

Chapter 13

Strategic Planning and Control

AVINASH “AVI” RAM HAS AN impressive reputation for starting up retail banking operations for emerging private-sector banks in India and for globally reputed banks in the Middle East. During his career, Avi developed a large network of business contacts all over the world. He always had an acute business sense and was attracted to the mushrooming Business Process Outsourcing (BPO) industry. He felt that he had the necessary expertise and the contacts to be successful in that area. Therefore, he began toying with the idea of launching his own BPO, ClientSys. Deciding now or never, he gave up his lucrative job to embark on this exhilarating but risky journey.

APPLYING THE DECISION FRAMEWORK

- What Is the Problem?** Avinash must decide the mission and the strategy of the proposed BPO, ClientSys, and design appropriate planning and control systems. He must also ensure that all organizational actions and decisions are consistent with the chosen strategy.
- What Are the Options?** Strategic planning options concern the range of services (technical, voice, and/or back-office services) and target clientele (financial services versus all segments). Once Avi finalizes his strategy, he will have to design complementary control systems. Each combination of performance measures is a decision alternative for communicating strategy and monitoring its success.
- What Are the Costs and the Benefits?** Because of the decision’s horizon, virtually all costs and benefits are controllable. The basis for the business model is the availability of qualified and relatively inexpensive human resources in India relative to developed countries. From the control standpoint, the options vary greatly with respect to how well they communicate ClientSys’s strategy to employees, and how well they align employees’ goals with the firm’s objectives.
- Make the Decision!** We will recommend a suitable strategy, and the associated planning and control systems.



Getty Images

ClientSys, a BPO, has to pick a business strategy and long-term performance measures.

LEARNING OBJECTIVES

After studying this chapter, you will be able to:

- 1 Explain the role management accounting plays in guiding strategy.
- 2 Understand the value chain for a business.
- 3 Appreciate product life-cycle analysis and target costing.
- 4 Discuss the need for multiple measures of organizational performance.
- 5 Describe a balanced scorecard.

In this chapter, we consider the decision problems facing entrepreneurs such as Avi as well as managers of established firms. Perhaps the most important task for top management is to develop the organization's **strategy**. This decision charts the firm's course over the long term. The chosen strategy must allow management to create and sustain a business model that will yield sufficient returns to the suppliers of capital. In addition, the planning and control systems of the firm should support the chosen strategy. In this chapter, we discuss the role of management accounting in formulating and implementing strategy.

We begin this chapter by introducing the term *strategy*. We then describe the role management accounting plays in supporting an organization's strategy, and in identifying and configuring its value chain. We discuss two techniques, **life-cycle analysis** and **target costing**, that help a firm to incorporate a long-term view when making such strategic planning decisions. As we learned in



CHAPTER CONNECTIONS

By considering long-term planning and control decisions, this chapter brings us full circle back to Chapter 1.

Chapter 1, however, we need to follow such planning decisions with controls. We consider how to monitor the implementation of strategy. We discuss the need for multiple performance measures in organizations, and introduce the notion of critical success factors (CSFs). Finally, we describe the balanced scorecard, a widely used strategic performance measurement system that provides a framework for selecting and reporting performance measures tied to an organization's CSFs.

Formulating a Strategy

LEARNING OBJECTIVE 1

Explain the role of management accounting in guiding strategy.

To build and preserve a significant market share in any competitive market, a firm must offer a **value proposition**, the key source of customer value, to its target market. The value proposition offered by **Sam's Club** is to supply name-brand items at unbeatable prices. The value proposition for **Saks Fifth Avenue** is to sell the latest fashion apparel at premium prices in a highly personalized environment. A firm's **strategy** is the approach for creating and sustaining its value proposition. Thus, strategy defines how a firm positions its products within the target market and *distinguishes* itself from its competitors to maximize its return on investment.

DETERMINANTS OF BUSINESS STRATEGY

At least three considerations influence the formulation of a successful business strategy:

- Core competencies and capabilities
- Competitive landscape
- Sustainability

Core Competencies and Capabilities

Core competency is a term used to refer to the skill set and expertise that characterizes a firm and its employees, and advantages the firm relative to its competitors. **Lucent Technologies'** core competency is its R&D capabilities, while **Nike** relies on design expertise. **Wal-Mart** has the expertise and the capability in supply chains to stock its retail network with goods from around the world. Core competencies guide the value propositions of a firm. A successful business strategy builds organizational capabilities around the core competencies of its founders, key employees, or the processes it has developed over time. A strategy not anchored firmly in core competencies is destined to fail.

Avi and his business partners are clear about the competencies of ClientSys. The partners have immense experience in financial services. In addition to a vast network of contacts, they bring a wealth of knowledge on back-office business processes, research, and analysis, as well as an intimate understanding of customer needs. This experience and knowledge gives them an edge when offering BPO services to firms in the financial sector.



Connecting to Practice

HP AND COMPAQ

In the early 2000s, **HP** merged with **Compaq** to gain an edge over **Dell** in the low-end PC market. Coupled with **HP**'s presence in high-end computers, this move attempted to dominate the entire range of the computing equipment market, all at once.

COMMENTARY: The merger increased **HP**'s dependence on the high-volume, razor-thin margin PC business, where it did not possess strategic advantages. The following data highlight the outcome.

	<u>2000 Market Share</u>	<u>2004 Market Share</u>
Compaq	13.1%	
HP	7.8%	
Combined Compaq-HP	20.9%	15.8%
Dell	11.5%	17.9%
IBM	7.4%	5.9%

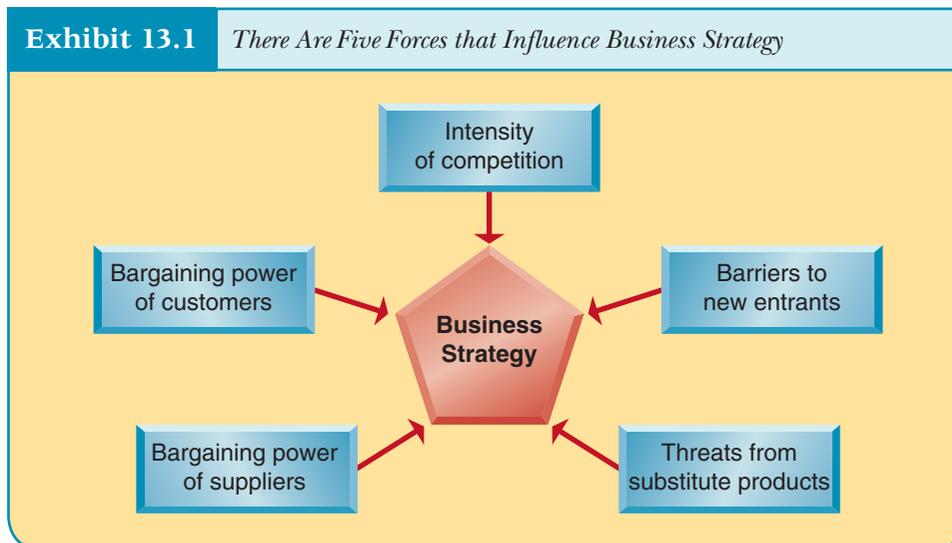
However, the problem might have been implementation. After **HP** went through some management transitions, the firm did very well. In the late 2000's, **HP** was poised to become the leader in PC sales. Thus, success requires both innovative strategy *and* effective implementation.

Source: www.osnews.com, Posted by special contributor Rahul Gaitonde on 02/24/2005.

Competitive Landscape

When formulating a business model, it is crucial to have a good understanding of the competitive landscape. According to experts, firms should consider the five competitive forces listed in Exhibit 13.1.

Exhibit 13.1 *There Are Five Forces that Influence Business Strategy*



- *Industry competitors:* Who are the major competitors? What are their core competencies and capabilities? How much market share do they command? What is their cost structure? Do the firms have high or low operating leverage?
- *New entrants:* Does the chosen business segment offer enough potential to new entrants? Are there barriers to entry? What is the level of threat posed by potential new entrants?
- *Substitute products:* Is there a threat from substitute products? How well do these substitute products perform relative to the company's products? Do they offer a significant price advantage? Functional advantage?
- *Supplier power:* Will the company have to rely excessively on a few key suppliers? How important is the company's business to its suppliers? Will the company have some negotiating power with its suppliers?
- *Customer power:* How dispersed or concentrated is the target market? Is the market comprised of a few large customers? How much flexibility does a company have in dealing with its customers?

The Indian business world has numerous BPO-type operations, both large and small. Reputation and contacts count for a lot in attracting and retaining clients. Operating a successful business requires both extensive financial and human capital. The task of attracting and retaining a capable workforce is a key entry barrier in this high-turnover industry. While few substitutes exist currently, BPO operations in other low-cost countries could be a threat in a few years. However, it is difficult and expensive for clients to switch BPOs because of costs associated with training the staff in the new BPO, integrating computer systems, and so on.

Sustainability

New and existing competitors will emulate the business strategies of successful firms. A *sustainable strategy* is difficult to imitate by competitors because of the unique resource capabilities and market power it brings. It is difficult for **Sears** to replicate **Wal-Mart's** entire strategy or for **United Airlines** to be more like **Southwest Airlines**.

Avi believes that ClientSys will wow clients with its service and capabilities. This reputation for excellence and reliability at low cost will be the firm's sustainable competitive edge.

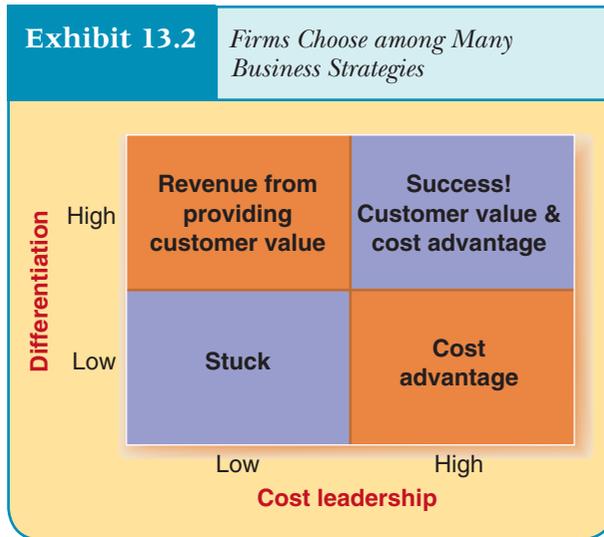
TYPES OF BUSINESS STRATEGY

As shown in Exhibit 13.2, experts classify business strategy choices along two dimensions: cost leadership and product or value differentiation.

Firms following a **cost leadership** strategy find innovative ways to improve their business processes and cut costs. Examples of firms with a cost leadership strategy include **Wal-Mart**, **Southwest Airlines**, **Dell Computers**, and **Best Western**. These firms couple their strategy with market power to raise significant barriers to potential entrants, thereby preserving their market share and long-term profitability.

Firms following a **value differentiation** strategy focus on R&D and product innovation activities. Examples include **Hewlett-Packard** for printers, **Gucci** in fashion apparel, and **Disney** resort hotels in the holiday and vacation industry. These firms stay ahead of competition by being quicker to develop and market the next generation of products, and by providing their target customer base a unique experience with their products and services.

Successful firms excel at combining value differentiation with cost advantage strategies. The rise of Japanese electronics and automobile firms in the late twentieth century is attributable largely to their ability to achieve cost leadership while offering products that excelled in quality and design. Examples include **Toyota Motors**, **Olympus** cameras, and **Sony's** consumer electronic division.



For ClientSys, Avi and his partners know that the BPO industry owes its existence and rapid growth to the cost advantages it brings to its clients. Competition in this industry is primarily on the cost dimension, especially in areas such as voice services, and customer and technical support. However, clients are increasingly concerned about the quality, reliability, and range of services offered.

Because of his background, Avi identifies banking, brokerage, home mortgages, and insurance processing as the different business segments he could pursue. However, given capital and human resource constraints, he chooses to focus initially on the banking sector and expand into others as opportunities arise. Avi believes that ClientSys's core competencies should allow it to adopt a two-pronged strategy: First would be a differentiation strategy in high-value-added products in "research analytics" (investment research, valuation analysis, stock recommendations, forecasting) and investment consulting support. Second would be cost leadership strategy for routine BPO services in banking. Avi believes that these potential clients will be willing to pay a higher price for high-quality and personalized services. Even at these higher prices, Avi is confident that the clients will be also able to realize significant cost advantages relative to procuring these services within the United States. For other BPO services such as routine banking services, ClientSys would compete on cost.

MANAGEMENT ACCOUNTING AND BUSINESS STRATEGY

The cost leadership and differentiation strategies place differing demands on how a firm goes about selecting its target markets, acquiring resource capabilities, and setting up the structure of the organization. Firms following the strategy of cost leadership exploit economies of scale, institute tight cost controls, and in general adopt a firm-wide policy of cost minimization. With a differentiation strategy, innovation is more important than cost control. Naturally, as shown in Exhibit 13.3, the focus of management accounting differs across firms following these different strategies.

The price that the market is willing to pay for innovative products depends on the perceived value relative to other competing products. Thus, product costs do not play as critical a role in pricing as the market's perception of the value differentiation. To foster such innovation and to make differentiation a sustainable strategy, budgets must provide enough discretion for managers and employees to try out new ideas. Overemphasis on the use of budgets to evaluate actual performance

Exhibit 13.3 Differences in Management Accounting Functions Across Strategies

Management Accounting Functions	Product Differentiation	Cost Leadership
Role of costs in pricing	Not critical	Critical
Role of budgets for planning	More discretion in budgets	Less discretion in budgets
Role of budgets in control	Loose cost control	Tight cost control
Activity-based costing for product and capacity planning	Not critical	Critical. Full capacity utilization to achieve economies of scale
Customer profitability analysis	Not critical	Critical to control costs to serve customers
Benchmarking costs against competition	Not critical	Critical to be the most efficient producer
Divisional performance evaluation and incentives	More emphasis on profit maximization through revenue generation	More emphasis on profit maximization through cost control

may prove counterproductive. Employees will be worried more about controlling costs and staying within the budget than about seeking and testing new ideas. Overall, the emphasis in cost measurement is not so much measuring the cost of each product precisely as it is on ensuring the overall profitability of the entire product portfolio.

In contrast, firms that follow the cost leadership strategy target price-sensitive market segments by offering products at as low a price as possible. Cost leadership is a high-volume, low-margin strategy. It is especially effective in established, mature markets, with little that differentiates competing products. Cost planning and control systems play a crucial role in the success of a cost leadership strategy. Knowing the cost of a product is important in ensuring that it is profitable to make and sell the product at the prevailing market price. Flexible budgets play an important role in identifying and eliminating operational inefficiencies. Inefficiencies and wastage can cost the firm its competitive edge in the price-sensitive segment.

ClientSys plans to follow a two-pronged strategy to leverage its capabilities fully. In particular, Avi decides to organize ClientSys into two units. One will focus on the “value-adding” investment and analytic services, and the other will focus on back-office BPO operations. Management controls will be looser in the first unit relative to the second. Moreover, the first unit will have a greater emphasis on output-based performance measures and a greater reliance on incentive compensation.

Avi’s next task is to configure ClientSys to execute this strategy. Performing value chain analysis is useful in this task because it helps managers determine which activities to retain within the boundaries of a firm and which activities to outsource.

CHAPTER CONNECTIONS



In Chapter 8, we highlighted the role of flexible budgeting in evaluating operational efficiencies. The flexible budget variance is useful in evaluating operational performance because it provides the right benchmark against which to compare the actual performance. The flexible budget indicates what the revenues and the costs should be for the actual output level. Deviations from this budget are indicative of potential control problems with respect to the operations.

The Value Chain

In Chapter 10, we introduced the notion that an organization is a collection of activities that convert input resources such as material, labor, and machine time into products or services. We discussed the classification of activities into value-adding and non-value-adding activities to facilitate cost management. A **value chain** is a set of logically sequenced, value-adding activities that convert input resources into products or services in a manner consistent with the chosen business strategy.

LEARNING OBJECTIVE 2

Understand the value chain for a business.

BUILDING A VALUE CHAIN

Building a proper value chain (“configuring the value chain”) is a crucial step in successfully implementing business strategy. An activity that adds value under one business strategy can diminish value under another strategy. Firms develop a sustainable competitive edge by carefully identifying strategy relevant activities and performing them in a manner that differentiates them from their rivals.

Whole Foods, with over 150 stores in the United States and United Kingdom, markets itself as the “World’s Leading Natural and Organic Foods Supermarket.” Its business strategy is to offer the highest quality, least processed, most flavorful, and naturally preserved foods with an unrelenting emphasis on customer satisfaction and employee team spirit. This strategy provides the most value to its target customers, who are health and environment conscious and are not price sensitive.

Compared to other full-service groceries such as **Kroger** and **Safeway**, **Whole Foods** focuses narrowly on grocery items and does not offer convenience services such as pharmacy and banking. **Whole Foods** seeks out suppliers from all over the world, often from small, uniquely dedicated food artisans. Activities at the store aim to provide customers a friendly and happy experience. We find customers tasting various types of food and having a sampling of gourmet coffee as they make their purchases. Thus, all aspects of the firm’s operations reinforce its strategy, leading to continued growth and financial success.



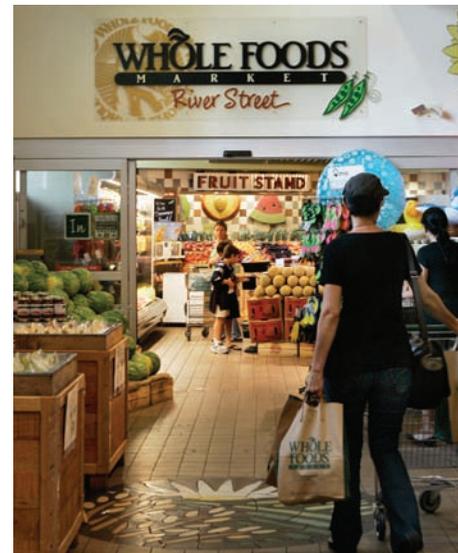
Connecting to Practice

PROCUREMENT AT WHOLE FOODS

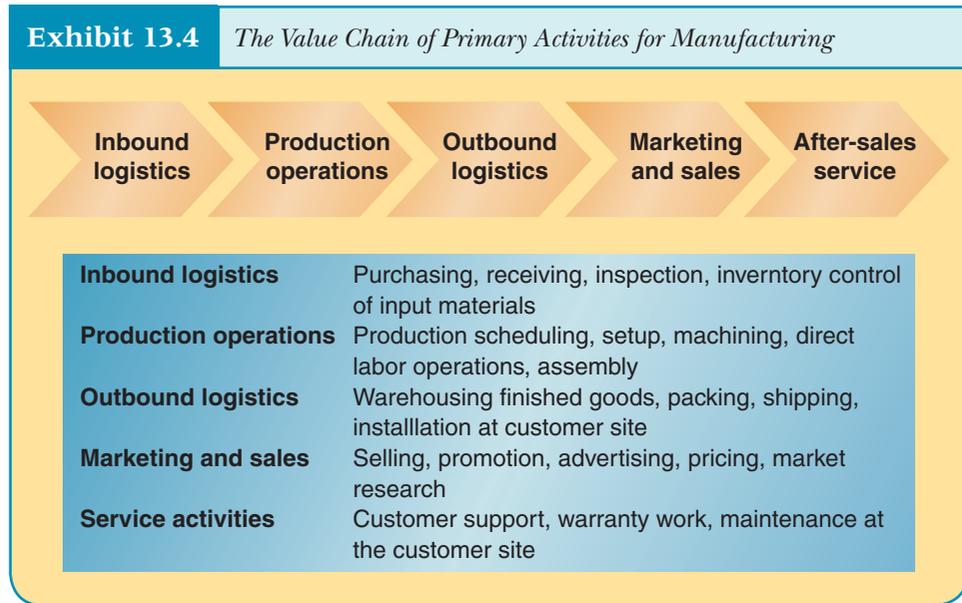
The company’s Web site describes its procurement activities thus:

- We feature foods that are free from artificial preservatives, colors, flavors, sweeteners, and hydrogenated fats.
- We are passionate about great tasting food and the pleasure of sharing it with each other.
- We are committed to foods that are fresh, wholesome, and safe to eat.
- We seek out and promote organically grown foods.
- We provide food and nutritional products that support health and well-being.

COMMENTARY: Each of these objectives enhances and underscores the firm’s commitment to delivering natural, wholesome and unprocessed foods.



Whole Food’s business strategy is to offer the highest quality, least processed, most flavorful, and naturally preserved foods with an unrelenting emphasis on customer satisfaction and employee team spirit. (Elise Amendola/©AP/Wide World Photos)



Extending the Value Chain Beyond the firm

As shown in Exhibit 13.4, we can classify an organization's activities into five generic categories based on the logical sequence in which these activities take place in organizations.

This classification helps us identify the specific areas in which a firm has core competencies and capabilities to gain and maintain a strategic competitive edge. It may be best for a firm to outsource or form strategic alliances with outside suppliers to perform those value activities in which it does not have a unique advantage. **Dell** uses mostly "off-the-shelf" parts in its assembly of personal computers because it does not have an advantage over **Seagate** or **Western Digital** in making hard drives or over **Intel** in making processors. **Dell's** advantage lies in its direct and Web-based assemble-to-order marketing, sales, and customer support network (i.e., in the marketing and sales category in Exhibit 13.4), as well as in efficient operations.

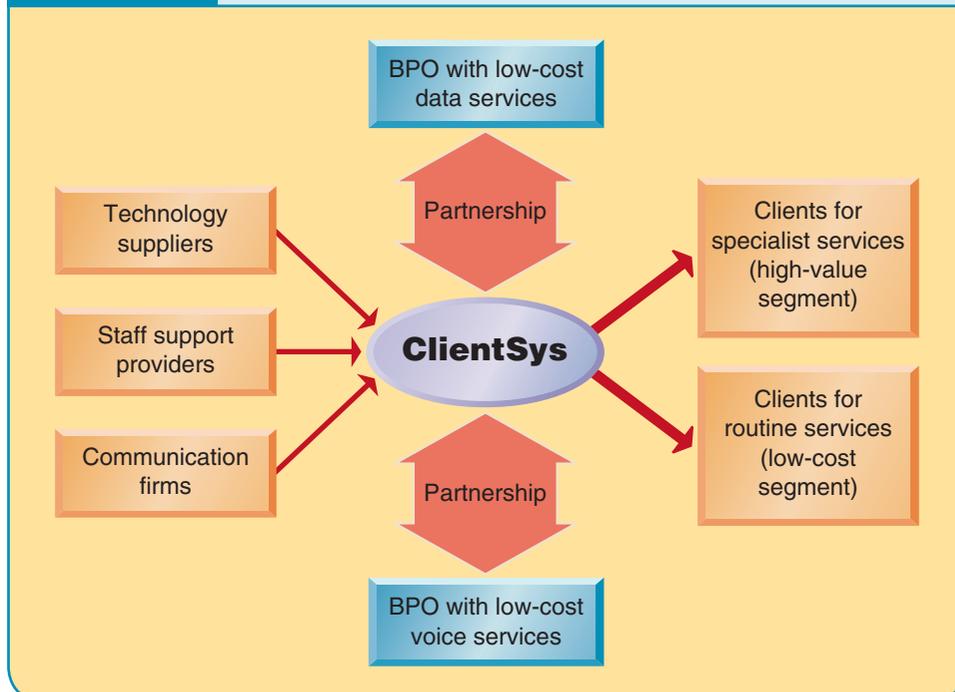
In sum, the value chain often extends beyond the boundaries of a firm. **Whole Foods** is part of the industry value chain that begins in small agricultural, dairy, and animal farms, continues with meat, dairy, and food processing plants before reaching the retail shelves of **Whole Foods**.

Exhibit 13.5 presents the industry value chain of ClientSys. ClientSys expects to enter into long-term arrangements with specialized small financial analysis firms to offer niche investment analysis. ClientSys also expects to enter into strategic partnerships with some large low-cost rival BPO firms to offer routine customer support and back-office functions to its clients.

MANAGEMENT ACCOUNTING AND THE VALUE CHAIN

Exhibit 13.6 shows how management accounting information can help configure value chains for value differentiation and cost leadership strategies. The activity-based approach to configuring the value chain is useful for both value differentiation and cost leadership strategies. However, these strategies differ in the emphasis they place on *what* each activity should achieve and how it ought to contribute to the strategy.

Under a value differentiation strategy, we evaluate activities based on how they enhance the success of a business strategy. Activities such as product research and

Exhibit 13.5 *ClientSys: Industry Value Chain*

Connecting to Practice

MOVING UP THE VALUE CHAIN

After years of operating computer coding and call centers, India's largest software firms, **Wipro**, **Infosys**, and **Tata Consultancy Services**, want more. These firms are now pursuing lucrative contracts for computer services and technology solutions outside India and have emerged as direct competitors to **Accenture** and **IBM**. The Indian firms' goal is to add to their margins by providing value-added services, leveraging the insights they have gained from operating business processes for U.S. firms.

COMMENTARY: The shift in strategy has far-reaching implications. The new approach leverages intellectual capital and expertise rather than the availability of low-skilled, low-cost labor. For the strategy to succeed, the firms will need to reconfigure their operations to measure and reward the new drivers of success.

development, and generation of new ideas, assume greater importance over systematic cost reduction initiatives.

In contrast, the cost leadership strategy sustains the competitive edge by constantly seeking ways to reduce costs throughout the value chain. Companies following this strategy intensively scrutinize costs, starting with the product design and development stage to the last operation. Over time, systems and procedures have evolved in management accounting to bring a pervasive cost focus in such organizations. These include life-cycle and target costing, functional analysis and value engineering, and kaizen costing.

Exhibit 13.6 *Management Accounting and the Value Chain*

Steps in Value Chain Configuration	Product Differentiation	Cost Leadership
<p><i>Step 1</i> List all activities and prepare the activity map</p> <p>Define scope and depth of activity-based costing.</p> <p><i>Step 2</i> Identify performance linkages across activities</p> <p>Criteria for measuring the value of each activity</p> <p><i>Step 3</i> Engineering activities</p> <p>Focus on engineering efforts</p> <p><i>Step 4</i> Determine activity sourcing</p> <p>Configure the “internal” value chain versus the “supply” chain</p>	<p>Lacks the cost focus to justify a full-fledged activity-based costing system</p> <p>Extends activity-based costing approach beyond the boundaries of the firm</p> <p>Focus is on contribution to value differentiation goal, after accounting for all linkages.</p> <p>Focus is on enhancing benefits from activity.</p> <p>Outsource any activity that does not help differentiate. Suppliers have competitive cost advantage.</p>	<p>Strategy supports development of full-fledged activity-based costing system</p> <p>Extends activity-based costing approach beyond the boundaries of the firm</p> <p>Identifies cost of an activity to the entire value chain by taking all linkages into account</p> <p>Focus is on cost reduction. Significant role for</p> <ul style="list-style-type: none"> • Cost driver analysis • Scale economies • Benchmarking • Target costing • Kaizen <p>Make decision based on who has the greater cost advantage, considering costs throughout the value chain.</p>



CHAPTER CONNECTIONS

In Chapter 12, we discussed “Kaizen” or “continuous improvement.” Popularized by Japanese companies, Kaizen costing takes an organization on a path of efficiency improvements over time.

Strategic Cost Planning

LEARNING OBJECTIVE 3

Appreciate product life cycle analysis and target costing.

As we have seen, a successful strategy requires a firm to marshal its core competencies and capabilities to develop, make, and sell the right set of products or services in a sustained manner. In this section, we discuss two techniques—life-cycle analysis and target costing—that help a firm adopt a long-term view when making long-term product planning decisions.

LIFE-CYCLE ANALYSIS

Most products have finite lives. The life cycle of a product depends on the nature of the product, the nature of the industry, the level of competition in the industry, and the rate at which technology is changing in the industry. Thus, life cycles exhibit considerable variability. A new automobile design has a life cycle of six years or so, while the life cycle of a computer chip is less than two years. Product life cycle is an important element of a business strategy because it determines the rate at which companies have to develop and introduce new products to compete effectively.

Exhibit 13.7 illustrates the five stages in a product life cycle: development, introduction, growth, maturity, and decline. As shown in Exhibit 13.8, these stages differ from each other in the types of activities performed on the product, cash outflows involved, revenues generated, and decisions involved. Consequently, the stages differ in terms of the information they need from management accounting. Let us see how.

Development

In this stage, we expect no sales revenue from products. Instead, we expect significant expenditures in product research and development activities, test runs to assess feasibility and production costs, and test marketing to evaluate market acceptance and potential. If product development is successful, we undertake necessary investments in plant, equipment, and other resources necessary to make and market the product.

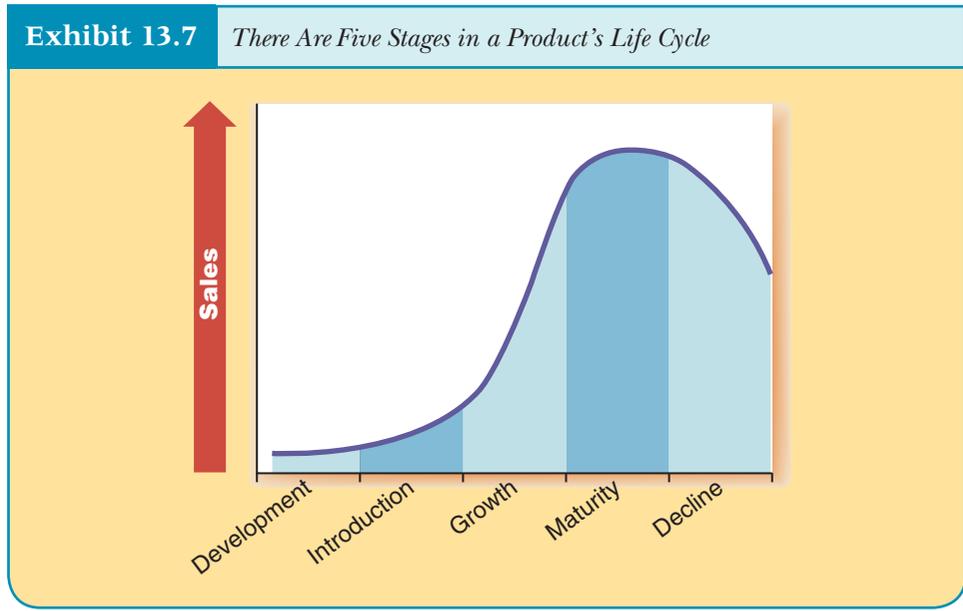


Exhibit 13.8 *Stages in Product Life Cycle and Profitability*

Life-cycle Stages	Key Activities	Management Actions	Profitability
Development	Product research and development Test production runs Test marketing Capacity planning and investment	Finalize product attributes Finalize target market Finalize operations Finalize price point	No profit Net cash outflow
Introduction and growth	Marketing and distribution Promotion Improve production efficiencies	Expand scale Increase market reach Increase capacity utilization	Revenue growth Low profits
Maturity	Production, distribution, and marketing operations at maximum achievable capacity	Competitive pricing Ensure maximal efficiencies Identify and implement cost reduction initiatives	Maximum revenue generation Minimum cost of operations Maximum profit generation
Decline	Tap out the market Clear inventories	Aggressive pricing Divesting in capacity and reducing scale of operations	Declining revenues and profit

Introduction and Growth

In this stage, revenues begin to pick up. Attractive promotions and price discounts help penetrate the market and gain visibility. Variable costs of production costs are typically higher, especially if making the new product involves new operations and procedures. Consequently, profitability is typically low at the introduction stage. It begins to pick up in the growth stage as the scale of marketing and production goes up. The overall business strategy dictates the relative emphasis on volume versus margin. A cost leadership strategy places more weight on increasing volume relative to generating higher margins. A differentiation strategy focuses on generating and maintaining high margins for long periods.

Maturity

A product reaches the maturity stage when it has reached its targeted market potential and compares well against competing products. By this time in the life cycle, the company will have reached its maximal efficiency levels in making and selling the product. This is the “profit-generating” stage of the product life cycle. Decisions at this stage are geared toward obtaining the maximum profit and warding off competitive threats that erode margins or volume. Likewise, control measures focus on retaining market share and achieving cost targets. Techniques such as profit variance analysis, discussed in Chapter 8, become particularly effective at this stage.

Decline

In this final stage, sales and profits decline as the firm cuts prices and clears inventories, in preparation for the next generation of products. Thus, planning decisions focus more on extracting the remaining value from the product, sacrificing volume for margins. Cost control is tight, with no new investments to maintain capacity or increase efficiency.

As indicated above, product **life-cycle analysis** emphasizes that the objective is to maximize the profitability of a product over its *entire life cycle* and not stage-by-stage. We next turn to target costing, a technique that is used in the development stage of the product life cycle and that complements life-cycle analysis.

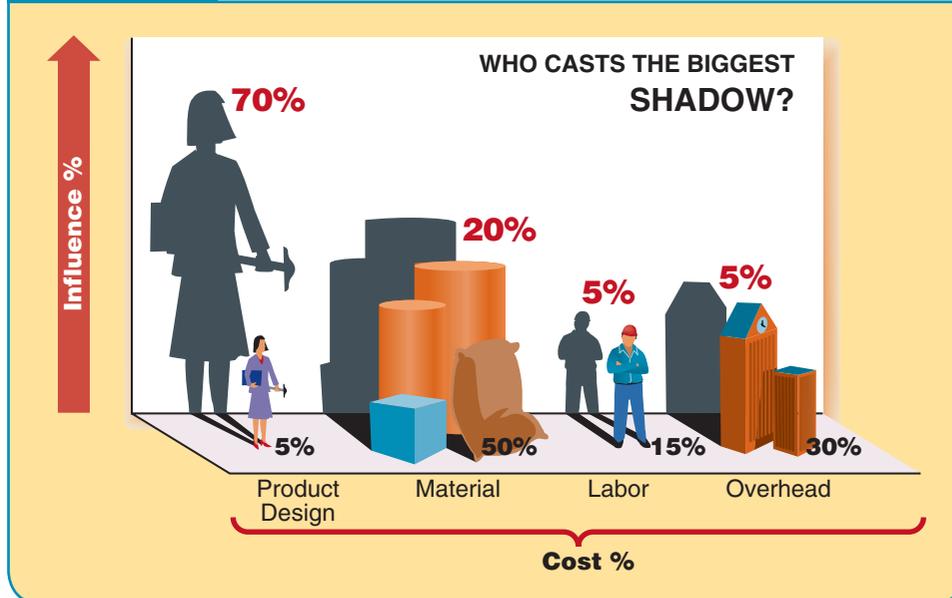
TARGET COSTING

In many industries, a large fraction of total product life-cycle costs become committed at the development stage itself, even though the firm may have spent only 15 to 20 percent of these costs by that time (Exhibit 13.9). Design decisions influence the ease with which we make the product and therefore the costs associated with the manufacturing process. Decisions about product features and functionality determine the potential revenue by defining the scope of the target market. Because of these future implications, decisions made at the design and development stage are critical. Lack of careful cost planning at this stage could result in a product failing even before it enters the introduction phase of its life cycle. Target costing, pioneered by some Japanese firms in the late 1970s, is now a common approach for cost planning at an early stage in the product life cycle.

What Is Target Costing?

Target costing is a structured approach to cost planning and management. Traditional approaches to product development first determine the cost for making a product with specified functionality and quality. We then add a desired markup to determine the price for this product. In contrast, the premise for target costing is that the firm is a price taker and that there is intense competition to acquire, retain, and grow customers. Today’s customer is sophisticated and has access to information about competing products. Thus, the customer understands the value derived from

Exhibit 13.9 *Decisions made Early in the Lifecycle Exert a Large Influence on Actual Costs*



any purchase. Consequently, target costing determines cost by working backward from the customer's value.

A key innovation is to determine the allowable cost at which we must produce a proposed product with specified functionality in order to achieve a target profit margin at a given price point.

$$\text{Allowable cost} = \text{Price Point} - \text{Target Profit Margin.}$$

The **allowable cost** is often lower than the estimate of **current cost**, which is the cost estimate for making the product under current conditions. The challenge in target costing is to find a way to meet the allowable cost. The **cost gap** is the difference between the current cost and the allowable cost. The pressure to close the cost gap forces a company to consider a variety of options to ensure that the target profit margin becomes achievable before even proceeding to the introduction stage of the life cycle. Thus, target costing helps establish cost standards for various activities and business processes, standards that the company must reach in order to achieve the allowable product cost. In this way, target costing brings a cost focus at the planning stage that is crucial to ensuring that the business strategy is successful. In the Appendix we describe the specific steps involved in a typical target costing implementation.

Where Is Target Costing Effective?

The benefits of target costing depend on market characteristics. Target costing is most beneficial in industries where the intensity of competition limits firms' abilities to obtain substantial and sustainable price premiums for innovations. **Nikon** and **Canon** extensively employ target costing, although their premium products offer the latest innovations. Target costing is less useful for firms whose innovation and product differentiation allows them to command premium prices for a sustained period.

Target costing is particularly effective for products with well-defined and discrete features because it helps make proper trade-offs among price, quality, and functionality with respect to each product feature. Target costing is less effective in firms that deal with commodity-type products because there is little scope for differentiating products by their features.



Connecting to Practice

TARGET COSTING AT BOEING

Boeing is the world's leading producer of commercial aircraft. This firm, like other firms that employ target costing successfully, has cross-functional teams that include members from design engineering, manufacturing engineering, purchasing, production, and finance. Target costing teams at **Boeing** use a "toolbox" of management initiatives to improve productivity and reduce costs. The toolbox includes value engineering/value analysis, design for manufacturing assembly, kaizen, and lean manufacturing. The target costing system also listens to the "voice of the customer," but with a difference: the firm costs out the innovation and critically examines if the customer is willing to pay for the design innovation.

COMMENTARY: The use of cross-functional teams ensures that the team considers all of the costs and benefits associated with design and cost-planning decisions, as some of the consequences may be felt later in the value chain. Target costing is particularly effective for firms that make products with many feature combinations. Examples include automobile firms, electronics firms, and camera manufacturers.

Source: Dan Swenson et al., "Best Practices in Target Costing," *Management Accounting Quarterly* (Winter 2003), p. 13.

Implementing Strategy

LEARNING OBJECTIVE 4

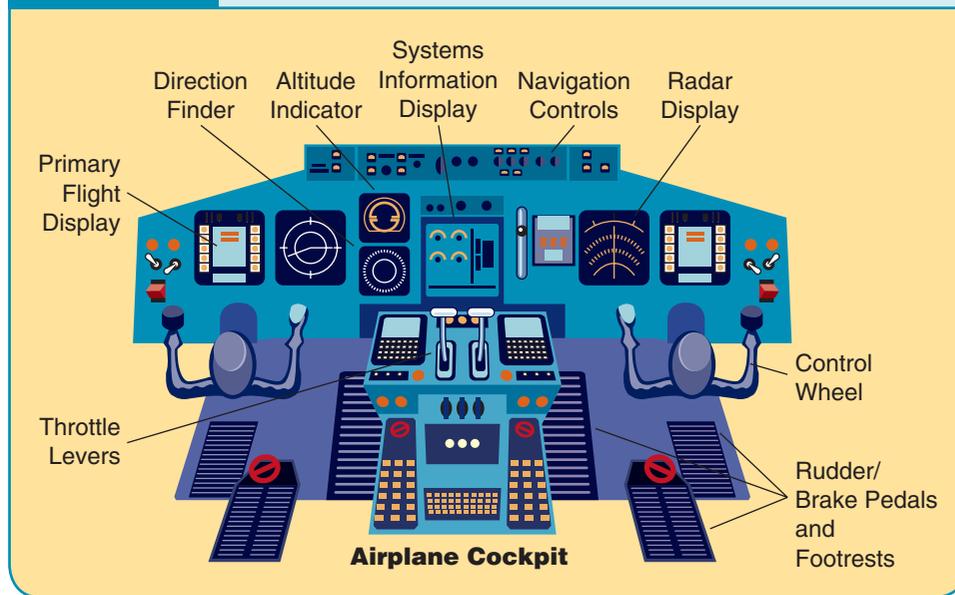
Discuss the need for multiple performance measures.

As we noted at the outset of this chapter, successful implementation requires that everyone in the organization clearly understand the chosen strategy. In addition, the organization must implement suitable monitoring and control systems.

Experts in organizational theory have discovered that a focus on financial results is not enough to help an organization implement its strategy successfully. The organization must also identify and focus some of its attention on key critical success factors (CSFs). Accordingly, we begin this section with an analysis of the need for multiple measures.

In Chapter 12, we considered ROI, RI, and EVA, which are alternate measures of an organization's financial performance. Avi periodically computes the ROI for ClientSys. He also uses the DuPont model to analyze how he could improve the firm's profitability. Yet, ROI by itself is not enough to communicate strategy. The primary reason is that ROI is a **lagging measure** that reflects *past* performance. (The same limitation is true of RI and EVA.) Lagging performance measures contain limited information about an organization's potential for *future* performance. Organizations also require **leading measures** such as customer satisfaction and product return rates, which are the drivers of *future* performance.

Because of the many factors involved in operating a business, experts in business liken managing a firm to piloting an aircraft. As shown in Exhibit 13.10, a skilled pilot simultaneously monitors many different gauges and meters to make sure that the aircraft is heading to its destination at the right direction, speed, and altitude. The pilot must also take into account weather, traffic in the air corridor,

Exhibit 13.10 *Like a Pilot, Firms Need Multiple Measures to Manage*

and congestion at the destination airport. Likewise, good managers do not rely on a single measure. They know that a company will underperform in some dimensions and meet expectations in others. Therefore, they consider a combination of measures to develop a coherent picture of the organization's current health and prospects.

The need for lagging and leading indicators motivates firms to employ both financial and **nonfinancial measures** to track organizational performance. **Financial measures** suffer from the following deficiencies:

- Financial measures often reflect the aggregate performance of the entire company or division.
- Financial measures do not provide information needed in a timely manner to take immediate and on-the-spot corrective actions.
- Financial measures do not provide specific information about potential areas of concern.

Because of these reasons, organizations routinely supplement measures such as ROI with other measures of operational and strategic performance. This is the case even though many of these measures might be nonfinancial in nature and subjectively assessed. The key concern is picking those additional measures that help us measure an organization's current state of affairs and potential for future success. The concept of a critical success factor that we discuss next is central to this choice.

CRITICAL SUCCESS FACTORS

Critical success factors (CSF), also known as key performance indicators (KPIs), are performance measures that must "go right" for an organization to implement its strategy successfully and achieve its mission. Outcomes on the CSFs are the pulse of the organization's survival. On-time arrival is a CSF for commercial airlines such as **United** and **Continental** because a poor showing on this front is a recipe for failure in this competitive industry. The ability to guarantee delivery of mail by a stipulated time is a CSF for **FedEx** and **UPS**. Wireless communications companies such as

Verizon Wireless or **T-Mobile** compete on coverage and quality of calls—minimizing the number of dropped calls is crucial to success.

Operational CSFs are short-term metrics. These CSFs focus on the efficiency with which an organization is utilizing its resources. Operational CSFs could be financial or nonfinancial in nature. Financial metrics include cost per unit and purchase price variance. Nonfinancial metrics include average outgoing product quality level, percent defective, and yield rate.

Strategic CSFs are long-term, *firm-specific* measures. Strategic CSFs help companies monitor the success of their unique corporate and business strategies. A high-volume discount retailer like **Target** depends on geographical penetration and customer traffic to sustain profitability. Accordingly, measures such as sales turnover of different items are more important than assessing customer satisfaction. In contrast, a high-end retailer such as **Neiman Marcus** cares less about stock turnover and more about providing a delightful shopping experience for customers willing to pay premium prices. Likewise, minimizing cost per passenger mile and the time an aircraft spends on the ground for maintenance and changeovers are critical success factors for **AirTran** and other no-frill airlines. Though important, these factors are not paramount for an international airline such as **Lufthansa** because when selecting international carriers, passengers pay more attention to factors such as routes flown, schedule, and amenities. Exhibit 13.11 presents a set of CSFs for a Web-based E-tailer.

Recall from our earlier discussion that the two generic business strategies are cost-leadership and product differentiation strategies. Exhibit 13.12 provides a sample list of CSFs for each of these strategies.

Properties of a CSF

Choosing the CSFs to monitor is perhaps the most important step in the successful implementation of a strategy. A good CSF is:

- *Simple and easy to understand.* Everybody in the company must have a clear idea of what the CSF entails. On-time arrival and dropped call rate are terms that need no elaboration in the context of the airline and telecommunications industries.

Exhibit 13.11 *Critical Success Factors in E-tailing*

CSF	Sample Implications	Possible Measures
Tell the full story	Answer every possible question a potential customer might have about the product	Number of calls to help lines
	Provide customer with as complete an experience as possible	Number of calls to help lines
Keep it simple	Help consumers narrow down their options	Percent using menu choices in Web site
	Manage a few products really well	Number of products
Full disclosure	Be upfront	Number of billing complaints
	No hidden charges in the transaction	Number of canceled transactions
Monitor consumer behavior	Learn from the consumer's Web browsing patterns	Number of page views
	Look for commonalities and design the Web experience for maximum convenience	Time spent in Web site
Inventory turnover	Stock high-demand items	Average inventory turns for SKU

Source: Martin Lindstrom, *E-Tailing's Critical Success Factors* (<http://www.clickz.com/experts/brand/brand/article.php/841931>)



Connecting to Practice

SHEEP FARMING

Traditional measures of success in sheep farming include lambing rate and death loss. However, these measures do not survive a hard look at their true contribution to profitability. Studies show the following to have greater impact: (1) having a low unit cost of production, (2) having enough size to be efficient, (3) adding value to the base production of the flock by feeding lambs to weights heavier than traditional weaning weights, and (4) using a mathematical measurement of flock size to the length of the lambing season.

COMMENTARY: The traditional measures relate to outcomes. The critical success factors identified by the analysis relate to the drivers of profitability. For instance, the additional cost of fattening lambs beyond their traditional weaning weight is worthwhile because it generates additional revenue. The fourth measure allows a sheep farmer to match flock size to the environment, optimizing the level of care provided.

Source: Dan Nudell, Harlan Hughes, and Tim Faller. "Critical Success Factors for Profitable Sheep Production," <http://www.ags.ndsu.nodak.edu/hettinge/sheepday/critical.htm>



A sheep farmer also has to monitor several critical success factors to ensure long-term financial viability. (Masterfile)

Exhibit 13.12 *Critical Success Factors and Business Strategy*

Product Differentiation	Cost Leadership
Operational CSFs	
Product features	Product quality
New product ideas	Cost control
	Operational efficiencies
Strategy CSFs	
Time to market new products	Market share
Product Positioning / brand image	Cost advantage
Market share	Customer value

- *Readily quantifiable.* CSFs vary in their ease of measurement. Some, such as orders delivered on time, are easy to measure. Others, such as customer satisfaction, may be equally simple and easy to understand but are harder to quantify.
- *Easy to monitor.* Performance evaluation requires measurement of CSF at regular time intervals. Ease of measurement is therefore an important consideration.
- *Linked to strategy.* A CSF must bear direct link to the strategy implemented. It does not make sense for a direct marketer such as **Amazon** to focus on measures such as the number of successful sales calls. As most of **Dell's** sales are Web-based, the number of Web hits that result in sales is more appropriate.

There is no hard and fast rule on how many CSFs to employ. The number of CSFs depends on the size of the organization, the nature of the industry, and a host of

 **Check It! Exercise #1**

The following factors pertain to operating a restaurant. Classify these factors (with a Y or N) as whether they are or are not critical success factors for a restaurant in a college town. The diner targets college-age students, who have tight budgets and limited time. Repeat the exercise for a luxury restaurant that specializes in French cuisine. Some factors are common to both types of operations, while others are unique.

	Diner in College Town	French Restaurant in Luxury Hotel
Speed of service	_____	_____
Décor	_____	_____
Average bill for a meal	_____	_____
Depth of wine selection	_____	_____
Gross receipts per month	_____	_____
Food costs as percent of sales	_____	_____

Solution at end of chapter.

other factors. However, a good performance measurement system usually has just a few key metrics. Systems that track a multitude of CSFs can provide more detailed and precise performance information. However, they often cause confusion and frustration. In contrast, a system that monitors a few carefully chosen CSFs goes a long way toward achieving a successful implementation of a strategy.

Once we choose CSFs, it is important to set targets and monitor progress (see Exhibit 13.13). In general, there is no set method or rule to determine the expected level of performance for each CSF. The top management has considerable discretion in setting these expectations as a company embarks on the implementation of a new strategy. As with budget targets (Chapter 7), we recommend setting realistic but challenging targets.

Application to ClientSys

Avi and his managers brainstorm to determine the list of CSFs for ClientSys. He is amazed by the number his team identifies. The marketing manager identifies the number of customers, market share, and the penetration into new geographic

Exhibit 13.13 *Performance Report*

Critical Success Factor	Target	Actual	Direction
On-time delivery	95%	92%	▼
Product failure within 30 days of sale	0.2%	0.5%	▼
Reduction in operating costs	3%	4%	▲
Defect rate (parts per thousand)	22	15	▲
Employee turnover	15%	22%	▼
New product development (number of patents)	3	1	▼

markets and industries. The CFO identifies shareholder returns and job-by-job profit margins as key metrics, arguing that everything else is subordinate to creating shareholder value. All managers agree that monitoring employee satisfaction is important. The head of the consulting group argues for a share of revenues brought in by the back-office operations and by consulting, as well as the quality and the extent of employee training. Each of the other managers adds one or two more measures, and offers a compelling rationale for why the metric is a critical indicator of ClientSys' current and future prospects.

Somewhat to Avi's surprise, although the suggested CSFs make sense when considered in isolation, many of the CSFs appear to contradict each other. The marketing manager's desire to obtain new clients to increase the number of customers and to enter new markets is not entirely consistent with the CFO's focus on large jobs and profit margins. Investing in employee training increases the available skill set but potentially increases the chance of turnover by making employees more marketable.

Searching for a way to narrow down his choices of CSFs, Avi comes across the balanced scorecard. Let us see how this can help.

Monitoring Strategy Implementation

The **balanced scorecard** is a performance measurement system that includes a systematic approach for linking strategy to planning and control. Over the past two decades, a well-accepted structure has emerged with respect to the format and the components of a balanced scorecard. This structure allows an organization to choose among numerous CSFs representing organizational performance. Equally important, the balanced scorecard allows management to organize the measures in a way that communicates the firm's strategy, and allows all employees to see how their decisions affect other dimensions of organizational performance.

The balanced scorecard includes performance measurement along a number of different dimensions (Exhibit 13.14):

- Financial and nonfinancial measures of performance
- Short-term and long-term objectives
- Past outcome and forward looking measures of performance
- "Hard" objective and "soft" subjective measures of performance
- External and internal measures of performance

LEARNING OBJECTIVE 5

Describe a balanced scorecard.

Exhibit 13.14 *The Balanced Scorecard Balances Measures along Several Dimensions*



Financial measures	Vs	Non-financial measures
Short-term objectives	Vs	Long-term objectives
Past outcome measures	Vs	Forward-looking measures
"Hard" objective measures	Vs	"Soft" subjective measures
External measures	Vs	Internal measures



Connecting to Practice

SUCCESS STORIES WITH THE BALANCED SCORECARD

The **Balanced Scorecard Collaborative** (www.bscol.com) is an organization that brings together materials and experts that can help organizations throughout the world build and implement the balanced scorecard to drive strategic change. Their “hall of fame” describes successful implementations in many kinds of organizations: small and large, manufacturing and service; and public and private sectors. Examples include **Canon**, **Hilton Hotels**, **Duke Children’s Hospital**, the **City of Brisbane** and **Fulton County Schools**.

COMMENTARY: Throughout the site, we notice the tight link between an organization’s strategy and its scorecard. The site takes the next step by showing how outcomes on the scorecard can help refine strategy and help a firm become a *strategy-focused organization*. This next step completes the long-term planning and control cycle.

While financial measures are still important indicators of performance, nonfinancial measures reflect drivers of future value. Firms can increase future profitability by managing these drivers well, such as finding ways in which to improve cycle times and reducing defect rates. A company needs to use both short-term and long-term critical success factors for successful implementation of a strategy. Overreliance on short-term measures can compromise long-term interests. Similarly, measures of past outcomes can be helpful in evaluating performance (e.g., the current year’s profit) and control decisions, but forward-looking measures, such as customer satisfaction, are also important for planning decisions.

Some measures are “hard” in that they are quantifiable and verifiable. Examples include financial measures such as profits and asset turnover. However, “soft” qualitative measures, such as measures of customer satisfaction and effectiveness of quality improvement and employee training programs, can also be extremely valuable. Finally, some performance measures relate to constituencies outside of the traditional boundaries of the firm. For example, return on equity is a measure that captures the perspective of equity stakeholders, and customer satisfaction is a measure that pertains to customers. Other measures are purely internal. Examples include production yield, cycle time, and on-time delivery.

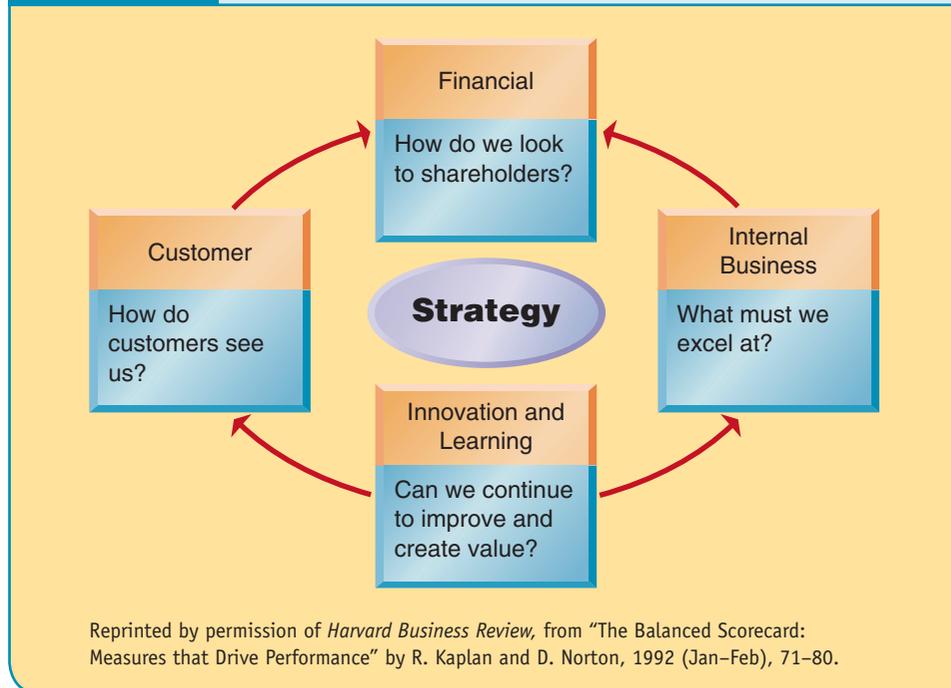
Balancing all these dimensions to design an effective corporate scorecard system is challenging. It requires a clear strategic vision on the part of the senior executives. It also requires free and frank communication and organizationwide buy in to the chosen set of measures.

COMPONENTS OF A BALANCED SCORECARD

A typical balanced scorecard suggests that managers look at their firms from four different perspectives, as illustrated in Exhibit 13.15.

1. **Financial perspective:** How does the company look from a shareholders’ perspective?
2. **Customer perspective:** How does the company look from a customer perspective?

Exhibit 13.15 *Balanced Scorecards Often Group Measures into Four Main Perspectives*



3. **Internal business perspective:** What are the areas in which the company must excel?
4. **Innovation and learning perspective:** What must we do to continue to improve?

Let us consider each perspective in turn.

Financial Perspective

Financial measures reflect the bottom-line impact of a company's strategy and the success with which the company is implementing the strategy. There is no sense in achieving customer satisfaction and improving business processes if these actions do not translate into financial returns for the company's owners. Typical financial measures are return on equity, sales growth, and return on net assets.

Customer Perspective

As competition has grown over the years in most product markets, firms have no choice but to become customer-focused. The balanced scorecard therefore includes factors that reflect customer perceptions. Direct measures of customer perceptions include customer satisfaction or the number of customer complaints. We can also utilize indirect measures such as market share and retention rates. For ClientSys, possible measures include the number of repeat jobs from customers and the growth in new markets.

Internal Business Perspective

As we learned in Chapter 10 in the context of activity-based costing, we could view any organization as a collection of business processes that convert inputs into outputs. Activity-based management tells us that an internal business process could add value only if it contributes to customer satisfaction, either directly or indirectly. A well-functioning organization manages both the effectiveness and the efficiency of its internal business processes. Examples of process

measures include processing and cycle times, process efficiencies, yield, and percent defective output. For ClientSys, potential internal measures include employee retention, average days of delay in delivering projects, cost per transaction, and so on.

Innovation and Learning Perspective

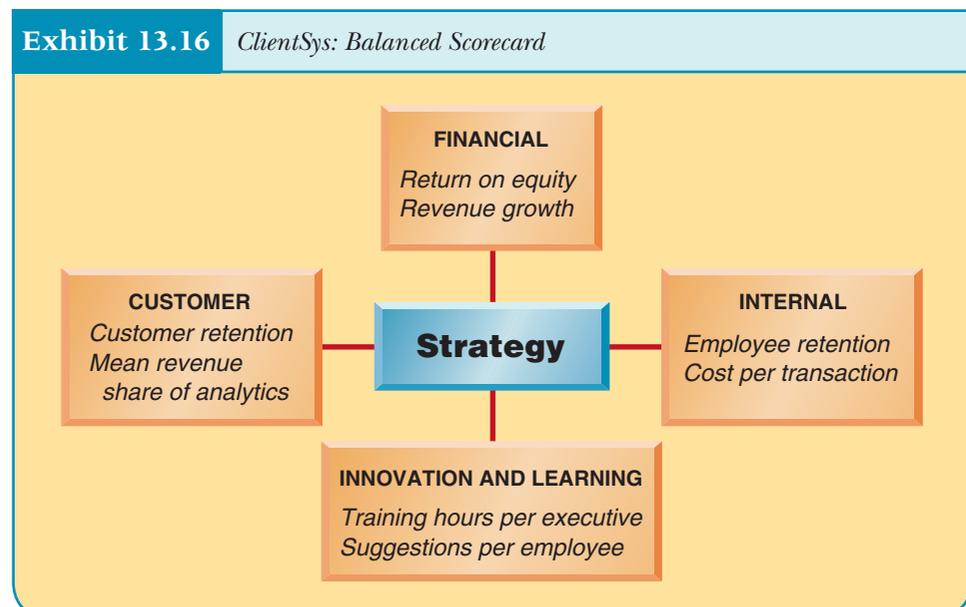
Organizational learning is important for survival in a competitive world. So is the ability to innovate with respect to products and processes. Firms following the low-cost-producer strategy constantly seek process innovations to reduce costs and increase efficiencies. Firms following the product differentiation strategy seek to stay ahead of competition through product innovations. Some critical success factors for such firms might be the speed with which organizations learn and implement new processes, time-to-market new products, time to develop the next generation of products, and the number of new patents.

ClientSys is following a two-pronged strategy: it will compete for clients by offering low-cost back-office services but also differentiate itself by providing additional high-value-added research analytic services. These two prongs place differing emphasis on internal processes. Thus, ClientSys may have to monitor measures such as the number of training hours per employee, percent revenue from consulting services, and percent cost reduction from continuous improvement.

Application to ClientSys

Let us now consider how to implement the balanced scorecard, using ClientSys as an example. ClientSys has a well-defined strategy, the first and crucial step in constructing a balanced scorecard. Its initial focus is on the banking sector, with the eventual goal of expanding into home mortgages and insurance sectors. ClientSys aims to follow a two-pronged approach to satisfy the client. First, the firm would offer a low-cost substitute for the client's back-office operations. Second, it would differentiate itself from other BPOs by leveraging the client-specific knowledge gained to offer research analytics and other consulting services.

In a series of long and intense meetings, Avi and team identify critical success factors under each of the four perspectives of the balanced scorecard. Exhibit 13.16 presents the balanced scorecard that Avi put together for ClientSys.



APPLYING THE DECISION FRAMEWORK

What Is the Problem?	Avi must decide the mission and the strategy of the proposed BPO, ClientSys, and design appropriate planning and control systems. He must also ensure that all organizational actions and decisions are consistent with the chosen strategy.
What Are the Options?	Strategic planning options concern the range of services (offer technical, voice, and/or back-office services) and target clientele (financial services versus all segments). Once Avi finalizes his strategy, he will have to design complementary control systems. Each combination of performance measures is a decision alternative for communicating strategy and monitoring its success.
What Are the Costs and the Benefits?	Because of the decision's horizon, virtually all costs and benefits are controllable. The basis for the business model is the availability of qualified and relatively inexpensive human resources in India relative to developed countries. From the control standpoint, the options vary greatly with respect to how well they communicate ClientSys's strategy to employees, and how well they align employee's goals with the firm's objectives.
Make the Decision!	Avi decides to focus on the banking sector with a two-pronged strategy of offering differentiated products for high-end analytics and cost-advantages for routine voice and data processing. Accordingly, he organizes the firm into two divisions, as these strategies require differing control systems. He outsources much of the low-cost services to specialist BPOs. He also hires suitable suppliers to obtain technical and human resources support. To ensure successful implementation of his strategy, Avi identifies a set of critical success factors and designs a balanced scorecard.

SUMMARY

In this chapter, we discussed strategic planning and control decisions. We emphasized how strategy charts a firm's operations over the long term and the importance of aligning management planning and control systems with strategy. We then explored value chain analysis, which considers how our decisions affect costs incurred and the value derived by our suppliers and customers. Finally, we examined life cycle analysis and target costing, which underscore the importance of considering long-term costs and benefits. These techniques focus on decisions at the product design and development stage as these decisions commit us to future actions. As we learned in Chapter 2, it is important that we complement planning decisions with appropriate control mechanisms. The balanced scorecard has emerged as a popular technique for monitoring the success of strategic decisions.

RAPID REVIEW

LEARNING OBJECTIVE 1

Explain the role management accounting plays in guiding strategy.

- A strategy is an approach to compete in a product market. The strategy must identify and deliver the firm's value proposition, the core reason why customers choose the firm over others. Three considerations—core

competency, competitive landscape, and sustainability— influence a firm's business strategy and its value proposition. The core competency is the skill set and expertise that characterize the firm and is at the root of its competitive advantage. Experts describe the competitive landscape in terms of current competitors, supplier power, customer power, barriers to entry, and threats from substitute products. A final consideration is the ease with which competitors, new or old, can mimic the chosen strategy.

- The two main types of business strategy are cost leadership and value differentiation. Cost leadership emphasizes advantages gained through lowering the cost of operations, while differentiation creates value by meeting previously unmet customer wants and needs.
- Management planning and control systems complement the chosen business strategy. Identifying, estimating, and managing costs are important parts of systems in organizations following the cost leadership strategy. We find looser controls and more emphasis on output-based measures in firms that follow a differentiation strategy. The focus is more on increasing profit by increasing revenue than by reducing cost.

LEARNING OBJECTIVE 2

Understand the value chain for a business.

- A value chain is a logical sequence of activities required for implementing strategy.
- Outsourcing strategy-relevant activities means that the value chain could extend beyond the firm. The entire value chain can span many firms and industries if we consider the entire process from extracting raw materials to disposition by the ultimate end-user. In this case, decisions in one part of the value chain affect costs and benefits realized in other parts. Thus, organizations can increase profit by coordinating with each other and maximizing the profit over the entire value chain.

LEARNING OBJECTIVE 3

Appreciate product life-cycle analysis and target costing.

- The useful life of a product depends on the nature of the product, industry, level of competition, and rate of innovation. Regardless, we divide a product's life cycle into five discrete stages—design and development, introduction, growth, maturity, and decline.
- The relative emphasis on revenue growth versus cost control differs systematically across the five stages in the life cycle. Consequently, different planning and control systems are appropriate at the different stages.
- Target costing is a methodology used to ensure careful attention to cost planning during the design and development stage, when all costs are controllable. We need such emphasis because decisions made during this stage commit the firm to future actions and costs. Usually, firms employ cross-functional teams to ensure that decisions at this stage consider the costs and benefits at all points in the firm's value chain.

- Target costing is particularly effective in highly competitive markets, where products have short life cycles and we can describe products in terms of features. Because target costing considers the value of each feature, some refer to it as feature-based costing.

LEARNING OBJECTIVE 4

Discuss the need for multiple measures of organizational performance.

- Critical success factors are performance measures that must “go right” for an organization to implement its strategy successfully and achieve its mission. They measure the pulse crucial to an organization's survival.
- Critical success factors must be simple and easy to understand, must be quantifiable and easy to monitor, and must bear a direct link to the strategy. Few CSFs possess all of these properties.
- The number of CSFs to track depends on the type of corporate and business strategy, the size of the organization, the nature of the industry, and a host of other factors. However, a good performance measurement system usually has a few carefully chosen measures.
- For each CSF it is necessary to specify the desired acceptable level of performance. Just as flexible budgets provide a benchmark to evaluate short-term performance, we need to stipulate a benchmark for each CSF. We also need to tie performance measures to incentives to reduce the agency conflict.

LEARNING OBJECTIVE 5

Describe a balanced scorecard.

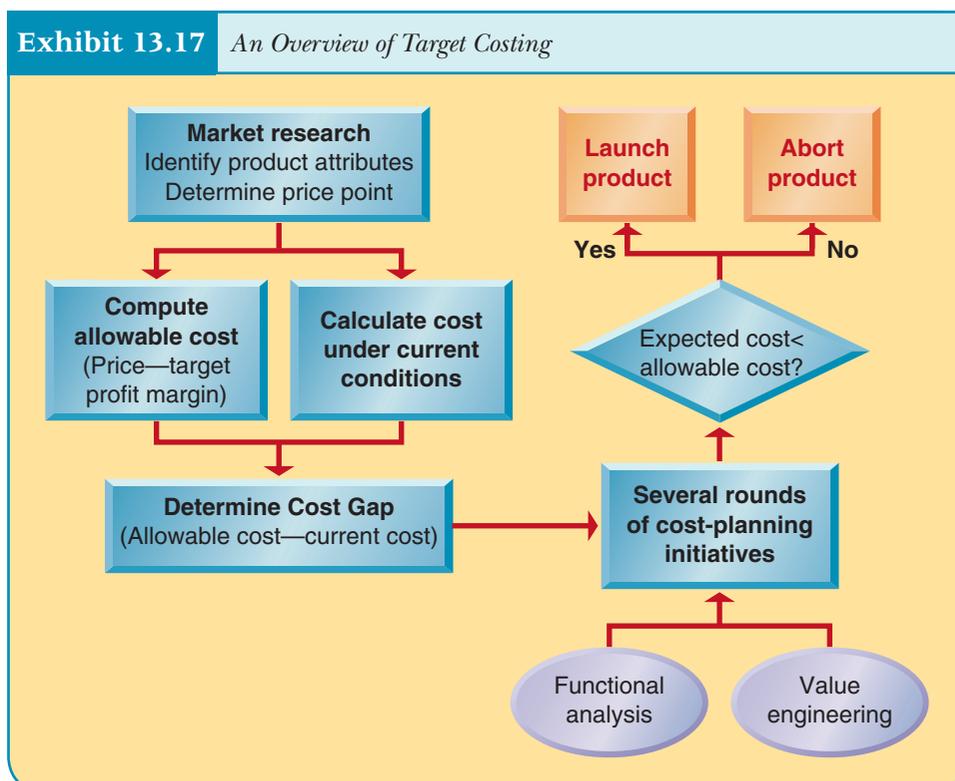
- The usual financial measures are lagging measures of performance as they report on past actions. Many criticize financial measures as being too aggregate, not timely, and unable to provide specific enough information. Therefore, organizations also monitor leading indicators of performance, which are the drivers of future profitability.
- The balanced scorecard is a method for selecting performance measures that reflect the firm's strategy and for communicating it throughout the organization. The balanced scorecard classifies critical success factors into four organizational perspectives: customer perspective, internal business perspective, learning and growth perspective, and financial perspective.
- The balanced scorecard stresses the importance of linking long-term performance measures to the firm's strategy and of tying in the various measures in the four perspectives.

Appendix

TARGET COSTING: AN OVERVIEW

Specific implementations of target costing vary across companies and industries. However, most target costing systems share the following common steps (Exhibit 13.17):

- Step 1:** *Conduct market research to identify the features of proposed product.* This step involves deciding the attributes or features that the product should have, comparing it with competitive product offerings, and ensuring that the product has been positioned to appeal to the target market, in line with the firm's overall business strategy. This positioning helps set the appropriate price point at the introduction and over the product's expected life. In turn, this sequence of prices and their associated volumes determines the expected revenue from the proposed product.
- Step 2:** *Compute the allowable cost of the product.* We obtain the allowable cost by subtracting the targeted profit margin from the expected price point. We base the target profit on input from top management concerning



corporate goals for the product line. The allowable cost is the upper bound on the average cost of making the product over its life cycle.

Step 3: *Estimate the current cost of making the product.* Activity-based costing is useful for estimating the expected cost of making the product. It builds the overall cost from the costs of various activities to be performed. In addition, costs of other products that share some of the same features and components as the proposed product are useful in estimating the cost of the proposed product.

Step 4: *Compare the expected product cost with the allowable cost.* If the expected product cost is lower, then the target profit margin is achievable. It then makes sense to launch the product. If the expected product cost is higher than the allowable cost, then the company has the following alternatives:

- *Identify cost reduction goals at various operations/activities:* Is it possible to achieve cost reductions over the life cycle of the product so that we can achieve the allowable cost? These cost reduction goals have to be realistic. Failure to achieve these goals subsequent to product introduction can result in lower margins than targeted.
- *Perform functional analysis:* Is it possible to combine or eliminate some product functions (and thereby reduce costs) without losing much from the customer's perspective? Functional analysis involves assessing the value that the target market attaches to each function or feature of the product, and stressing only those functions that are valued the most. For example, power windows and door locks are attractive features in automobiles, yet these features may not be worth the cost for customers looking for low-priced reliable cars.
- *Provide value engineering:* Value engineering is an organized effort directed at achieving essential product functions at the lowest life-cycle cost consistent with required performance, quality, reliability, and safety. Typically, cross-functional teams consisting of individuals from design, production, and marketing divisions evaluate every operation and activity necessitated by the product design. They also assess value added to the product. They then determine whether there is a more cost-efficient way of performing the operation or activity. This systematic approach helps in configuring an efficient and effective value chain.

Step 5: *Review product launch.* Suppose, after careful evaluation of all alternatives, we determine that it is not possible to produce the product under the allowable cost. In this case, the best course of action may be to redefine the product and the target market and seek an alternate price point. We must repeat steps 1 through 4 to ensure that the reconfigured product will yield the targeted profit margin.

Target Costing Illustrated

Consider Cell Devices, Inc. (CDI), which makes and sells cell phones. The product life cycle of a cell phone is around three years. Each model typically offers many of the same features as the current model and introduces some new features. Exhibit 13.18 presents CDI's estimates of sales volume and the unit price of the model over its expected life cycle.

CDI targets an average profit margin of 15% of its expected revenue over the life cycle. It does not expect its manufacturing cost to vary materially over the three-year life. Applying the target costing model, we therefore compute the allowable unit cost of CDI323 as \$150.77 (ignoring time value of money for simplicity). The *Check It!* Exercise #2 allows us to verify this computation.

Exhibit 13.18 *Cell Devices Inc: Estimated Volumes and Unit Prices for Cell Phone Model CDI323*

	Volume (units)	Unit Price
Year 1	300,000	\$225
Year 2	500,000	\$175
Year 3	250,000	\$125



Check It! Exercise #2

Total expected sales revenue for CDI323	_____
Total targeted margin (15% of expected revenue)	_____
Total allowable cost (= expected revenue – allowed margin)	_____
Unit allowable cost (= total margin/total units)	_____

Solution at end of chapter.

Interestingly, in the final year, the unit price of \$125 is less than the unit cost \$150.77. That is, it appears that CDI expects to sell this model at a loss in the final year of the product life cycle. However, as we learned in Chapter 5, CDI should continue to make and sell CDI323 as long as the contribution margin is positive in the third year of the product life cycle (or, equivalently, the variable cost making CDI323 is less than \$125 per unit). In addition, from a strategic perspective, it is not generally advisable to discontinue a product in the middle of a cycle if the next model is not ready for launching. Such an action may result in losing market share and market presence.

ANSWERS TO CHECK IT! EXERCISES

Check It! Exercise #1: For diner, Speed of service, Y, Room Décor, N, Average bill for a meal, Y, Depth of wine selection, N, Gross receipts per month, Y, Food costs as percent of sales, Y.

For French restaurant, Speed of service, N, Room Décor, Y, Average bill for a meal, Y, Depth of wine selection, Y, Gross receipts per month, Y, Food costs as percent of sales, Y.

Check It! Exercise #2 (appendix): Total revenue is \$186,250,000, and the target profit is $0.15 \times \$186,250,000 = \$27,937,500$. Dividing the allowable cost of \$158,312,500 by the total volume of 1,050,000 units gives the target cost of \$150.77 per unit.

SELF-STUDY PROBLEMS

SELF-STUDY PROBLEM #1:

Orange Corporation, which makes and sells personal computers and servers, has two divisions—hardware and software. The software division's product earns universal acclaim for its elegance, functionality, and quality, particularly among graphic artists and designers. However, the software division has historically recorded a low rate of return. The hardware division, on the other hand, enjoys fat margins on its products, even though consumers often complain about the price of its products. This discrepancy is surprising because the firm

usually sells its products in a bundle, and the software is optimized for the firm's hardware. In fact, the software does not work well with other hardware.

- a. *What might explain the persistent discrepancy in returns between the two divisions?*

We might understand the discrepancy by looking to the bundled nature of the product. Consumers buy the hardware to gain access to the software. Thus, it appears difficult to separate the revenues of the two divisions. For strategic reasons, the firm might have priced software at low levels. For instance, many computer firms give away updates to software, even if the update consumed millions of dollars to create. Thus, we would argue that the profit discrepancy is artificial and does not reflect the underlying profitability of the two divisions.

- b. *Characterize the firm's business strategy as one of cost leadership or value differentiation. Justify your choice.*

We would probably classify the firm as following a strategy of value differentiation. The innovative software is the source of value. Moreover, the firm appears to be operating in a niche market for graphic design, which values functionality and ease of use. The firm does not appear to be following a cost leadership strategy, as consumers perceive the hardware product as overpriced.

- c. *List at least two strategy-relevant activities the firm might wish to conduct itself and two activities that the firm might wish to outsource.*

The firm would prefer to retain control over those activities that confer it with a competitive advantage. Product design appears crucial to the firm's success, particularly for software and for the integration of software and hardware. Marketing, particularly creating and maintaining brand equity, appears to be a second vital activity. The firm has to stay in close contact with the customer to continue to deliver cutting-edge products.

Manufacturing does not appear to be a core strength. We could argue that Orange might actually reap some cost benefits by outsourcing manufacturing to specialists. Of course, Orange will want to maintain tight control over quality. A second activity is distribution, which again appears to be a candidate best performed by specialists.

- d. *As part of its corporate strategy, management is considering expanding its product line to large-format plasma and LCD TV screens. The firm has expertise with consumer electronics and has an extensive Web- and telephone-based sales and service network. Comment on the wisdom of this strategy in terms of leveraging the firm's core competency and the sustainability of the strategy.*

The strategy does not appear to be wise. The expansion does not leverage the firm's core competency in innovative software. Content providers for TVs do not coordinate with manufacturers. Moreover, competitors could mimic key features (e.g., picture in picture) easily. The distribution channel does not lend itself to the selling of expensive TVs as most consumers prefer to physically see and experiment with the TV before purchasing one. Finally, as a mature product, the market for TVs is price sensitive. Firms that enjoy cost advantages dominate this market, and Orange has little expertise in this domain.

SELF-STUDY PROBLEM #2:

"Cascades" is an exclusive inn located in scenic Sedona, Arizona, that promises to cocoon its guests from the hustle and bustle of everyday life. Its guiding principle is "all modern conveniences wrapped in old-world charm." Each of the inn's 15 villas has a separate theme, and guests often ask for a specific villa when they make reservations. Because it is located within a 250-acre estate, the inn offers its guests a wide variety of outdoor activities such as horseback riding, hiking, and so on. Guests could also while away the day lounging in the pool and availing themselves of the inn's world-famous spa. The dining room, which only has three tables for the public, is justifiably proud of its 4-star rating.

- a. *Describe a reasonable strategy that is consistent with the inn's location, clientele, and reputation.*

Clearly, the inn is following a differentiation strategy that caters to wealthy clients. The inn differentiates itself via the premium services it offers. The strategy is to offer a retreat where the rich and powerful could unwind. In return for catering to the guest's every need, the inn no doubt charges a premium price. Doing otherwise is inconsistent with the general strategic thrust.

This strategy has several implications. All services must be available on tap, as the typical guest is probably not used to waiting. Service quality must be first class, with the finest in equipment and accessories. Delighting the customer is key and no request is out of line.

Trained staff must anticipate every need, while affording maximum privacy and maintaining the greatest discretion about what they may see and hear. From an information perspective, the inn must maintain a detailed database on all clients so that it can individualize each client's experience.

b. Identify at least five critical success factors for the inn.

Critical success factors include (this list is not exhaustive):

- Occupancy rates
- Brand image
- Maintaining service reputation (for restaurant and spa) and exceeding customer expectations
- Maintaining physical facilities in top condition
- Employee training and retention

c. Develop a balanced scorecard for Cascades. It is enough to have two measures in each of the four perspectives.

The following is a possible scorecard for Cascades.

Financial Perspective	Economic Value Added
	Revenue per villa
Customer Perspective	% repeat customers
	Number of customer complaints
Internal Business	Service rating for spa
	Mobil guide rank for restaurant
	Staff hours per guest
	% cost spent for maintenance
Innovation and Learning	Employee retention
	Number of new services offered

GLOSSARY

Allowable cost The cost target we must meet to achieve profit targets.

Balanced scorecard (BSC) A tool for systematically choosing performance measures linked with the firm's overall strategy.

Core competency Skill set and expertise that characterize a firm and its employees.

Cost gap The difference between the current cost and the allowable cost.

Cost leadership A strategy of competing on the basis of cost advantages.

Critical success factors (CSF) Things that must "go right" for the organization to be successful.

Current cost The cost of new product as per current configurations and production technologies.

Customer perspective One of the four perspectives in the balanced scorecard. This perspective ensures that the organization considers the customer's viewpoint.

Financial measures Metrics that rely on data recorded in a firm's accounting system.

Financial perspective One of the four perspectives in the balanced scorecard. This perspective ensures that the organization meets its ultimate goals.

Innovation and learning perspective One of the four perspectives in the balanced scorecard. This perspective

ensures that the organization does not stagnate and has mechanisms that allow it to grow and stay competitive.

Internal business perspective One of the four perspectives in the balanced scorecard. This perspective ensures that the organization's processes are aligned with its customer and financial goals.

Lagging measures Measures that reflect past performance.

Leading measures Measures that capture the drivers of future performance.

Life-cycle analysis A technique that partitions a product's life into discrete stages and thereby guides efforts toward pricing and cost control.

Nonfinancial measures Measures that employ data not in the firm's accounting system.

Strategy Approach for creating and sustaining its value proposition.

Target costing A technique for cost planning during product design and development.

Value chain Set of logically sequenced activities that together execute the chosen business strategy.

Value differentiation A strategy of competing on the basis of providing customer value through innovation and service.

Value proposition The key source of customer value provided by an organization.

REVIEW QUESTIONS

- 13.1 LO1. What are the two types of business strategy?
- 13.2 LO1. What are the five forces that affect the competitive landscape?
- 13.3 LO1. What is a value proposition?
- 13.4 LO1. Traditional management accounting plays a more critical role in firms that follow a cost leadership strategy than in firms that seek to differentiate their products and services. True or False?
- 13.5 LO2. What is a value chain?
- 13.6 LO2. List the four steps in configuring a value chain.
- 13.7 LO3. What is life-cycle analysis?
- 13.8 LO3. What are the five stages in a product's life cycle?
- 13.9 LO3. What is target costing?
- 13.10 LO4. Why do organizations use both leading and lagging indicators of performance?
- 13.11 LO4. What are the three deficiencies of financial measures?
- 13.12 LO4. How does the problem of managing companies resemble the problem a pilot faces when flying a jetliner?
- 13.13 LO5. What is a critical success factor (CSF)? What are two kinds of CSFs? What are four properties of a well-defined CSF?
- 13.14 LO5. What is the balanced scorecard? What are the four components of a usual balanced scorecard?
- 13.15 LO3. What is the "balance" in the balanced scorecard?

DISCUSSION QUESTIONS

- 13.16 LO1. What is the value proposition offered by a top-tier business school such as the Wharton School, University of Pennsylvania, or London School of Business?
- 13.17 LO1. Consider two Internet portals, Google and AOL. What are their core competencies? How could they be different even though they compete in the same market?
- 13.18 LO2. Articles in the U.S. business press explore the recent trend to offshore product design and development. This trend is accelerating even among firms such as Contexant that rely on innovation for survival. What are the costs and benefits for this strategy of moving a key part of the firm's value chain to a site far removed from its corporate headquarters?
- 13.19 LO2. Suppose a firm is not legally liable for how its product is disposed. Should it consider disposal costs in its cost analyses? For example, consider a manufacturer of lithium ion batteries such as watches or cathode-ray-tube monitors, such as many computer monitors.
- 13.20 LO3. Products such as digital cameras sell at increasingly lower price points (e.g., \$249, \$199, and so on) as firms introduce newer models. How should we account for this feature in life-cycle analysis?
- 13.21 LO3. Why is target costing not necessarily useful for a firm such as Tyson Foods, which processes poultry and other animal products? Do these factors imply that cost control is not a key focus in Tyson Foods?
- 13.22 LO3. Suppose an intensive target costing exercise concludes that a product could not meet its allowable cost. However, the firm's strategic group argues that the product is vital for retaining the firm's presence in an important market segment. Should the firm abandon the product or develop it?
- 13.23 LO4. Consider a professional sports team such as the New York Yankees. What are its leading measures of performance? What implications does it have for evaluating the performance of a newly hired coach?
- 13.24 LO4. "Take care of the pennies, and the pounds will take care of themselves" is a popular saying. In business, this could mean that if we manage each individual process to work effectively and efficiently, the business as a whole will prosper. Is this assertion correct?
- 13.25 LO4. ROI, RI, and change in share prices are all summary measures of a firm's performance. Likewise, rankings issued by magazines such as *Business Week* and newspapers such as the *Wall Street Journal* and *Financial Times* are summary measures of performance of a business school. What are some deficiencies with these measures?
- 13.26 LO4. How could profit variance analysis (discussed in Chapter 8) help a firm monitor its operational CSFs?

- 13.27 LO5.** What might the components of a balanced scorecard be for a municipality? for a not-for-profit hospital?
- 13.28 LO5 (Advanced).** How should we combine the multiple measures in a balanced scorecard into determining a division's overall performance?

EXERCISES

- 13.29 Value proposition in same industry (LO1).** Firms in the same industry offering the same end-product may offer different value propositions. For instance, consumers can obtain an airline ticket directly from the airline, a travel agent, or a travel Web site. Similarly, we can obtain clothing from a department store such as **Macy's**, a clothing-only store such as **Aeropostale**, or a designer firm such as **Gucci**.

Required:

- Compare and contrast the value propositions offered by a travel site such as **Expedia** or **Travelocity** with that offered by a travel agent.
- How does this insight translate to other services such as stock trading?

- 13.30 Sustaining competitive advantage (LO2).** A firm can obtain its competitive advantage in many ways. Innovation by founders (e.g., instant photographs by **Polaroid**) is an obvious avenue. Location or government patronage is another.

Required:

- List at least three other sources that a firm could use for developing a core competency.
- For each of the three avenues, suggest actions that the firm must undertake to sustain its competitive advantage.
- Describe how variations in required actions might translate into variations in the firms' management planning and control systems.

- 13.31 Five force analysis and monopoly (LO2).** The text describes five forces (barriers to entry, customer power, supplier power, alternate sources, and intensity of competition) that affect a firm's competitive landscape.

Required:

- Describe the five forces in the context of an electric utility.
- Use this analysis to argue why electric (and other) utilities are often subject to government regulations.

- 13.32 Inferring strategy (LO2).** The following are the income statements of two firms in the same industry.



	<i>Firm A</i>	<i>Firm B</i>
Revenues	\$500,000	\$1,000,000
Variable costs	225,000	600,000
Contribution margin	\$275,000	\$400,000
Fixed costs	175,000	300,000
Profit before taxes	\$100,000	\$100,000

Required:

- Compute the contribution margin ratio, profit margin ratio, and sales per \$ in fixed cost for the two firms.
 - Based on your answers to part (a), identify the strategy (cost leadership versus differentiation) followed by the two firms. Justify your classification. The intent of the question is fine, but the wording is moving from student to academic, followed by "conjecture" in your solution.
- 13.33 Target costing (LO3).** True to its name, Imaging Technologies produces testing equipment used by forges to test their products. Imaging is considering a new X-ray machine that substantially enhances the functionality of the product it would replace. Imaging believes that it might be able to sell 4,500 units of the new product at an average price of \$5,000 per unit. Management specifies a target profit margin of 5% return on sales.

Required:

- a. Compute the product's allowable cost.
- b. Suppose the product's current cost is \$4,900 per unit. What is the cost gap (i.e., or the cost reduction that must be accomplished during the target costing process)?

13.34 Target costing, allowable costs (LO3). Fisher Industries, which makes pumps, is planning for a new product. Current sales projections call for 300,000 units at a sales price of \$210 per pump. Management wants to earn a profit margin (measured as return on sales) of 5% on such products.

The following is the product's current cost structure.

<i>Item</i>	<i>Unit Cost</i>
Materials and components	\$80
Direct labor	75
Manufacturing overhead (fixed)	40
SG&A costs	15
Total	\$210

Required:

- a. Compute the product's allowable cost and the cost reduction needed relative to current cost.
- b. Suppose we find that we could get a 5% reduction in variable manufacturing costs and a 10% reduction in SG&A costs. Further reductions are thought to be infeasible. What actions do you recommend?

13.35 Life-cycle analysis, uncertainty (LO3). The following information pertains to a recent Bluetooth cordless headset produced by Optronix, Inc. This device uses Bluetooth technology to allow for hands-free operation of a cell phone. Increased awareness of the dangers of using a cell phone when driving has led to new regulations pertaining to cell phone use. Optronix expects the market for its products to increase rapidly because of these regulations.

Like most electronic products, the model has a short life cycle of about a year. The firm also expects to cut product price at least twice during the year and have a "clearance" sale at year-end.

Price	\$89	\$69	\$49	\$29
Volume	450,000	400,000	500,000	200,000

Required:

- a. Compute the product's lifetime revenue.
- b. Optronix knows that the demand is uncertain and that the data in the problem are just its best estimates. How can Optronix deal with this uncertainty when planning prices?

13.36 Life-cycle analysis (LO3). Imaging Technologies makes testing equipment used by forges and other manufacturers working with metal castings. The following data pertain to one of its recent products:

Design	\$1,650,000
Preproduction tooling	\$250,000
Manufacturing costs	\$250 per unit
Selling and administration	\$125,000 per year + \$200 per unit
Warranty expenses	10 replacement parts per 50 units at \$20 per part 2 visits per 1,000 units (cost \$1,000 per visit)

Required:

- a. Suppose Imaging expects to sell 40,000 of these units over the product's life cycle of three years. Compute the product's life-cycle cost.
- b. Suppose Imaging could boost sales by 25% to 50,000 units if it implements a price reduction of \$60 per unit or 10% of the original price. Should Imaging choose the lower price? Justify with supporting calculations.

13.37 Multiple measures and sports (LO4). The U.S. Professional Golf Association tracks a number of statistics on its player-members. It is easy to find key statistics such as driving distance, putts per hole, greens in regulation, and fairways made. All of these measures capture differing dimensions of the game.

Golf courses exhibit considerable diversity in their design. Some have long holes but have relatively friendly greens. Other, shorter courses are more difficult, rewarding accuracy over distance.

Required:

- a. Are the standard statistics leading measures of performance? Why or why not?
- b. It is often the case that the best golfer (in terms of prize money or tournaments won) is not the top-ranked in any of the “standard” measures. How do you explain this discrepancy? What implications does this have for the emphasis a firm might place on differing aspects of its operations?
- c. Professional oddsmakers use information to match up the characteristics of courses and golfers to determine the odds of a given golfer winning a particular tournament. What are the similarities, if any, between this practice and the fit of performance measures with a firm’s critical success factors (CSFs)?

13.38 Variance analysis and CSFs (LO4). Island Spices manufactures and distributes high-quality spices to gourmet food shops and top-quality restaurants. The firm buys its spices from various regions throughout the world. The spices are cleaned, processed, and packaged at the firm’s ultraclean factory before being shipped to customers. The following variances pertain to the last month of operations.

Sales volume variance	\$15,000 Favorable
Sales price variance	12,000 Unfavorable
Purchase price variance	8,000 Favorable
Labor efficiency variance	7,000 Favorable
Fixed cost spending variance	1,000 Favorable

Required:

- a. Identify the critical success factors for Island Spices.
- b. Suppose all of the above variances arose as a consequence of deliberate managerial actions such as cutting price to increase volume. Evaluate the fit of these actions with the overall corporate strategy and critical success factors.

13.39 Multiple measures (LO4). Cost, Quality, and Time—these are the three dimensions stressed by the JHE Company in its performance evaluation of employees. Roberto Suarez, a production manager at JHE, however, thinks that JHE’s management is ignorant of “facts on the ground.” He says that he can deliver on *any one* of the three dimensions with ease. Low cost, or high quality or quick turnaround is no problem. Being a good manager, he can even deliver on two of the three measures. He could produce high-quality items in a cost-effective fashion if there were no demand to deliver everything today. He could also deliver quick turnaround and high quality, but the rush nature of the job would cost a pretty penny. He believes that management is shooting for the moon when it asks employees to deliver on all three dimensions.

Required:

Evaluate the reasonableness of management demanding progress on all three dimensions.

13.40 Balanced scorecard, customer metrics (LO5). Many organizations implementing the balanced scorecard have a set of measures that capture the customer or “external” perspective. Sample measures in this category include customer satisfaction and market share.

Consider Tony’s Pizza and the Gallery, two restaurants with differing strategies and clientele. Tony’s serves college students and prides itself on offering cheap pizza at your doorstep in 20 minutes or less. The Gallery is an up-market restaurant where the average check is over \$100 per person. Both restaurants have implemented the balanced scorecard to assess and monitor their performance.

Required:

- a. Considering only the customer perspective, what kinds of measures might Tony’s include in its scorecard? What measures would the Gallery include?
- b. Why do these two scorecards have so little in common, even though both businesses are for-profit restaurants?

13.41 Balanced scorecard, internal metrics (LO5). Culinary Creations caters weddings, office parties, and the like. Monica, the owner of Culinary Creations, offers delectable

dishes and impeccable service. Her firm has gained a reputation for offering unique themed dinners and parties. Consequently, there is no shortage of demand. If a customer wants to customize a party beyond the regular “themes,” the customer must reserve a date several months in advance so that Monica can plan for all contingencies and deliver perfection. Culinary charges a premium price for its unique services.

Required:

- a. Describe three internal processes that Culinary must execute well to deliver on its value proposition. Justify your choices.
 - b. What might be the appropriate performance measures for these critical processes?
- 13.42 Balanced scorecard, link to incentives (LO5).** Robinson’s, Inc., has employed a balanced scorecard for several months now. The firm distributes high fashion accessories to boutiques and high-end department stores. At these stores, fashion-conscious, trendy customers buy these items. These customers are often not very price sensitive and are driven more by what is “in.” Thus, having the right item in place is key, as the hot item last month could be in the bargain rack this month. Results for the first quarter after the full rollout are as follows:

	Budget	Actual
ROA	18.5%	17%
Customer satisfaction scores	85%	90%
Average discount per sales \$	5%	8.2%
Sales from new SKU’s	20%	12%
Price index relative to peers	105	94

Required:

Write a short memo evaluating Robinson’s performance for the prior quarter.

- 13.43 Balanced scorecard, not-for-profit (LO5).** Consider a not-for-profit organization such as the Lions Eye Bank, which is often affiliated with the Lions Club, a well-known business networking group that also supports a host of social services. These eye banks procure corneal tissue from eyes. Surgeons use corneal tissue to restore vision to persons who have injured or diseased corneas. Eye banks also provide corneal tissue for research and education.

Donations are the primary sources of funds for operations. Many eye banks also have endowments on which they can draw. The eye banks coordinate with local hospitals both to procure corneal tissue and to identify patients who might benefit from transplants. As in the United States, laws in many countries prohibit traffic in human organs, meaning that all tissue is donated.

Required:

A for-profit organization might use the standard scorecard categories (financial, customer, internal, and learning) to group performance measures. However, these categories might not relate well to the unique operations of an eye bank. Identify three to five categories for grouping performance measures applicable to an eye bank such as the Lions Eye Bank.

PROBLEMS

- 13.44 Value chain analysis, discount stores (LO1, LO2).** Tim Thompson operates a highly regarded hardware store. Tim’s store is the place to go if you need to get detailed advice on what kind of tools to get for the project at hand, as well as help in tracking down hard-to-find spare parts. Tim enjoys interacting with his customers and often remembers past projects that he has helped his customers complete. Thus, Tim has a loyal clientele even though his prices are usually 10% higher than those found at MegaLo Mart.

Tim’s staff is also very interested in home building and maintenance. To retain them, Tim pays them an average of \$15 per hour. He reckons that each of four sales persons generates an average of \$20,000 in sales per month. In contrast, the average salesperson in MegaLo Mart, the discount hardware store down the street, generates

only \$12,000 in sales. However, the average salesperson in MegaLo Mart has less than two years experience in the retail industry and considerably less in hardware. Consequently, these salespersons earn only \$8 per hour.

MegaLo Mart earns a Contribution Margin Ratio of 28% on its sales. The margin is lower even though its variable costs are only 90% of the variable costs incurred by stores such as those by Tim. (MegaLo Mart uses its volume to bargain aggressively with its suppliers.)

Required:

- a. Describe Tim's strategy and value proposition. Contrast with the same items for MegaLo Mart.
- b. Are Tim's expenditures on resources consistent with his strategy and value proposition?
- c. How would the management control systems for store employees differ between Tim's shop and MegaLo Mart? Would you attribute the differences primarily to size or to differences in strategic thrust?

13.45 Target costing (LO3). Orange, Inc., sells portable music players and other electronic products. The firm is contemplating introducing the fifth generation of its award-winning player. The firm's engineers have reduced the size of the product by a third, even as they have increased memory capacity and video resolution. The current dispute centers on a particular custom-designed component. This component was designed at a cost of about \$750,000. The head of the design group observes that developing a supplier and so on for this new component will cost an additional \$100,000. Moreover, the component costs \$8 per piece. All of the required functionality could be delivered by slightly modifying an existing component, used in the current fourth-generation player, with a well-established supplier. Development costs for modifying the old component are likely to be around \$18,000 and unit costs at \$5 per piece. However, the older component would reduce battery life by 5% relative to the new component.

Currently, Orange projects selling between 1 and 2 million units of the product over its life cycle. The exact sales volume depends greatly on whether the product generates enough buzz to become a "must have" accessory for fashionable teens and young adults. The product's average selling price is \$249 per unit. Moreover, Orange usually has a 50% contribution margin ratio and a 20% profit margin on similar products.

Required:

- a. For the decision of whether to launch the product with the new or old component, compute the incremental cost of using the custom-designed component over the new component.
- b. What is your recommendation? Justify with appropriate supporting calculations.

13.46 Life-cycle costing (LO3). Connections, Inc., has developed an integrated cable modem and a wireless router. The product also has VOIP (phone jacks to provide telephone over the Internet) and HDMI outlets (which provide video services over the Internet). This product cost \$50 million to develop; it has undergone extensive testing and is ready for production.

Currently, the firm is deciding on plant capacity, which could cost either \$140 or \$160 million. The additional outlay would allow the plant to increase capacity from 2 million to 3 million units.

Expected sales are 2 million units (over the product's life cycle) if priced at \$199 per unit and 3 million units if priced at \$174 per unit. The firm expects to have a CMR of 40% at a unit price of \$199. Variable selling costs are 10% of selling price.

Required:

Advise Connections, Inc., regarding the optimal plant capacity to install. The product's life cycle is two years. The plant would have a salvage value of \$25 million (\$30 million if the larger capacity is chosen) at the end of two years. Ignore the time value of money and taxes in your computations.

13.47 Multiple measures and CSFs (LO4). *Quality Rules!* This is the slogan at Mason Motors, a company that supplies engine components to major automotive firms. Mason's management uses this slogan to communicate the message that quality is a critical success factor for the firm's survival. In particular, automotive firms, which account for virtually all of Mason's sales, will pay only for good items. These automotive firms also impose substantial penalties if component quality falls below prespecified levels.

Because of Just-in-Time practices, the automotive firms take an even dimmer view of missed shipments. Finally, Mason's engineers are expected to attend "quality school" to learn and implement quality control procedures, as well as participate in "cost engineering" the next generation of components.

Mason is struggling with how best to measure the intangible item, quality. Brainstorming generates numerous measures from the functional areas:

Production:	Percent reworked, scrap rates
Sales:	Average outgoing quality rate, percent on time delivery
Accounting:	Penalty payments for month
Operations:	Cycle time from receipt of order to delivery

Management is confused because each of the suggested measures seems to measure quality. Yet, management knows that if they measure all items, no single item will be most important, and it will be difficult to drive change throughout the organization. They have requested your help in sorting out how to translate a vaguely defined success factor, "Quality," into a measure that they could use to motivate, direct, and evaluate employees.

Required:

Advise management as to their best choice. Please be sure to argue regarding the costs and benefits of using separate measures for each department, as well as employing multiple measures to measure the differing dimensions of quality.

13.48 CSFs and choice of measures (LO4). Oliva Corporation is a small company that manufactures high-end stereo equipment. Oliva sells its products primarily via specialty audio-video stores. The discerning buyers of the firm's products have strong opinions about the relative merits of different brands, which means that they are not very price sensitive. The firm seeks your advice regarding how best to measure its progress on marketing and related issues. Last year's volume was just below 50,000 units; for this year, the firm projects 60,000 units and hopes to reach 100,000 units in three years.

The firm's founders strongly believe that quality is paramount. They argue that customer satisfaction with product quality (ignoring price and other issues) is key for such purchases. Thus, they wish to measure the number of 5-star reviews or customer satisfaction scores (on quality) as the measure of choice. Their nephew, who recently took over as CEO, concedes the quality point. However, pointing to the firm's plans to expand its customer base, he also wishes to measure the visibility of the firm's brands among target segments. "You can't buy what you don't know, even if it has the best quality," is his logic. Oliva's marketing manager (also a recent hire) agrees with visibility and suggests that Oliva measure market penetration, measured as the number of new stores carrying the firm's products.

Required:

- What is Oliva's critical success factor that pertains to its interactions with its customer base?
- Suppose Oliva wants to construct a balanced scorecard. What measures could it include in the category for capturing external perceptions? What kinds of actions would each measure encourage? Are these actions consistent with the firm's strategy?

13.49 Multiple measures (LO4). Many instructors give their students exams, pop quizzes, announced tests, and homework. Advanced and graduate classes also rely on projects and group assignments to evaluate student performance.

Required:

- Do you believe that the instructor's goals might vary across different kinds of classes? Justify, with examples.
- Consider an undergraduate prebusiness class on management accounting. Suppose this class has an enrollment of 500 students and is taught in two large lectures, supplemented by help sessions in smaller groups (recitation sections). What are the likely objectives of this class? What evaluation mechanisms might be appropriate for this class?
- A favorite instructor assigns 10% of the points for attendance, 20% of the points for short multiple-choice quizzes on the assigned reading for the day, and the remainder across three examinations. How do these measures complement each other in accomplishing course objectives?

d. Continue with question c. Which of the measures are lead indicators, and which are lag indicators of the students' likely mastery of the subject material?

13.50 Core strengths and managerial actions (LO1, LO4). Techno U. is world-famous for the incredible quality of its faculty and the extreme rigor of its academic programs. Many of its graduates have gone on to become top scientists, engineers, and physicians. Almost every year, one of its graduates wins the Nobel Prize.



In recent years, however, the university has come under intense public scrutiny and criticism. First, its faculty members are among the highest paid in their respective fields, even though most of them only teach a few classes, each of which may only contain a dozen students. Second, the school admits less than 5% of applying students, basing its decision on an intense scrutiny of the applicant's profile. It is common for the university to deny admissions to persons with perfect scores on standardized tests and who are valedictorians of their class because they did not demonstrate enough excellence in other academic endeavors. Finally, the school uses its considerable endowment funds to provide scholarships to anyone who qualifies for admission but cannot afford the steep tuition. This last feature results in Techno U. receiving a large number of international applications, and many scholarships being awarded to foreign students. The U.S. press has lambasted Techno U.'s administration for taking "U.S. charity dollars" to fund the education of "foreigners."

Required:

- a. What are the critical success factors for Techno University?
- b. Suppose Techno U.'s administrators seek to appease the public by opening an extension college. This college will cost substantially less but also ease up on the rigor of the curriculum. How does this change affect the core strength/reputation of Techno U.?

13.51 Performance measurement, qualitative (LO4). "You can never win by doing the right thing," is George Hamada's reaction when he received a summary of his unit's performance evaluation. George, who oversees a cost center, has a staff of 40, including 32 specially trained individuals or professionals. His complaint arose because George had taken two earlier corporate initiatives to heart. The first initiative was to increase diversity; George therefore emphasized recruiting and retaining persons from under-represented populations. He was quite successful even though he had to match outside offers for three such employees. The second initiative was to increase training for the workforce. George accordingly increased the number of professional conferences his staff could attend. He allowed each person in his department two days off to attend a seminar relevant for their job. He also allowed two of his professional staff to take advanced classes offered by specialists.



These initiatives, however, caused George to exceed his unit's cost budget. That single fact seemed to be the dominant reason for his so-so review. Indeed, the review did not even mention the increase in diversity among his staff.

Required:

- a. How might George react to future "soft" initiatives that his firm might launch? Is such behavior in the firm's long-term best interests?
- b. How might the firm suitably measure and reward performance on multiple dimensions? In your answer, be sure to address the claim that ultimately, all initiatives must lead to higher profit, so it is enough to measure financials alone.

13.52 Complete BSC, bank (LO1, LO2, LO4, LO5). The University Credit Union operates in a small university town in the Midwestern United States. The town, with a population of 125,000 persons, has recently been rated a top-10 place to retire because of the extent of the cultural, education, and medical resources available. Students and retirees are two of the largest segments of the town's population (20% each).

The UCU focuses on personalized service to differentiate itself. It is also heavily involved in community activities, and it expects employees to be active in civic causes. The UCU offers slightly below-market interest rates on deposits, but charges competitive rates on loans. The bank offers a full range of banking services such as safe deposit boxes and credit cards. The bank has excellent relations with local realtors and other service providers, and as a result, the bank processes the largest number of mortgages for first-time home buyers. Not surprisingly, it offers a limited range of "exotic" products such as foreign exchange conversions and letters of credit.

In recent years, UCU has encountered increasing competition. Initially, its competition consisted primarily of other local banks that also emphasized a personalized service. However, with deregulation, large national banks such as Wells Fargo and Citibank have also established branches in the community. In addition, the growth of the Internet has increased consumers' awareness of their choice set for banking services, mortgages, and so on.

Required:

Construct a balanced scorecard for UCU. Begin by identifying the critical success factors for UCU. Then, identify three to four measures for each CSF. Finally, organize select measures into logical groups that reflect UCU's strategy.



13.53 Balanced scorecard (LO5, Advanced). Ian Thompson is the parts inventory manager for Chesapeake Airlines. In this capacity, Ian decides what engine parts to stock at various airports around the country. Ian is also responsible for coordinating with other airlines to locate a part if one is not available off the shelf.

Chesapeake is a discount carrier that competes by offering low-cost flights between underserved airports and wringing the maximum efficiency out of its assets. The airline buys only used aircraft and relies on its engineering staff to keep the plane up in the air as much as possible. Internal documents stress that a plane on the ground makes no money for the airline. On-time arrival and cost relative to other carriers are two of the key criteria the firm monitors on an almost daily basis. All bonus payments to managers depend on these measures.

Ian believes that the current system is fair to staff who operate the plane, handle baggage, or otherwise influence on-time arrival. "I can influence costs by managing inventory but making my bonus depend on on-time arrival is downright silly," he argues. Instead, he suggests that local measures such as cost per maintenance hour or the ratio of actual to standard time for the *scheduled* maintenance performed reflect his performance better. "After all, these items are within my control, and I can show you how my department is containing cost. My numbers on this front are the best in the game," he says. Probing, you discover that he is upset that his costs often spiral out of control when there is an unscheduled request for repair, requiring parts to be flown in from other airports or be bought from other airlines at premium prices.

Required:

Comment on the validity of Ian's assertion.



13.54 Personal scorecard (LO5, Advanced). It is often instructive to construct a personal scorecard to measure your own growth and evolution. For instance, you could construct a triad of attributes that measure your personal competencies, your potential for adding value to others such as your family, employers and community, and your personal life goals. You could include items such as talent, education, and health in the first category. Items in the second group might include work ethic, ability to change, and so on. The final grouping could include work-life balance, making a difference in the world, and so on.

Required:

- a. Construct a personal scorecard. Identify at least three key items in each category. Be sure to describe how you would measure these items.
- b. Identify links among the items and argue how improving items in the first two categories could lead to superior measures on the third group of items.

13.55 Links among BSC categories (LO5). Sean Bobek, the head of Human Resources at a major retailer, is wondering how much he should be spending on employee training. Sean believes that there is room to improve employee skills, but he is having a hard time convincing management to spend hard cash on this intangible item. At current levels, employee skill scores have remained steady at 86 points on a 100-point scale.

Sean believes that increasing the spending by \$200 per employee per year would increase employee skills by an average of 1 point on the firm's rating scale. Once skill levels reach 90, spending an additional \$200 per employee per year only contributes to a ½ point increase in skill levels.

Sean knows that skilled employees have a dramatic effect on customer satisfaction. Each point increase in skill level leads to a 2-point increase in customer satisfaction, up to a score of 94 points (on a 100-point scale) and a 1-point increase thereafter. The latest survey shows a customer satisfaction score of 92%.

Satisfied customers in turn lead to greater sales. Sean estimates a 0.5% increase in firmwide sales for each percentage increase in customer satisfaction. The increase is 0.75% after scores of 95% in customer satisfaction. Currently, each employee generates \$100,000 in gross sales, with an average contribution margin ratio of 35%.

Required:

How much should Sean spend on employee training?

13.56 Links among balanced scorecard items (LO5). That customer satisfaction leads to better financial performance is almost an article of faith among proponents of the balanced scorecard. More satisfied customers, they argue, are likely to give you a greater share of their business, which in turn translates to better financial returns.

Convinced by this intuitive logic, Kozy Kitchens invested heavily in improving its customer service functions. This online-only firm totally redesigned its Web interface to make it customer friendly. The firm hired staff to operate customer help lines 24/7. A “no questions asked” returns policy was instituted, and customers were guaranteed a price match on any item in stock.

Fred Larson, the president and CEO of Kozy Kitchens, was initially delighted to see his efforts pay off in the form of higher customer satisfaction scores. However, he has become increasingly impatient to see corresponding financial results.

	2006				2007			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Satisfaction Index	85	88	90	92	92	94	95	95
ROA	8.5%	8.6%	9.0%	8.6%	8.4%	8.2%	8.2%	8.3%

Required:

- a. Comment on why Kozy Kitchens might never experience a significant increase in ROA following an increase in customer satisfaction scores.
- b. Does the seeming lack of a relation between customer satisfaction and financial performance imply that Kozy Kitchens should stop investing in providing a superior customer experience?

13.57 Linking BSC to compensation (LO5). Joan’s Fabrics has employed a balanced scorecard for several months now. Results for the first quarter after the full rollout are as below:



	Budget	Actual
ROA	18.5%	22%
Customer satisfaction scores	85%	90%
Average discount per sales \$	5%	4.5%
Sales from new SKUs	20%	26%

The firm computes the incentive payout for managers based on a formula.

- Begin by computing a score for each category. With the target scored as 100, you earn points in proportion to your actual score. Scores are truncated at 120% for each category. Thus, you get the same points whether you exceed the target by 20% or a higher amount. All percent computations are rounded to two decimal points (e.g., 90.32%). The percent discount category is reverse coded, meaning that a low discount is better than a high discount from Robinson’s perspective.
- We combine scores across categories by weighting financials at 40%, customer satisfaction at 30%, and the remaining two categories at 15% each.
- The base bonus is set companywide. For this year, the base bonus is 30% of the annual salary. The bonus payable to an individual is the base bonus rate times your factor score. Thus, if you scored 120% on all four categories, your weighted factor score would be 1.2 and you would receive a bonus payout of $30 \times 1.2 = 36\%$ of your annual salary.
- No bonus, however, is payable if the score on any category is less than 90%.

Required:

Compute the bonus payable to a division manager reporting the scorecard data in the problem.

13.58 Insider trading, leading indicators (LO5, Advanced). Securities regulations identify the “Officers” of a firm. These persons include the Chairman, the board of directors, the treasurer, and other key executives. These officers are also termed “insiders.” When they trade in the shares of their own firm, these insiders have to disclose the trades to the Securities and Exchange Commission.



Market participants keenly watch reports of insider trading. The strategy for some mutual funds is actually predicated on the belief that insider trading is a leading indicator of the stock's future performance.

Required:

- a. Why might market participants reasonably believe that insider trade is a leading indicator of a firm's future performance?
- b. Why do many governments issue detailed regulations concerning insider trading?
- c. Insider trading is legal and unregulated in many countries. Given this fact, argue whether regulations increase or decrease the value of inside trades as a leading indicator of firm performance. More generally, what are the costs and benefits of lifting all restrictions on insider trading?

13.59 Leading indicators (LO4, Advanced). Considerable research has been done on the relation between a firm's earning stream and the market price for its stock. However, earnings explain just a small fraction of the variation in market prices, suggesting that market participants look to a variety of other measures when valuing a firm.

Required:

List five items that market participants might consider when valuing a security. Would you consider these as lead indicators of performance?

MINI-CASES

13.60 Balanced scorecard, boarding school (LO1-LO5). The Rishi Vilas School (RVS) is a residential school located in Ooty, a mountain resort in southern India. Established in 1930, the school has grown over time, and it now occupies 125 verdant acres in the rolling foothills of the Nilgiri mountain range.

Currently, the school's governing board has capped enrollment at 450 students, spread somewhat evenly among standards 7 through 12 (i.e., about 75 students would be admitted each year.) Admission decisions rely on students' academic credentials and the potential for future leadership (as judged by essays, personal interviews, athletic skills, and current accomplishments). While children of alumni receive a distinct preference, RVS tries to maintain a student body balanced along the dimensions of gender, religious affiliation, and region. Competition for admission is fierce, partly because the school uses its considerable endowment to support economically disadvantaged students. A vast majority of the students, however, pay the full tuition and board, even though some parents initially gasp upon hearing the amount.

RVS's goals are simple: Train the leaders of tomorrow in a secular and humanist environment. Thus, the school stresses the development of moral character and values as much as academic rigor. The curriculum introduces students to leaders and thoughts from various regions and religions. One would not be surprised to find students arguing about Plato's *Republic*, factors that led to the rise of communism in China, or the influence of regulator DNA on behavioral traits. Not surprisingly, the school counts numerous parliamentarians, leading scientists, top government bureaucrats, and industry titans among its alumni. The school board is particularly proud of the many alumnae who have gone on to become social entrepreneurs. In the past two years alone, the school's alumnae established three separate nongovernment organizations (NGOs) that focus on micro lending and setting up Internet kiosks in rural communities.

The focus on social awareness, humanism, and secularism does not detract from the school's academic mission. The school is among the few Asian schools that award the International Baccalaureate (IB) diploma. The curriculum is so rigorous that each year, RVS sends a few students to Ivy League schools in the United States and top-tier programs in Europe. Most of the students wind up in premier Indian institutions such as the IITs and other premier colleges.

As is the case in most boarding schools, RVS's students form lifelong friendships and develop strong ties to the school. Each student is assigned to one of four "houses" upon arrival. Housemates almost become brothers and sisters by the time a student

graduates in six years. Not surprisingly, alumni networks are strong. A “Rishi” (as the alumni refer to themselves) would think nothing of receiving numerous offers for help and dinner invitations after posting her need for housing in a new location on the alumni bulletin board. Many alumni stay connected with the school throughout their lives, and it is common to find third- and fourth-generation students in the school.

Required:

- a. While things have been going well, the school’s headmaster is wondering whether the school is coasting on past glory and whether the school also is laying the foundations for an equally distinguished future. The headmaster therefore asks you to put together a list of linked items that would increase the probability of desired outcomes. Simply put, the headmaster would like you to clearly identify the school’s outcomes (i.e., the fruits of its strategy), the processes for executing the strategy, and the resources needed to sustain the processes.
- b. The headmaster also requests that you develop appropriate performance measures to measure the supply of adequate resources, the effectiveness and efficiency of the processes, and the outcomes. You can construct a scorecard along the traditional four dimensions or make up dimensions that seem more relevant to RVS.

13.61 E-Commerce, distribution, balanced scorecard (LO1-LO5). Super Steel Service Center (Triple S-C as it is known in the industry) is a “virtual” entity that operates in the steel distribution industry.

Traditionally, steel purchasers fall into one of two groups. Very large customers such as auto and appliance manufacturers fall in the first category. These customers purchase steel from mills and have it delivered to processors for cutting to specification. They might also buy direct from one or more of the approximately 3,500 steel processors or from wholesalers (normally called service centers). In all three instances, the cut steel is delivered to the customer, often on a Just-in-Time basis. The second group comprises smaller volume firms such as metal stampers and fabricators. Firms that make equipment, agricultural tools, heating, and air conditioning units also fall into the second group. These small to midsized companies, which purchase steel both as contract customers and spot buyers, but in relatively small quantities, also tend to have extensive needs for special alloy steels and odd-sizes. For the past decade, the variety of the steel demanded has steadily trended up, while the average lot size has trended down. These trends, which partly reflect increased customization and the growth of the Just-in-Time philosophy, are expected to continue, if not accelerate.

Triple S-C’s founder, Remus Illies, worked at a major steel manufacturer (and was considered a rising star until he quit). Remus realized that the bulk of the distribution industry revolved around coordinating action. Managing information flow is key. Remus therefore set up Triple S-C, which does not own any warehouses or processing facilities. Instead, Triple S-C is a coordinator that buys the steel, has it processed, and has it delivered to the customer. In the process, Triple S-C might deal with as many as six separate entities. Triple S-C maintains an extensive list of firms in the steel supply chain. It also has negotiated prices and terms with many long-standing partners.

Because of its “virtual” nature and ability to put a deal together on the spot, Triple S-C provides its customers with unparalleled flexibility in terms of options for ordering, processing, and delivery. While Triple S-C accepts orders by phone or fax, it encourages customers to order via electronic data interchange (EDI) or through the Web. Slowly but surely, Triple S-C has convinced its customers about the ease of ordering via the Web and the security of the transaction. Once logged in, customers can configure products online and immediately receive multiple quotes with different volume and service parameters. Order status is continually updated and accessible to customers online. Upon execution, Triple S-C automatically debits the customer’s bank account per agreed terms.

Triple S-C’s advantage comes from leveraging technology to combine the orders of multiple customers to generate the volumes needed for discounts. The technology also allows Triple S-C to coordinate more effectively with processors to reduce scrap and waste. The firm also seeks to continually expand its list of processors to increase the flexibility it offers end customers. In this fashion, Triple S-C tries to build its ability to combine orders from two different customers into one processing order, which reduces the time and waste involved in loading a multi-ton coil. The firm also uses its extensive database to identify trends, which enable it to lock in both supplies of alloy steel and

processing time at favorable rates. Remus's long-term goals are to deal in value-added products such as alloy steels rather than commoditized products such as carbon steel.

Currently, Triple S-C operates out of a single office in Pittsburgh, Pennsylvania, and employs just under 40 persons. Its primary market area is states east of the Mississippi River, although Remus is already thinking of westward expansion. Not surprisingly, Triple S-C's primary target market comprises small to medium-sized firms that lack the volume needed to deal with the steel mills directly and that need specialized processing.

Required:

- a. Identify the critical success factors for Triple S-C. These CSFs must reflect the key processes that Triple S-C must execute well to deliver on its value proposition.
- b. Construct a balanced scorecard for Triple S-C. Be sure to articulate the linkages among the metrics in the different categories.



13.62 Balanced scorecard, service firm (LO1–LO5). As you know, Hercules is a family-owned gym that is somewhat of a neighborhood tradition. It has a core of loyal followers even though it does not offer the latest physical training equipment or a bewildering array of classes. Tom and Lynda, the owners, pride themselves for providing a personal touch and offer many small conveniences that might be hard to obtain in a larger gym. An illustrative example is a particularly finicky guest, who is pathologically afraid of using a towel used by someone else. While such a guest has no choice but to bring his own towels at a large gym, Tom and Lynda stock a few towels to be used by this guest only. Tom and Lynda take care of most of the daily operations, along with a small permanent staff, and a rotating staff (mostly college-age students recruited from the local community college).

Required:

- a. Identify at least three critical success factors for Hercules.
- b. Construct a balanced scorecard for Hercules. Your scorecard must contain at least two measures for each of the four "traditional" perspectives (financial, customer, internal processes, learning and growth).

Module IV

COST ACCOUNTING SYSTEMS

In Chapter 3, we studied the general flow of costs in service, merchandising, and manufacturing firms. In this module, we delve further into firms' cost accumulation and reporting systems, providing an overview of *cost accounting* systems. We note two points.

- The primary purpose of these systems is to determine the value of inventories and cost of goods sold. The firm's financial accounting statements use these values to determine profit reported to external parties. Consequently, these systems comply with Generally Accepted Accounting Principles (GAAP).
- The focus on inventory valuation means that decision making is not a central consideration. Thus, unlike prior chapters, we do not couch our discussion in a decision context.

An organization's production environment determines its cost accounting system. Production environments range from settings where the firm makes a few products to order (e.g., luxury yachts) to settings where the firm makes millions of units of the same product (e.g., soft drinks). In Chapter 14, we first discuss the range of production environments that you might encounter in practice. We next discuss the

costing systems associated with several kinds of production environments. After this introduction, we focus the remainder of the chapter on the mechanics of job costing systems, which are suitable for organizations that make distinct products in low volumes.

In Chapter 15, we study process costing, which is suitable for firms that mass-produce similar goods. We develop a five-step report for determining inventory values, and we discuss how these firms use average costs to value individual units rather than separately track the cost of each unit. Finally, we expand the discussion to standard costing, which uses predetermined rates to value materials and labor, in addition to overhead.

In Chapter 16, we consider two refinements that apply to costing systems. The first refinement relates to service department allocations, which are necessary when some cost pools consume the output of other cost pools. The second refinement is the use of multiple rates to allocate costs from a single pool, a refinement that builds on our discussion of the cost hierarchy in Chapter 2. We discuss how both refinements can improve the decision usefulness of cost accounting systems.