

# The Project Manager's MBA

## How to Translate Project Decisions into Business Success

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### Chapter 1: An Entrepreneurial Approach to Managing Projects

*The old order changeth, Yielding place to new.*

-- alfred lord tennyson, "the passing of arthur," 1869

"Make it fast. Make it good. Make it cheap." So goes the project management folklore about what senior management always asks for. "Pick two," is the traditional project manager reply. Almost always, "make it cheap" is one of the two project goals upper management chooses. However, only when upper managers and project managers understand the wider business implications of their decisions do they realize that "make it cheap" may not contribute to successful business results as often as they think. This is because the cost of the project, or the cost of producing the product, is only one factor in determining the economic success of the project. In this book we develop a framework for thinking about projects based on business concepts such as increasing economic value, or Economic Value Added (EVA); this framework can contribute to better decision making throughout the project lifecycle and ultimately result in more successful projects. In addition we show that the old success criteria of meeting outcome, cost, and schedule constraints are no longer adequate and that increasing economic value will become an important, if not the most important, criterion for success in the future of project management.

The use of economic value as a decision criterion indicates a change in the way project success is determined. In the past, project managers were assessed primarily on project performance up to the point of project completion. This resulted in evaluations based on outcomes that met the project specifications, a fixed budget, and a given deadline. The ensuing economic success of the product produced was normally someone else's concern. However, in the future project managers must think more broadly about what a successful outcome really means. To for-profit businesses it means a level of customer satisfaction high enough to produce sales that result in enough cash flow to cover project and operating expenses, make a profit, and pay back the cost of the capital used to produce the product. At this point the project begins to produce the economic value known as shareholder value.

Shareholder value is a term that has become familiar in the world of business. Those who work for publicly owned corporations are likely to have some idea of its increasing influence on upper-management behavior in those companies. Those who work for not-for-profit or governmental organizations may have to do a little translation to relate the idea of shareholder value to their projects. We suggest mentally substituting the term stakeholder, taxpayer, or voter value for the terms shareholder value and economic value (which we use interchangeably throughout). At first glance, shareholder value, or economic value, seems to be a purely financial term. Besides its financial element, however, it contains a dynamic balancing of competing values. In order for a business to maximize shareholder value, it must balance customer satisfaction and competitive market forces with internal cost and outcome considerations. Shareholders of a for-profit company want a return on their investment. Stakeholders of a not-for-profit organization

want its desired outcomes achieved within the economic constraints necessary to ensure the survival of the organization so that it can continue to do good in the world. Stakeholder value may not involve a profit, but it must necessarily involve an outcome that somehow recoups any actual or implied cost of the capital used by the project. In addition, many not-for-profit organizations are finding themselves in competition with for-profit businesses and thus subject to similar competitive and economic forces (Ryan, 1999). Taxpayers, for example, want the highest quality outcome from a governmental project for the lowest relative cost. This outcome must also include considerations of cost of capital, which is lower for governments than for businesses but still not inconsequential. We believe that the dynamic new approach to projects we are describing here will serve you well whether your project is in a business, a not-for-profit organization, or a governmental agency.

In any of these organizations, the criteria for economic value are now or soon will be your responsibility, because management will measure your performance by them. This, then, is the future of project management. As a project manager, you must recognize it as your future as well.

Welcome to the world of business systems. The only way that you will attain success given the new project management paradigm will be as a business systems thinker. In more direct terms this means of thinking of your project as if it were a business and you were the chief executive officer, the CEO. This chapter outlines the change in thinking managers must undertake to work within the new project management paradigm. In any sociotechnical system the people in the system work better when they understand how they fit into the system as a whole. This understanding is developed when people share the perspective of the CEO, the person who is responsible for the whole business and whose results are measured by an increase in value for the stakeholders of the organization. The board of directors represents the stakeholders, and the CEO works for the board. He or she must manage the whole company from the top. Therefore, the entrepreneurial approach to project management requires the project manager to manage the project as if it were an independent business venture. But like the CEO, the project manager must also manage with the larger organizational system in mind, even though the project manager will be influencing the system from the project standpoint rather than from the top. He or she will need to understand how the elements of the project affect the business as a whole and how elements of the business influence the project. By thinking in business terms project managers will better understand the interaction between the project and the overall organization. In addition, they will be better able to explain the business implications of upper-management decisions about a project. That is, they will be able to speak to upper managers in a language that those managers understand. Managing this interaction between the project and the larger organization is fast defining the role of the project manager. The new project managers will act like entrepreneurs as they treat their projects as businesses and think like CEOs as they view each project as part of the wider organization.

### **Moving from Project Focus to Organizational Focus**

What does it mean to think like an entrepreneur and act like a CEO? First and foremost, it means understanding how any organization creates value for its major stakeholders—shareholders, customers, and the business team. It also means taking responsibility for delivering that value. For shareholders the business creates value when it provides a rate of return on investment that meets their expectations for the level of risk they are taking. The fuel that powers this return is the cash flow provided by customers who pay for products or services because they meet or exceed the customers' expectations relative to competitors' products or services. A company's ability to provide this cash flow and thus shareholder value by using resources efficiently depends on business team members who

have been recruited intelligently and managed well.

Project managers are an important part of the business team. They manage projects that for the most part are vehicles for investing resources to produce assets that will provide the foundation for future cash flow. Developing a new product and building a new factory are examples of projects that will produce cash flows in the future. A process improvement project or marketing project may have a shorter time horizon and may not produce additional cash flow during that time period, but it too is an investment for the future. Thus, managing a project is managing the application of capital to provide a required return so the business can satisfy its customers, shareholders, and ultimately the business team. In the end, project success is based on the ability to choose the right project and then execute it successfully.

To meet and exceed customer expectations, the business team needs to follow an overall organizational strategy. Strategy is an agreed-on guide to action that should lead the business to success in the marketplace by satisfying customer needs better than the competition does. However, no matter how well thought out a strategy is, it is useless if implemented poorly or not implemented at all. In fact, a strategy that is implemented poorly or not implemented at all is really not a strategy; it is simply a plan, an intention to do something that remains undone. A true strategy is a plan that has been executed so that the consequences of carrying out the strategic intention can be observed. In most companies a strategy is implemented through projects. The portfolio of projects planned, in progress, and completed represents the process of strategy implementation. Best practice companies such as Hewlett-Packard, Chevron, IBM, 3M, NCR, Boeing, IBM, and Motorola do a good job of managing the project portfolio and linking it to the organization's overall strategy (Graham, Englund, and Cohen, 2000).

From the project manager's viewpoint then, the success of a particular project depends on how well that project helps to implement the overall strategy. For example, some projects, such as developing new products, may be expected to return high levels of profit whereas other projects, such as entering a new geographical market, may be lucky to break even. However, they could both be considered successful if they met a strategic objective. So, even though a given project may not produce a return that justifies the capital invested, it may nevertheless add value because it helps the organization achieve an overall strategy that increases value. This is the first step in the business systems approach to project management—understanding that the new measures of project success involve the project's contribution to overall organizational strategy. Linking projects to strategy is one of the best ways to increase shareholder value (Cohen and Kuehn, 1997; Englund and Graham, 1999).

The portfolio of projects in process in any company is an important manifestation of that company's strategy. A typical organization has many types of projects that are necessary to help it achieve its strategy. Some projects involve new research and define new products, whereas others concentrate on refining business practices. Some projects respond to competitor actions, whereas others respond to government regulations. We do not cover in detail all the different types of projects that make up the business enterprise. Instead, we focus on the three broad project categories that we have found in most organizations:

1. New product, service, or facility development projects. These projects produce something new in the organization. It could be a new product or service for the external market or a new production facility for new or existing products. Because their outcomes normally generate new income for the organization or a change in income that can be easily measured, these projects are the most amenable to the business systems approach.

Adding a new feature to an existing product is also a kind of new product development project.

2. Internal projects. These projects involve infrastructure development and improvement that is internal to the organization. Internal projects include reorganizations, reengineering and other change initiatives, and new process and software development projects that aim to make internal operations more efficient. The results of these projects do not normally generate new income; instead they produce cost savings, operating efficiencies, or a slowing of an erosion of current product sales. In most cases the financial results of such projects are not easily measurable, and thus the projects have not been thought amenable to a business systems approach. However, it seems clear that almost all internal projects ultimately have a financial effect on the organization, and this effect can be estimated as a part of the business plan for such projects. Given such estimates, internal projects become amenable to a business systems approach.

3. Client engagement projects. These projects are conducted for an external client or customer. They are the type of projects for which project management techniques were first developed. They are also the type of project traditionally evaluated in terms of the outcome, budget, and schedule constraints mentioned previously. These measures have been used because such projects are carried out under a contract that specifies them and because it has traditionally been of little concern to the project manager what the customer does with the project outcome once the project is completed. However, customers now expect total solutions for their problems and thus expect contracting organizations to work with them to help them market or otherwise employ the project outcomes. In such a market-driven business systems approach, the project manager will be much more aware of the customer's situation and thus much more likely to create successful solutions. This should lead to more successful projects. So even for this type of project the old days of measuring success strictly by outcome, cost, and schedule are gone. Those measures are being supplemented by measures of increased economic value for both the project organization and the client organization.

The move from project focus to organizational focus points the way toward the future of project management. Outcome, cost, and duration will still be important factors for measuring project progress. However, these factors will be augmented by business factors that will be used to measure project success. The new project manager will have to understand the interactions between these project and business factors.

### **Understanding Project and Business System Interactions**

The business systems diagram shown in Figure 1.1 illustrates the relevant interactions between a project and a business enterprise, from the project manager's point of view. At the top of the system is its ultimate goal, the project's contribution to business results. The boxes below that final goal represent the business factors that go into producing the economic value, and the lines connecting the boxes represent interactions among those factors. The boxes shaded in Figure 1.1 represent the outcome, cost, and schedule constraints that previously defined successful project management. The unshaded boxes represent the new factors that must be considered in the entrepreneurial approach to project management. Thus the diagram illustrates that the business systems approach is built on the old triple constraints of project management but goes beyond the use of these constraints to consider factors for developing business results.

The left-hand section of the business systems diagram is concerned with strategic alignment. Because achieving the organizational strategy is part of the goal of any project, all other project goals must be aligned with that strategy. Strategy formulation is a major task for the company entrepreneur and the CEO, but it is the task of middle

managers and project managers to carry this strategy out and eventually turn it from talk to action to results. Strategic alignment is affected by the project outcome, project duration, and project cost. Issues important to achieving strategic alignment are covered in Chapter Three.

The right-hand section of the business systems diagram is concerned with a project's contribution to economic value. This contribution consists of the cash flow from the project outcome minus the charge for the capital used to create that outcome. Near the bottom of the right-hand side the project factors of outcome, cost, and duration reappear. As is well known, the way a project is managed and led will have a direct effect on project outcome, duration, and costs. The business systems diagram, however, also emphasizes that the results of project management processes will ultimately influence economic value. Our emphasis will be on showing how best practices in project management support the major goal of creating positive business results. This information will help project managers to influence upper management to adopt these best practices by indicating their effect on business results. These project management processes are covered in Chapter Four.

Now, in the middle of the diagram, examine the components of the cash flow from the project enterprise, or outcome, looking first at the revenue side of cash flow. The basis for revenue is the design and delivery of products, services, or processes that help customers solve problems and meet or exceed their expectations, at a price customers are willing to pay. This is the project outcome. The time over which the outcome has a useful life is the project outcome lifecycle (POL). The project outcome features influence market share. When they are better aligned with customer needs and expectations than competitive offerings are, these features will increase the probability that customers will buy the output or that internal customers will be able to use the output to enhance external customer satisfaction. Project duration also influences market share, in that market entry timing is often critical to sales performance. Product price is also influenced by the project outcome. Market share and price determine sales revenue. Sales revenue (minus expenses) is the primary driver of cash flow, and this ultimately influences the project's contribution to economic value. So far, this seems pretty elementary, but it is just the beginning. The older methods of project management often did not even go this far. The customer was often left out of the equation, and market considerations of any kind were often considered to be someone else's problem. But this is not the case today, so these important marketing topics are covered in Chapter Five.

The remainder of the cash flow section of the diagram represents the need to balance the features in the design with project cost and POL expenses considerations. Every set of features has cost implications for the project cost, post-project costs, and the cost of the final product or service. These costs ultimately influence the total cash flow and the rate of cash flow. The rate of cash flow influences the time to breakeven, or time to profit—that time when the net income from the project outcome has finally paid back the costs of the project. The time to breakeven is an important element in the project's contribution to economic value. We explain this in more detail in Chapter Six.

The final section on the right-hand side of the business systems diagram centers around the financial aspects of project outcome, cost, and duration. As mentioned, project outcome features and project duration influence the time to breakeven. This time is important because it is the amount of time that the project is a user of capital. As long as it has not reached breakeven, it is a net user of capital and thus incurs a charge for the use of that capital. This capital charge is based on the amount of capital used, the length of time it is used, and the company's weighted average cost of capital (WACC). The WACC reflects the cost to the company of raising capital through taking on debt and selling equity. Project managers have little influence over WACC in the short term, yet over the

long term a consistent stream of outstanding projects will reduce the WACC by increasing overall cash flow and raising the price of the company's stock (Strategic Management Group, 1997).

As we discussed earlier, CEOs and entrepreneurs think a lot about increasing shareholder value. Thus the economic value of a project becomes critical to the success of the business. If the project produces a positive economic value, then it is contributing to shareholder value. If it produces a negative economic value, it is subtracting from the value to shareholders of the company as a whole. Briefly, shareholder value, or economic value, may be understood as the equivalent of the net present value (NPV) of the project given a required rate of return (often called a hurdle rate) equal to the weighted average cost of capital of the company. NPV is a financial measurement of the present value of future cash flows given an assumed rate of return (Strategic Management Group, 1997). These topics will be introduced in Chapter Two and covered in detail in Chapter Seven.

The length of time to breakeven is an important focus of pressure from upper managers. They want the project done fast. As long as it is unfinished the company cannot begin to realize the cash flow that will offset the cost of development and the cost to borrow the capital. However, there are trade-offs to be considered as well. Factors such as project costs and customer satisfaction also ultimately affect cash flow and time to breakeven. There is also sometimes a trade-off between project cost and project deadline that involves buying more resources (and raising the project cost) to reduce the time it takes to get the project done. The business systems diagram illustrates that most decisions made during the life of a project are the result of trade-offs. Understanding the effect of these various trade-offs on the project's contribution to economic value will become the main decision tool for project managers in the future. These topics in quantitative decision making are covered in Chapter Eight.

### **Defining the Evolving Role of the Project Manager**

Taking the business systems approach requires knowledge of accounting, strategy, organization and motivation, marketing, cost control, finance, and quantitative decision making. These are the subject areas typically covered when taking an MBA degree. This book covers those areas from the project manager's perspective; that is why we have called it *The Project Manager's MBA*. For most project managers, understanding these subject areas in order to think like an entrepreneur and act like a CEO means acquiring new skills and behavior.

As we have been discussing, today project managers have to think of the project as a business enterprise and to manage the project as a business venture. Thus project managers have to consider not only the success of the project itself but also the success of the project outcome that is the result of the project endeavor. As Jaafari (2000) comments, when the project management focus is shifted from the creation of a final product to the creation of a business to service project objectives, "it becomes clear that the traditional project delivery approaches will have to give way to a new system in which project lifecycle objectives will be the basis for decision making throughout the project's life" (p. 44). This new system is the basis for the entrepreneurial approach to project management, which essentially expands two dimensions of the project management process. The first dimension is time. Considering the project outcome and its lifecycle (POL) expands time beyond the traditional horizon of project completion. The second dimension is the project boundary. Stakeholders from all kinds of organizational areas become more important as partners, not just stakeholders, in the enterprise. Market forces beyond the customer and end-user also become important. Most important, these additional forces now include the competition.

In the past, many of the business objectives important for project success were imbedded in the outcome, cost, and schedule constraints that were given to the project manager. For example, upper management might have chosen the project outcome on the basis of organizational strategy, but this was often not discussed with the project manager. The assumption seemed to be that "if the project team builds it to specification, strategy will be achieved." This made it easier to transfer the project from upper managers to project managers and to measure project success, but it made it more difficult for the project manager to make the right decisions during project execution. The new role of the project manager requires an intimate knowledge of the strategy the project is supporting. The new role of the project manager also requires knowledge of marketing, post-project costs, and finance. Figure 1.2 summarizes the evolving role of the project manager.

### **Turning the Triple Constraints into Possibilities**

Today, project managers have to think of projects as having two parts. First, there is the project itself, which creates an outcome. And then there is the outcome lifecycle, in which the outcome is used or sold. Both parts contain elements of risk. The first part contains technical risk, which is concerned with the probability that the project team can actually produce the desired result. The second part contains marketing risk, which is concerned with the probability that the company can sell the result. In the past the project manager was concerned mainly with the technical risk and so concentrated on creating the outcome. This resulted in the narrow orientation project managers were often given and the focus on the triple constraints of outcome, cost, and duration. Those commissioning the project saw this approach as giving them control. They were concerned with the marketing risk and adding value to the company. They apparently felt that if a business could get specific things done at a fixed cost and time, the value would be there and the market would respond. This orientation of working within constraints led to many bad practices by both project managers and upper managers. In particular many new possibilities that arose during the execution of a project were often ignored because they were not in the budget nor in the specifications nor in the schedule.

The business systems approach is concerned with discovering possibilities for adding value to the organization, not with finding solutions within given constraints. This approach requires a business as well as a technical orientation. The business orientation concentrates on the entire life of both the project and the project outcome, from birth to death, from "lust to dust." Now the project manager thinks not of constraints but of the possibilities throughout the entire life of the project and its outcome, both outcome creation and use. Such thinking is essential today because change in the marketplace is accelerating and occurring in increasingly random patterns. Such change increases market risk and the necessity of having project managers make important decisions at the project level. Any imposed constraints become obsolete in weeks, and there is no time to constantly check in with upper management before acting to keep up with changing conditions. Remember that D-day underwent more planning than any military endeavor before that time. Yet on the beaches of Normandy it was the few junior officers who survived the initial hours and who reacted to the situation who carried the day.

The table in Figure 1.3 compares the old triple constraints to the new processes and results, discussed in the following paragraphs.

Crafting for market performance. This process was the old outcome constraint. It stresses understanding the customer and the competition so that the project outcome performs well in the market and adds value to the organization. The new emphasis is on understanding the dynamics of competition. The outcome constraint was about collecting technical specifications. Crafting is about developing a viable commercial solution for the marketplace directly by creating a new product or service or indirectly by supporting the commercial enterprise of the business or by creating an outcome for a specific client

that the client will then use in the marketplace.

Timing for maximum cash flow. This process is much more than just meeting a schedule and deadline. Timing for maximum cash flow rests on the realization that decisions made during the project that affect the timing of project completion will also affect the potential cash flow from the project outcome and thus affect economic value. Timing can affect both the price and the sales volume of the project outcome. The timing process helps project managers time product completion for maximum cash flow.

Investing for competitive advantage. Projects are not just a cost to the organization. They represent an investment. In the past the budget was the control on investment in the project. However this control can negatively affect project results. It might prevent an increase in spending, say for better product features, that would pay off in increased competitive advantage. Thus the project manager should not be constrained by a budget but armed with knowledge of competitors and ways to develop competitive advantage. When a competitive advantage is reached, cost is transformed to one component of the total investment. Rather than concentrate on budget, the entrepreneurial project manager will calculate the incremental investment and its expected return in order to determine whether a project cost increase will or will not produce a greater return.

### **Viewing the Business System as a Balanced Approach**

As shown in the business systems diagram, business skills for project leaders require learning more than accounting and finance. This is because a business is more than finance. A business is a system of interrelated factors of people, strategy, management, products, competitors, suppliers, and owners. True, the language of business is finance (and that is why we devote Chapter Two to a discussion of financial terms, covering the basics of the balance sheet, income statement, and cash flow). However, in considering the overall system we take the balanced scorecard approach of Kaplan and Norton (1996). In this view, organizations prosper by achieving strategy, and they achieve strategy through balancing four factors or perspectives: the learning and growth perspective, the customer perspective, the internal process perspective, and the financial perspective. We believe projects succeed the same way, as illustrated in Figure 1.4. In that figure the wheel on the right balances the four factors and turns smoothly. However, too much emphasis on one area, say financial, can lead to the lack of balance shown on the left wheel. In addition, lack of emphasis on any area, say process, can also lead to suboptimal performance.

In the past, project management has suffered from the dual problem of too much emphasis on operations and not enough emphasis on finance, which has led to a wobbly wheel of performance. In the future, project management should emphasize all areas equally in a balanced, business systems approach. Thus this book is about business skills for project leaders, not only finance skills for project leaders.

Achieve strategy. The primary goal of any business is to increase shareholder value. It does this by achieving its strategy. Projects are the primary means for achieving organizational strategy. Therefore all projects should be aligned with the organizational strategy so they can in fact contribute to it. Because the project manager's job is to help the organization achieve a particular strategy, it is important that project managers know the basics of the business strategy.

Learning and growth perspective. The learning and growth perspective concerns the human side of the organization. A business enterprise must develop employee capabilities in order to drive organizational learning and growth. This perspective emphasizes current, sustained investment in people and the systems and organizational

processes that support them. This is an important perspective for project managers because the way the people involved in a project are managed today will affect the success of the project outcome in the future. That is, decisions regarding project team structure, communication, motivation, and management will have an effect on how well the project outcome contributes to shareholder value. On the business systems diagram these are the project management practices that lead to project outcome, cost, and duration.

**Customer perspective.** The customer perspective identifies the market in which the organization has chosen to compete. This perspective addresses the customers, competitors, market segment, and market strategy. The customers are the sources that will deliver the revenue component of the company's financial objectives. If businesses are to achieve long-run superior financial performance, they must create and deliver products and services that are valued by customers. Thus, if a project outcome is to meet financial objectives, the project manager must translate the mission and strategy statements into specific market- and customer-based objectives. To do this the project manager must know the market and identify the value propositions, the product features that will be delivered to targeted segments according to the project strategy. This perspective is shown in the business systems diagram as the price, market share, and project outcome and duration that contribute to POL revenue.

**Internal process perspective.** In taking an internal process, or operations, perspective, managers identify the processes that are most critical to achieving customer and financial objectives. These processes are typically considered part of the internal process value chain of innovation processes, operations processes, and post-sale service processes. The innovation process is the process of managing the project itself. The operations processes are the basic processes of business management. Many of these production and operations processes and measurements tend to be generic and thus beyond the scope of this book. However, regardless of the processes used, project managers need to know the expected effect of cost decisions on reaching financial objectives. This perspective is shown in the business systems diagram as project costs and POL expenses.

**Financial perspective.** The financial perspective links together the other three perspectives. Decisions made in the other perspective areas eventually culminate in financial performance. This means the project manager must understand how long-run financial performance is defined and measured in the larger organization as well as how the actions taken in the other perspectives affect the desired long-term economic performance (a topic addressed further in Chapter Seven). This perspective is shown in the business systems diagram as the capital charge, the project and project outcome use of capital, and WACC.

### **Changing the System of Control**

Having project managers make decisions in terms of the principles of the business system will require radical change in the measurement and control systems of most organizations. Companies sometimes say they want project managers to understand the business and manage to optimize shareholder value, that is, to act like CEOs of their projects. To this we say, "Really?" for we do not believe most organizations are ready for the change in control that must occur before the entrepreneurial project manager can emerge. For project managers to act like CEOs they must be treated like CEOs. They must be assessed not simply by a detailed emphasis on project outcome, duration, and cost but by broader measures based on how well a project increases economic value. Mitchell (1979) argues that such detailed, or local, controls restrict behavior and often become ends in themselves. Many of the controls put on project managers are local, go or no-go controls. Focusing on these controls may get a project done as specified but may not get the desired results of increasing economic value. Upper management may

have close control but may not get the results it wanted. Mitchell argues for more global controls based on organizational goals, controls that focus on the results desired. Business-oriented controls focused on market performance, timing, and investing for return offer this more global approach; they are much more likely to get results but much less controlling. Thus the organizational question becomes, Do you want control, or do you want results? All too often we have found that organizations reward control more than results, and it is these organizations that we ask, Do you really want your project managers to act like entrepreneurs? For those organizations that can truly reward results and live with minimal control, a new world of project management awaits.

For example, examine the effects of controlling on outcome, duration, and costs. Begin with outcome. Controlling on outcome usually results in an emphasis on outcome specification. However, as the project proceeds, the need to change the specifications may arise in order to meet customer expectations or competitor actions. Von Moltke's dictum that "no plan survives contact with the enemy" (Mitchell, 1979, p. 22) has its counterpart in project management: few specifications survive contact with the market. However, when change procedures are too onerous or specification controls too tight, needed changes may not be done. As a result, the product may meet outcome controls but fail in the market. So controlling on outcome may not yield desired business results.

Now consider the problems with controlling on duration or schedule. A desired change may also be ruled out because it would alter the schedule. But deadlines and schedules should be set according to market conditions and changed according to those same conditions. With tight schedule control the deadline often becomes an end in itself and product changes are ignored if they cannot fit the schedule as it was first planned. One often hears managers saying, "If we make that change, we will miss the deadline."

A final problem is control on the budget. Many possibilities are missed because they are "not in the budget." For example, it is frustrating to project managers to be told to act like entrepreneurs but to be constrained from visiting potential customers because there is no money in the budget for travel. Under more global controls focused on increasing shareholder value, project managers would be free to travel to potential customers in order to understand the market better, without fear of budget recriminations. They could then change product features if they thought this change had the potential to increase profit. They might also change the schedule to respond to competitor actions. All these changes would be based on and evaluated in terms of the ability of the project manager to increase shareholder value and not just to keep within outcome, schedule, and cost constraints.

An additional problem is the imposition of overall company controls on the project process. The farmer who eats his seed corn will have a poorer crop in the future. Upper managers often eat their seed corn by imposing organization-wide limits on expenses, travel, and so forth. Such limitations may keep the project outcome from being introduced at the best time or with the best set of features, severely reducing product revenues and subsequent shareholder value. So the responsibility for success belongs to the organization as well as the project manager. Although the project manager must produce an outcome that increases shareholder value, the organization must provide an environment that allows that outcome to happen. This means the organization must provide the necessary funding and also shield the project manager from organizational restrictions that prevent people from achieving company goals. It is only in this way that the project manager can think like an entrepreneur and act like a CEO.

The result of the new orientation for project managers means that the ways they measure

success must also change

From meeting fixed specifications to satisfying customers and contributing to strategic intent

From coming in on a fixed budget to managing cash flow so as to increase shareholder value

From meeting a fixed deadline to selecting the best time to market and time to breakeven

From having an internal focus on the project to having an external focus on the customer, market, competition, and entire project lifecycle

From just getting the project done to helping to implement organizational strategy

Project managers will have to understand what these new measures mean and how to manage their projects to attain favorable results. These results are not static. They are interactive. Projects are influenced by turbulence in the organizational environment, especially by global market forces. In short, projects have the properties of a business system. Project managers can influence this system only if they recognize these properties and act accordingly.

### **Using the Business Systems Calculator**

One of the best ways to understand the interactions of the business variables and the effect of various decisions on potential economic value is to examine numerical examples and do what if analyses. For example, favoring the financial perspective by not traveling to potential customers for the project outcome may harm the customer perspective because the product may never reach its full sales potential. However, the extra sales generated by incorporating more features desired by customers may not be worth the cost when viewed from an economic value perspective. That is, the extra sales revenue may not be enough to cover the costs of the travel and of incorporating the features, including the cost of the capital used. In making a decision on such issues, it is useful to numerically calculate the economic results of the different decisions that might be made.

Understanding the interaction between factors in the business system is one thing, and calculating the potential results of decisions is quite another. To help project managers understand the potential consequences of decisions from a business systems standpoint, we have provided a on-line business systems calculator. Access it at [www.projectmanagersmba.com](http://www.projectmanagersmba.com). Examples of the functions that can be performed with the calculator are shown and explained throughout the book.

The calculator is based on the factors and interactions shown in the business systems diagram. The calculator uses data and assumptions developed for the business case for a specific project and allows the project manager to do what if analyses for various project decisions and to see the effect of potential decisions on economic value. Because the calculator uses data developed by organizational managers and presents results in terms that are important to those managers, it increases the chances that the project manager's decisions will be understood and accepted by those managers. That is, using the results of the calculator (or the results of making similar calculations yourself), you can encourage organizational managers to abandon their old go-no-go controls on projects and to adopt the more global control of increasing shareholder value.

In this book we divide the calculator input and output categories into four major parts, and each part is explained in one of the subsequent chapters. The first part is concerned with the project investment (Chapter Four), and the second part is concerned with project outcome revenues (Chapter Five). The third part addresses the project and post-project costs for producing or operating the project outcome (Chapter Six). The final part works with the costs of financing the work of the project and the operation of the project outcome as well as with the final calculations for determining any increase in shareholder value (Chapter Seven).

The main output of the calculator is a graphical representation of project costs, cash flow from the project outcome, and financing charges over the assumed life of the project outcome as well as the potential increase or decrease in shareholder value. Additional outputs from the calculator, such as monthly income statements, are also explained in the following chapters.

For example, Figure 1.5 shows the monthly financial progress of a project and the project outcome lifecycle. Beginning above the x-axis, which represents months, are familiar numbers for most project managers, namely cumulative project costs and sales revenue. Project costs climb during the project duration then level off. Sales revenue begins after the project costs become level, as the project outcome lifecycle begins. Some of the numbers shown beginning below the x-axis may not be as familiar to all project managers (they are explained further in Chapter Two). Cumulative operating income, basically sales revenue minus operating expenses, at first decreases as the organization loses money during the project, then it turns up as sales revenues begin to climb during the POL. Cash flow is not as negative as operating income (loss) during the project due to the effect of the tax credit for negative income. In the same vein, cash flow is less than operating income after the losses stop, as some of the operating income goes to pay the now positive tax charge. (The tax man giveth during losses but taketh away during profits. Fair enough.) The final line shows the cash flow with an additional capital charge. This charge, the WAAC, is levied to pay for the financing needed during the losses.

In short, the calculator asks the project manager to supply various assumptions about his or her project, and the project manager can compare the outputs for different sets of assumptions as an aid to understanding the potential effects of project decisions on economic value. As mentioned, a variety of these assumptions are discussed in Chapter Eight to help the project manager understand the relative importance and the interactions of the various components of the business system.

### **Preparing the Business Case and the Business Plan**

Projects often require some form of business case analysis as part of the selection process, and project managers may become involved in developing the business case. At the very least they should have a copy of the case as completed by some other manager. The material in this book will help you to contribute to a better business case or simply to understand a case better if it is handed to you. It will also do much more than that, however. It will help you to take the business case and use it to develop a business plan. All too often we have seen that the business case developed to justify a project never becomes part of the project plan, is never used as a basis for decision making during project execution, and is never used for evaluation during the project close out and the operation of the project outcome. However, entrepreneurs run their businesses from a business plan. And project managers should do the same thing.

Most companies that use business case analysis have their own processes and methods.

However, the Appendix to this book offers a generic outline for constructing a business case. The case becomes a business plan with the addition of more detail. This requires additional analysis and testing of all the assumptions in the case as well as learning more about the market. Once completed, the business plan becomes a powerful guide for making project decisions that enhance shareholder value and for conducting an evaluation at the end of the project outcome lifecycle.

The following are the key questions that you will need to answer in order to write a competent business plan. You will find methods for answering these questions in this book and methods for doing the analysis with the aid of the business systems calculator. Using the calculator as an aid to decision making will extend the business case analysis into the reality of daily project management and help ensure that the project is being run according to the business plan. The calculator will help you use the business plan as a living guide to action.

How will this project contribute to and support the strategy of the company? (Chapter Three)

What are the major market forces that will influence the expected revenue during the POL? (Chapter Five)

What return on investment must the project have in order to contribute to positive cash flow and shareholder value? (Chapter Seven)

How will the project and its outcome produce this return?

To determine the answers for these questions, you will construct a financial model of the project and its outcome. The contents of the model will vary depending on the type of project. For a new product development project the model will include the total project cost and all the financial elements of the project outcome lifecycle including sales volume and price, operating costs, and overhead expenses. For an internal project the model will include the total project cost as well, but the financial elements of the POL will be different. They will include operating costs, maintenance costs, and the net savings the company realizes from the operations of the project outcome. The model for a client engagement project will include the cost of the project and the financial elements of a very short POL, including cash payments received from the client, any continuing clients payments, and any continuing costs for warranty or maintenance.

You will also need to list all the assumptions that go into the information that you use to build the model. What are the schedule and the costs that go into the project budget? What is the relationship between the times of the project completion and the POL start-up and cash flow? What is the sales volume and price of the new product (if the project is a development project)? What is the relationship between the quality of the project outcome and the assumptions made about price and sales volume during the POL? What are the operating costs and overhead expenses? How did you estimate all this information?

You will need to test your assumptions by referencing market research, operations analysis and experience, strategic alignment, and any other relevant information. As the project and POL unfold you will need to retest these assumptions at major milestones in order to control the project and influence the POL process.

The questions we suggest here and the basic business plan outline we offer in the

Appendix are very basic. Once you begin applying the ideas in this book, you will begin to expand on these materials to develop a plan outline of your own (if your company does not already have one). In addition many publications on how to write a business plan are available. They are aimed primarily at budding entrepreneurs (see Tiffany and Peterson, 1997, for one good example). Even more relevant for project managers are guides from the literature on internal corporate venture development (see Pinchot and Pellman, 1999; Block and MacMillan, 1995).

### **Examples**

To end this chapter and subsequent chapters, we look at two examples of project decision making. Using these examples we show first how these decisions are approached using the old triple constraint model of project management and then how they are approached using the business systems approach.

#### **Newprod Project**

The first example is a new product development project, the Newprod project. Assume this project was selected in order to develop a product that will open a new market for your company, and you are the project manager. The company wants this product to be the product leader in this market. The project is currently scheduled to take twelve months and cost \$3,000,000. Competitive analysis shows that several other companies are working on similar products and they all could be ready in about twelve months. Thus the market for this product will begin in twelve months whether Newprod is ready or not. Market analysis indicates that the demand will peak to twenty thousand units about twenty-four months after the market for this product begins. Demand will decline from the peak and cease about twenty months after the peak. If Newprod is ready in twelve months when the market begins, it could capture a 30 percent market share. If not, it will gain only a 20 percent share. The price will begin at \$300 per unit when the market begins and is expected to decline at 5 percent per year. Projected production costs are \$240 per unit and are expected to decline 8 percent per year once Newprod goes into production. Cost of overhead, often called selling, general, and administrative expense, is 5 percent of revenue, and WACC is 12 percent. (These are also the assumptions used to generate Figure 1.5.)

Now assume that midway through the project a team member comes to you with an idea for an additional feature for Newprod. Of course any new feature represents project scope creep. Most project managers have learned to control scope creep by using the old triple constraints. The following lists compare the kinds of questions project managers ask when using the triple constraint approach to the kinds of questions they ask when using the business systems approach.

#### **Triple Constraint Approach Questions**

**Outcome.** Does this new feature conform to the specifications? Is it needed to achieve performance criteria? Can we get management approval for this change in time to include it in this version of the product?

**Cost.** How much will this new feature cost? Is there enough money in the budget? If not, can we get a budget increase? Can we get the increase in time to include the feature in this version of the product?

**Duration.** How much time will this add to the schedule? Is this acceptable to upper management? If not, can we get an extension?

Normally, if the feature does not satisfy the three criteria or if extensions are not granted, then it is rejected. This approach pits project manager against upper manager and often

leads to rejection of good ideas.

### **Business Systems Approach Questions**

**Strategy.** Does the new feature fit with the strategic alignment of the project?

**Project processes.** Do the team members feel they can add this feature with the current people on the team? If not, can it be done by outside people? How much will adding this feature delay project completion?

**Market.** Are there customers who want this feature? How much will any project delay decrease the potential market share for this product? How much more will customers be willing to pay for this product with the new feature? Will competitors have this feature? How much will having this feature increase the potential market for this product? For example, will it attract new customers not previously considered? What assumptions can we test regarding competitor and feature effects on market share? (See Figure 1.6 for an example.)

**Costs.** How much will adding this feature add to the cost of the project? How much will it add to the cost of the project outcome?

**Finance.** How much will the feature add to the capital charge?

**Economic value.** What will be the expected effect on economic value?

Obviously, the set of questions for the business approach is quite different from the set a project manager would ask to satisfy the triple constraints. Although the business systems approach is still concerned with outcome, cost, and schedule, it considers them by looking at effects on market demand, revenue, and economic value rather than seeing them simply as constraints. Also notice the lack of concern with upper-management approval in these questions. The business systems approach seeks market approval, not management approval.

In subsequent chapters we examine ways to answer each of these questions. In addition, we show how to use the calculator to get some numerical answers to these questions.

### **Newsys Project**

Newsys, our second example, is an internal project to select and install a new telephone system. Our ongoing description of the Newsys project will point out the typical differences between this internal project and the Newprod project and should apply to most internal projects that have the development of a new system or process as their outcome.

You are the project manager chosen to select, install, and start up a new telephone system that will move beyond the company's current analog system to a digital system that can expand as the company grows. Management has decreed that this system should provide consistent, high-quality telecommunications. The current system does not have sufficient line capacity to handle the company's rapid growth. Because of its memory constraints, the system drops calls, arbitrarily locks callers out of voice mail, and automatically purges voice-mail boxes. It does not distinguish between inside and outside lines and does not have a caller ID function. All of this makes for an unprofessional company image and difficult communications. The project is currently scheduled to last seven months and the cost has been projected to be \$50,000 a month, for a total project cost of

\$350,000.

This project is fairly straightforward given triple constraint thinking. You have a budget of \$350,000 to select, install, and start up a new phone system. The outcome needs to conform to the desires of upper management as just stated and be ready in seven months. We will demonstrate in the following chapters that the principles of this book can be applied to this kind of project as well as new product or service development projects and client engagement projects. Indeed, once we illustrate how to do a basic economic analysis of this internal project using marginal differences in cash flows, this example will closely parallel the Newprod example.