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*I would like to dedicate this book to my wife, Dusty,
and sons, Nolan, Garrett, and Carlin, for their support
and patience through this project.*

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About the Author

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Introduction

Throughout time, man has understood the basic concept of efficiency as the amount of work required to generate a desired benefit from the work. This concept can take us back to the time when man had to invest a given amount of work in preparing and maintaining a field of crops versus the benefit of the crops that were harvested. Because the field of crops would typically yield the same amount of harvest each year, man devised ways to prepare, maintain, and harvest the crops faster each year, improving his efficiency in the work required to produce the harvest. We use the same philosophy in organizations today, called process development and process improvement.

Successful organizations improve their efficiency, generally measured in bottom-line profits, through the use of process development and process improvement. Processes are typically a selection of activities grouped with a specific objective, making it easier to manage and control completion of the process objective. The critical element found in most effective processes is not only in the grouping of specific activities, but more in the organization of activities. Organizations might be very good at developing work activities to accomplish organizational objectives and may even group activities in the form of departments or divisions within an organization. When organizations take the added step of forming a process using grouped work activities, these activities can be organized in logical and sequential order such that they can be quantified as to their importance, prioritization, cost structure, and estimated time duration requirements and such that focus on organizing activities makes the process efficient. As we will see in this book, processes can be used strategically as well as tactically to accomplish objectives at several levels within the organization.

How Projects Are Used to Accomplish Objectives

As organizations develop processes to accomplish objectives, these processes can be the organization of activities carried out on a daily basis or can be activities carried out to accomplish a one-time and unique objective that we call a *project*. Organizations that are split up into departments, such as accounting, human resources, engineering, manufacturing and process engineering, warehouse, and shipping and receiving, have processes that document specific activities that are carried out on a daily basis. These activities typically are not unique, but are what is required of that department on an ongoing basis.

When a department has to engage in a process development exercise, process improvement, or a documentation development exercise, these are unique and not typical of day-to-day operations, and the activities required can be grouped into a project. Some organizations that have unique output deliverables as their day-to-day operations, such as construction companies producing unique building structures, can actually organize work activities into projects for these primary organizational objectives. Grouping activities into projects can be done at several levels within the organization to accomplish higher, more strategic-level objectives in which executives are trying to accomplish major objectives, as well as lower-level or tactical objectives.

Strategic and Tactical Use of Projects

As organizations begin to understand the value of using projects in day-to-day operations, this organizational tool can be used at a tactical level in the production of goods and services, as well as a higher strategic level by executives. Owners, board of directors members, and executives within the organization sometimes have major objectives that have to be accomplished, and the organization of work activities in the form of a project is extremely useful to ensure that everything has been completed correctly. Projects can be used to evaluate future

market strategies, growth opportunities, the expansion and creation of new facilities, and strategic funding or financing opportunities.

Organizations that use projects at a tactical level discover that projects are useful in process development or improvement, documentation development, new product development, or any other unique endeavor conducted within a department. In many cases, projects are used more at the tactical level to accomplish specific and unique goals or objectives throughout an operation. Projects can be used to accomplish very small and insignificant objectives, as well as larger, more complex objectives required within an operation. The important aspect of using projects is the fact that they can be used to organize all the activities required to produce a unique objective that is not associated with daily activities. If an organization is structured such that projects are used on a regular basis, this can constitute the development of a project management structure that can further organize projects depending on the requirements of the operation.

Project Structures

An organization that is using projects on a regular basis falls under one of two categories: *projectized* organizational structure or *matrix* organizational structure. Projectized organizations have unique deliverables as a normal part of daily operations and therefore require projects to manage the development of these deliverables. The efficiency of the organization is in the management of all the activities required to produce these unique deliverables, and project managers are hired to design a project as well as manage the project to closure. Matrix organizations are similar to functional organizations that simply utilize projects as a regular part of their day-to-day operations. This is typically in the form of new product development, process development and improvement exercises conducted, and engineering and manufacturing environments.

In the projectized and matrix organizational structures when projects are used on a regular basis, the need for further organization might require grouping of similar projects into what is called a *program*. If an organization has a requirement by a specific customer for

several different project output deliverables, each of these projects can be grouped into one single program designated for a specific customer. In other cases, the organization might have several products that fall within a similar category and might want to group projects into a program based on product type. Organizations typically hire a program manager to oversee like projects within a program to ensure that the program directive is being carried out.

If an organization grows in size such that there might be several programs operating, as well as many projects, the organization might group programs and projects into larger categories called portfolios. Organizations typically hire a manager to oversee a portfolio because the portfolio is a large component of programs and projects specific to a particular customer, product type, or market. This is another way to strategically group projects and programs to accomplish organizational objectives. Organizations can divide the operations into large divisions called portfolios that focus on specific elements within the organization. The focus within the organization of grouping work activities into projects, grouping like projects into programs, and grouping various programs and projects into large portfolios is all part of an efficiency exercise in the strategic use of project management.

Projects as Groups of Processes

When we look at specific aspects of what makes a project efficient, it is typically the organization of activities into processes and the alignment of processes that form a project. When an organization at a tactical level has a directive to accomplish a specific objective, organizing work activities in the form of a project can sometimes produce various project structures. It is the specific organization of various processes that determines what type of project structure might be used to accomplish a particular objective. Some objectives might be straightforward, such as the development of a particular product that can be broken down into several smaller pieces, and might be well-defined as to the development of what activities are required to complete the objective. In other cases, an objective might be more elusive and cannot be well defined as to the specific steps required to accomplish the objective, requiring a different type of project structure.

This text introduces six models of project structure that can accommodate various types of project objectives. If the breakdown of work activities for a specific project can be well defined, this can be one type of project structure. Other objectives might have a well-defined final output objective, but these objectives cannot be broken down into subcomponents that can be well defined and therefore require a different project structure that can accommodate incremental or repetitive cycles of development. This text goes into the details of how various project structures can be developed to accommodate many types of project objectives.

Project Process Interactions

When processes have been developed and organized within a project structure, these processes might not always be independent of each other or other elements of daily operations within an organization. The Project Management Institute, in its publication of *Project Management Body of Knowledge (PMBOK), Fifth Edition*, lists specific processes that project managers can use in managing project work activities to completion. In many cases, we find that there are interactions between processes that need to be managed at the project level, as well as these processes interacting with operations within the organization. Process interactions can be in several different forms, and in this book we cover various forms of how processes can interact with each other and what effects these processes can have on an organization at the tactical level.

Process interactions can be in several different forms in which the basic project management processes, such as the initiating, planning, executing, monitoring, and controlling, as well as closing, can interact with each other during the course of conducting project activities. For example, processes associated with monitoring and controlling can affect the executing process. Items associated with the initiating process can affect planning. In some cases, items associated with the execution process can have drastic effects on the closing process. This book covers several interactions between these different project management processes, as well as the influence of knowledge areas within each process. The Project Management Institute, in *PMBOK*,

Fifth Edition, has also outlined knowledge areas that represent the responsibilities of a project manager for tasks carried out throughout the project life cycle. It is interesting to contrast how these knowledge areas correspond to and interact with the five process groups. In some cases, interactions of certain knowledge areas with other knowledge areas can actually produce what are called *compound interactions*. This book goes into the details of how project managers can use certain knowledge areas to influence other knowledge areas, creating these compound interactions. As project managers come to understand the use of project management process groups and how knowledge areas can be used to manage various aspects of project activities, this gives the project managers tools and techniques to effectively and efficiently manage projects to completion.

Why Organizations Benefit from Projects

As organizations utilize projects more and more to effectively manage the completion of both strategic and tactical objectives, it will become evident that it is the structure of projects based on the organization of activities and the systematic use of specific project management processes that make the use of projects within an organization a powerful tool. It is important for organizations to understand that although processes, by definition of the use of organizational tools and techniques, can be a formidable asset in accomplishing the strategic and tactical objectives, it is the use of project managers skilled, educated, and experienced in project management who will carry out these processes to benefit the organization. Project managers typically stand apart from functional managers and executive managers because they have experience in project management tools and techniques, as well as the practical application of processes and process interactions that make projects a powerful tool within an organization. When organizations grow and become successful, that success is generally from the reality of understanding the value of process development, which may include the use of projects to manage accomplishing both strategic and tactical objectives. Organizations are better and more efficient at conducting daily operations in accomplishing strategic objectives through the use of project processes.

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