

# Management Control Systems and Responsibility Accounting

## LEARNING OBJECTIVES

When you have finished studying this chapter, you should be able to:

1. Describe the relationship of management control systems to organizational goals.
2. Explain the importance of evaluating performance and describe how it impacts motivation, goal congruence, and employee effort.
3. Develop performance measures and use them to monitor the achievements of an organization.
4. Use responsibility accounting to define an organizational subunit as a cost center, a profit center, or an investment center.
5. Prepare segment income statements for evaluating profit and investment centers using the contribution margin and controllable-cost concepts.
6. Measure performance against nonfinancial performance measures such as quality, cycle time, and productivity.
7. Use a balanced scorecard to integrate financial and nonfinancial measures of performance.
8. Describe the difficulties of management control in service and nonprofit organizations.

## ► HEALTH NET

It's 2:30 AM. You don't feel well. Should you call your doctor? Go to the emergency room? Is what you're feeling really something to worry about? What you need is good quality health care and you need it now, not tomorrow morning, and you do not want to worry about its cost. Sound familiar? This is a dilemma that we have all faced at some time. One health-care organization that has a solution is **Health Net**, one of the largest managed health-care organizations in the United States. With approximately 7,500 employees and 2011 revenues of about \$12 billion, it provides coverage to 5.6 million health plan members.

Health-care organizations must compete just as any other business, offering high-quality health care at an affordable cost. To maintain its competitive advantage, Health Net undertook a major information systems development program called "fourth generation medical management." According to Dr. Malik Hasan, former chairman and CEO, Health Net created this new management control system "because the greatest opportunity for increasing overall quality and decreasing the cost of health care lies in managing patient care by seamlessly linking the entire health care delivery system electronically." The system "gives physicians and health care providers instant, user-friendly electronic access to comprehensive information about a patient's medical history and the best clinical treatments recommended."

The result? A fast and preapproved referral to the best clinical resource, whether it be a specialist, the emergency room or urgent care center, your regular physician, or safe self-care. In other words, a satisfied customer! And as a bonus, costs are reduced. As Medical Director John Danaher, MD, explains, "Paper charting and duplicative lab and radiology tests are eliminated."

This chapter builds on concepts developed in previous chapters to explore how managers blend the individual tools of management accounting to help achieve organizational goals. Tools such as activity-based costing, relevant costing, budgeting, and variance analysis are useful by themselves. They are most useful, however, when they are parts of an integrated system—a comprehensive plan to coordinate and evaluate all the activities of the organization's value chain. Just as in the case of Health Net, managers of most organizations today realize that long-run success requires a focus on cost, quality, and service—the three components of the competitive edge. This chapter considers how the management control system helps managers achieve such a focus. As you will see, no single management control system is inherently superior to another. The “best” system for any organization is the one that most consistently leads to actions that meet the organization's goals and objectives. ■



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## Management Control Systems

A **management control system** is an integrated set of techniques for gathering and using information to make planning and control decisions, for motivating employee behavior, and for evaluating performance. A well-designed management control system supports and coordinates the decision-making process and motivates individuals throughout the organization to act in concert. It also facilitates forecasting and budgeting. An effective management control system should

- clearly define and communicate the organization's goals,
- ensure that managers and employees understand the specific actions required to achieve organizational goals,
- communicate results of actions across the organization, and
- motivate managers and employees to achieve the organization's goals.

Exhibit 9-1 describes elements of the planning and control processes. As we pointed out in Chapter 1, planning and control are so strongly interrelated that it is somewhat artificial to separate them in practice. To the extent we can separate them, planning includes defining goals (A) and establishing and carrying out plans to achieve the goals (B). Control includes measuring and reporting results (C) and performance evaluation (D). The clockwise ordering of the elements represents the order that managers would naturally follow when designing and evaluating the management control system. However, once an organization has implemented the control system, it continues to adapt and revise the interrelated elements through feedback and learning. For example, the organization may revise the measures used to monitor and report in C to better fit with the goals in A. Similarly, it might realign the performance evaluation system in D to better fit with the specific plans and objectives in B. We will refer to Exhibit 9-1 often as we consider the design and operation of management control systems.

## Management Control Systems and Organizational Goals

The first and most basic component in a management control system is the organization's goals. Top managers set organization-wide goals, performance measures, and targets. These goals provide a long-term framework around which an organization will form its comprehensive plan for positioning itself in the market. Goals address the question in Exhibit 9-1, “What do we want to achieve?” However, goals without performance measures do not motivate managers.

A basic adage of management control is that “you get what you measure.” Because measures of performance set direction and motivate managers' decisions, every performance measure should be consistent with organizational goals. Otherwise, managers who achieve high performance measures may not create value for the company and its owners. An ideal management control system should include at least one performance measure related to every goal. The book *Cracking the Value Code* states this succinctly when it says that we tend to “value what we measure but we do not always measure what we value.”

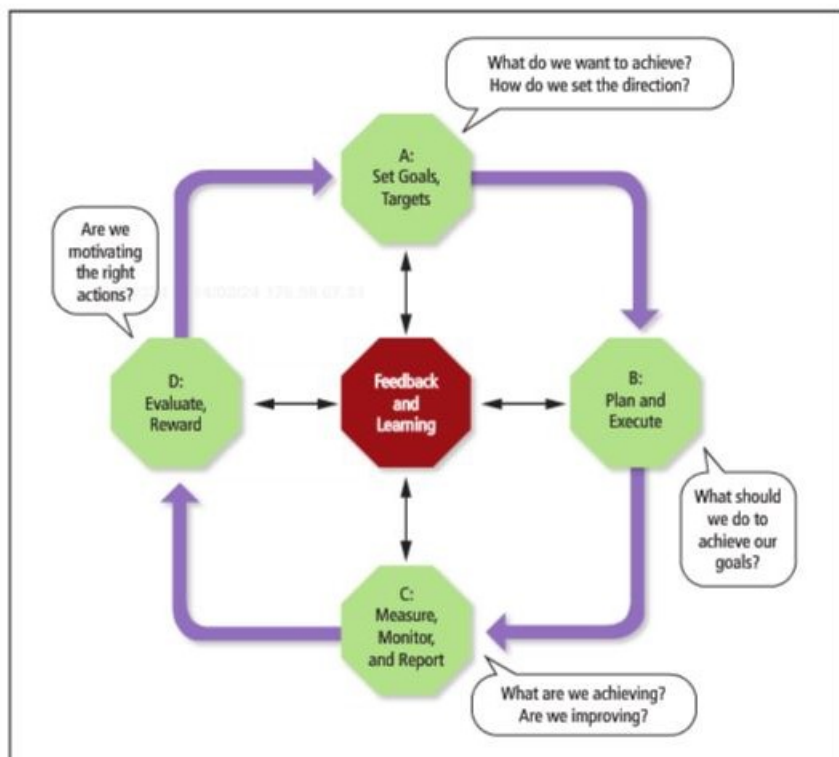
Doctors and managers at Health Net use a state-of-the-art medical management system and management control system to offer high-quality health care at an affordable price.

### management control system

An integrated set of techniques for gathering and using information to make planning and control decisions, for motivating employee behavior, and for evaluating performance.

### Objective 1

Describe the relationship of management control systems to organizational goals.

**Exhibit 9-1****The Management Control System**

To illustrate, suppose a hotel such as Arizona-based **Scottsdale Luxury Suites** has the following organizational goals and related performance measures:

Organizational Goals	Performance Measures
Exceed guest expectations	<ul style="list-style-type: none"> <li>• Customer satisfaction index</li> <li>• Number of repeat stays</li> </ul>
Maximize revenue yield	<ul style="list-style-type: none"> <li>• Occupancy rate</li> <li>• Average room rate</li> <li>• Income before fixed costs</li> </ul>
Focus on innovation	<ul style="list-style-type: none"> <li>• New products/services implemented per year</li> <li>• Number of employee suggestions</li> </ul>

The company sets quantifiable targets for each of the measures. For example, the target for occupancy rate might be “at least 70%.” Note that every goal has at least one performance measure, and every measure is related to at least one goal.

Exhibit 9-2 illustrates how managers set goals and objectives and develop related performance measures for the organization. Performance measures become more specific as we move to lower levels of the organization. For example, higher-level managers work with subordinates within each business unit to select specific short-term actions (or activities) that managers can carry out, along with observable performance measures. One approach to selecting these actions and measures is for top managers to identify **key success factors**—characteristics or attributes that managers must achieve in order to drive the organization toward its goals. For example, at Scottsdale Luxury Suites, a key success factor for the goal to exceed guest expectations might be timeliness. This key success factor suggests that Scottsdale Luxury Suites should consider

**key success factors**

Characteristics or attributes that managers must achieve in order to drive the organization toward its goals.



**Exhibit 9-2**

Translating Goals and Objectives into Performance Measures

specific actions, such as implementing an express check-in system. In addition, it should measure timeliness by using performance measures, such as time to check in, time to check out, and response time to guest requests (for example, number of rings before someone at the front desk answers the telephone).

Balancing various goals is an important part of designing a management control system. Managers often face trade-offs. For example, a manager may meet a goal of increased customer satisfaction by establishing a more generous policy for accepting returned merchandise. However, this policy will also impose additional costs that decrease short-term profitability. Choosing the best trade-off between short-term profitability and long-term customer satisfaction is often difficult, especially when the long-term benefits of increased customer satisfaction are hard to predict.

## Designing Management Control Systems

To design a management control system that meets the organization's needs, managers must identify what motivates employees, develop performance measures based on these motivations, and establish a monitoring and reporting structure for these measures. Let's look at each of these.

### Motivating Employees

An important goal of the management control system is to motivate employees to work in the best interests of the organization. A good management control system fosters both goal congruence and managerial effort. A system fosters **goal congruence** when employees, responding to the incentives created by the control system, make decisions that help meet the overall goals of the organization. To be effective, goal congruence must be accompanied by **managerial effort**—exertion toward a goal or objective—including not only working harder or faster but also working smarter. It includes all conscious actions (such as supervising, planning, and analysis) that result in more efficiency and effectiveness.

As we saw in Exhibit 9-1, the challenge of management control system design is to induce (or at least not discourage) employee decisions that achieve organizational goals. For example, an organization may identify continuous improvement in employee efficiency and effectiveness as one of its goals. Employees, however, might perceive that continuous improvements will result in tighter standards, faster pace of work, and loss of jobs. Even though they may agree with management that continuous improvements are competitively necessary, management should not expect them to exert effort for continuous improvements unless rewards are in place to make this effort in their own best interests.

### Objective 2

Explain the importance of evaluating performance and describe how it impacts motivation, goal congruence, and employee effort.

### goal congruence

A condition where employees, responding to the incentives created by the control system, make decisions that help meet the overall goals of the organization.

### managerial effort

Exertion toward a goal or objective, including all conscious actions (such as supervising, planning, and thinking) that result in more efficiency and effectiveness.

**motivation**

The drive that creates effort and action toward a goal.

As another example, students may enroll in a college course because their goal is to learn about management accounting. The faculty and the students share the same goal, but goal congruence is not enough. Faculty also introduce a grading system to reward student effort. Grading is a form of performance evaluation, similar to organizations using management control reports for raises, promotions, and other forms of rewards. Performance evaluation improves effort because most individuals tend to perform better when performance reports lead directly to personal rewards. Thus, manufacturers that set quality improvements as critical organizational goals, such as **Allen-Bradley** and **Corning**, put quality targets into the bonus plans of top managers and factory workers.

**Motivation**—the drive that creates effort and action toward a goal—is key to management control. Yet employees differ widely in their motivations. This makes the system designer's task complex and ill-structured. Each system must fit the specific organizational environment and behavioral characteristics of the employees. The system designer must align individuals' self-interests with the goals of the organization. Thus, the designer must predict the motivational impact of a particular system—how it will cause people to respond—and compare it to the motivational impact of other potential systems. Designing performance measures is not a back-office accounting task. It requires direction from top management and the direct involvement of those affected. Stephen Kaufman, former chairman of the board of **Arrow Electronics** put it this way: "It's very difficult to define the right metric and anticipate exactly how your people will react to it. Your best chance of knowing whether it will have the intended effect is to talk to the people directly involved."

All management control tools, such as budgets and variances, should constructively influence behavior. These tools are most effective when managers use them positively to encourage employees to improve performance, rather than negatively to punish, place blame, or find fault. Used negatively, these tools pose a threat to employees, who will resist the use of such techniques. Critics have pointed to **Enron's** management control system as a major cause of the company's problems. Employees were heavily rewarded for good performance. More importantly, the employees who were ranked lowest at each evaluation were fired. This created intense competition, which at first seemed to create exceptional performance levels for the company. Later, it became clear that the pressure for good performance caused some employees to use unethical methods to increase their performance measures, which eventually led to the demise of the company.

### Developing Performance Measures

For most organizations, an effective management control system requires multiple performance measures, including both financial and nonfinancial measures, where the measures have the following characteristics:

1. Reflect key actions and activities that relate to the goals of the organization
2. Affected by actions of managers and employees
3. Readily understood by employees
4. Reasonably objective and easily measured
5. Used consistently and regularly in evaluating and rewarding managers and employees
6. Balance long-term and short-term concerns

Sometimes accountants and managers focus too much on financial measures—such as operating budgets, profit targets, or required return on investment—because the accounting system readily produces such measures. Further, it is often difficult to construct performance measures for nonfinancial goals such as customer satisfaction, improvements in quality, environmental stewardship, social responsibility, and organizational learning, which many companies list as key goals. However, well-designed management control systems develop and report both financial and nonfinancial measures of performance because "You can't manage something you can't measure."

Nonfinancial measures often motivate employees toward achieving important performance goals. For example, **AT&T Universal Card Services**, which received the prestigious Baldrige National Quality Award (presented by the U.S. Department of Commerce), used 18 performance measures for its customer inquiries process. These measures include average speed of

### Objective 3

Develop performance measures and use them to monitor the achievements of an organization.



# Business First

## Performance Measures in Practice

An organization's performance measures depend on its goals and objectives. For example, a software company and an auto manufacturer have different goals and objectives and therefore have different performance measures. The measures also must span a variety of key success factors for the organization. Performance measures too focused on one aspect of performance may foster neglect of other important factors.

Let's look at a classic management control system, the one developed by **General Electric** in the 1950s. The system focused on eight "key result areas," as GE called them:

### Financial Key Result Areas

1. Profitability
2. Productivity
3. Market position

### Nonfinancial Key Result Areas

4. Product leadership
5. Personnel development
6. Employee attitudes
7. Public responsibility
8. Balance between short-run and long-range goals

Measures in each of these eight areas are just as relevant today as in the 1950s. These are clearly long-run strategic goals. Measures might change as an organization adapts the means of achieving the goals, but the basic framework of a

management control system does not need to change as management fads come and go.

A more recent example is **Southwest Airlines**. The mission of Southwest Airlines is "dedication to the highest quality of customer service delivered with a sense of warmth, friendliness, individual pride, and company spirit." Yet, until recently, the company focused mainly on financial measures in evaluating managers. Recently, Southwest introduced nonfinancial measures into the mix, including the following:

- Load factor (percentage of seats occupied)
- Utilization factors on aircraft and personnel
- On-time performance
- Available seat miles
- Denied boarding rate
- Lost bag reports per 10,000 passengers
- Flight cancellation rate
- Employee head count
- Customer complaints per 10,000 passengers

By including nonfinancial measures, Southwest focuses managers' attention on the key success factors that relate most closely to Southwest's mission and goals.

Sources: David Solomons, *Divisional Performance: Measurement and Control* (Homewood, IL: Irwin, 1965); and Southwest Airlines Web site ([www.southwest.com](http://www.southwest.com)).

answer, abandon rate, and application processing time (3 days compared to the industry average of 34 days).

Financial measures often are lagging indicators that arrive too late to help prevent problems and ensure the organization's health. The effects of poor nonfinancial performance (for example, lack of organizational learning and low customer satisfaction) may not show up in the financial measures until the company has lost considerable ground. Many companies now stress management of the activities that drive revenues and costs, rather than waiting to explain the revenues or costs themselves. Superior financial performance usually follows from superior nonfinancial performance. Examples of both financial and nonfinancial measures are in the accompanying Business First box.

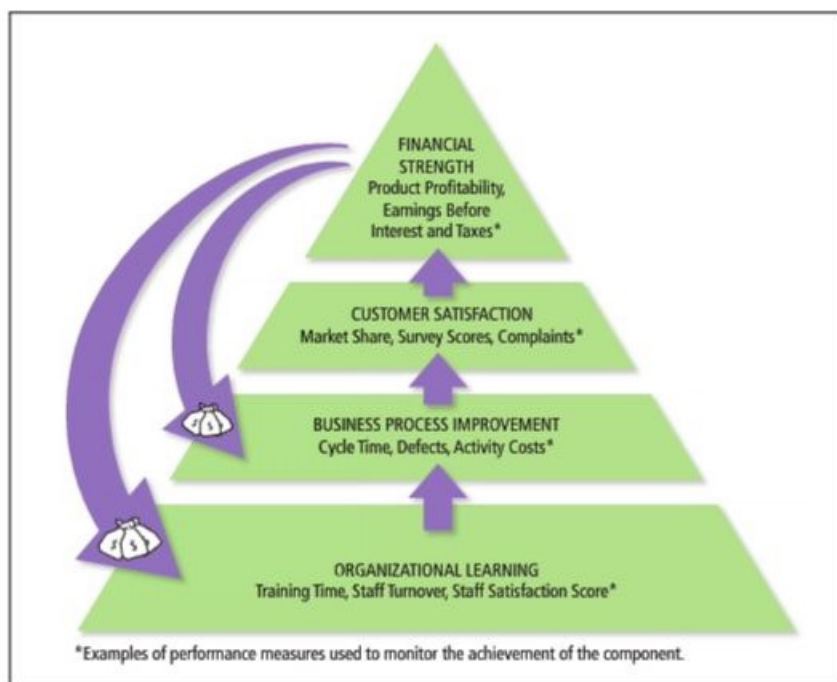
## Monitoring and Reporting Results

Notice that Exhibit 9-1 has feedback and learning at the center of the management control system. Organization-wide learning is fundamental to gaining and maintaining financial strength. Some management experts have said that the only sustainable competitive advantage is the rate at which a company's managers learn. **Harley-Davidson**, a company with 2011 sales of about \$5.3 billion, emphasizes learning for operational excellence—eliminating waste, improving quality, and helping drive customer satisfaction.

Once a company has superior intellectual capital, how can it best maintain its leadership? Exhibit 9-3 shows how organizational learning leads to financial strength. Measures such as training time, employee turnover, and staff satisfaction scores on employee surveys monitor organizational learning. The result of learning is continuous process improvement. Measures such as lead time, number of defects (quality), and activity costs can assess improvement. Customers will value improved response time, higher quality, and lower prices and will increase their demand for products and services. Increased demand, combined with lower costs to make and deliver products and services, results in improved product profitability and earnings.

**Exhibit 9-3**

The Components of a Successful Organization and Measures of Achievement



Successful organizations continuously repeat this cycle, where learning leads to process improvements, which lead to increased customer satisfaction, which leads to improved financial strength, which provides the financial resources required to begin a new cycle of learning and process improvements.

There are no guarantees that each of the components automatically follows from success at the previous component. If efforts are not coordinated throughout the value chain, the cause-effect links can be broken. For example, new and improved products or services may fail if marketing and distribution techniques do not place them at the location desired by the customer. As another example, development of a great Web site does no good if customers never visit the site. The point is that improvement in business processes must be coordinated across all parts of the value chain.

Another message from Exhibit 9-3 is that a key driver of enterprise performance is the culture within the company that fosters continual learning and growth at all levels of management. It is not sufficient to use money to train managers without making sure that the resulting learning translates into improved processes, products, and services. This requires a culture of learning that motivates managers to translate learning into growth.

**General Electric** provides a good example of the application of the enterprise learning culture. With sales of nearly \$150 billion, GE has demonstrated a remarkable ability to generate formidable profits with products ranging from aircraft engines to medical imaging to business and consumer financing. GE employs more than 300,000 people worldwide. In 2012, GE was fifteenth on *Fortune* magazine's "Most Admired Company in America," and has consistently been at or near the top of the list throughout the last decade. Many of the company's divisions dominate their markets.

Just before he retired, former CEO John Welch attributed GE's success to

*... a General Electric culture that values the contributions of every individual, thrives on learning, thirsts for the better idea, and has the flexibility and speed to put the better idea into action every day. We are a learning company, a company that studies its own successes and failures and those of others—a company that has the self-confidence and the resources to take big swings and pursue numerous opportunities based on winning ideas*

*and insights, regardless of their source. That appetite for learning, and the ability to act quickly on that learning, will provide GE with what we believe is an insurmountable and sustainable competitive advantage.*

Exactly what did John Welch mean by the “ability to act quickly on that learning”? According to Welch, GE “opened [its] culture up to ideas from everyone, everywhere, killed NIH (Not Invented Here) thinking, decimated the bureaucracy, and made boundaryless behavior a reflexive and natural part of our culture, thereby creating the learning culture.” His successor, Jeff Immelt, points out another important part of the GE learning culture—openness to dropping old management approaches in favor of new and better techniques: “Most people inside GE learn from the past but have a healthy disrespect for history. They have an ability to live in the moment and not be burdened by the past, which is extremely important.”

### Weighing Costs and Benefits

The designer of a management control system must always weigh the costs and benefits of various alternatives. Benefits and costs of management control systems are often difficult to measure, and both may become apparent only after implementation. For example, the director of accounting policy of **Citicorp** stated that, after using a very detailed management control system for several years, the system proved to be too costly to administer relative to the perceived benefits. Accordingly, Citicorp returned to a simpler, less costly—though less detailed—management control system. In contrast, **Home Depot** added detail in the form of additional metrics to its management control system. When employees asked then-CEO Bob Nardelli why they should use the new metrics, he compared the metrics to gauges in a car: “Why do you need a gas gauge? Why do you need a speedometer?” He believed the metrics were worth the cost because they help top management know what is occurring throughout the company.

## Summary Problem for Your Review

### PROBLEM

The Blue Harbor Inn is developing performance measures for each of its major goals. Top management established an organization-wide goal to “exceed guest expectations.” Among the key success factors are timeliness of customer service and quality of personalized service. Patty Bowen, vice president of sales, is the manager responsible for the actions required to meet the goal of exceeding guest expectations. She has already identified one action (objective) for the coming year—upgrade customer service department capabilities.

1. Identify several possible performance measures for the quality-of-personalized-service key success factor.
2. Recommend several specific actions or activities associated with upgrading customer service department capabilities that would drive Luxury Suites toward its goal of exceeding customer expectations.

### SOLUTION

1. Performance measures for the quality of personalized service might include the number of changes to registration, rating on the “friendly, knowledgeable staff” question on the guest survey, number of complaints, percentage of return guests, and percentage of customers with completed customer profile (which profiles the special needs of customers).
2. Specific actions or activities might include training employees, implementing a call checklist (list of services and options available to the guest) and monitoring compliance with the list, developing a customer satisfaction survey, and reengineering the guest registration and reservation processes.



## Controllability and Measurement of Financial Performance

### controllable cost

Any cost that a manager's decisions and actions can influence.

### uncontrollable cost

Any cost that the management of a responsibility center cannot affect within a given time span.

Management control systems often distinguish between controllable and uncontrollable events and between controllable and uncontrollable costs. These terms refer to relative rather than absolute controllability—no cost is completely under the control of a manager. A **controllable cost** is one that a manager's decisions and actions can influence to a reasonable extent. An **uncontrollable cost** is any cost that management cannot reasonably affect within a given time span. For example, **Dow Chemical** is likely to consider the cost of the crude oil used to make various chemicals as uncontrollable by the manager of a chemical factory because the manager cannot control the market price of crude oil. On the other hand, Dow Chemical is likely to consider labor costs as controllable by the factory manager even though there are some aspects of labor costs that are not controlled by the manager, such as the effects of union contracts on pay rates and labor usage.

The distinction between controllable and uncontrollable costs is used in evaluating the performance of a manager. Costs that are completely uncontrollable provide no insight into a manager's decisions and actions because, by definition, manager actions will not affect uncontrollable costs. In contrast, controllable costs provide evidence about costs that are affected by the manager's decisions.

### Identifying Responsibility Centers

Designers of management control systems identify the responsibilities of each manager by establishing responsibility centers based on what a manager can control. A **responsibility center** is a set of activities and resources assigned to a manager, a group of managers, or other employees. A set of machines and machining activities, for example, may be a responsibility center for a production supervisor. The full production department may be a responsibility center for the department head. Finally, the entire organization may be a responsibility center for the president. In some organizations, groups of employees share management responsibility to create wide "ownership" of management decisions, to allow creative decision making, and to prevent one person's concern (or lack of concern) over risk from dominating decisions.

An effective management control system gives each manager responsibility for a group of activities and actions and then, as Exhibit 9-1 shows, monitors and reports on (1) the results of the activities and (2) the manager's influence on those results. Such a system has intrinsic appeal for most top managers (because it helps them delegate decision making and frees them to focus on more strategic issues) and lower-level managers (who value the decision-making autonomy they inherit). Thus, system designers apply **responsibility accounting** to identify what parts of the organization have primary responsibility for each action, develop performance measures and targets, and design reports of these measures by responsibility center. Responsibility centers usually have multiple goals and actions that the management control system monitors. We classify responsibility centers as cost centers, profit centers, or investment centers based on their managers' primary financial responsibilities.

**COST, PROFIT, AND INVESTMENT CENTERS** In a **cost center**, managers are responsible for costs only. A cost center may encompass an entire department, or a department may contain several cost centers. For example, although one manager may supervise an assembly department, the department may contain several assembly lines and each assembly line may be considered a separate cost center. Likewise, within each line, each separate machine may be its own cost center. The determination of the number of cost centers depends on cost-benefit considerations—do the benefits (for planning, control, and evaluation) of smaller, more numerous cost centers exceed the higher costs of reporting?

In a **profit center** managers are responsible for controlling revenues as well as costs—that is, profitability. Despite the name, a profit center can exist in nonprofit organizations (though it might not be referred to as such) when a responsibility center receives revenues for its services. For example, the **Western Area Power Authority (WAPA)** is charged with recovering its costs of operations through sales of power to electric utilities in the western United States. Therefore, WAPA is a profit center responsible for both revenues and costs, though its objective is not to maximize profits but rather to break even.

### Objective 4

Use responsibility accounting to define an organizational subunit as a cost center, a profit center, or an investment center.

### responsibility center

A set of activities and resources assigned to a manager, a group of managers, or other employees.

### responsibility accounting

Identifying what parts of the organization have primary responsibility for each action, developing performance measures and targets, and designing reports of these measures by responsibility center.

### cost center

A responsibility center in which managers are responsible for costs only.

### profit center

A responsibility center in which managers are responsible for revenues as well as costs—that is, profitability.

An **investment center** adds responsibility for investment to profit-center responsibilities. Investment-center success depends on both income and invested capital, measured by relating income generated to the value of the capital employed.

Systems designers must understand operating processes and cost behavior to help identify responsibility for controllable costs. For example, by isolating activities and related cost drivers, activity-based costing (see Chapter 4) can help to point out controllable costs. **Procter & Gamble** credited its activity-based management control system with identifying controllable costs in one of its detergent divisions, which led to major strategic changes.

Responsibility center managers are often able to explain their center's uncontrollable costs, even in situations where they are not held responsible for these uncontrollable costs. For example, an importer of grapes from Chile to the United States suffered a sudden loss of sales several years ago after a few grapes were found to contain poisonous cyanide. Because the tampering was beyond the import manager's control, the manager was responsible for efficiency (the flexible-budget variance [see Chapter 8]) but not for the effects of activity volume (the sales-activity variance). Even though he was not held responsible for the sales-activity variance, the manager was in the best position to provide an explanation for the variance because he had the best information about the reasons for the decline in sales.

### Contribution Margin

Many organizations combine the contribution approach to measuring income with responsibility accounting—that is, they report by cost behavior as well as by degrees of controllability. Exhibit 9-4 is an organization chart showing selected units of a retail grocery company like **Safeway**, **Kroger**, or **SuperValu**. Exhibit 9-5 illustrates the contribution approach to measuring financial performance of the various units shown on the organization chart. **Segments** are responsibility centers for which a company develops separate measures of revenues and costs. Exhibit 9-5 provides perspective on how a management-control system report can stress cost behavior, controllability, manager performance, and responsibility center performance simultaneously.

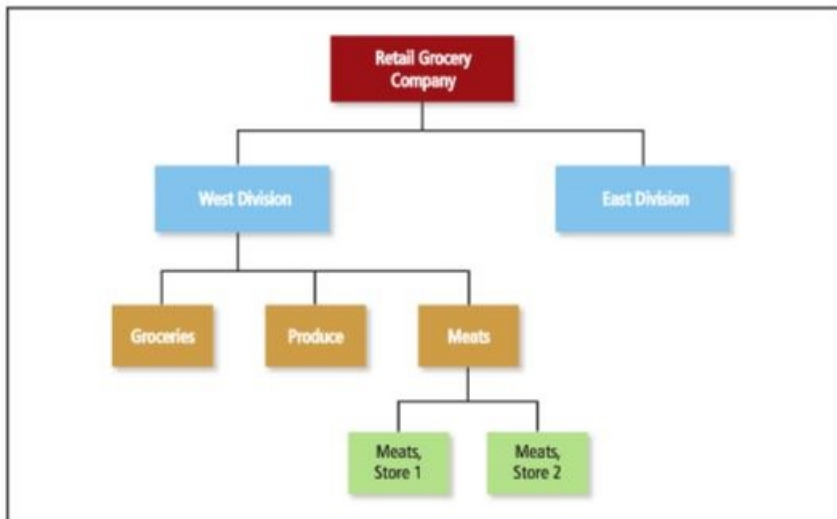
Line (a) in Exhibit 9-5 shows the contribution margin, sales revenues less variable expenses. The contribution margin ratio, defined as the ratio of contribution margin to sales, is especially helpful for predicting the impact on income of short-run changes in sales volume. Managers may quickly calculate expected changes in income by multiplying the contribution margin ratio by the expected change in dollar sales. For example, the contribution margin ratio for meats in the West Division is  $\$180 \div \$900 = .20$ . A \$1,000 increase in sales of meats in the West Division should produce a \$200 increase in contribution margin and income ( $.20 \times \$1,000 = \$200$ ) if there are no changes in selling prices, variable operating expenses per unit, fixed costs, or mix of sales.

### Investment center

A responsibility center where managers are responsible for investment as well as profits.

### segments

Responsibility centers for which a company develops separate measures of revenues and costs.



**Exhibit 9-4**

Retail Grocery Company  
Organization Chart

Company as a Whole	Company Breakdown Into Two Divisions		Breakdown of West Division Only				Breakdown of West Division, Meats Only	
	East Division	West Division	Not Allocated <sup>1</sup>	Groceries	Produce	Meats	Not Allocated <sup>2</sup>	Store 1 Store 2
Net sales	\$4,000	\$1,500	\$2,500	\$1,300	\$300	\$900	—	\$600 \$300
Variable costs								
Cost of merchandise sold	\$3,000	\$1,100	\$1,900	\$1,000	\$230	\$670	—	\$450 \$220
Variable operating costs <sup>3</sup>	260	100	160	100	10	50	—	35 15
Total variable costs	\$3,260	\$1,200	\$2,060	\$1,100	\$240	\$720	—	\$485 \$235
(a) Contribution margin	\$740	\$300	\$440	\$200	\$60	\$180	—	\$115 \$65
Less: Fixed costs								
controllable by segment managers <sup>4</sup>	260	100	160	40	10	90	\$30	35 25
(b) Contribution controllable by segment managers	\$ 480	\$ 200	\$ 280	\$ 160	\$ 50	\$ 90	\$ (30)	\$ 80 \$ 40
Less: Fixed costs controllable by others <sup>5</sup>	200	90	110	40	10	40	10	22 8
(c) Contribution by segments	\$ 280	\$ 110	\$ 170	\$ 120	\$ 40	\$ 50	\$ (40)	\$ 58 \$ 32
Less: Unallocated costs <sup>6</sup>	—	—	—	—	—	—	—	—
(d) Income before income taxes	\$ 280	\$ 110	\$ 170	\$ 120	\$ 40	\$ 50	\$ (40)	\$ 58 \$ 32
Income taxes	—	—	—	—	—	—	—	—
	\$ 280	\$ 110	\$ 170	\$ 120	\$ 40	\$ 50	\$ (40)	\$ 58 \$ 32

<sup>1</sup>Three different types of segments are illustrated here: divisions, product lines, and stores. As you read across, note that the fixed costs narrow from East and West divisions to West Division only, to meats in West Division only.

<sup>2</sup>Only those costs clearly identifiable to a product line or store should be allocated.

<sup>3</sup>Primarily wages and payroll-related costs.

<sup>4</sup>Examples are certain advertising, sales promotions, salesperson's salaries, management consulting, training, and supervisor costs.

<sup>5</sup>Examples are depreciation, property taxes, insurance, and perhaps the segment manager's salary.

<sup>6</sup>These costs are not clearly or practically allocable to any segment except by some highly questionable allocation base.

## Exhibit 9-5

### Retail Grocery Store

Contribution Approach: Model Income Statement by Segments\* (thousands of dollars)



### Contribution Controllable by Segment Managers

Designers of management control systems distinguish between the segment as an economic investment and the manager as a decision maker. For instance, an extended period of drought coupled with an aging population may adversely affect the desirability of continued economic investment in a ski resort, but the resort manager may nonetheless be doing an excellent job under these adverse circumstances.

Exhibit 9-5 separates costs by controllability. The manager of meats at Store 1 may have influence over some local advertising but not other advertising, some fixed salaries but not other salaries, and so forth. Moreover, the meat manager at both the division and store levels may have zero influence over store depreciation or the president's salary. Managers on all levels help explain the total segment contribution, but they are responsible only for the controllable contribution. Note that we deduct the fixed costs controllable by the segment managers from the contribution margin to obtain the contribution controllable by segment managers. These controllable costs are usually discretionary fixed costs such as local advertising and some salaries.

As we move to the right in Exhibit 9-5, we see allocations of only part of the fixed costs to lower levels in the organization. For example, consider the line with fixed costs controllable by segment managers. Of the \$160,000 fixed costs that the West Division manager controls, groceries, produce, and meat departments control only \$140,000. We do not allocate the remaining \$20,000 of West Division fixed costs because they are not controllable farther down in the organization chart. That is, the West Division manager controls all \$160,000 of fixed costs, but subordinates (grocery, produce, and meat managers) control only \$140,000. Similarly, the meats manager controls \$90,000 of fixed costs, but subordinates at stores 1 and 2 control only \$35,000 and \$25,000, respectively.

### Contribution by Segments

The contribution by segments, line (c) in Exhibit 9-5, is an attempt to approximate the financial performance of the segment, as distinguished from the financial performance of its manager, which we measure in line (b). The "fixed costs controllable by others" typically include committed costs (such as depreciation and property taxes) and discretionary costs (such as the segment manager's salary). Although the segment manager does not control these costs, they are necessary for the operation of the segment.

### Unallocated Costs

Exhibit 9-5 shows "unallocated costs" immediately before line (d). These costs might include central corporate costs, such as the costs of top management and some corporate-level services (for example, legal and taxation). When an organization cannot find a persuasive cause-and-effect or activity-based justification for allocating such costs, it generally should not allocate them to segments.

### Summary

The correct classification of costs as illustrated in Exhibit 9-5 is sometimes ambiguous. Determining controllability is a problem when a company allocates service department costs to other departments. Should a store manager bear a part of the division headquarters' costs? If so, how much and on what basis? How much, if any, store depreciation or lease expenses should we deduct in computing the controllable contribution? There are no universally correct answers to these questions. Each organization makes choices that balance costs and benefits. (This differs from the situation in external accounting systems, where tax or financial reporting regulations usually specify the required classification of costs.)

Because of the subjectivity involved in classification of costs, measures of financial performance such as those illustrated in Exhibit 9-5 are subjective. The calculation of the contribution margin near the top of the report tends to be the most objective, because managers can usually objectively identify and assign variable costs. As you read downward in the report, the allocations become increasingly subjective, and the resulting measures of contributions become more subject to dispute. Nonetheless, many organizations find that allocation of costs to units makes managers more aware of the costs of the entire organization and leads to better organizational cost control.

### Objective 5

Prepare segment income statements for evaluating profit and investment centers using the contribution margin and controllable-cost concepts.

## Making Managerial Decisions

Managers should try to distinguish between controllable and uncontrollable costs when designing segment financial reports. For each of the following costs of a suburban **Wal-Mart** store, indicate whether it is a variable cost, fixed cost controllable by segment managers, fixed cost controllable by someone other than the segment manager, or a cost the company normally does not allocate:

- Property taxes
- Supervision of local sales staff
- Depreciation of store
- Cost of goods sold
- Local store advertising
- Corporate-level advertising
- Corporate-level public relations
- Temporary sales labor

### Answer

Variable costs are generally controllable by the store manager. Cost of goods sold and temporary sales labor are examples.

Fixed costs controllable by the segment (store) manager include local store advertising and supervision of the local sales staff. The store manager usually decides the appropriate level for these costs.

Fixed costs controllable by those other than the store manager include property taxes and depreciation of the store. These costs relate directly to the store, but the store manager cannot change them.

Unallocated costs include corporate-level advertising and public relations. These costs have a tenuous link to the store.

## Summary Problem for Your Review

### PROBLEM

The Book & Game Company has two bookstores: Auntie's and Merlin's. Each store has managers who have a great deal of decision authority over their store. Advertising, market research, acquisition of books, legal services, and other staff functions, however, are handled by a central office. The Book & Game Company's current accounting system allocates all costs to the stores. Results for 20X1 were as follows:

Item	Total Company	Auntie's	Merlin's
Sales revenue	\$ 700,000	\$ 350,000	\$ 350,000
Cost of merchandise sold	450,000	225,000	225,000
Gross margin	250,000	125,000	125,000
Operating expenses			
Salaries and wages	63,000	30,000	33,000
Supplies	45,000	22,500	22,500
Rent and utilities	60,000	40,000	20,000
Depreciation	15,000	7,000	8,000
Allocated staff costs	60,000	30,000	30,000
Total operating expenses	243,000	129,500	113,500
Operating income (loss)	\$ 7,000	\$ (4,500)	\$ 11,500

Each bookstore manager makes decisions that affect salaries and wages, supplies, and depreciation. In contrast, rent and utilities are beyond the managers' control because the managers did not choose the location or the size of the store.

Supplies are variable costs. Variable salaries and wages are equal to 8% of the cost of merchandise sold; the remainder of salaries and wages is a fixed cost. Rent, utilities, and depreciation also are fixed costs. Staff costs represent the cost of activities performed by the central office. Events at the individual bookstores do not affect staff costs; nevertheless, Book & Game Company allocates staff costs as a proportion of sales revenue.

- Using the contribution approach, prepare a performance report that distinguishes the performance of each bookstore from that of the bookstore manager.
- Evaluate the financial performance of each bookstore.
- Evaluate the financial performance of each manager.

## SOLUTION

1. See Exhibit 9-6.
2. We can evaluate the financial performances of the bookstores (that is, segments of the company) using the line “contribution by bookstore.” Merlin’s has a substantially higher contribution, despite equal levels of sales revenues in the two stores. The major reason for this advantage is that Merlin’s pays less for rent and utilities.
3. We can evaluate the financial performance of the managers using the line “contribution controllable by managers.” By this measure, the performance of Auntie’s manager is better than that of Merlin’s. The contribution margin is the same for each store, but Merlin’s manager paid \$4,000 more in controllable fixed costs than did Auntie’s manager. Note that the additional fixed costs could be beneficial in the long run. What is missing from each of these segment reports is the year’s master budget and a flexible budget, which would be the best benchmark for evaluating both bookstores and bookstore managers.

Item	Total Company	Auntie’s	Merlin’s
Sales revenue	\$700,000	\$350,000	\$350,000
Variable costs			
Cost of merchandise sold	450,000	225,000	225,000
Salaries and wages—variable portion	36,000	18,000	18,000
Supplies	45,000	22,500	22,500
Total variable costs	531,000	265,500	265,500
Contribution margin by bookstore	169,000	84,500	84,500
Less: Fixed costs controllable by bookstore managers			
Salaries and wages—fixed portion	27,000	12,000	15,000
Depreciation	15,000	7,000	8,000
Total controllable fixed costs	42,000	19,000	23,000
Contribution controllable by managers	127,000	65,500	61,500
Less: Fixed costs controllable by others			
Rent and utilities	60,000	40,000	20,000
Contribution by bookstore	67,000	\$ 25,500	\$ 41,500
Unallocated staff costs	60,000		
Operating income	\$ 7,000		

### Exhibit 9-6

The Book & Game Company  
Performance Report

## Measurement of Nonfinancial Performance

In recent years, many organizations have developed a new awareness of the importance of controlling aspects of nonfinancial performance. For example, sales organizations follow up on customers to ensure their satisfaction, and manufacturers track manufacturing defects and product performance. We first examine individual examples of nonfinancial performance measures such as quality, cycle time, and productivity. Then, we discuss the balanced scorecard, a popular approach that integrates financial and nonfinancial performance measures tied to the organization’s fundamental strategy.

### Control of Quality

Many companies use performance metrics that measure the quality of their products or services. **Quality control** is the effort to ensure that products and services perform to customer requirements. Customer needs define quality. For example, customers judge the quality of an automobile

### Objective 6

Measure performance against nonfinancial performance measures such as quality, cycle time, and productivity.

### quality control

The effort to ensure that products and services perform to customer requirements.



relative to their needs for reliability, performance, styling, safety, image, and other attributes. Defining quality in terms of customer requirements is only half the battle. There remains the problem of reaching and maintaining the desired level of quality.

The traditional approach to controlling quality in the United States was to inspect products after completing them and reject or rework those that failed the inspections. Because testing is expensive, companies often inspected only a sample of products. They judged the process to be in control as long as the number of defective products did not exceed an acceptable quality level. This meant that some defective products could still make their way to customers. When a company does not discover defects until the product reaches the customer, it is costly to repair products already in use by a customer or to win back a dissatisfied customer. IBM's former CEO John Akers was quoted in the *Wall Street Journal* as saying, "I am sick and tired of visiting plants to hear nothing but great things about quality and cycle time—and then to visit customers who tell me of problems."

### cost of quality report

A report that displays the financial impact of quality.

A **cost of quality report** displays the financial impact of quality. The quality cost report shown in Exhibit 9-7 measures four categories of quality costs:

1. **Prevention**—costs incurred to prevent the production of defective products or delivery of substandard services including engineering analyses to improve product design for better manufacturing, improvements in production processes, increased quality of material inputs, and programs to train personnel
2. **Appraisal**—costs incurred to identify defective products or services including inspection and testing
3. **Internal failure**—costs of defective components and final products or services that are scrapped or reworked; also costs of delays caused by defective products or services
4. **External failure**—costs caused by delivery of defective products or services to customers, such as field repairs, returns, and warranty expenses

Exhibit 9-7 shows that internal or external failures caused most of the costs incurred by Eastside Manufacturing Company. These costs almost certainly are understated, however, because they omit opportunity costs of internal delays and lost sales. For example, quality problems in American-built automobiles in the 1980s caused sales to drop for many years. The opportunity cost of these lost future sales were much more significant than the immediate tangible costs measured in any quality cost report.

In recent years, more U.S. companies have moved away from the traditional approach to achieve quality by "inspecting it in." Many companies have discovered that it is more cost effective to prevent defects rather than inspect and correct them. The resources consumed to detect defective products do not add value. Further, if the company must scrap the defective product, it wastes the resources that were consumed to produce it. Even when the company can correct the product defects, it wastes the resources required for rework.

Many companies have adopted an approach first espoused by an American, W. Edwards Deming, and embraced by Japanese companies decades ago: **total quality management (TQM)**. Following the old adage "an ounce of prevention is worth a pound of cure," it focuses on prevention of defects and on achievement of customer satisfaction. The TQM approach builds on the assumption that an organization minimizes the cost of quality when it achieves high quality levels. TQM is the application of quality principles to all of the organization's endeavors to satisfy customers. TQM has significant implications for organization goals, structure, and management control systems.

To implement TQM, an organization trains employees to prepare, interpret, and act on quality-control charts, such as that shown in Exhibit 9-8. The **quality-control chart** is a statistical plot of measures of various product quality dimensions or attributes. This plot helps detect process deviations and identify excessive variation in product dimensions or attributes that process or design engineers should address. The chart in Exhibit 9-8 shows that, except for a brief period near the end of April, the Eastside Manufacturing Company generally is not meeting its defects objective of .6% defects. Managers looking at this chart would know that they should take corrective action.

The most recent trend in quality control is Six Sigma, defined in Chapter 1 as a data-driven approach to eliminating defects and improving quality. The name Six Sigma comes from the idea of an extremely low defect rate of fewer than 3.4 defects per million (far lower than the objective

### total quality management (TQM)

An approach to quality that focuses on prevention of defects and on customer satisfaction.

### quality-control chart

The statistical plot of measures of various product quality dimensions or attributes.

Month			Quality Cost Area	Year to Date		
Actual	Plan	Variance		Actual	Plan	Variance
<b>1. Prevention Cost</b>						
3	2	1	A. Quality—administration	5	4	1
16	18	(2)	B. Quality—engineering	37	38	(1)
7	6	1	C. Quality—planning by others	14	12	2
5	7	(2)	D. Supplier assurance	13	14	(1)
<u>31</u>	<u>33</u>	<u>(2)</u>	Total prevention cost	<u>69</u>	<u>68</u>	<u>1</u>
5.5%	6.1%		Percentage of total quality cost	6.2%	6.3%	
<b>2. Appraisal cost</b>						
31	26	5	A. Inspection	55	52	3
12	14	(2)	B. Test	24	28	(4)
7	6	1	C. Inspection & test of purchased materials	15	12	3
11	11	0	D. Product quality audits	23	22	1
3	2	1	E. Maintenance of inspection & test equipment	4	4	0
2	2	0	F. Materials consumed in inspection & testing	5	4	1
<u>66</u>	<u>61</u>	<u>5</u>	Total appraisal cost	<u>126</u>	<u>122</u>	<u>4</u>
11.8%	11.3%		Percentage of total quality cost	11.4%	11.3%	
<b>3. Internal failure cost</b>						
144	140	4	A. Scrap & rework—manufacturing	295	280	15
55	53	2	B. Scrap & rework—engineering	103	106	(3)
28	30	(2)	C. Scrap & rework—supplier	55	60	(5)
21	22	(1)	D. Failure investigation	44	44	0
<u>248</u>	<u>245</u>	<u>3</u>	Total internal failure cost	<u>497</u>	<u>490</u>	<u>7</u>
44.3%	45.4%		Percentage of total quality cost	44.9%	45.3%	
345	339	6	Total internal quality cost (1 + 2 + 3)	692	680	12
61.6%	62.8%		Percentage of total quality cost	62.6%	62.8%	
<b>4. External failure quality cost</b>						
75	66	9	A. Warranty expense—manufacturing	141	132	9
41	40	1	B. Warranty expense—engineering	84	80	4
35	35	0	C. Warranty expense—sales	69	70	(1)
46	40	6	D. Field warranty cost	83	80	3
18	20	(2)	E. Failure investigation	37	40	(3)
<u>215</u>	<u>201</u>	<u>14</u>	Total external failure cost	<u>414</u>	<u>402</u>	<u>12</u>
38.4%	37.2%		Percentage of total quality cost	37.4%	37.2%	
560	540	20	Total quality cost	1,106	1,082	24
<u>9,872</u>	<u>9,800</u>	<u>72</u>	Total product cost	<u>20,170</u>	<u>19,600</u>	<u>570</u>
5.7%	5.5%		Total quality cost as percentage of total production cost	5.5%	5.5%	

\*Adapted from Allen H. Seed III, *Adapting Management Accounting Practice to an Advanced Manufacturing Environment* (Montvale, NJ: National Association of Accountants, 1988), Table 5-2, p. 76.

\*Adapted from Allen H. Seed III, *Adapting Management Accounting Practice to an Advanced Manufacturing Environment* (Montvale, NJ: National Association of Accountants, 1988), Table 5-2, p. 76.

## Exhibit 9-7

### Eastside Manufacturing Company Quality Cost Report\* (thousands of dollars)

of less than 6 defects per thousand in the Eastside Manufacturing example). However, the Six Sigma approach has broadened into a general approach to defining, measuring, analyzing, and improving a production process to minimize errors. The focus is on measuring how many defects a company has in its process because, once a company measures the defects, it can take steps to eliminate them. Developed by **Motorola**, Six Sigma is making large impacts at companies such as **General Electric**, **Dow Chemical**, and **3M**. At Dow, each Six Sigma project has created an average of \$500,000 in savings.

## Control of Cycle Time

Reducing cycle time is a key to improving quality. **Cycle time**, or **throughput time**, is the time it takes to complete a product or service. It is a summary measure of efficiency and effectiveness and is also an important cost driver. You may find it surprising that faster cycle times often lead to higher quality and lower defect rates. A faster cycle time requires smooth-running processes and high quality. It also creates increased flexibility and brings products or services to customers more quickly, which increases customer satisfaction.

### cycle time (throughput time)

The time taken to complete a product or service.

**Exhibit 9-8**

Eastside Manufacturing  
Company  
Quality-Control Chart



One way to measure cycle time is to attach an identifier such as a bar code or RFID (radio-frequency identification) tag to each component or product and use a scanner to read the code at the end of each stage of completion. Cycle time for each stage is the time between readings of the identifier tag. Tagging also permits effective tracking of materials and products for inventories, scheduling, and delivery.

Exhibit 9-9 is a sample cycle-time report showing that Eastside Manufacturing Company is meeting its cycle-time objectives at two of its five production process stages. This report is similar to the flexible budget reports of Chapter 8, but note that the variances here are measured in units of time, rather than in dollars of revenue or cost. Explanations for the variances in the right column indicate that poor-quality materials and poor design led to extensive rework and retesting.

**Control of Productivity**

More than half the companies in the United States measure and manage productivity as part of the effort to improve their competitiveness. **Productivity** is a measure of outputs divided by inputs. The fewer inputs needed to produce a given output, the more productive the organization. This simple definition, however, raises difficult measurement questions. How should the company measure outputs and inputs? Specific management control issues usually determine the most appropriate measures. Labor-intensive organizations, especially service organizations, focus on increasing the productivity of labor, so labor-based measures are appropriate. Highly automated companies focus on machine use and productivity of capital investments, so capacity-based measures, such as the percentage of time machines are available, may be most important to them. Manufacturing companies, in general, monitor the efficient use of materials. For them, measures of material yield (a ratio of material outputs over material inputs) may be useful indicators of productivity.

Exhibit 9-10 shows 12 examples of productivity measures. As you can see from these examples, measures vary widely according to the type of resource that management wishes

**productivity**

A measure of outputs divided  
by inputs.

**Exhibit 9-9**

Eastside Manufacturing  
Company  
Cycle Time Report for the Second  
Week of May

Process Stage	Actual Cycle Time*	Standard Cycle Time	Variance	Explanation
Materials processing	2.1	2.5	0.4 F	
Circuit board assembly	44.7	28.8	15.9 U	Poor-quality materials caused rework Engineering change required rebuilding all power units
Power unit assembly	59.6	36.2	23.4 U	
Product assembly	14.6	14.7	0.1 F	
Functional and environmental test	53.3	32.0	21.3 U	Software failure in test procedures required retesting

F = Favorable. U = Unfavorable.  
\*Average time per stage over the week.



**Exhibit 9-10**  
Measures of Productivity

Resource	Possible Outputs (Numerator)		Possible Inputs (Denominator)
Labor	Standard direct-labor hours allowed for good output	÷	Actual direct-labor hours used
	Sales revenue	÷	Number of employees
	Sales revenue	÷	Direct-labor costs
	Bank deposit/loan activity (by a bank)	÷	Number of employees
	Service calls	÷	Number of employees
	Customer orders	÷	Number of employees
Materials	Weight of output	÷	Weight of input
	Number of good units	÷	Total number of units
Equipment, capital, physical capacity	Time (e.g., hours) used	÷	Time available for use
	Time available for use	÷	Time (e.g., 24 hours per day)
	Expected machine hours for good output	÷	Actual machine hours
	Sales revenue	÷	Direct-labor cost

to use efficiently. In all cases, a measure of the resource that management wishes to control is in the denominator (the input) and a measure of the objective of using the resource is in the numerator (the output).

### Choice of Productivity Measures

Which productivity measures should a company choose to manage? The choice determines the incentives created by the management control system. For example, if top management evaluates subordinates' performance based on direct-labor productivity, lower-level managers will focus on improving that specific measure.

The challenge in choosing productivity measures is to avoid motivating decisions that improve one dimension of performance but hurt another dimension. For example, measuring and rewarding productivity per machine would provide incentives for longer production runs. However, longer production runs might result in excessive inventory handling and holding costs. As another example, measuring labor productivity might motivate workers to produce more units per hour. However, spending less time on each unit produced may cause a higher rate of product defects.

Use of a single measure of productivity is unlikely to result in overall improvements in performance. The choice of performance measures requires anticipating the trade-offs that employees will make. Many organizations implement management controls for all of the most important activities, including nonfinancial measures such as quality and customer satisfaction, and use multiple measures to monitor the actual benefits of improvements in these activities.

### Productivity Measures Over Time

Be careful when comparing productivity measures over time. Changes in the process or in the rate of inflation can make results misleading. For example, consider labor productivity at **Adobe Systems**. One measure of productivity is sales revenue per employee.

	2001	2011	Percent Change
Total revenue (millions)	\$ 1,230	\$ 4,216	243%
Employees	÷ 3,043	÷ 9,925	226%
Revenue per employee (unadjusted for inflation)	<u>\$404,206</u>	<u>\$424,786</u>	<u>5%</u>

By this measure, Adobe appears to have achieved a 5% increase in the productivity of labor because the number of employees grew more slowly than total revenue. However, total revenue has not been adjusted for the effects of inflation. Because of inflation, each 2001 dollar was equivalent to 1.27 dollars in 2011. Therefore, Adobe's 2001 sales revenue, expressed in 2011

# Business First

## Balanced Scorecard Hall of Fame

Robert Kaplan and David Norton created the balanced scorecard (BSC) in 1992. The **Balanced Scorecard Hall of Fame** honors organizations that have achieved execution excellence through the use of the BSC. To be selected for the Hall of Fame, a company must apply one or more of the following five principles to create a strategy-focused organization: "mobilize change through executive leadership; translate the strategy into operational terms; align the organization around its strategy; make strategy everyone's job; and make strategy a continual process." By the end of 2011, the Balanced Scorecard Collaborative had recognized a total of 167 Hall of Fame organizations. Past inductees include **Army and Air Force Exchange Service (AAFES)**, the City of Corpus Christi, **BMW Financial Services**, and **Wendy's International**.

AAFES is a \$9.9 billion global retailer with 43,000 employees serving military customers in 3,100 stores in 30 countries. AAFES adopted the BSC to prepare the organization to meet growing and diverse demands of its increasingly mobile customers. The BSC helps create alignment, drive accountability, optimize resource allocation, and link strategy to operations. In 4 years revenue increased by 11%, dividends 19%, employee satisfaction 16%, and customer satisfaction 17%. Inventory was reduced by about \$108 million. Michael Howard, AAFES chief operating officer, observed the following: "The BSC has given us the ability to look beyond traditional financial measures to drive long-term sustainability that focuses on employee optimization. The BSC aligns corporate resources and energies to drive performance that ensure AAFES continues to provide a valued benefit to the military market."

The City of Corpus Christi is the largest coastal city in Texas and the nation's sixth largest port. The city employs about 3,000, serving a population of 305,000. The city adopted the BSC to clarify and communicate its strategy; align departments, divisions, and employees; and make more timely and better informed decisions that impact citizens' lives. Constituent satisfaction

increased 16%, workforce retention was up, and citizen/customer wait time down. The city's bond rating improved, fueled in part by the BSC management system. Angel R. Escobar, interim city manager commented, "Now, with the BSC, we know what we are great at and what we need to improve upon...our monthly BSC meetings unify departmental directors to collectively focus on and discuss solutions to real issues."

BMW Financial Services was established in 1993 to support the sales and marketing efforts of BMW North America. The company has more than \$24 billion in managed assets and offers customers flexible lease and retail financing options. BMW Financial Services adopted the BSC in 1998 and has seen remarkable growth in annual sales and number of customer accounts. The company uses the scorecard to link objectives, initiatives, and metrics to its strategy and communicate these links throughout the company.

Wendy's International is one of the world's largest restaurant operating and franchising companies, with about 6,600 restaurants and 2011 revenue of \$2.4 billion. The company implemented the BSC to get a better handle on intangible assets, such as intellectual capital and customer focus. CEO Jack Schuessler lauded the BSC's success in "establishing targets and measuring our progress in key dimensions ranging from employee retention at the restaurant level, to restaurant evaluation scores, to business processes, to total revenue growth. They are all vitally important, not just the financial measures." The BSC provides a framework for balancing financial and nonfinancial measures.

The BSC has helped these and other award-winning organizations in many different ways. It has gained wide acceptance and successful implementation in many companies since its introduction more than 15 years ago.

Sources: AAFES Web site ([www.shopmyexchange.com](http://www.shopmyexchange.com)); City of Corpus Christi Web site ([ccetexaswww.cctexas.com](http://ccetexaswww.cctexas.com)); BMW of North America Web site ([www.bmwusa.com](http://www.bmwusa.com)); The Wendy's Company 2011 Annual Report; Palladium Group Web site ([www.thepalladiumgroup.com](http://www.thepalladiumgroup.com)).

dollars (so we can compare it with 2011 sales revenue), is  $\$1,230 \times 1.27 = \$1,562$ . The adjusted 2001 sales revenue per employee is as follows:

	2001 (adjusted)	2011	Percent Change
Total revenue (millions)	\$ 1,562	\$ 4,216	170%
Employees	+ 3,043	+ 9,925	226%
Revenue per employee (adjusted for inflation)	<u>\$513,309</u>	<u>\$424,786</u>	<u>-17%</u>

Adjusting for the effects of inflation reveals that Adobe's labor productivity has actually decreased by 17% rather than increased by 5%.

## The Balanced Scorecard

A **balanced scorecard (BSC)** is a system that strikes a balance between financial and nonfinancial measures in the performance measurement process, links performance to rewards, and gives explicit recognition to the link between performance measurement and organizational goals and objectives. The balanced scorecard focuses management attention on measures that drive an organization to achieve its goals. About 50% of the 1,000 largest U.S. firms use some version of the

### Objective 7

Use a balanced scorecard to integrate financial and nonfinancial measures of performance.



**Exhibit 9-11**

Performance Indicators for  
Philips Electronics' Balanced  
Scorecard

Financial	Processes
Economic profit realized	Percentage reduction in process cycle time
Income from operations	Number of engineering changes
Working capital	Capacity utilization
Operational cash flow	Order response time
Inventory turns	Process capability
Customers	Competence
Rank in customer survey	Leadership competence
Market share	Percentage of patent-protected turnover
Repeat order rate	Training days per employee
Complaints	Quality improvement team participation
Brand index	

balanced scorecard, including **Microsoft**, **American Express**, **ExxonMobil**, **Allstate**, and **Apple Computer**. Government and nonprofit agencies, such as the U.S. Department of Transportation and the United Way of America, also use the balanced scorecard. We describe some of the more successful organizations that use the balanced scorecard in the Business First box on page 388.

The balanced scorecard helps line managers understand the relationship between nonfinancial measures and organizational goals. The balanced scorecard identifies performance measures from each of the four components of the successful organization shown in Exhibit 9-3 on page 376. Links between the measures and organizational objectives help managers throughout the organization understand how their actions support the organization's goals.

What does a balanced scorecard look like? The classic balanced scorecard developed by Robert Kaplan and David Norton includes **key performance indicators**—measures that drive the organization to meet its goals—grouped into four categories: (1) financial, (2) customers, (3) internal business processes, and (4) innovation and learning. Some companies use other terminology and some include additional categories—the most common are additional categories for employees or other stakeholders.

All balanced scorecards develop performance measures for each objective within each category. For example, **Philips Electronics** uses the categories and performance indicators in Exhibit 9-11. Most companies that use a balanced scorecard specify the categories that each business segment will use but allow the segments to choose the relevant performance measures for each category. For example, every Microsoft division has measures for financial, customer, internal processes, and learning perspectives, but the Latin American division has different measures in each category than does the Seattle headquarters. The balanced scorecard should not be a straightjacket; rather it is a flexible framework for motivating and measuring performance.

### balanced scorecard (BSC)

A performance measurement and reporting system that strikes a balance between financial and nonfinancial measures, links performance to rewards, and gives explicit recognition to the link between performance measurement and organizational goals and objectives.

### key performance indicators

Measures that drive the organization to achieve its goals.

## Making Managerial Decisions

The balanced scorecard emphasizes the connections between performance measures and financial and nonfinancial goals. Indicate where each of the following goals of **Whirlpool** fits with the four components of a successful organization shown in Exhibit 9-3 on page 376, and explain how these components relate to one another:

- People commitment
- Total quality
- Customer satisfaction
- Financial performance
- Growth and innovation

### Answer

The components listed in Exhibit 9-3 depict the causal links from organizational learning to business process improvement,

to customer satisfaction, and finally to financial strength. The five goals set by top managers at Whirlpool suggest the following links among the goals:

*If Whirlpool makes a solid commitment to its people and invests in growth and innovation, the company will make progress in organizational learning. This will lead to business process improvements that decrease costs, increase efficiency, and increase the total quality of its products, which will then lead to increased customer satisfaction. The ultimate result of satisfied customers is improved financial performance. Sustainable financial strength should allow Whirlpool to repeat the cycle and continue to invest in both organizational learning and internal business processes.*



## Management Control Systems in Service, Government, and Nonprofit Organizations

### Objective 8

Describe the difficulties of management control in service and nonprofit organizations.

Many service organizations face substantial difficulty implementing management control systems. Why? Because the outputs of service organizations are difficult to measure. For example, what is a good measure of output for a bank's call center (where service representatives answer customers' questions)? Number of calls or total time spent on calls? The measure "number of calls" might motivate many short calls that do not provide thorough answers to customers. The measure "total time spent on calls" might motivate long, time-wasting calls. It is often difficult to know the quality, or sometimes even the quantity, of the service provided until long after the organization delivers the service. When quality and quantity of output are hard to measure, developing timely measures of input/output relationships is nearly impossible.

The keys to successful management control in any organization are proper training and motivation of employees to achieve the organization's strategic objectives, accompanied by consistent monitoring of measures chosen to fit with these objectives. These keys are equally important in service-oriented organizations. **MBNA America**, a large issuer of bank credit cards, works hard to measure the amount and quality of its service. It identifies customer retention as its most important key success factor. MBNA trains its customer representatives carefully. Each day it measures and reports performance on 14 objectives consistent with customer retention, and it rewards every employee based on those 14 objectives. Measures include answering every call by the second ring, keeping the computer up 100% of the time, and processing credit-line requests within 1 hour. Employees earn bonuses as high as 20% of their annual salaries by meeting those objectives.

Government and nonprofit organizations face additional difficulties. When for-profit organizations confront conflicting goals, the appropriate trade-off is determined by the net effect on the financial "bottom line." When government and nonprofit organizations face conflicting goals as to when, where, and to whom they will provide services, the relevant trade-offs are often unclear. Because they have no precisely defined objective function that specifies how to make these trade-offs, it is difficult to determine the "right" incentives to be incorporated in the management control system.

Further, the design of management control systems in nonprofit organizations is complicated by the fact that many people in these organizations seek primarily nonmonetary rewards. For example, volunteers in the **Peace Corps** receive little pay but derive much satisfaction from helping to improve conditions in underdeveloped countries. **AmeriCorps** volunteers have similar objectives domestically. Thus, monetary incentives are generally less effective in nonprofit organizations.

In summary, management control systems in nonprofit organizations probably will never be as highly developed as are those in profit-seeking firms because of the following:

1. Organizational goals and objectives are less clear. Moreover, there are often multiple goals and objectives, requiring difficult trade-offs.
2. Professionals (for example, teachers, attorneys, physicians, scientists, economists) tend to dominate nonprofit organizations. Because of their perceived professional status, they are often less receptive to the installation of formal control systems.
3. Measurements are more difficult because
  - a. there is no profit measure, and
  - b. there are heavy amounts of discretionary fixed costs, which make the relationships of inputs to outputs difficult to specify and measure.
4. There is less competitive pressure from other organizations or "owners" to improve management control systems. As a result, many cities in the United States are "privatizing" some essential services, such as sanitation, by contracting with private firms.
5. The role of budgeting, instead of being a rigorous planning process, is often more a matter of playing bargaining games with sources of funding to get the largest possible authorization.
6. Motivations and incentives of employees may differ from those in for-profit organizations.

## Making Managerial Decisions

Study Exhibit 9-3 again. Use the same four general components, but rearrange them to reflect a framework that might help managers of a successful governmental or nonprofit organization.

### Answer

For governmental and nonprofit organizations, the ultimate objective is not to focus on financial results but to deliver the maximum benefits to customers (or citizens) based on

an available pool of financial resources. Thus, the causal relationships might be as follows:

*Organizational learning → process improvements in delivering programs → improved fiscal or financial strength → greater program benefits for citizens or clients*

## Future of Management Control Systems

As organizations mature and as environments change, managers expand and refine their management control tools. The management control techniques that were satisfactory 10 or 20 years ago are not adequate for many organizations today.

A changing environment often means that organizations adjust their goals or key success factors. New goals require different benchmarks for evaluating performance. The management control system must evolve, too, or the organization may not manage its resources effectively or efficiently. A summary of management control principles that will always be important and can guide the redesign of systems follows:

1. Always expect that individuals will be pulled in the direction of their own self-interest. You may be pleasantly surprised that some individuals will act selflessly, but management control systems should be designed to take advantage of more typical human behavior. Also, be aware that managers in different cultures may perceive self-interest differently.
2. Design incentives so that individuals who pursue their own self-interest also achieve the organization's objectives. Because there are usually multiple objectives, multiple incentives are appropriate. Do not underestimate the difficulty of balancing multiple incentives.
3. Evaluate actual performance relative to planned performance. Where appropriate, revise planned performance to reflect actual output achieved. You can apply the concept of flexible budgeting to many goals and actions, both financial and nonfinancial.
4. Consider nonfinancial performance to be an important determinant of long-term success. In the short run, a manager may be able to generate good financial performance while neglecting nonfinancial performance, but it is not likely over the long haul.
5. Array performance measures across the entire value chain of the company to ensure that the management control system incorporates all activities that are critical to the long-run success of the company.
6. Periodically review the success of the management control system. Is the organization achieving its overall goals? Do the actions motivated by the management control system lead to goal achievement? Do individuals understand the management control system and effectively use the information it provides?
7. Learn from the management control successes (and failures) of competitors around the world. Despite cultural differences, human behavior is remarkably similar. Managers can learn from successful applications of new technology and management controls by reading books or attending courses that describe management control systems at other companies.

## Highlights to Remember

1. **Describe the relationship of management control systems to organizational goals.** The starting point for designing and evaluating a management control system is the identification of organizational goals as specified by top management.
2. **Explain the importance of evaluating performance and describe how it impacts motivation, goal congruence, and employee effort.** The way an organization measures and evaluates performance affects individuals' behavior. The more that it ties rewards to performance measures, the more incentive there is to improve the measures. Poorly designed measures may actually work against the organization's goals.
3. **Develop performance measures and use them to monitor the achievements of an organization.** A well-designed management control system measures both financial and nonfinancial performance. Superior nonfinancial performance usually leads to superior financial performance in time. The performance measures should tell managers how well they are meeting the organization's goals.
4. **Use responsibility accounting to define an organizational subunit as a cost center, a profit center, or an investment center.** Responsibility accounting assigns revenue and cost objectives to the management of the subunit that has the greatest influence over them. Cost centers focus on costs only, profit centers on both revenues and costs, and investment centers on profits relative to the amount invested.
5. **Prepare segment income statements for evaluating profit and investment centers using the contribution margin and controllable-cost concepts.** The contribution approach to measuring a segment's income aids performance evaluation by separating a segment's costs into those controllable by the segment management and those beyond management's control. It allows separate evaluation of a segment as an economic investment and the performance of the segment's manager.
6. **Measure performance against nonfinancial performance measures such as quality, cycle time, and productivity.** Measuring performance in areas such as quality, cycle time, and productivity causes employees to direct attention to those areas. Achieving goals in these nonfinancial measures can help meet long-run financial objectives.
7. **Use a balanced scorecard to integrate financial and nonfinancial measures of performance.** The balanced scorecard helps managers monitor actions that are designed to meet the various goals of the organization. It integrates key performance indicators that measure how well the organization is meeting its goals.
8. **Describe the difficulties of management control in service and nonprofit organizations.** Management control in service and nonprofit organizations is difficult because of a number of factors, including a relative lack of clearly observable outcomes and, for many nonprofit organizations, the lack of a clearly defined objective function.

## Accounting Vocabulary

balanced scorecard (BSC),  
p. 389  
controllable cost, p. 378  
cost center, p. 378  
cost of quality report, p. 384  
cycle time, p. 385  
goal congruence, p. 373  
investment center, p. 379  
key performance indicators,  
p. 389

key success factor, p. 372  
management control system,  
p. 371  
managerial effort, p. 373  
motivation, p. 374  
productivity, p. 386  
profit center, p. 378  
quality control, p. 383  
quality-control chart,  
p. 384

responsibility accounting,  
p. 378  
responsibility center,  
p. 378  
segments, p. 379  
throughput time, p. 385  
total quality management  
(TQM), p. 384  
uncontrollable cost, p. 378



## Fundamental Assignment Material

MyAccountingLab

### 9-A1 Responsibility of Purchasing Agent

Excel Electronics Company, a privately held enterprise, has a subcontract from a large aerospace company in Chicago. Although Excel was a low bidder, the aerospace company was reluctant to award the business to the company because it was a newcomer to this kind of activity. Consequently, Excel assured the aerospace company of its financial strength by submitting its audited financial statements. Moreover, Excel agreed to pay a penalty of \$5,000 per day for each day of late delivery for whatever cause.

Amy Greer, the Excel purchasing agent, is responsible for acquiring materials and parts in time to meet production schedules. She placed an order with an Excel supplier for a critical manufactured component. The supplier, who had a reliable record for meeting schedules, gave Greer an acceptable delivery date. Greer checked up several times and was assured that the component would arrive at Excel on schedule.

On the date specified by the supplier for shipment to Excel, Greer was informed that the component had been damaged during final inspection. It was delivered 10 days late. Greer had allowed 4 extra days for possible delays, but Excel was 6 days late in delivering to the aerospace company and so had to pay a penalty of \$30,000.

What department should bear the penalty? Why?

### 9-A2 Contribution Approach to Responsibility Accounting

Joe Albright owns and operates a small chain of convenience stores in Waterloo and Cedar Rapids. The company has five stores including a downtown store and a Sumner store in the Waterloo division, and a downtown store, a Solon store, and an airport store in the Cedar Rapids division. There is also a separate administrative staff that provides market research, personnel, and accounting and finance services.

The company had the following financial results for 20X1 (in thousands):

Sales revenue	\$8,000
Cost of merchandise sold	3,500
Gross margin	4,500
Operating expenses	2,200
Income before income taxes	\$2,300

The following data about 20X1 operations were also available:

- All five stores used the same pricing formula; therefore, all had the same gross margin percentage.
- Sales were largest in the two downtown stores, with 30% of the total sales volume in each. The Solon and airport stores each provided 15% of total sales volume, and the Sumner store provided 10%.
- Variable operating costs at the stores were 10% of revenue for the downtown stores. The other stores had lower variable and higher fixed costs. Their variable operating costs were only 5% of sales revenue.
- The fixed costs over which the store managers had control were \$125,000 in each of the downtown stores, \$180,000 at Solon and airport, and \$40,000 at Sumner.
- The remaining \$910,000 of operating costs consisted of
  - \$210,000 controllable by the Cedar Rapids division manager but not by individual stores,
  - \$100,000 controllable by the Waterloo division manager but not by individual stores, and
  - \$600,000 controllable by the administrative staff.
- Of the \$600,000 spent by the administrative staff, \$350,000 directly supported the Cedar Rapids division, with 20% for the downtown store, 30% for each of the Solon and airport stores, and 20% for Cedar Rapids operations in general. Another \$140,000 supported the Waterloo division, 50% for the downtown store, 25% for the Sumner store, and 25% supporting Waterloo operations in general. The other \$110,000 was for general corporate expenses.

Prepare an income statement by segments using the contribution approach to responsibility accounting. Use the format of Exhibit 9-4, page 379. Column headings should be as follows:

Company as a whole	Breakdown into Two Divisions		Breakdown of Waterloo Division			Breakdown of Cedar Rapids Division			
	Waterloo	Cedar Rapids	Not allocated	Downtown	Sumner	Not allocated	Downtown	Solon	Airport

**9-A3 Comparison of Productivity**

Forsythe and Sorteberg are manufacturing companies. Comparative data for 20X1 and 20X7 are as follows:

		Forsythe	Sorteberg
Sales revenue	20X1	\$4,720,000,000	\$7,997,000,000
	20X7	\$6,500,000,000	\$9,007,000,000
Number of employees	20X1	53,600	77,900
	20X7	57,800	78,200

Assume that inflation has totaled 18% during these 6 years so that each 20X1 dollar is equivalent to 1.18 dollars in 20X7, due to inflation.

1. Compute 20X1 and 20X7 productivity measures in terms of revenue per employee for Forsythe and Sorteberg.
2. Compare the change in productivity between 20X1 and 20X7 for Forsythe with that for Sorteberg.

**9-B1 Responsibility Accounting**

The Kephart Company produces precision machine parts. Kephart uses a standard cost system, calculates standard cost variances for each department, and reports them to department managers. Managers use the information to improve their operations. Superiors use the same information to evaluate managers' performance.

Liz Elder was recently appointed manager of the assembly department of the company. She has complained that the system as designed is disadvantageous to her department. Included among the variances charged to the departments is one for rejected units. The inspection occurs at the end of the assembly department. The inspectors attempt to identify the cause of the rejection so that the department where the error occurred can be charged with it. Not all errors can be easily identified with a department, however. The nonidentified units are totaled and apportioned to the departments according to the number of identified errors. The variance for rejected units in each department is a combination of the errors caused by the department plus a portion of the unidentified causes of rejects.

1. Is Elder's complaint valid? Explain the reason(s) for your answer.
2. What would you recommend that the company do to solve its problem with Elder and her complaint?

**9-B2 Divisional Contribution, Performance, and Segment Margins**

The president of Reading Railroad wants to obtain an overview of the company's operations, particularly with respect to comparing freight and passenger business. He has heard about "contribution" approaches to cost allocations that emphasize cost behavior patterns and contribution margins, contributions controllable by segment managers, and contributions by segments. The president has hired you as a consultant to help him. He has given you the following information.

Total revenue in 20X3 was \$80 million, of which \$72 million was freight traffic and \$8 million was passenger traffic. Forty percent of the passenger revenue was generated by division 1, 50% by division 2, and 10% by division 3.

Total variable costs were \$40 million, of which \$36 million was caused by freight traffic. Of the \$4 million allocable to passenger traffic, \$2.1, \$1.6, and \$0.3 million could be allocated to divisions 1, 2, and 3, respectively.

Total separable discretionary fixed costs were \$8 million, of which \$7.6 million applied to freight traffic. For the remaining \$400,000 applicable to passenger traffic, \$80,000 could not be allocated to specific divisions, while \$200,000, \$100,000, and \$20,000, were allocable to divisions 1, 2, and 3, respectively.

Total separable committed costs, which were not regarded as being controllable by segment managers, were \$25 million, of which 80% was allocable to freight traffic. Of the 20% traceable to passenger traffic, divisions 1, 2, and 3 should be allocated \$3 million, \$700,000, and \$300,000, respectively; the balance was unallocable to a specific division.

The common fixed costs not clearly allocable to any part of the company amounted to \$800,000.

1. The president asks you to prepare statements, dividing the data for the company as a whole between the freight and passenger traffic and then subdividing the passenger traffic into three divisions.
2. Some competing railroads actively promote a series of one-day sightseeing tours on summer weekends. Most often, these tours are timed so that the cars with the tourists are hitched on with regularly scheduled passenger trains. What costs are relevant for making decisions to run such

tours? Other railroads, facing the same general cost structure, refuse to conduct such sightseeing tours. Why?

3. Suppose that the railroad has petitioned government authorities for permission to drop division 1. What would be the effect on overall company net income for 20X4, assuming that the figures are accurate and that 20X4 operations are expected to be in all respects a duplication of 20X3 operations?

### 9-B3 Balanced Scorecard for a Law Firm

Young, Martinez, and Cheung (YMC) is a law firm in Chicago. The firm has had a very loose and relaxed management style that has served it well in the past. However, more aggressive law firms have been winning new clients faster than YMC has. Thus, the managing partner, Jerry Martinez, recently attended an ABA seminar on performance measurement in law firms, where he learned about the balanced scorecard. He thought it might be a good tool for YMC, one that would allow the firm to keep its culture yet still more aggressively seek new clients.

Martinez identified the following strategic objectives that fit with the firm's core values and provide a framework for assessing progress toward the firm's goals:

#### Financial

- a. Steadily increase the firm's revenues and profits.

#### Customer

- a. Understand the firm's customers and their needs.
- b. Value customer service over self-interest.

#### Internal Business Process

- a. Encourage knowledge sharing among the legal staff.
- b. Communicate with each other openly, honestly, and often.
- c. Empower staff to make decisions that benefit clients.

#### Organizational Learning

- a. Maintain an open and collaborative environment that attracts and retains the best legal staff.
  - b. Seek staff diversity.
1. Develop at least one measure for each of the strategic objectives listed.
  2. Explain how YMC can use this balanced scorecard to evaluate staff performance.
  3. Should staff compensation be tied to the scorecard performance measures? Why or why not?

## Additional Assignment Material

MyAccountingLab

### QUESTIONS

**9-1** What is a management control system?

**9-2** What are the purposes of a management control system?

**9-3** What are the major components of a management control system?

**9-4** What is a key success factor?

**9-5** "Goals are useless without performance measures." Do you agree? Explain.

**9-6** "There are corporate goals other than to improve profit." Name three.

**9-7** How does management determine its key success factors?

**9-8** Give three examples of how managers may improve short-run performance to the detriment of long-run results.

**9-9** Name three kinds of responsibility centers.

**9-10** How do profit centers and investment centers differ?

**9-11** List five characteristics of a good performance measure.

**9-12** List four nonfinancial measures of performance that managers find useful.

**9-13** "Performance evaluation seeks to achieve goal congruence and managerial effort." Explain what is meant by this statement.

**9-14** "Managers of profit centers should be held responsible for the center's entire profit. They are responsible for profit even if they cannot control all factors affecting it." Discuss.

**9-15** "Variable costs are controllable and fixed costs are uncontrollable." Do you agree? Explain.

**9-16** "The contribution margin is the best measure of short-run performance." Do you agree? Explain.

**9-17** Give four examples of segments.

**9-18** "Always try to distinguish between the performance of a segment and its manager." Why?

**9-19** "The contribution margin approach to performance evaluation is flawed because focusing on only the contribution margin ignores important aspects of performance." Do you agree? Explain.

**9-20** What is a balanced scorecard and why are more companies using one?

**9-21** What are key performance indicators?



**9-22** There are four categories of cost in the quality cost report; explain them.

**9-23** Why are companies increasing their quality control emphasis on the prevention of defects?

**9-24** "Nonfinancial measures of performance can be controlled just like financial measures." Do you agree? Explain.

**9-25** Identify three measures of labor productivity, (a) one using all physical measures, (b) one

using all financial measures, and (c) one that mixes physical and financial measures.

**9-26** Discuss the difficulties of comparing productivity measures over time.

**9-27** "Control systems in nonprofit organizations will never be as highly developed as in profit-seeking organizations." Do you agree? Explain.

## CRITICAL THINKING EXERCISES

### 9-28 Management Control Systems and Innovation

The president of a fast-growing, high-technology firm remarked, "Developing budgets and comparing performance with the budgets may be fine for some firms. But we want to encourage innovation and entrepreneurship. Budgets go with bureaucracy, not innovation." Do you agree? How can a management control system encourage innovation and entrepreneurship?

### 9-29 Municipal Responsibility Accounting

After barely avoiding bankruptcy, New York City established one of the most sophisticated budgeting and reporting systems of any municipality. The Integrated Financial Management System (IFMS) "clearly identifies managers in line agencies and correlates allocations and expenditures with organizational structure. . . . In addition, managers have more time to take corrective measures when variances between budgeted and actual expenditures start to develop." (*FE—The Magazine for Financial Executives*, 1, no. 8, p. 26.)

Discuss how a responsibility accounting system such as IFMS can help manage a municipality such as New York City.

### 9-30 Control Systems and Customer Service Function of the Value Chain

Companies increasingly use nonfinancial measures to supplement financial measures of performance. One of the most important areas of nonfinancial performance is customer service. The last decade has brought an increased focus on the customer, and this focus is reflected in many companies' management control systems, where companies use "customer-value metrics." That is, they develop measures that monitor how well the company is meeting its customers' interests. What customer-value metrics might a company such as **Volvo**, the Swedish automobile company, use in its management control system?

### 9-31 Control Systems and the Production Function of the Value Chain

In recent years, many organizations have focused on the value of controlling nonfinancial performance as a key to improved productivity. In particular, to gain and maintain a competitive edge, companies focus on quality and cycle time. Discuss how quality, cycle time, and productivity are related.

### 9-32 Key Performance Indicators

Research on performance management suggests that organizations can compete most effectively by identifying and monitoring those elements that are most closely linked to organizational success. A key performance indicator can be thought of as a measure that drives organizational success. For each of the following companies or organizations, identify two possible key performance indicators.

1. **Delta Airlines**
2. **Wal-Mart**
3. **Hewlett Packard**
4. **New York Department of Motor Vehicles**

## EXERCISES

### 9-33 Responsibility for Stable Employment Policy

The Mid-Atlantic Metal Fabricating Company has been manufacturing machine tools for a number of years and has had an industry-wide reputation for doing high-quality work. The company has been faced with fluctuations in demand over the years. It has been company policy to lay off welders as soon as there was insufficient work to keep them busy and to rehire them when demand warranted. Because of this lay-off policy, the company now has poor labor relations and finds it difficult to hire good welders. Consequently, the quality of the products has been declining steadily.

The plant manager has proposed that welders, who earn \$20 per hour, be retained during slow periods to do menial plant maintenance work that is normally performed by workers earning \$14 per hour in the plant maintenance department.

You, as controller, must decide the most appropriate accounting procedure to handle the wages of the welders doing plant maintenance work. What department(s) should be charged with this work, and at what rate? Discuss the implications of your plan.

### 9-34 Salesclerk's Compensation Plan

You are the manager of a department store in Tokyo. Sales are subject to month-to-month variations, depending on the individual salesclerk's efforts and other factors. A new salary-plus-bonus plan has been in effect for 4 months, and you are reviewing a sales performance report. The plan provides for a base salary of ¥50,000 per month, a ¥68,000 bonus each month if the salesclerk meets the monthly sales quota, and an additional commission of 5% of all sales over the monthly quota. Each month, the quota is reset at approximately 3% above the previous month's sales to motivate clerks to continually increase sales. The monthly quotas and actual amounts for the first 4 months of the plan are shown in the following sales report (in thousands):

		Salesclerk A	Salesclerk B	Salesclerk C
January	Quota	¥4,500	¥1,500	¥7,500
	Actual	1,500	1,500	9,000
February	Quota	¥1,545	¥1,545	¥9,270
	Actual	3,000	1,545	3,000
March	Quota	¥3,090	¥1,590	¥3,090
	Actual	5,250	750	9,000
April	Quota	¥5,400	¥ 775	¥9,270
	Actual	1,500	780	4,050

1. Compute the compensation for each salesclerk for each month.
2. Evaluate the compensation plan. Be specific. What changes would you recommend?

### 9-35 Common Measures on a Balanced Scorecard

Listed next are common performance measures appearing on balanced scorecards. Indicate whether the listed measure is primarily associated with the financial, customer, internal process, or learning and growth perspective. (Note that some measures might reasonably be associated with more than one perspective.)

- Return on sales
- Retention of target customers
- Net cash flow
- Training hours
- Employee turnover rate
- Materials handling cost per unit
- Market share
- Product-development cycle time
- Revenue growth in segments
- Occupational injuries and illness
- Day's sales in inventory
- Average cost per invoice

### 9-36 Goals and Objectives at Health Net

**Health Net** provides health care to more than 5.6 million members. As a managed health-care organization, the company strives to provide high-quality health care at a reasonable cost. Many stakeholders have an interest in Health Net's operations, including doctors and other medical personnel, patients, insurance companies, government regulators, and the general public.

Prepare a goal and one measure for assessing achievement of that goal for each of the following key areas:

- Customer satisfaction
- Efficient use of lab tests
- Usage of physician time
- Maintenance of state-of-the-art facilities
- Overall financial performance

**9-37 Performance Evaluation**

Daniel Merrill & Co. is a stock brokerage firm that evaluates its employees on sales activity generated. Recently, the firm also began evaluating its stockbrokers on the number of new accounts generated.

Discuss how these two performance measures are consistent and how they may conflict. Do you believe that these measures are appropriate for the long-term goal of profitability?

**9-38 Simple Controllable Costs**

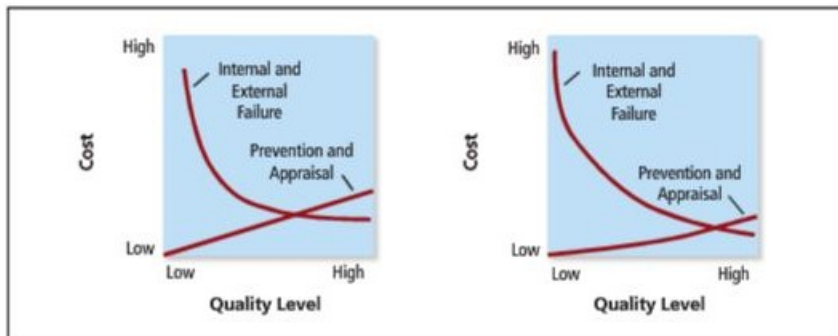
Shortline Espresso is a gourmet dessert restaurant in Seattle. Margie McMahon, the sole proprietor, expanded to a second location in Bellingham 3 years ago. Recently, McMahon decided to enroll in a PhD program and retire from active management of the individual restaurants but continues to oversee the entire company. She hired a manager for each restaurant. In 20X3, each had sales of \$1,200,000. The Bellingham restaurant is still pricing lower than the Seattle restaurant to establish a customer base. Variable expenses run 70% of sales for the Seattle restaurant and 75% of sales for the Bellingham restaurant.

Each manager is responsible for the rent and some other fixed costs for his or her restaurant. These costs amounted to \$110,000 for the Seattle restaurant and \$75,000 for the one in Bellingham. The difference is primarily due to lower rent in Bellingham. In addition, several costs, such as advertising, legal services, accounting, and personnel services, were centralized. The managers had no control of these expenses, but some of them directly benefited the individual restaurants. Of the \$345,000 cost in this category, \$100,000 related to Seattle and \$185,000 to Bellingham, where most of the additional cost in Bellingham is due to the cost of extra advertising to build up its customer base. The remaining \$60,000 was general corporate overhead.

1. Prepare income statements for each restaurant and for the company as a whole. Use a format that allows easy assessment of each manager's performance and each restaurant's economic performance.
2. Using only the information given in this exercise, do the following:
  - a. Evaluate each restaurant as an economic investment.
  - b. Evaluate each manager.

**9-39 Quality Theories Compared**

Examine the following two graphs. Compare the total quality management approach to the traditional theory of quality. Which theory do you believe represents the current realities of today's global competitive environment? Explain.

**9-40 Quality-Control Chart**

San Angelo Manufacturing Company was concerned about a growing number of defective units being produced. At one time, the company had the percentage of defective units down to less than five per thousand, but recently rates of defects have been near, or even above, 1%. The company decided to graph its defects for the last 8 weeks (40 working days), beginning Monday, September 1 through Friday, October 24. The graph is shown in Exhibit 9-12.

1. Identify two important trends evident in the quality-control chart.
2. What might management of San Angelo do to deal with each trend?



**Exhibit 9-12**

San Angelo Manufacturing Company  
Quality-Control Chart for  
September 1 Through  
October 24

### 9-41 Cycle-Time Reporting

The Pierre plant of Global Electronics produces computers. The plant monitors its cycle time closely to prevent schedule delays and excessive costs. The standard cycle time for the manufacture of printed circuit boards for one of its computers is 26 hours. Consider the following cycle-time data from the past 6 weeks of circuit board production:

Week	Units Completed	Total Cycle Time
1	564	14,108 hours
2	544	14,592
3	553	15,152
4	571	16,598
5	547	17,104
6	552	16,673

Analyze circuit board cycle time performance in light of the 26-hour objective.

## PROBLEMS

### 9-42 Multiple Goals and Profitability

The following multiple goals were identified by **General Electric**:

- Profitability
- Market position
- Productivity
- Product leadership
- Personnel development
- Employee attitudes
- Public responsibility
- Balance between short-range and long-range goals

General Electric is a huge, highly decentralized corporation. At the time it developed these goals, GE had approximately 170 responsibility centers called departments, but that is a deceptive term. In most other companies, these departments would be called divisions. For example, some GE departments had sales of more than \$500 million.

Each department manager's performance was evaluated annually in relation to the specified multiple goals. A special measurements group was set up to devise ways of quantifying accomplishments in each of the areas. In this way, the evaluation of performance would become more objective as the various measures were developed and improved.

- How would you measure performance in each of these areas? Be specific.
- Can the other goals be encompassed as ingredients of a formal measure of profitability? In other words, can profitability per se be defined to include the other goals?

**9-43 Responsibility Accounting, Profit Centers, and Contribution Approach**

Richfield Honda had the following data for the year's operations:

Sales of vehicles	\$3,100,000
Sales of parts and service	500,000
Cost of vehicle sales	2,480,000
Parts and service materials	100,000
Parts and service labor	200,000
Parts and service overhead	40,000
General dealership overhead	180,000
Advertising of vehicles	100,000
Sales commissions, vehicles	155,000
Sales salaries, vehicles	88,000

The president of the dealership has long regarded the markup on material and labor for the parts and service activity as the amount that is supposed to cover all parts and service overhead plus some general overhead of the dealership. In other words, the parts and service department is viewed as a cost-recovery operation, while the sales of vehicles is viewed as the income-producing activity.

1. Prepare a departmentalized operating statement that harmonizes with the views of the president.
2. Prepare an alternative operating statement that would reflect a different view of the dealership operations. Assume that \$30,000 and \$89,000 of the \$180,000 general overhead can be allocated with confidence to the parts and service department and to sales of vehicles, respectively. The remaining \$61,000 cannot be allocated except in some highly arbitrary manner.
3. Comment on the relative merits of numbers 1 and 2.

**9-44 Incentives in Planned Economies**

Often government-owned companies in planned economies reward managers based on nonfinancial measures. For example, the government might give managers a bonus for exceeding a 5-year-planned target for production quantities. A problem with this method is that managers tend to predict low volumes so that officials will set the targets low. This makes it easier for the managers to meet the targets, but it severely hinders planning because managers do not provide accurate information about production possibilities.

The former Soviet Union developed an alternative performance measurement and reward system. Suppose  $F$  is the forecast of production,  $A$  is actual production, and  $X$ ,  $Y$ , and  $Z$  are positive constants set by top officials, with  $X, Y, Z > 0$ . The following performance measure was designed to motivate both high production and accurate forecasts.

$$\begin{aligned} \text{performance measure} = & (Y \times F) + [X \times (A - F)] \text{ if } F \leq A \\ & (Y \times F) - [Z \times (F - A)] \text{ if } F > A \end{aligned}$$

Assume that Cuba adopted this measure at a time when Soviet influence was great. Consider the Havana Television Manufacturing Company (HTMC). During 19X3, the factory manager, Che Chavez, had to predict the number of TVs that HTMC could produce during the next year. He was confident that at least 700,000 TVs could be produced in 19X4, and most likely they could produce 800,000 TVs. With good luck, they might even produce 900,000. Government officials told him that the new performance evaluation measure would be used, and that  $X = .50$ ,  $Y = .80$ , and  $Z = 1.00$  for 19X4 and 19X5.

1. Suppose Chavez predicted production of 800,000 TVs and HTMC actually produced 800,000. Calculate the performance measure.
2. Suppose again that HTMC produced 800,000 TVs. Calculate the performance measure if Chavez had been conservative and predicted only 700,000 TVs. Also calculate the performance measure if he had predicted 900,000 TVs.
3. Now suppose it is November 19X4, and it is clear that HTMC cannot achieve the 800,000 target. Does the performance measure motivate continued efforts to increase production? Suppose it is clear that HTMC will easily meet the 800,000 target. Will the system motivate continued efforts to increase production?

Consider the following experience with the implementation of Six Sigma at a major manufacturing company:

Order Delivery Times (Days)	
Before Six Sigma	After Six Sigma
28	16
10	21
13	12
7	7
24	16
21	4
22	5
24	16
28	11
43	2

Compute the mean and standard deviation of order-delivery time before and after implementation of Six Sigma. From a customer's perspective, how would you view the results of this application of Six Sigma?

#### 9-48 Productivity

In early 20X1, SpaceTel Communications, a U.S.-based international telephone communications company, purchased the controlling interest in Sofia Telecom, Ltd. (STL) in Bulgaria. A key productivity measure monitored by SpaceTel is the number of customer telephone lines per employee. Consider the following data for SpaceTel:

	20X1 without STL	20X1 with STL	20X0
Customer lines	15,370,000	21,460,000	14,787,000
Employees	72,500	116,000	69,750
Lines per employee	212	185	212

1. What are SpaceTel's 20X0 productivity and 20X1 productivity without STL?
2. What are STL's 20X1 productivity and SpaceTel's 20X1 productivity with STL?
3. What difficulties do you foresee if SpaceTel brings STL's productivity in line?

#### 9-49 Productivity Measurement

Morrison's Laundry had the following results in 20X1 and 20X3:

	20X1	20X3
Pounds of laundry processed	1,420,000 pounds	1,505,000 pounds
Sales revenue	\$690,000	\$1,024,000
Direct-labor hours worked	44,500 hours	46,450 hours
Direct-labor cost	\$318,000	\$400,000

The laundry used the same facilities in 20X3 as in 20X1. During the past 3 years, however, the company put more effort into training its employees. The manager of Morrison's was curious about whether the training had increased labor productivity.

1. Compute a measure of labor productivity for 20X3 based entirely on physical measures. Do the same for 20X1. That is, from the data given, choose measures of physical output and physical input, and use them to compare the physical productivity of labor in 20X3 with that in 20X1.
2. Compute a measure of labor productivity for 20X3 based entirely on financial measures. Do the same for 20X1. That is, from the data given, choose measures of financial output and financial input, and use them to compare the financial productivity of labor in 20X3 with that in 20X1.



3. Suppose the following productivity measure was used:

$$\text{Productivity} = \frac{\text{sales revenue}}{\text{direct-labor hours worked}}$$

Because of inflation, each 20X1 dollar is equivalent to 1.13 dollars in 20X3. Compute appropriate productivity numbers for comparing 20X3 productivity with 20X1 productivity.

## CASES

### 9-50 Trade-Offs Among Objectives

Computer Data Services (CDS) performs routine and custom information systems services for many companies in a large midwestern metropolitan area. CDS has built a reputation for high-quality customer service and job security for its employees. Quality service and customer satisfaction have been CDS's primary subgoals—retaining a skilled and motivated workforce has been an important factor in achieving those goals. In the past, temporary downturns in business did not mean layoffs of employees, though some employees were required to perform other than their usual tasks. In anticipation of growth in business, CDS leased new equipment that, beginning in August, added \$10,000 per month in operating costs. Three months ago, however, a new competitor began offering the same services to CDS customers at prices averaging 19% lower than those of CDS. Rico Estrada, the company founder and president, believes that a significant price reduction is necessary to maintain the company's market share and avoid financial ruin, but he is puzzled about how to achieve it without compromising quality, service, and the goodwill of his workforce.

CDS has a productivity objective of 20 accounts per employee. Estrada does not think that he can increase this productivity and still maintain both quality and flexibility to customer needs. CDS also monitors average cost per account and the number of customer satisfaction adjustments (resolutions of complaints). The average billing markup rate is 25% of cost. Consider the following data from the past 6 months:

	June	July	August	September	October	November
Number of accounts	797	803	869	784	723	680
Number of employees	40	41	44	43	43	41
Average cost per account	\$ 153	\$ 153	\$ 158	\$ 173	\$ 187	\$ 191
Average salary per employee	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000

1. Discuss the trade-offs facing Rico Estrada.
2. Can you suggest solutions to his trade-off dilemma?

### 9-51 Six Sigma

The chapter mentions four companies that use Six Sigma for measuring and controlling quality: **Motorola**, **General Electric**, **3M**, and **Dow Chemical**. Go to the Web site for each of these companies and find what each says about its Six Sigma efforts.

### 9-52 Review of Chapters 1–9

William Whitebear, general manager of the Kamloops Division of Canada Enterprises, is preparing for a management meeting. His divisional controller provided the following information:

1. The master budget for the fiscal year ended June 30, 20X4, follows:

Sales (50,000 units of A and 70,000 units of B)	\$870,000
Manufacturing cost of goods sold	740,000
Manufacturing margin	\$130,000
Selling and administrative expenses	120,000
Operating income	\$ 10,000

2. The standard variable manufacturing cost per unit follows:

	Product A		Product B	
Direct materials	10 pieces at \$.25	\$2.50	5 pounds at \$.30	\$1.50
Direct labor	1 hour at \$3.00	3.00	.3 hour at \$2.50	.75
Variable overhead	1 hour at \$2.00	2.00	.3 hour at \$2.50	.75
Total		<u>\$7.50</u>		<u>\$3.00</u>

3. All budgeted selling and administrative expenses are common, fixed expenses; 60% are discretionary expenses.  
 4. The actual income statement for the fiscal year ended June 30, 20X4, follows:

Sales (53,000 units of A and 64,000 units of B)	\$861,000
Manufacturing cost of goods sold	749,200
Manufacturing margin	<u>\$111,800</u>
Selling and administrative expenses	116,000
Operating income	<u>\$ (4,200)</u>

5. The budgeted sales prices for products A and B were \$9 and \$6, respectively. Actual sales prices equaled budgeted sales prices.  
 6. The schedule of the actual variable manufacturing cost of goods sold by product follows (actual quantities in parentheses):

Product A:	Materials	\$134,500	(538,000 pieces)
	Labor	156,350	(53,000 hours)
	Overhead	108,650	(53,000 hours)
Product B:	Materials	102,400	(320,000 pounds)
	Labor	50,000	(20,000 hours)
	Overhead	50,000	(20,000 hours)
Total		<u>\$601,900</u>	

7. Products A and B are manufactured in separate facilities. Of the budgeted fixed manufacturing cost, \$130,000 is separable as follows: \$45,000 to product A and \$85,000 to product B. Ten percent of these separate costs are discretionary. All other budgeted fixed manufacturing expenses, separable and common, are committed.  
 8. There are no beginning or ending inventories.

During the upcoming management meeting, it is quite likely that some of the information from the controller will be discussed. In anticipation you set out to prepare answers to possible questions.

- Determine the firm's budgeted break-even point in dollars, overall contribution-margin ratio, and contribution margins per unit by product. Assume no change in product mix.
- Considering products A and B as segments of the firm, find the budgeted "contribution by segments" for each.
- It is decided to allocate the budgeted selling and administrative expenses to the segments (in number 2) as follows: committed costs on the basis of budgeted unit sales mix and discretionary costs on the basis of actual unit sales mix. What are the final expense allocations? Briefly appraise the allocation method.
- How would you respond to a proposal to base commissions to salespersons on the sales (revenue) value of orders received? Assume all salespersons have the opportunity to sell both products.
- Determine the firm's actual "contribution margin" and "contribution controllable by segment managers" for the fiscal year ended June 30, 20X4. Assume no variances in committed fixed costs.
- Determine the "sales-activity variance" for each product for the fiscal year ended June 30, 20X4.
- Determine and identify all variances in variable manufacturing costs by product for the fiscal year ended June 30, 20X4.

## NIKE 10-K PROBLEM

### 9-53 Strategy at Nike

Find “Item 7 Management’s Discussion and Analysis of Financial Condition and Results of Operations” near the beginning of the Nike 10-K report in Appendix C.

1. Outline Nike’s strategy to convert revenue growth to shareholder value in five key areas.
2. What are four long-term financial goals?
3. How well have these financial goals been met?
4. List some nonfinancial goals that Nike might use in a BSC.

## EXCEL APPLICATION EXERCISE

### 9-54 Wages for New Salary-Plus-Bonus Plan

**Goal:** Create an Excel spreadsheet to calculate the impact on employee wages of a new salary-plus-bonus plan established to motivate salesclerks to increase sales. Use the results to answer questions about your findings.

**Scenario:** As the department store manager, you must determine if the new plan is the best way to motivate salesclerks and meet the objective of increasing sales. The background data for the compensation plan appear in Exercise 9-34. Use only data for salesclerk A and salesclerk B to prepare your spreadsheet.

When you have completed your spreadsheet, answer the following questions:

1. Which salesclerk has the highest average total salary over the four-month period?
2. What part of the compensation plan had the most impact on the salesclerks’ salaries? The least impact?
3. Do you see any problems with this compensation plan? Explain.

#### Step-by-Step:

1. Open a new Excel spreadsheet.
2. In column A, create a bold-faced heading that contains the following:  
Row 1: Chapter 9 Decision Guideline  
Row 2: Tokyo Department Store  
Row 3: Salary-Plus-Bonus Plan Analysis  
Row 4: Today’s Date
3. Merge and center the four heading rows across columns A–H.
4. In column A, create the following row headings:  
Row 7: Salesclerk A  
Row 8: Month  
Row 9: January  
Row 10: February  
Row 11: March  
Row 12: April  
Skip three rows.  
Row 16: Salesclerk B  
Row 17: Month  
Row 18: January  
Row 19: February  
Row 20: March  
Row 21: April
5. Change the format of salesclerk names (rows 7, 16) to bold-faced, underlined headings.
6. Change the format of month (rows 8, 17) to bold-faced headings.
7. In rows 8 and 17, create the following bold-faced, right-justified column headings:  
Column B: Quota  
Column C: Sales  
Column D: Over Quota  
Column E: Base Salary  
Column F: Quota Bonus  
Column G: Commission  
Column H: Total Salary

Note: Adjust column widths as necessary.



8. In column G, create the following right-justified cell headings:  
Row 14: Average:  
Row 23: Average:
9. Use the scenario data to fill in quota, sales, and base salary amounts from January–April for each salesclerk.
10. Use the appropriate IF statements to calculate over quota and quota bonus amounts when the salesclerks' sales met or exceeded their respective quotas (negative commissions should not be calculated).

= IF (formula > 0,formula,0)

For Over Quota only.

= IF (formula < 0,0,68000) OR = IF (formula > 0,68000,0)

For Quota Bonus only.

Hint: Go to the "Help" text and type "copy formulas" in the search area to obtain instructions for copying formulas from one cell to another. If done correctly, you should have to type in each of the formulas only once.

11. Use appropriate formulas to calculate commission and total salary amounts for each month, as well as an average amount for the January–April period for each salesclerk.
12. Format all amounts as follows:

**Number tab:**

Category:

Currency

Decimal places:

0

Symbol:

None

Negative numbers:

Black with parentheses

13. To format specific amounts to display with a yen symbol, do the following:
  - a. In an empty cell, hold down the Alt key and enter 0165 from the numeric keypad. When you stop holding the Alt key down, a yen sign will be displayed.  
  
Note: If your keyboard does not have a numeric keypad, use the shift and NumLk keys to activate the imbedded numeric keypad. Then, follow the instructions in part a. Use the shift and NumLk keys to turn the feature off.
  - b. Highlight the yen character you have just created, select Edit, Cut. This will paste the yen sign to the clipboard. To see the clipboard, select View, Toolbars, Clipboard.
  - c. Select the average amount for salesclerk A and open the Format, Cells... dialog box.
  - d. Select the custom category on the number tab. Scroll down toward the bottom of the type list and highlight the type shown next.

Type: (\$#, ##0); (\$#, ##0); (\$" - " ); (@)

Change the data between the quotation marks in the third grouping from "-" to "0."

Paste the yen sign over EACH occurrence of the dollar sign.

Hint: Highlight the \$ sign; press "Ctrl" and "V." This will paste the yen sign from the clipboard over the \$ sign that has been highlighted in the Type field.

- e. Click the OK button.
- f. Utilize the custom format, which should now be at the bottom of the type list, to print the yen sign for all January amounts for both clerks and the average amount for salesclerk B.
14. Save your work, and print a copy for your files.

Note: Print your spreadsheet using landscape in order to ensure that all columns appear on one page.

## COLLABORATIVE LEARNING EXERCISE

### 9-55 Goals, Objectives, and Performance Measures

There is increasing pressure on colleges and universities to develop measures of accountability. The objective is to specify goals and objectives and to develop performance measures to assess the achievement of those goals and objectives.

Form a group of four to six students to be a consulting team to the accounting department at your college or university. (If you are not using this book as part of a course in an accounting department, select any department at your college or university.) Based on your collective knowledge of the department, its mission, and its activities, formulate a statement of goals for the department. From that statement, develop several specific objectives, each of which can be measured. Then, develop at least one measure of performance for each objective.

An optional second step in this exercise is to meet with a faculty member from the department, and ask him or her to critique your objectives and performance measures. To the department member,

do the objectives make sense? Are the proposed measures feasible, and will they correctly measure attainment of the objectives? Will they provide proper incentives to the faculty? If the department has created objectives and performance measures, compare them to those your group developed.

## INTERNET EXERCISE

### 9-56 Management Control System at Procter & Gamble

Setting up management control systems and determining measurement methods and who should be responsible for particular revenues, costs, and information can be a large task. The structure of the organization plays a part in how well a particular measure is likely to work. Ensuring that the goals of the organization are in concert with the management control system is also an important factor. It is not possible to evaluate a company's management control system from an Internet site. What we can do, however, is to use a site as an example and apply some of the concepts of the chapter to measures and tools that would be possibilities for a firm.

1. A well-known and well-established company with worldwide acceptance is **Procter & Gamble (P&G)**. Log on to the company's Web site at [www.pg.com](http://www.pg.com). Locate the most recent annual report by following the links under the "Investor/Shareholder Relations" tab to "Financial Reporting." Examine the "Letter to Shareholders" section of the annual report. What does P&G consider to be the most important factors that drive their growth strategy? How does P&G ensure that managers meet the company's objectives?
2. The company has numerous products, and the Web site divides them into different categories and brands to help customers find relevant product information. Click on "Brands and Innovation." What are the major categories of brands listed on the Web site? Click on the "Household Care" category. What are some of the brands in this category that you are familiar with? How could a system be set up to help measure the success of the firm's goal to build brands in the "Household Care" category? What would be three possible financial measures? What about three nonfinancial measures?