Within Budget

Projects also have *resource limits*, such as a limited amount of people, money, or machines that are dedicated to the project. These resources can be adjusted up or down by management, but they are considered *fixed resources* by the project manager. For example, suppose a company has only one web designer at the moment. That is the fixed resource that is available to project managers. Senior management can change the number of resources, but that luxury is not available to the project manager. If the one web designer is fully scheduled, the project manager has a resource conflict that he or she cannot resolve.

CROSS-REFERENCE **Chapter 6 covers resource limits and scheduling in more detail.**

According to Specification

The client, or the recipient of the project's deliverables, expects a certain level of functionality and quality from the project. These expectations can be self-imposed, such as the specification of the project completion date, or client-specified, such as producing the sales report on a weekly basis.

Although the project manager treats the specification as fixed, the reality of the situation is that any number of factors can cause the specification to change. For example, the client may not have defined the requirements completely, or the business situation may have changed (which often happens in projects with long durations). It is unrealistic to expect the specification to remain fixed through the life of the project. Systems specification can and will change, thereby presenting special challenges to the project manager.

CROSS-REFERENCE **Chapters 4, 9, and 11 describe how to effectively handle client requirements.**

A Business-focused Definition of a Project

The major shortcoming of the definition of a project I have been discussing thus far is that it isn't focused on the purpose of a project, which is to deliver business value to the client and to the organization. So lots of examples exist of projects that meet all of the constraints and conditions specified in the definition, but the client is not satisfied with the results. The many reasons for this dissatisfaction are discussed throughout the book. So I offer a better definition for your consideration.

DEFINITION: PROJECT **A project is a sequence of finite dependent activities whose successful completion results in the delivery of the expected business value that validated doing the project.**

Defining a Program

A *program* is a collection of related projects. The projects must be completed in a specific order for the program to be considered complete. Because programs comprise multiple projects, they are larger in scope than a single project. For example, the United States government had a space program that included several projects such as the Challenger Project. A construction company contracts a program to build an industrial technology park with several separate projects.

Unlike projects, programs can have many goals. For example, every launch of a new mission in the NASA space program included several dozen projects in the form of scientific experiments. Except for the fact that they were all aboard the same spacecraft, the experiments were independent of one another and together defined a program.

Establishing Temporary Program Offices

As the size of the project increases, it becomes unwieldy from a management standpoint. A common practice is to establish a temporary program office to manage these large projects. One of my clients uses a team size of 30 as the cutoff point. Whenever the team size is greater than 30, a program office is established. That program office consists of nothing more than the management structure needed for the project. There will be a program director and one or more program administrators as support. The program administrators support the program manager as well as the teams. Even for teams of 30, there will often be a subteam organization put in place to simplify the management of the team. Each subteam will be led by a project manager. When the program is completed, the program office disbands.

Establishing Permanent Program Offices

A permanent program office is established to manage an ongoing and changing portfolio of projects. The portfolio consists of projects that have something in common — for example, all might be funded from the same budget, might be linked to the same goal statement, or might use the same resource pool. The permanent program office, unlike the temporary program office, manages a continuously changing collection of projects.

CROSS-REFERENCE **Chapter 13 discusses the details.**

Defining a Portfolio

A simple definition of a *project portfolio* is that it is a collection of projects that share some common link to one another. The operative phrase in this definition is "share some common link to one another." That link could take many forms. At the enterprise level, the link might be nothing more than the fact that all the projects belong to the same company. While that will always be true, it is not too likely the kind of link you are looking for. It is too general to be of any management use. Some more useful and specific common links might be any one of the following:

- The projects may all originate from the same business unit — for example, information technology.
- The projects may all be new product development projects.
- The projects may all be research and development projects.
- The projects may all be infrastructure maintenance projects from the same business unit.
- The projects may all be process improvement projects from the same business unit.
- The projects may all be staffed from the same human resource pool.
- The projects may request financial support from the same budget.

Each portfolio will have an allocation of resources (time, dollars, and staff) to accomplish whatever projects are approved for that portfolio. Larger allocations usually reflect the higher importance of the portfolio and stronger alignment to the strategic plan. One thing is almost certain: whatever resources you have available for the projects aligned to the portfolio, the resources will not be enough to meet all requests. Not all projects proposed for the portfolio will be funded and not all projects that are funded will necessarily be funded 100 percent. Hard choices have to be made, and this is where an equitable decision model is needed.

Your organization will probably have several portfolios. Based on the strategic plan, resources will be allocated to each portfolio based on its priority in the strategic plan, and it is those resources that will be used as a constraint on the projects that can be supported by the specific portfolio. Chapter 14 discusses the details.

Understanding the Scope Triangle

You may have heard of the term "Iron Triangle." It refers to the relationship between Time, Cost, and Scope. These three variables form the sides of a triangle and are an interdependent set. If any one of them changes at least one other

variable must also change to restore balance to the project. That is all well and good, but there is more to this triangle.

The following five constraints operate on every project:

- Scope
- Quality
- Cost
- Time
- Resources

These constraints form an interdependent set — a change in one constraint can require a change in one or more of the other constraints in order to restore the equilibrium of the project. In this context, the set of five parameters form a system that must remain in balance for the project to be in balance. Because they are so important to the success or failure of the project, each parameter is discussed individually in this section.

Scope

Scope is a statement that defines the boundaries of the project. It tells not only what will be done but also what will not be done. In the information systems industry, scope is often referred to as a *functional specification*. In the engineering profession, it is generally called a *statement of work*. Scope may also be referred to as a document of understanding, a scoping statement, a project initiation document, or a project request form. Whatever its name, this document is the foundation for all project work to follow. It is critical that the scope be correct. Chapter 3 describes exactly how this should happen in its coverage of Conditions of Satisfaction (COS).

Beginning a project on the right foot is important, and so is staying on the right foot. It is no secret that a project's scope can change. You do not know how or when, but it will change. Detecting that change and deciding how to accommodate it in the project plan are major challenges for the project manager.

CROSS-REFERENCE **Chapter 4 is devoted to defining project scope, and scope management is discussed in Chapter 7.**

Quality

The following two types of quality are part of every project:

- **Product quality** — The quality of the deliverable from the project. As used here *product* includes tangible artifacts like hardware and software as well as business processes. The traditional tools of quality control, discussed in Chapter 3, are used to ensure product quality.

- **Process quality** — The quality of the project management process itself. The focus is on how well the project management process works and how it can be improved. Continuous quality improvement and process quality management are the tools used to measure process quality. These are discussed in Chapter 15.

A sound quality management program with processes in place that monitor the work in a project is a good investment. Not only does it contribute to client satisfaction, but it helps organizations use their resources more effectively and efficiently by reducing waste and revisions. Quality management is one area that should not be compromised. The payoff is a higher probability of successfully completing the project and satisfying the client.

Cost

The dollar cost of doing the project is another variable that defines the project. It is best thought of as the budget that has been established for the project. This is particularly important for projects that create deliverables that are sold either commercially or to an external customer.

Cost is a major consideration throughout the project management life cycle. The first consideration occurs at an early and informal stage in the life of a project. The client can simply offer a figure about equal to what he or she had in mind for the project. Depending on how much thought the client put into it, the number could be fairly close to or wide of the actual cost for the project. Consultants often encounter situations in which the client is willing to spend only a certain amount for the work. In these situations, you do what you can with what you have. In more formal situations, the project manager prepares a proposal for the projected work. That proposal includes an estimate (perhaps even a quote) of the total cost of the project. Even if a preliminary figure has been supplied by the project manager, the proposal allows the client to base his or her go/no-go decision on better estimates.

Time

The client specifies a time frame or deadline date within which the project must be completed. To a certain extent, cost and time are inversely related to one another. The time a project takes to be completed can be reduced, but costs increase as a result.

Time is an interesting resource. It can't be inventoried. It is consumed whether you use it or not. The objective for the project manager is to use the future time allotted to the project in the most effective and productive ways possible. Future time (time that has not yet occurred) can be a resource to be traded within a project or across projects. Once a project has begun, the prime resource available to the project manager to keep the project on schedule or get it back on

schedule is time. A good project manager realizes this and protects the future time resource jealously.

CROSS-REFERENCE **Chapters 5, 6, and 7, which discuss scheduling project activities, cover this topic in more detail.**

Resources

Resources are assets such as people, equipment, physical facilities, or inventory that have limited availabilities, can be scheduled, or can be leased from an outside party. Some are fixed; others are variable only in the long term. In any case, they are central to the scheduling of project activities and the orderly completion of the project.

For systems development projects, people are the major resource. Another valuable resource for systems projects is the availability of computer processing time (mostly for testing purposes), which can present significant problems to the project manager with regard to project scheduling.

Envisioning the Scope Triangle as a System in Balance

The major benefit of using the scope triangle shown in Figure 1-1 instead of the three-variable Iron Triangle can now be discussed. Projects are dynamic systems that must be kept in equilibrium. Not an easy task, as you shall see! Figure 1-1 illustrates the dynamics of the situation.

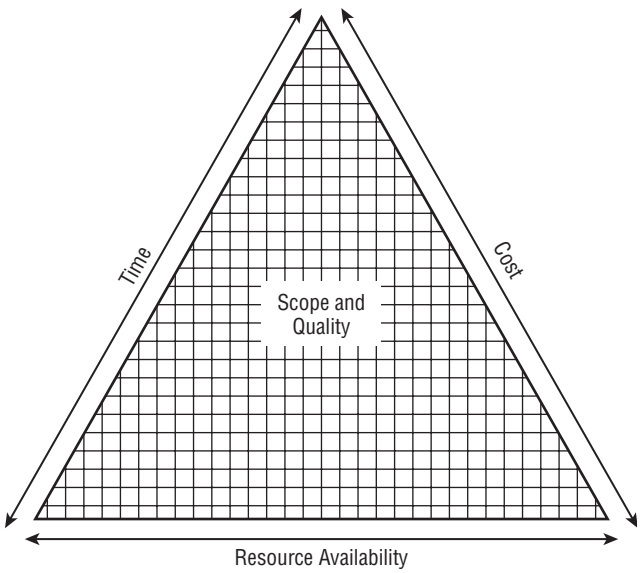

Figure 1-1: The scope triangle

The geographic area inside the triangle represents the scope and quality of the project. Lines representing time, cost, and resource availability bound scope and quality. Time is the window of time within which the project must be completed. Cost is the dollar budget available to complete the project. Resources are any consumables used on the project. People, equipment availability, and facilities are examples.

NOTE **While the accountants will tell you that everything can be reduced to dollars, and they are right, you will separate resources as defined here. They are controllable by the project manager and need to be separately identified for that reason.**

The project plan will have identified the time, cost, and resource availability needed to deliver the scope and quality of a project. In other words, the project is in equilibrium at the completion of the project planning session and approval of the commitment of resources and dollars to the project. That will not last too long, however. Change is waiting around the corner.

The scope triangle offers a number of insights into the changes that can occur in the life of the project. For example, the triangle represents a system in balance before any project work has been done. The sides are long enough to encompass the area generated by the scope and quality statements. Not long after work begins, something is sure to change. Perhaps the client calls with an additional requirement for a feature that was not envisioned during the planning sessions. Perhaps the market opportunities have changed, and it is necessary to reschedule the deliverables to an earlier date, or a key team member leaves the company and is difficult to replace. Any one of these changes throws the system out of balance.

The project manager controls resource utilization and work schedules. Management controls cost and resource level. The client controls scope, quality, and delivery dates. Scope, quality, and delivery dates suggest a hierarchy for the project manager as solutions to accommodate the changes are sought.

CROSS-REFERENCE **Chapters 6 and 7 discuss this topic in greater detail.**

Prioritizing the Scope Triangle Variables for Improved Change Management

The critical component of an effective project management methodology is the scope management process. The five variables that define the scope triangle must be prioritized so that the suggested project plan revisions can be prioritized. Figure 1-2 gives an example.

Priority / Variable	Critical (1)	(2)	(3)	(4)	Flexible (5)
Scope				X	
Quality			X		
Time	X				
Cost					X
Resource Availability		X			

Figure 1-2: Prioritized scope triangle variables

A common application of the prioritized scope triangle variables occurs whenever a scope change request is made. The analysis of the change request is documented in a Project Impact Statement (PIS). If the change is to be approved, there will be several alternatives as to how that change can be accommodated. Those alternatives are prioritized using the data in Figure 1-2.

Applying the Scope Triangle

There are only a few graphics that I want you to burn into your brain because of their value throughout the entire project life cycle. The scope triangle is one such graphic. It will have at least two major applications for you: as a problem escalation strategy and as a reference for the Project Impact Statement, which is created as part of the scope change process.

Problem Resolution

The scope triangle enables you to ask the question, "Who owns what?" The answer will give you an escalation pathway from project team to resource manager to client. The client and senior management own time, budget, and resources. The project team owns how time, budget, and resources are used. Within the policies and practices of the enterprise, any of these may be moved within the project to resolve problems that have arisen. In solving a problem, the project manager should try to find a solution within the constraints of how the time, budget, and resources are used. They do not need to go outside of their sphere of control.

The next step in the escalation strategy would be for the project manager to appeal to the resource managers for problem resolution. The resource manager owns who gets assigned to a project as well as any changes to that assignment that may arise.

The final step in the problem escalation strategy is to appeal to the client. They control the amount of time that has been allocated to the project. They

control the amount of money that has been allocated. Finally, they control the scope of the project. Whenever the project manager appeals to the client, it will be to get an increase in time or budget and some relief from the scope by way of scope reduction or scope release.

Scope Change Impact Analysis

The second major application of the scope triangle is as an aid in the preparation of the Project Impact Statement. This is a statement of the alternative ways of accommodating a particular scope change request of the client. The alternatives are identified by reviewing the scope triangle and proceeding in much the same way as discussed in the previous paragraph. Chapter 6 includes a detailed discussion of the scope change process and the use of the Project Impact Statement.

Managing the Creeps

While some of your team members may occasionally seem like creeps to you, that is not creep management I am talking about. *Creeps* here refer to minute changes in the project due to the obscure, and for awhile unnoticeable, actions of team members. Many of these go undetected until their cumulative effect creates a problem that raises its ugly head. You need to be aware of four types of creeps so you can take the appropriate management action. They are described in the sections that follow.

Scope Creep

Scope creep is the term that has come to mean any change in the project that was not in the original plan. Change is constant. To expect otherwise is simply unrealistic. Changes occur for several reasons that have nothing to do with the ability or foresight of the client, the project manager, or a project team member. Market conditions are dynamic. The competition can introduce or announce an upcoming new version of its product. Your management might decide that getting the product to market before the competition is necessary. Scope creep isn't necessarily anyone's fault. It is just a reality that has to be dealt with. It doesn't matter how good and thorough a job you and the client did in planning the project, scope creep is still going to happen. Deal with it!

Your job as project manager is to figure out how these changes can be accommodated — tough job, but somebody has to do it. Regardless of how the scope creep occurs, it is your job as project manager to figure out how, or even if, you can accommodate the impact.

Hope Creep

Hope creep happens when a project team member falls behind schedule but reports that he or she is on schedule, hoping to get back on schedule by the next report date. Hope creep is a real problem for the project manager. There will be several activity managers within your project team who manage a hunk of work. They do not want to give you bad news, so they are prone to tell you that their work is proceeding according to schedule when, in fact, it is not. It is their hope that they will catch up by the next report period, so they mislead you into thinking that they are on schedule. The activity managers hope that they will catch up by completing some work ahead of schedule to make up for the slippage. The project manager must be able to verify the accuracy of the status reports received from the team members. This does not mean that the project manager has to check into the details of every status report. Random checks can be used effectively.

Effort Creep

Effort creep is the result of the team member working but not making progress proportionate to the work expended. Every one of us has worked on a project that always seems to be 95-percent complete no matter how much effort is expended to complete it. Each week the status report records progress, but the amount of work remaining doesn't seem to decrease proportionately. Other than random checks, the only effective thing that the project manager can do is to increase the frequency of status reporting by those team members who seem to suffer from effort creep.

Feature Creep

Closely related to scope creep is *feature creep*. Feature creep results when team members arbitrarily add features and functions to the deliverable that they think the client would want to have. The problem is that the client didn't specify the feature, probably for good reason. If the team member has strong feelings about the need for this new feature, formal change management procedures can be employed.

CROSS-REFERENCE **The change management process is discussed in Chapter 6.**

Here's an example of how feature creep can occur. The programmer is busy coding a particular module in the system. He or she gets an idea that the client

might appreciate having another option included. The systems requirements document does not mention this option. It seems so trivial that the programmer decides to include it rather than go through the lengthy change process. If this feature is not documented, it will go unnoticed until it's too late, and trouble will result. (Trust me, I have seen it happen on several occasions.)

Here's another example, which I personally experienced. This time it was induced by the client, and I was the project manager. The project involved the collection, storage, editing, retrieval, and reporting of an extensive database of teacher education data. The client called ahead and told me that she had just come up with a major design breakthrough with the raw input data and wanted to come over and show me. A few minutes later, she arrived at my office door. She proceeded to go through a lengthy demonstration of the color coding scheme she developed and used for the most recent data set. She was so proud of what she had done and it really was a stroke of genius, but not for me, because I had to read and interpret the data sheets. It broke my heart to have to tell her that I was profoundly color blind and couldn't read her data sheets.

Even when adding a feature or function seems rather insignificant, you need to look at the possible consequences. First of all, if the feature is not in the system requirements document, it is also not in the acceptance test procedure, the systems documentation, the user documentation, and the user training program. What will happen if something goes wrong with the new option? How will another programmer know what to do? What will happen when the user discovers the option and asks for some modification of it? You can see the consequences of such an innocent attempt to please. The message here is that a formal change request must be filed, and if it is approved, the project plan and all related activities will be appropriately modified.

The Importance of Classifying Projects

There are many ways to classify a project such as:

- By size (cost, duration, team, business value, number of departments affected, and so on)
- By type (new, maintenance, upgrade, strategic, tactical, operational)
- By application (software development, new product development, equipment installation, and so on)
- By complexity and uncertainty (see Chapter 2)

Projects are unique and to some extent so is the best-fit model to manage them. Part II of the book is devoted to exploring five best-fit models and when to use them. For now it is sufficient to understand that a one-size-fits-all approach

to project management doesn't work and has never worked. It is far more effective to group projects based on their similarities and to use a project management approach designed specifically for each project type. That is the topic of this section.

Establishing a Rule for Classifying Projects

For the purposes of this chapter, two different rules are defined here. The first is based on the characteristics of the project, and the second is based on the type of project. Chapter 2 defines a third rule, which is based on the clarity and completeness of the goal and the solution.

Classification by Project Characteristics

Many organizations choose to define a classification of projects based on such project characteristics as the following:

- **Risk** — Establish levels of risk (high, medium, and low).
- **Business value** — Establish levels (high, medium, and low).
- **Length** — Establish several categories (such as 3 months, 3 to 6 months, 6 to 12 months, and so on).
- **Complexity** — Establish categories (high, medium, and low).
- **Technology used** — Establish several categories (well-established, used occasionally, used rarely, never used).
- **Number of departments affected** — Establish some categories (such as one, a few, several, and all).
- **Cost**

The project profile determines the classification of the project. The classification defines the extent to which a particular project management methodology is to be used. In Part II, you will use these and other factors to adjust the best-fit project management approach.

I strongly advocate this approach because it adapts the methodology to the project. "One size fits all" does not work in project management. In the final analysis, I defer to the judgment of the project manager. In addition to the parts required by the organization, the project manager should adopt whatever parts of the methodology he or she feels improves his or her ability to help successfully manage the project. Period.

Project characteristics can be used to build a classification rule as follows:

- **Type A projects** — These are high-business-value, high-complexity projects. They are the most challenging projects the organization undertakes.

Type A projects use the latest technology, which, when coupled with high complexity, causes risk to be high also. To maximize the probability of success, the organization requires that these projects utilize all the methods and tools available in their project management methodology. An example of a Type A project is the introduction of a new technology into an existing product that has been very profitable for the company.

- **Type B projects** — These projects are shorter in length, but they are still significant projects for the organization. All of the methods and tools in the project management process are probably required. Type B projects generally have good business value and are technologically challenging. Many product development projects fall in this category.
- **Type C projects** — These are the projects that occur most frequently in an organization. They are short by comparison and use established technology. Many are projects that deal with the infrastructure of the organization. A typical project team consists of five people, the project lasts 6 months, and the project is based on a less-than-adequate scope statement. Many of the methods and tools are not required for these projects. The project manager uses those optional tools only if he or she sees value in their use.
- **Type D projects** — These just meet the definition of a project and may require only a scope statement and a few scheduling pieces of information. A typical Type D project involves making a minor change in an existing process or procedure or revising a course in the training curriculum.

Table 1-1 gives a hypothetical example of a classification rule.

Table 1-1: Example of Project Classes and Definitions

CLASS	DURATION	RISK	COMPLEXITY	TECHNOLOGY	LIKELIHOOD OF PROBLEMS
Type A	> 18 months	High	High	Breakthrough	Certain
Type B	9–18 months	Medium	Medium	Current	Likely
Type C	3–9 months	Low	Low	Best of breed	Some
Type D	< 3 months	Very low	Very low	Practical	Few

These four types of projects might use the parts of the methodology shown in Figure 1-3. The figure lists the methods and tools that are either required or optional, given the type of project.

Project Management Process	Project Classification			
	A	B	C	D
Define				
Conditions of Satisfaction	R	R	O	O
Project Overview Statement	R	R	R	R
Approval of Request	R	R	R	R
Plan				
Conduct Planning Session	R	R	O	O
Prepare Project Proposal	R	R	R	R
Approval of Proposal	R	R	R	R
Launch				
Kick-off Meeting	R	R	O	O
Activity Schedule	R	R	R	R
Resource Assignments	R	R	R	O
Statements of Work	R	O	O	O
Monitor/Control				
Status Reporting	R	R	R	R
Project Team Meetings	R	R	O	O
Approval of Deliverables	R	R	R	R
Close				
Post-Implementation Audit	R	R	R	R
Project Notebook	R	R	O	O

R = Required O = Optional

Figure 1-3: The use of required and optional parts of the methodology by type of project

Classification by Project Application

Many situations exist in which an organization repeats projects that are of the same type. Following are some examples of project types:

- Installing software
- Recruiting and hiring
- Setting up hardware in a field office
- Soliciting, evaluating, and selecting vendors
- Updating a corporate procedure
- Developing application systems

These projects may be repeated several times each year and probably will follow a similar set of steps each time they are done.

CROSS-REFERENCE **You look at the ramifications of that repetition in Chapter 5 when Work Breakdown Structure (WBS) templates are discussed.**

The value of classifying projects by type is that each type of project utilizes a specific subset of the entire project management methodology. For example, projects that involve updating a corporate procedure are far less risky than application systems development projects. Therefore, the risk management aspects of each are very different. Risk management processes will be less important in the corporate procedure project; conversely, they will be very important in the applications development project.

Putting It All Together

It should be clear to you by now that I advocate a very specific definition of a project. If a collection of work is to be called a project, it must meet the definition. Once you know that you have a project, it will be subjected to a specific set of requirements regarding its management.

Discussion Questions

1. Compare and contrast the two definitions of a project.
2. Suppose the scope triangle were modified as follows: Resource Availability occupies the center, and the three sides are Scope, Cost, and Schedule. Interpret this triangle as if it were a system in balance. What is likely to happen when a specific resource on your project is concurrently allocated to more and more projects? As project manager, how would you deal with these situations? Be specific.
3. Where would you be able to bring about cost savings as a program manager for a company? Discuss these using the standard project constraints.
4. Discuss ways in which scope creep occurred on projects with which you have been associated. Was the project manager able to reverse scope creep? Is it possible to reverse scope creep? Defend your yes or no answer.