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PROJECT MANAGEMENT ACCOUNTING

Budgeting, Tracking, and Reporting Costs and Profitability

SECOND EDITION

KEVIN R. CALLAHAN
GARY S. STETZ • LYNNE M. BROOKS

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To my wife, Angela, and my son, Gary
To Jim, for planting the first seed
To Tracy and Susan, for their love
and generosity of spirit

Preface

Over the last few decades project management has moved from its roots in industries such as construction and defense into the mainstream of American business. Many different industries, in particular the service sector, rely heavily on Project Management as an integral part of a successful strategy. In support of the widening importance of project management, a number of important professional organizations, such as the Project Management Institute, have been created and are thriving in the twenty-first century.

As project management has been recognized as a valid career path that many have chosen to pursue, many training programs have been developed, and it is now possible to pursue both undergraduate and graduate degrees in project management. Project managers who practice the profession today come from a myriad of backgrounds, most often having started as specialists in an area of expertise and gradually moving into project management. And there lies the rub!

In our previous book, *The Essentials of Strategic Project Management*, we established the primary link between a company's mission, objectives, and operations. Senior project managers who wish to remain at the top of their profession need to understand not only the methodology, tools, and techniques of the profession in order to be successful, but they must also understand the business context within which they work. Many, if not most, project managers come from areas of expertise outside of business, and most do not have the formal education in business, accounting, or finance required to take their skills to the higher level.

Project management accounting is much more than considering how project income and expense impact the general ledger. The topic encompasses traditional accounting, cost accounting, budgeting, financing, cash flow, and earned value along with the more quantitative subjects. Project management accounting also includes such areas as strategy and executive decision making, portfolio management, and the more traditional phases of project management.

Project Management Accounting: Budgeting, Tracking, and Reporting Costs and Profitability is meant to improve the business skills of project managers. The volume contains the basics of project management accounting and finance, including insights into cost accounting, budgeting, and tracking project profitability. Most important, it provides project managers with a foundation of knowledge about the basics of business practices necessary to apply new skills to projects that they manage.

Chapter 1 is an overview of Project Management as it relates to a company's Mission, Objectives, and Strategy. Chapter 1 also points the reader toward particular topics of accounting and finance as they relate to project management. Chapters 2 and 3 are two parts of an introduction to the business basics; the former contains important foundational knowledge and the latter a case study that illustrates how to analyze a company's financial information in order to choose the right project and understand how to apply proper accounting principals to a project. Chapters 4 through 6 contain fundamental information on different areas of accounting and financial expertise, such as cost accounting and budgeting. Chapter 7 contains a comprehensive case study that illustrates how to develop a project budget based on a company's financial performance and needs. The case study integrates the knowledge, skills, and techniques of the previous chapters.

The second edition *of Project Management Accounting: Budgeting, Tracking and Reporting Costs and Profitability* includes a new chapter that will increase a project manager's skills in the area of risk management. The new chapter expands a project manager's knowledge base by introducing risk assessment from an accounting and auditing point of view. Chapter 8 will introduce project managers to a different professional approach, enhancing their knowledge of the business environment.

We hope that you will find this book useful in your quest to become a top-performing project management professional.

Kevin Callahan

Gary Stetz

Lynne Brooks

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There are always people to thank when you have taken up an endeavor such as authoring a book. In particular, we would like to thank the Faculty and Staff of the Executive MBA program at Mendoza College of Business at the University of Notre Dame. There are many individuals there who make that a great program, but in particular we would like to thank Professors Ken Milani and John Affleck-Graves, who laid the foundation on which this effort was built.

We would like to thank Vince Malina, George Beardsley, and Catherine Callahan for proofreading and correcting our manuscript.

We would also like to correct an error from our previous book, *The Essentials of Strategic Project Management.* During the production of that book, we had an excellent intern, Erin Ellis. Unfortunately, Erin was not properly identified, and we wish to correct that here and thank her for the hard work and professionalism that she applied to the project.

K. C.

G. S.

L. B.

Chapter 1

Project Management and Accounting

In today's business world, we often hear the terms “strategic alignment” and “mission and objectives.” Usually these terms are used in phrases such as: “We must ensure that our business units are strategically aligned with our mission and objectives.” In many companies, large and small, it often seems that one area of a company does not know what is happening in other areas; in some cases, one area may even be working against other areas within the same company. Quite often there is a large gap between what the top levels of the organization are saying and what is happening at an operations level within the company.

In our last book, *The Essentials of Strategic Project Management*, we spoke about the STO model.[1] STO stands for strategic, tactical, and operational. These three levels of operation inherently have typical communication problems that many companies need to deal with (see Exhibit 1.1). Each level of the model represents a different level of a company. Strategic is the executive level, where decisions are made about the purpose and direction of the organization. Tactical is the management level of a company, where decisions are made as to how to carry out strategy. Operational is the lowest level of the company, and represents where people actually execute the work.

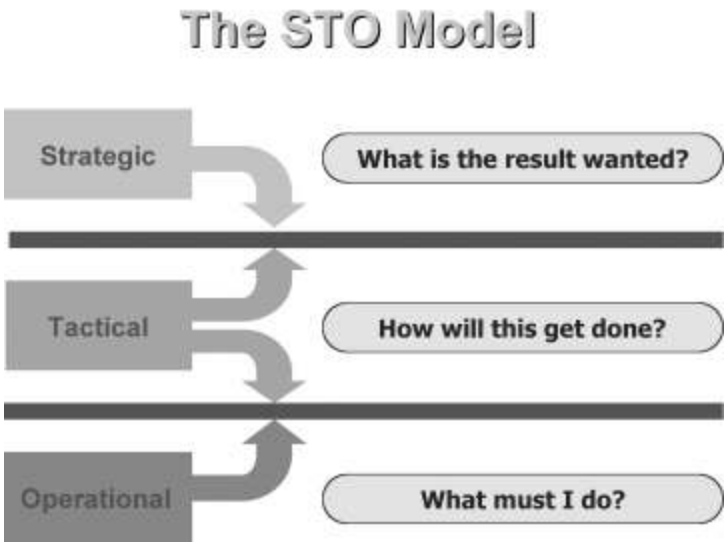

Exhibit 1.1 Strategic, Tactical, and Operational Model

Mission, Objectives, Strategy

In order to have a clearer understanding of what Mission, Objectives, and Strategy mean, we need to look at some definitions and examples. Mission, first of all, is a statement of the purpose for the company's existence. An example of a simple mission statement could be General Electric's: “We bring good things to life.” It is simple and easy to understand. Honeywell's mission statement is quite eloquent in its simplicity: “We are building a world that's safer and more secure, more comfortable and energy efficient, more innovative and productive.”

In each case, the company's reason for existence is stated clearly and simply, giving direction to all that the company does. The reality is, however, that carrying out that mission is usually much more complex than a simple statement. Problems arise when management is not able to turn a mission statement into action and employees do not understand how their work carries that statement forward. That situation is where mission is often confused with strategy.

Strategy consists of a series of concrete actions that a company performs in order to carry out the mission. Each concrete action is an Objective. The actions must support the mission of the company but must also adhere to good business principles. One of the fundamental responsibilities of a company is to create a return for its owners, whether they are a small group of investors or a large group of stockholders. There is always the responsibility to do this in an ethical manner, so that carrying out the mission and creating value are dual fundamental principles of any business. Even a not-for-profit company must create value; without the money, there is no mission.

An example of a Strategy that might correspond to Honeywell's Mission Statement might be to create a new line of home heating furnaces that are highly efficient and cut down on the amount of heating oil that is used to maintain the home's temperature. An Objective for that Strategy would be to carry out research into new technology for heating oil burners that are more efficient.

Problems arise in many companies when the mission is not understood at all levels, which brings us back to the STO model. When communication does not exist between the different levels of a company, mission cannot be translated into strategy and cannot be carried out by employees. Often the walls between levels exist, as illustrated in the STO model, not because of purposeful action or a desire to harm the company, but simply because no one at the firm has tried to bridge the gap or because someone has tried and failed.

As mentioned in the preface, senior project managers have their roots in many different areas of expertise, but the great majority do not come out of finance or accounting. At the same time, in order to advance within an organization, project managers need to acquire knowledge beyond their

areas of expertise. The first step toward advancement is to become proficient in project management knowledge and skills in order to have the flexibility to move beyond those areas of expertise.

After becoming a proficient project manager, continued experience in project management helps project managers attain senior status. After years of managing larger and more complex projects, senior project managers often aspire to making greater contributions to their organizations. One way to do this is by gaining expertise in finance and accounting, thereby enabling them to view the organization from a different perspective and to make a greater contribution to it.

In this chapter, we review the project management phases from the perspectives of various project management deliverables and processes with an eye to related finance and accounting issues. This review serves as an introduction to how finance and accounting is related to project management and can serve to help an organization perform projects in a manner that supports sound financial and accounting management. As we review each project management phase, we discuss the questions for finance and accounting implied in that phase and indicate which chapter in this book contains pertinent information.

Information Collection

Information collection is a crucial element in project management, finance, and accounting. Collecting the correct information is crucial for project success. We conduct our review of the project management phases according to the project management documents that are created during each phase of a project:

- Initiation: Project charter

- Planning: Work breakdown structure, project schedule, project budget and cash flow, resource plan, procurement plan, quality plan, risk response plan

  If the project is for an external client, there may be a request for proposal and corresponding proposal and a contract or some other agreement for services.
- Project Execution and Control: Status reports and dashboards.

In the remainder of this section, we look to each of these documents for information that is important to understanding the financial health of the project.

Project Initiation

The project charter contains high-level information about the project, including deliverables, stakeholders, and, in particular, the definition of success for the project. That definition ought to include a description of the financial success of the project and how it will be measured. This definition provides the guidelines by which project performance may be judged.

During initiation, the first questions concerning finance and accounting are broached. For example, does the project align with the organization's strategy, in particular the financial strategy? Does the project deliver a product or service that is compatible with the goals and objectives of the organization? Will the project create value that is within the required return that the organization's financial strategy and owners or shareholders require? Often project sponsors ask what a project's return on investment (ROI) will be. In fact, project managers can increase their contribution to the organization not only by understanding a project's ROI but also by understanding in detail how that

return will be delivered, over what period of time, and at what cost to the organization.

For example, let's say that a project will have a 10 percent ROI. However, if that return is over a 10-year span at 1 percent annually, it probably would not be considered as valuable as a project that will return 10 percent annually for 10 years. But even a 10 percent return over 10 years would not be very interesting if the organization's cost of capital is 15 percent. In addition, if the project is considered very risky, then the organization may require a 20 percent annual return.

Financial levers—ways in which the finances of a company can be adjusted—are explained in Chapter 2. There are additional illustrations in Chapter 3. The case study in Chapter 7 gives specific examples of how portfolio management can require criteria based on the financial strategy of the organization.

Project Planning

Work Breakdown Structure and Project Schedule

The Work Breakdown Structure (WBS) contains a description of each deliverable that makes up the final project deliverable along with the tasks that must be performed in order to create each deliverable. Each task also has a description that defines the inputs, outputs, materials, and resources required to complete the task. The task description also defines how long each resource must work to complete the task as well as how much of each material is required.

The project schedule arranges each task in its proper order of execution and indicates the order in which the tasks

must be done. The project schedule also defines task dependencies, that is, which tasks must be completed before other tasks may begin. Based on these calculations, project managers know when tasks must be carried out and what the end date for the project is, as well as what its critical path will be.

Understanding how much work must be performed is crucial to creating the project budget. During execution, one of the elements of project control is collecting information about how each task is executed. If managers do not have an accurate measurement of the expenditure of resources and materials, then they cannot determine the actual cost of a project or understand how the project is performing financially.

From the task description, project managers know the amount of effort that is required to complete the task. They also know when the task is supposed to be completed. Two basic questions yield information that is needed to get to the true state of the project:

1. How many hours (or days, if the effort is described in those terms) have the resources been working on the task?
2. How many hours (days) remain to complete the task?

The answers to these questions yield valuable information. By totaling the two answers, it is easy to find out if the task is taking more effort than expected and to come up with a prognosis on whether the task will be completed on time. Multiplying both the number of hours worked and the hours remaining to be worked by the hourly rate for each resource reveals not only the cost of the resources to that task, but also how much additional cost will be needed to complete the task. Later in this chapter we cover the

concept of earned value, which explains how to work with and interpret this information.

Another concern that project managers monitor by reviewing effort on tasks and the state of deliverables is “gold plating.” Gold plating is adding more to a deliverable than is required by the project specification. It is often a problem on client projects, where resources, with good intentions, seek to add value by doing more than required. It is also a major source of effort overruns on many projects. The problem also may be scope creep, where a project stakeholder has requested that additions be made without getting proper authorization.

Project Cost

Chapter 4 covers the notion of cost as it affects a project. It is important to understand the difference between cost and expense. The notion of cost deals with what must be given in exchange for the value that the project creates. For example, the hourly rate or salary of resources employed is a cost to the project. The way that resource cost accumulates will have an effect on the value created. For example, a contractor charging an hourly rate to a project will affect cost differently than a salaried employee.

Expense deals with the accumulation of charges that make up the project budget. In addition to salaries and hourly payments to resources, materials, overhead utilities, and other resources may make up the budget. Chapter 7 covers how to develop and monitor the project budget as well as how to develop and monitor a project cash flow diagram. The cash flow diagram illustrates the timing of cash outflows and inflows as described in the project budget.

Resource and Procurement

The resource plan and procurement plan contain estimates on resources, including the skill sets needed, as well as a list of the actual resources and materials needed to complete the project. The resource plan also describes which internal resources are available and what resources will be needed from outside the organization. It also contains information about the source of resources and an estimate of the cost. This information is important in developing the project budget.

The procurement plan is very similar to the resource plan, except that it covers other materials that are needed for the project, along with estimated costs. The procurement plan addresses timing and delivery and indicates whether there are any special situations, such as volume discounts. In a manufacturing or construction environment, the procurement plan is of great importance; it is much less important in some service industries.

During project execution, project managers must monitor the actual use of resources against the resource plan. Resources reporting on actual time spent on project tasks and estimates for task completion provide the basic information of resource cost. However, project managers must also compare the actual results against the resource plan to ensure that the resources being used match what is in the plan.

For example, a shortage of internal resources could necessitate the use of external resources that are more expensive and add to project costs. Variances in actual project performance, including scope changes, could also have an effect on resource cost; for example, tasks may have been underestimated or for some other reason may be taking longer to complete or requiring more resources. Additional resource needs can also be a problem that is not related to finances. Increased overtime for salaried

employees can have an effect on other work within the organization or on general morale. Close monitoring of the resource plan against actual results helps project managers maintain the financial health of the project.

Project managers also monitor the project procurement plan, both for cost to the project and for any changes in the business environment that could affect the availability or cost of any materials required for the project. As this chapter is being written, the cost of gasoline and other fuels has become quite volatile, which would have a negative effect on any project requiring the use of heavy machinery or other equipment. If no pricing guarantees are negotiated ahead of time, or if quantities needed are greater than first estimated, there could be significant cost overruns on the project, threatening its profitability.

Chapter 4 covers information about cost, and Chapter 7 illustrates the effects of resources and procurement on project finance and accounting.

Quality

The quality plan needs to be considered in conjunction with the WBS. Asking questions about the intended deliverable in comparison with what the tasks are actually delivering provides additional information about how the project is progressing. Project Managers need to ask, “What is the deliverable and what does it do (or what is it intended for)?” The answers to these questions are the start of quality management.

In Chapter 4, we discuss the cost of quality, including prevention, correction, and warranty. During project execution and control, project managers monitor the cost of quality by ensuring that any work related to quality prevention is completed and by determining whether any correction work is necessary.