

Management Accounting

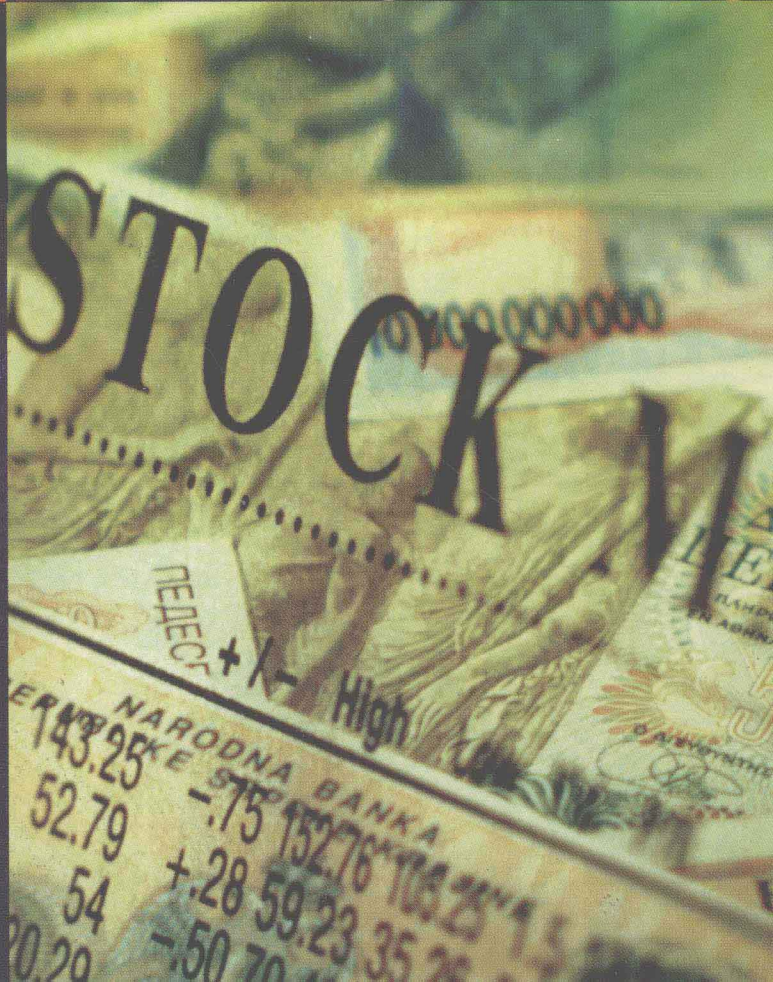
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Management Accounting

Custom Edition

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can then calculate the minimum bid that will provide a reasonable dollar return." (Product costing and pricing decision)

B. **Local Operator:** "I am confident that replacing the tooling in our machines and redesigning the grinding process will improve quality and decrease the time required to perform the operation. However, I would like to know if the number of defective units really drops and by how much. I also need to know if cycle time actually decreases because of the changes. Furthermore, do these changes reduce the cost of performing the work we do? I also need to know the cost of resources used before and after the proposed changes to see if cost improvement is really taking place." (Continuous improvement)

C. **Bank Manager:** "This is incredible! The no-equity loans were supposed to be our most profitable new product. Yet costs exceeded expectations by \$150,000. What happened? Did we spend too much time with each client? Was there less demand for the product than expected? Were processing costs greater than budgeted? Did more loans go into default than

expected? I need information that reveals what happened so that corrective action can be taken." (Operational control)

D. **Chief Executive Officer (of an airline):** "Our profits are being squeezed by the intense competition we are facing. My marketing vice-president argues that we can improve our financial position by reducing our fares. She claims that if we reduce fares by 20 percent and simultaneously increase advertising expenditures by \$500,000, we can increase the number of passengers by 20 percent. I need to decide whether the price decrease coupled with an increase in advertising costs and passenger volume is profitable." (Cost-volume-profit decision)

E. **Hospital Administrator:** "I am not at all pleased with the performance of the emergency room. This latest performance report seems to reveal a total disregard for cost control. The actual costs incurred for almost every category are higher than the planned costs. Additionally, the revenues are lower than they should be for the number of patients treated. I think I need to meet with the assistant administrator of that area." (Managerial control)

F. **Manager:** "We must soon decide whether the acquisition of the computer-aided manufacturing equipment is in our best interest or not. This is a critical decision involving enormous amounts of capital, and it carries with it some long-term implications regarding the type of labor that we employ. To help us in that decision, our controller has estimated the cost of capital and the increase in after-tax cash flow that would be expected over the life of the equipment." (Capital investment decision and strategic planning)

Questions to Think About

1. Who are the users of management accounting information?
2. What is management accounting information used for?
3. Should a management accounting system provide both financial and nonfinancial information?
4. What organizations need a management accounting information system?

MANAGEMENT ACCOUNTING INFORMATION SYSTEM

Objective 1

Explain the need for management accounting information.

The management accounting information system is an information system that produces outputs using inputs and processes needed to satisfy specific management objectives. Processes are the heart of a management accounting information system and are used to transform the inputs into outputs that satisfy the system's objectives. Processes are described by activities such as collecting, measuring, storing, analyzing, reporting, and managing information. Outputs include special reports, product costs, customer costs, budgets, performance reports, and even personal communication. The operational model of a management accounting information system is illustrated in Exhibit 1-1.

The management accounting information system is not bound by any formal criteria that define the nature of the inputs or processes—or even the output. The criteria are flexible and based on management objectives. The management accounting system has three broad objectives:

1. To provide information for costing out services, products, and other objects of interest to management.
2. To provide information for planning, controlling, evaluation, and continuous improvement.
3. To provide information for decision making.

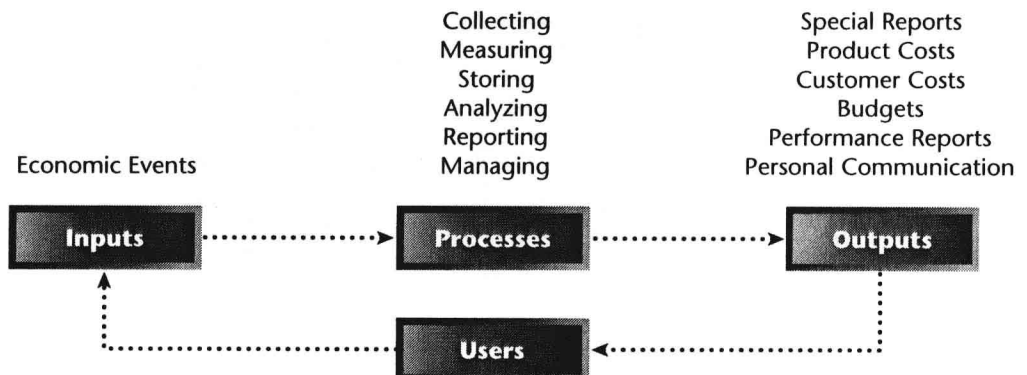
These three objectives reveal that managers and other users need management accounting information and need to know how to use it. Management accounting information can help managers identify problems, solve problems, and evaluate performance (accounting information is needed and used in all phases of management, including planning, controlling, and decision making). Furthermore, the need for management accounting information is not limited to manufacturing organizations but is used in all organizations: manufacturing, merchandising, and service.

Information Needs of Managers and Other Users

The opening scenarios can be used to illustrate each of the management accounting system objectives. Scenario A (the manager of a for-profit medical lab), for example, shows the importance of determining the cost of products (illustrating objective 1). Scenario B emphasizes the importance of tracking costs and nonfinancial measures of performance over time. Thus, Scenario A emphasizes the importance of accuracy in product costing while Scenario B underscores the importance of tracking efficiency measures—both financial and nonfinancial (illustrating objective 2). Trends in these measures can suggest ways of improving a company's operations. For example, **Milliken & Company**, a leading textile manufacturer, began to use trend charts to track the change time for its dye nozzles. These charts provided the incentive for

milliken.com

Exhibit 1-1
Operational Model:
Management
Accounting Information
System

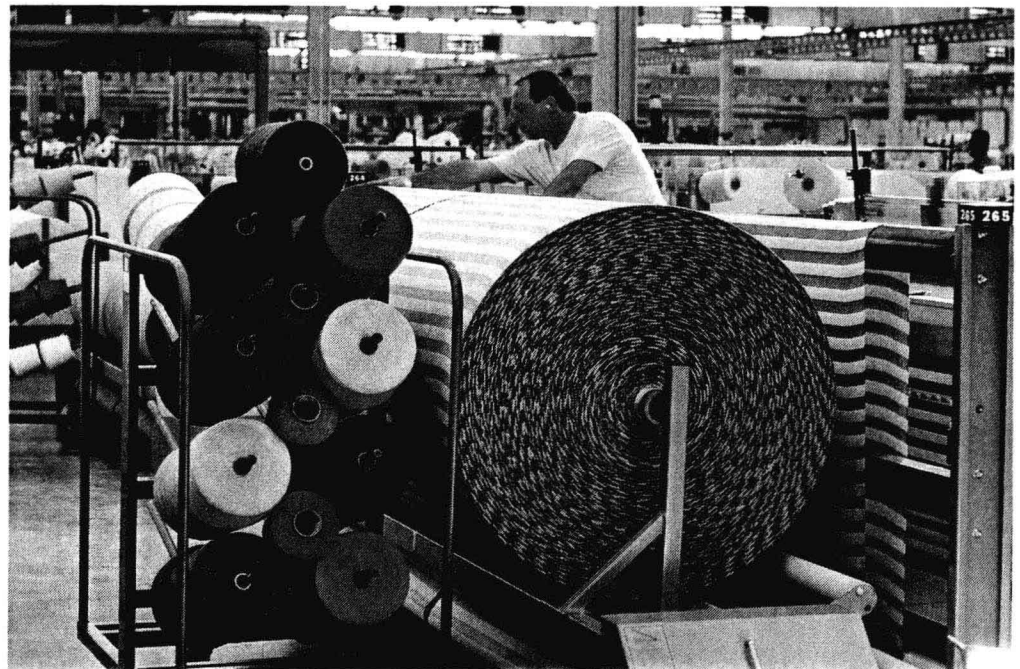


engineering and production personnel to reduce change time from 22 minutes to 8.2 minutes—a dramatic improvement.¹ Accuracy in cost assignments and the use of nonfinancial information by both managers and nonmanagers have emerged as fundamental requirements for many organizations. These and other related issues have led to the development of an improved management accounting information system known as an *activity-based cost management information system*.

Scenarios B, C, E, and F illustrate planning, control, evaluation, and continuous improvement (objective 2). Managers, executives, and workers need an information system that will identify problems, such as the possibility of cost overruns (Scenario C) or the inability of a manager in a subunit to implement a plan properly (Scenario E). Once problems are known, actions can be taken to identify and implement solutions. Scenario B also illustrates that both financial and nonfinancial information are needed so that workers can evaluate and monitor the effects of decisions that are intended to improve operational and unit performance. Informing workers about operational and financial performance allows workers to assess the effectiveness of their efforts to improve their work. Workers and managers should be committed to continuously improving the activities they perform. Continuous improvement means searching for ways to increase the overall efficiency and productivity of activities by reducing waste, increasing quality, and reducing costs. Thus, information is needed to help identify opportunities for improvement and to evaluate the progress made in implementing actions designed to create improvement.

The third objective, providing information for decision making, is intertwined with the first two. For example, information about the costs of products, customers, processes, and other objects of interest to management can be the basis for identifying problems and alternative solutions. Similar observations can be made about information pertaining to planning, control, and evaluation. Examples include using product cost to prepare a bid (Scenario A), helping a manager decide whether to reduce prices and increase advertising to improve profitability (Scenario D), or helping a manager decide whether to automate (Scenario F). This last scenario also

There are many types of resources in a textile mill: employees (direct labor), spools of thread (direct materials), and rollers (overhead). The factory controller must have a good grasp of the production process in order to accurately assign costs to the finished rolls of fabric.



1 James Don Edwards, "How Milliken Stays on Top," *Journal of Accountancy* (April 1989): pp. 63–74 (see especially pp. 72–74).

underscores the importance of strategic decision making, which is defined as the process of choosing among alternative strategies with the goal of selecting one or more strategies that provide a company with a reasonable assurance of long-term growth and survival.

The Management Process

The management process is defined by the following activities: (1) planning, (2) controlling, and (3) decision making. The management process describes the functions carried out by managers and empowered workers. Empowering workers to participate in the management process means giving them a greater say in how the plant operates. Thus, employee empowerment is simply authorizing operational personnel to plan, control, and make decisions without explicit authorization from middle- and higher-level management.

Employee empowerment is justified by the belief that the employees closest to the work can provide valuable input in terms of ideas, plans, and problem solving. Workers are allowed to shut down production to identify and correct problems, and their input is sought and used to improve production processes. Two examples illustrate the power of this concept. First, empowered workers at **Duffy Tool and Stamping** saved \$14,300 per year by redesigning a press operation.² In one department, completed parts (made by a press) came down a chute and fell into a parts tub. When the tub became full, press operators had to stop operation while the stock operator removed the full tub and replaced it with an empty one. Empowered workers redesigned the operation so that each press had a chute with two branches—each leading to a tub. Now completed parts are routed into one branch of the chute. When the tub associated with the active branch becomes full, the completed parts are routed to the other branch and its tub while the full tub is being removed and replaced with an empty tub. This new design avoids machine downtime and produces significant savings. Second, **GR Spring and Stamping** implemented an employee empowerment program in 1991. From 1991 to 1995, the number of ideas implemented increased from 0.67 per employee to 11.22 per employee.³ Increased involvement in managing the company through employee empowerment is a key element in enhancing continuous improvement efforts.

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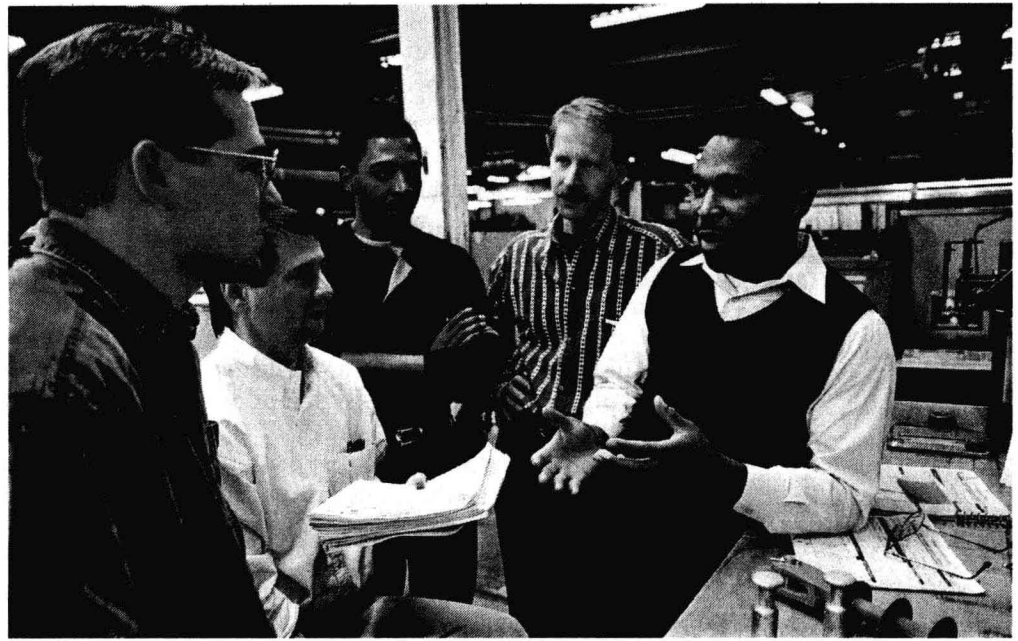
Planning The detailed formulation of action to achieve a particular end is the management activity called planning. Planning, therefore, requires setting objectives and identifying methods to achieve those objectives. For example, a firm may have the objective of increasing its short-term and long-term profitability by improving the overall quality of its products. By improving product quality, the firm should be able to reduce scrap and rework, decrease the number of customer complaints and warranty work, reduce the resources currently assigned to inspection, and so on, thus increasing profitability. But how is this to be accomplished? Management must develop some specific methods that, when implemented, will lead to the achievement of the desired objective. A plant manager, for example, may initiate a supplier evaluation program that has the objective of identifying and selecting suppliers who are willing and able to supply defect-free parts. Empowered workers, on the other hand, may be able to identify production causes of defects and create new methods for producing a product that will reduce scrap and rework and the need for inspection. The new methods should be clearly specified and detailed.

Controlling Planning is only half the battle. Once a plan is created, it must be implemented and its implementation monitored by managers and workers to ensure

2 George F. Hanks, "Excellence Teams in Action," *Management Accounting* (February 1995): p. 35.

3 Joseph F. Castellano, Donald Klein, and Harper Roehm, "Minicompanies: The Next Generation of Employee Empowerment," *Management Accounting* (March 1998): pp. 22–30.

Employee empowerment can lead to decreased costs and increased quality. Frequent, informal meetings are common in a world-class manufacturing firm.



that the plan is being carried out as intended. The managerial activity of monitoring a plan's implementation and taking corrective action as needed is referred to as **controlling**. Control is usually achieved with the use of feedback. Feedback is information that can be used to evaluate or correct the steps being taken to implement a plan. Based on the feedback, a manager (or worker) may decide to let the implementation continue as is, take corrective action of some type to put the actions back in harmony with the original plan, or do some midstream replanning.

Feedback is a critical facet of the control function. It is here that management accounting once again plays a vital role. Feedback can be financial or nonfinancial in nature. For example, the chute redesign at **Duffy Tool and Stamping** saved more than \$14,000 per year—financial feedback. But the redesign also eliminated machine downtime and increased the number of units produced per hour (operational feedback). Both measures convey important information. Often financial and nonfinancial feedback is in the form of formal reports that compare the actual data with planned data or benchmarks (internal, external, or historical). These reports are referred to as **performance reports**.

Decision Making The process of choosing among competing alternatives is decision making. This pervasive managerial function is intertwined with planning and control. A manager cannot plan without making decisions. Managers must choose among competing objectives and methods to carry out the chosen objectives. Only one of numerous competing plans can be chosen. Similar comments can be made concerning the control function.

Decisions can be improved if information about the alternatives is gathered and made available to managers. One of the major roles of the management accounting information system is to supply information that facilitates decision making. For example, the manager in Scenario A was faced with the prospect of submitting a bid on laboratory tests for a health maintenance organization (HMO). A large number of possible bids could be submitted, but the manager must choose one and only one to submit to the prospective customer. The manager requested information concerning the expected manufacturing costs of the laboratory tests. This cost information, along with the manager's knowledge of competitive conditions, should improve his or her ability to select a bid price. Imagine having to submit a bid without some idea of the production costs.

Organization Type

The use of accounting information by managers is not limited to manufacturing organizations. Regardless of the organizational form, managers must be proficient in using accounting information. The basic concepts taught in this text apply to a variety of settings. The six scenarios at the beginning of this chapter involved manufacturing, health care, transportation, profit, and nonprofit organizations. Hospital administrators, presidents of corporations, dentists, educational administrators, and city managers all can improve their managerial skills by being well-grounded in the basic concepts and use of accounting information.

MANAGEMENT ACCOUNTING AND FINANCIAL ACCOUNTING

Objective 2

Explain the differences between management accounting and financial accounting.

The accounting information system within an organization has two major subsystems: a management accounting system and a financial accounting system. (The accounting information system is a subsystem of a firm's overall management information system.) The two accounting subsystems differ in their objectives, the nature of their inputs, and the type of processes used to transform inputs into outputs. The financial accounting information system is primarily concerned with producing outputs for external users. It uses well-specified economic events as inputs and processes that meet certain rules and conventions. For financial accounting, the nature of the inputs and the rules and conventions governing processes are defined by the Securities Exchange Commission (SEC) and the Financial Accounting Standards Board (FASB). The overall objective is the preparation of external reports (financial statements) for investors, creditors, government agencies, and other outside users. This information is used for such things as investment decisions, stewardship evaluation, monitoring activity, and regulatory measures.

The management accounting system produces information for internal users, such as managers, executives, and workers. Thus, management accounting could be properly called internal accounting, and financial accounting could be called external accounting. Specifically, management accounting identifies, collects, measures, classifies, and reports information that is useful to internal users in planning, controlling, and decision making.

When comparing management accounting to financial accounting, several differences can be identified. Some of the more important differences follow and are summarized in Exhibit 1-2.

- *Targeted users.* As mentioned, management accounting focuses on providing information for internal users, while financial accounting focuses on providing information for external users.
- *Restrictions on inputs and processes.* Management accounting is not subject to the requirements of generally accepted accounting principles. The Securities and Exchange Commission (SEC) and the Financial Accounting Standards Board

Exhibit

1-2

Comparison of
Management and
Financial Accounting

Management Accounting	Financial Accounting
1. Internally focused	1. Externally focused
2. No mandatory rules	2. Must follow externally imposed rules
3. Financial and nonfinancial information; subjective information possible	3. Objective financial information
4. Emphasis on the future	4. Historical orientation
5. Internal evaluation and decisions based on very detailed information	5. Information about the firm as a whole
6. Broad, multidisciplinary	6. More self-contained

(FASB) set the accounting procedures that must be followed for financial reporting. The inputs and processes of financial accounting are well-defined and, in fact, restricted. Only certain kinds of economic events qualify as inputs, and processes must follow generally accepted methods. Unlike financial accounting, management accounting has no official body that prescribes the format, content, and rules for selecting inputs and processes and preparing financial reports. Managers are free to choose whatever information they want—provided it can be justified on a cost-benefit basis.

- *Type of information.* The restrictions imposed by financial accounting tend to produce objective and verifiable financial information. For management accounting, information may be financial or nonfinancial and may be much more subjective in nature.
- *Time orientation.* Financial accounting has an historical orientation. It records and reports events that have already happened. Although management accounting also records and reports events that have already occurred, it strongly emphasizes providing information about future events. Management, for example, may not only want to know what it costs to produce a product, it may also want to know what it *will* cost to produce a product. Knowing what it will cost helps in planning material purchases and making pricing decisions, among other things. This future orientation is demanded because of the need to support the managerial functions of planning and decision making.
- *Degree of aggregation.* Management accounting provides measures and internal reports used to evaluate the performance of entities, product lines, departments, and managers. Essentially, very detailed information is needed and provided. Financial accounting, on the other hand, focuses on overall firm performance, providing a more aggregated viewpoint.
- *Breadth.* Management accounting is much broader than financial accounting. It includes aspects of managerial economics, industrial engineering, and management science, as well as numerous other areas.

It should be emphasized, however, that both the management accounting information system and the financial accounting information system are part of the total accounting information system. Unfortunately, all too often the content of the management accounting system is driven by the needs of the financial accounting system. The reports of both management and financial accounting are frequently derived from the same database, which usually was originally established to support the reporting requirements of financial accounting. Many organizations need to redesign this database in order to satisfy more fully the needs of the internal users. For example, a firm's profitability is of interest to investors, but managers need to know the profitability of individual products. The accounting system should be designed to provide both total profits and profits for individual products. The key point here is flexibility—the accounting system should be able to supply different information for different purposes.

A BRIEF HISTORICAL PERSPECTIVE OF MANAGEMENT ACCOUNTING

Objective 3

Provide a brief historical description of management accounting.

Most of the product-costing and management accounting procedures used in the twentieth century were developed between 1880 and 1925.⁴ Interestingly, many of the early developments (until about 1914) concerned managerial product costing—tracing a firm's profitability to individual products and using this information for strategic decision making. By 1925, however, most of this emphasis had been abandoned in favor of inventory costing—assigning manufacturing costs to products so that the cost of inventories could be reported to external users of a firm's financial statements.

⁴ The information in this section is based on H. Thomas Johnson and Robert Kaplan, *Relevance Lost: The Rise and Fall of Management Accounting* (Boston: Harvard Business School Press, 1987).

Financial reporting became the driving force for the design of cost accounting systems. Managers and firms were willing to accept aggregated average cost information about individual products, as they didn't feel the need for more detailed and accurate cost information about individual products. As long as a company had relatively homogeneous products that consumed resources at about the same rate, the average cost information supplied by a financially driven cost system was good enough. Furthermore, for some firms, even as product diversity increased, the need to have more accurate cost information was offset by the high cost of the processing required to provide the information. For many firms, the cost of a more detailed cost system apparently exceeded its benefits.

Some effort to improve the managerial usefulness of conventional cost systems took place in the 1950s and 1960s. Users discussed the shortcomings of information supplied by a system designed to prepare financial reports. Efforts to improve the system, however, essentially centered on making the financial accounting information more useful to users rather than on producing an entirely new set of information and procedures apart from the external reporting system.

In the 1980s and 1990s, many recognized that the traditional management accounting practices were no longer serving managerial needs. Some claimed that existing management accounting systems were obsolete and virtually useless. More accurate product costing and more useful and detailed inputs were needed to allow managers to improve quality and productivity and to reduce costs. In response to the perceived failure of the traditional management accounting system, efforts were made to develop a new management accounting system—one that satisfies the demands of the current economic environment.

CURRENT FOCUS OF MANAGEMENT ACCOUNTING

Objective 4

Identify and explain the current focus of management accounting.

Thus, the economic environment has required the development of innovative and relevant management accounting practices. Consequently, activity-based management accounting systems have been developed and implemented in many organizations. Additionally, the focus of management accounting systems has been broadened to enable managers to better serve the needs of customers and manage the firm's value chain. Furthermore, to secure and maintain a competitive advantage, managers must emphasize time, quality, and efficiency, and accounting information must be produced to support these three fundamental organizational goals.

Activity-Based Management

The demand for more accurate and relevant management accounting information has led to the development of activity-based management. Activity-based management is a systemwide, integrated approach that focuses management's attention on activities with the objective of improving customer value and the resulting profit. Activity-based management emphasizes activity-based costing (ABC) and process value analysis. Activity-based costing improves the accuracy of assigning costs by first tracing costs to activities and then to products or customers that consume these activities. Process value analysis, on the other hand, emphasizes activity analysis—trying to determine why activities are performed and how well they are performed. The objective is to find ways to perform necessary activities more efficiently and to eliminate those that do not create customer value. Peter Drucker, internationally respected management guru, points out the growing importance of activity-based costing (management):

Traditional cost accounting in manufacturing does not record the cost of nonproducing such as the cost of faulty quality, or of a machine being out of order, or of needed parts not being on hand. Yet these unrecorded and uncontrolled costs in some plants run as high as the costs that traditional accounting does record. By

contrast, a new method of cost accounting developed in the last ten years—called “activity-based” accounting—records all costs. And it relates them, as traditional accounting cannot, to value-added. Within the next 10 years it should be in general use, and then we will have operational control in manufacturing.⁵

Activity-based management has become an accepted and widely used practice, substantiating to a large degree the foresight of Peter Drucker.

Customer Orientation

Activity-based management has the objective to increase customer value by managing activities. Customer value is a key focus because firms can establish a competitive advantage by creating better customer value for the same or lower cost than that of competitors or creating equivalent value for lower cost than that of competitors. Customer value is the difference between what a customer receives (customer realization) and what the customer gives up (customer sacrifice). What is received is called the total product. The total product is the complete range of tangible and intangible benefits that a customer receives from a purchased product. Thus, customer realization includes basic and special product features, service, quality, instructions for use, reputation, brand name, and any other factors deemed important by customers. Customer sacrifice includes the cost of purchasing the product, the time and effort spent acquiring and learning to use the product, and postpurchase costs, which are defined as the costs of using, maintaining, and disposing of the product. Increasing customer value means increasing customer realization or decreasing customer sacrifice, or both.

Strategic Positioning Increasing customer value to create a sustainable competitive advantage is achieved through judicious selection of strategies. Cost information plays a critical role in this process and does so through a process called *strategic cost management*. Strategic cost management is the use of cost data to develop and identify superior strategies that will produce a sustainable competitive advantage. Generally, firms choose a strategic position corresponding to one of two general strategies: (1) cost leadership and (2) superior products through differentiation.⁶ The objective of the cost leadership strategy is to provide the same or better value to customers at a *lower* cost than competitors. Thus, a low-cost strategy has the objective of increasing customer value by reducing sacrifice. For example, reducing the cost of making a product by improving a process would allow the firm to reduce the product's selling price, thus reducing customer sacrifice. A differentiation strategy, on the other hand, strives to increase customer value by increasing realization. Providing something to customers not provided by competitors creates a competitive advantage. For example, a retailer of computers could offer on-sight repair service, a feature not offered by other rivals in the local market. Of course, for a differentiation strategy to be viable, the value added to the customer by the differentiation must exceed the firm's cost of providing the differentiation. Also, different strategies usually require different cost information, implying that the cost systems may differ according to the strategy adopted by a firm.

Value-Chain Framework A focus on customer value means that the management accounting system should produce information about both realization and sacrifice. Collecting information about customer sacrifice means gathering information outside the firm. But there are even deeper implications. Successful pursuit of cost leadership and/or differentiation strategies requires an understanding of a firm's *internal* and *industrial* value chains. Effective management of the internal value chain is

5 Peter F. Drucker, “We Need to Measure, Not Count,” *The Wall Street Journal* (13 April 1993): p. A14.

6 The Japanese have also shown that it is possible for a firm to pursue a strategy that combines the two: A differentiation with cost advantage strategy.

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fundamental to increasing customer value, especially if maximizing customer realization at the lowest possible cost (to the firm) is a goal. The *internal value chain* is the set of activities required to design, develop, produce, market, and deliver products and services to customers. Thus, emphasizing customer value forces managers to determine which activities in the value chain are important to customers. A management accounting system should track information about a wide variety of activities that span the internal value chain. Consider, for example, the delivery segment. Timely delivery of a product or service is part of the total product and, thus, of value to the customer. Customer value can be increased by increasing the speed of delivery and response. **Federal Express** exploited this part of the value chain and successfully developed a service that was not being offered by the **U.S. Postal Service**. Today, many customers believe that a delivery delayed is a delivery denied. This seems to indicate that a good management accounting system ought to develop and measure indicators of customer satisfaction.

The *industrial value chain* is also critical for strategic cost management. The industrial value chain is the linked set of value-creating activities from basic raw materials to the disposal of the final product by end-use customers. Exhibit 1–3 illustrates a possible value chain for the apple industry. A given firm operating within the industry may not—and likely will not—span the entire value chain. The exhibit illustrates that different firms participate in different segments of the chain. Understanding the industrial value chain is critical to understanding a firm's strategically important activities. Breaking down a firm's value chain into its strategically important activities is basic to successful implementation of cost leadership and differentiation strategies. Fundamental to a value-chain framework is the recognition of existing complex linkages and interrelationships among activities both within and external to the firm. Thus, there are two types of linkages: *internal* and *external*. Internal linkages are relationships among activities that are performed within a firm's portion of the industrial value chain (the internal value chain). External linkages are activity relationships between the firm and the firm's suppliers and customers. Thus, we can talk about *supplier linkages* and *customer linkages*. Using these linkages to bring about a win-win outcome for the firm, its suppliers, and its customers is the key to successful strategic cost management. The objective, of course, is to manage these linkages better than competitors, thus creating a competitive advantage.

It is important to note that companies have internal customers as well. For example, the procurement process acquires and delivers parts and materials to producing departments. Providing high-quality parts on a timely basis to managers of producing departments is just as vital for procurement as it is for the company as a whole to provide high-quality goods to external customers. The emphasis on managing the internal value chain and servicing internal customers has revealed the importance of a cross-functional perspective.

Cross-Functional Perspective

Managing the value chain means that a management accountant must understand many functions of the business, from manufacturing to marketing to distribution to customer service. This need is magnified when the company is involved in international trade. We see this, for example, in the varying definitions of product cost. Activity-based management accounting has moved beyond the traditional manufacturing cost definition of product cost to more inclusive definitions. These contemporary approaches to product costing may include initial design and engineering costs, as well as manufacturing costs, and the costs of distribution, sales, and service. An individual well-schooled in the various definitions of product cost, who understands the shifting definitions of cost from the short-run to the long-run, can be invaluable in determining what information is relevant in decision making. For