

# 1

## Chapter One

# Cost Accounting: Information for Decision Making

### LEARNING OBJECTIVES

*After reading this chapter, you should be able to:*

- L.O.1** Describe the way managers use accounting information to create value in organizations.
- L.O.2** Distinguish between the uses and users of cost accounting and financial accounting information.
- L.O.3** Explain how cost accounting information is used for decision making and performance evaluation in organizations.
- L.O.4** Identify current trends in cost accounting.
- L.O.5** Understand ethical issues faced by accountants and ways to deal with ethical problems that you face in your career.



I opened this store on Main Street shortly after I graduated. This is a tourist town, and I knew that a cookie store would attract people. I've seen it grow a bit over the last few years, but the return has always been marginal.

I read recently that most small businesses fail within three years. (See the *In Action* item "The Importance of Understanding Costs.") I went back to school last year hoping to learn some business skills that will help me really take control and increase the store's value. One thing I need to do is develop a better understanding of my costs. This semester I'm taking a cost accounting class. I know a little bit about the

subject, but I know there is a lot more to learn. I'm curious, though, how this class will help me and how what I will learn will further my career, whether I remain an owner or move into management at a larger organization.

Carmen Diaz is the founder of Carmen's Cookies, which she opened three years ago. Recently, she returned to school for a business degree. The store has been marginally profitable, but Carmen knows she must make a decision soon. Should she work on making the store more profitable, or should she abandon it and seek employment with another firm?

Carmen, like all managers, wants to add value to her company and is looking for knowledge that will help her do this. Like you, she is now studying cost accounting as one of the disciplines that she will use. Carmen knows that the world is a fast-changing place. She wants to learn not only what is current but also a way to think about problems that she can apply throughout her career. To do this, she knows that she has to develop an intuition about the subject. She cannot just learn a few facts that she is sure to forget soon. After developing this intuition, she will be able to evaluate the value of new cost accounting methods introduced throughout her career.

In this chapter we give an overview of cost accounting and illustrate a number of the business situations we will study to put the topic in perspective. The examples we use and the description of how they apply to larger organizations (or to not-for-profit organizations or government agencies) are discussed in more detail in individual chapters. The examples also illustrate how the discipline of cost accounting can make a person a more valuable part of any organization.

## The Importance of Understanding Costs

### *In Action*

Opening a new business is risky under the best circumstances. In the food business, "Two out of every three new restaurants, delis, and food shops close within three years of opening, according to government statistics, the same failure rate for small businesses in general." Part of the problem is that,

... restaurant novices make the same costly mistake: vastly underestimating the money it will take just to break

even. Linda Lipsky, a restaurant consultant, counsels them to have enough money to cover every aspect of a business for the first six months, including food, salaries, benefits, kitchen equipment, rent, and utilities.

Source: M. Maynard, "Love Food? Think Twice Before Jumping into the Restaurant Business," *The New York Times*, August 27, 2008.

## Value Creation in Organizations

### **Why Start with Value Creation?**

We start our discussion with the concepts of value creation and the value chain because in cost accounting our goal is to assist managers in achieving the maximum value for their organizations. Measuring the effects of decisions on the value of the organization is one of the fundamental services of cost accounting. As providers of information (accountants) or as the users of information (managers), we have to understand how the information can and will be used to increase value. We can then come back to questions about how to design accounting systems that accomplish this goal.

#### **L.O. 1**

Describe the way managers use accounting information to create value in organizations.

## Value Chain

### value chain

Set of activities that transforms raw resources into the goods and services that end users purchase and consume.

The **value chain** is the set of activities that transforms raw resources into the goods and services end users (households, for example) purchase and consume. It also includes the treatment or disposal of any waste generated by the end users. As an example, the value chain for gasoline stretches from the search and drilling for oil, through refining the oil into gasoline, to the distribution of gasoline to retail outlets such as convenience stores, and, finally, to the treatment of the emissions produced by automobiles.

In much of our discussion about cost accounting, we will be concerned with the part of the value chain that comprises the activities of a single organization (a firm, for example). However, an important objective of modern cost accounting is to ensure that the entire value chain is as efficient as possible. It is necessary for the firm to coordinate with vendors and suppliers and with distributors and customers to achieve this objective. In the gasoline example, ExxonMobil must work with suppliers of drilling equipment to ensure the equipment is available when needed. It also needs to work with owners of their On the Run franchises to ensure that gasoline is delivered to the stations as needed.

The cost accounting system provides much of the information necessary for this coordination. Therefore, at times we will also consider where in the value chain it is most efficient to perform an activity.

### value-added activities

Those activities that customers perceive as adding utility to the goods or services they purchase.

The **value-added activities** that the firms in the chain perform are those that customers perceive as adding utility to the goods or services they purchase. The value chain comprises activities from research and development through the production process to customer service. Managers evaluate these activities to determine how they contribute to the final product's service, quality, and cost.

Exhibit 1.1 identifies the individual components of the value chain and provides examples of the activities in each component, along with some of the costs associated with these activities. Although the list of value chain components in Exhibit 1.1 suggests a sequential process, many of the components overlap. For example, the R&D and design processes might take place simultaneously. Feedback from production workers on

**Exhibit 1.1** The Value Chain Components, Example Activities, and Example Costs

Component	Example Activities	Example Costs
<ul style="list-style-type: none"> <li>Research and development (R&amp;D)</li> </ul>	<ul style="list-style-type: none"> <li>The creation and development of ideas related to new products, services, or processes.</li> </ul>	<ul style="list-style-type: none"> <li>Research personnel</li> <li>Patent applications</li> <li>Laboratory facilities</li> </ul>
<ul style="list-style-type: none"> <li>Design</li> </ul>	<ul style="list-style-type: none"> <li>The detailed development and engineering of products, services, or processes.</li> </ul>	<ul style="list-style-type: none"> <li>Design center</li> <li>Engineering facilities used to develop and test prototypes</li> </ul>
<ul style="list-style-type: none"> <li>Purchasing</li> </ul>	<ul style="list-style-type: none"> <li>The acquisition of goods and services needed to produce a good or service.</li> </ul>	<ul style="list-style-type: none"> <li>Purchasing department personnel</li> <li>Vendor certification</li> </ul>
<ul style="list-style-type: none"> <li>Production</li> </ul>	<ul style="list-style-type: none"> <li>The collection and assembly of resources to produce a product or deliver a service.</li> </ul>	<ul style="list-style-type: none"> <li>Machines and equipment</li> <li>Factory personnel</li> </ul>
<ul style="list-style-type: none"> <li>Marketing and sales</li> </ul>	<ul style="list-style-type: none"> <li>The process of informing potential customers about the attributes of products or services that leads to their sale.</li> </ul>	<ul style="list-style-type: none"> <li>Advertising</li> <li>Focus group travel</li> <li>Product placement</li> </ul>
<ul style="list-style-type: none"> <li>Distribution</li> </ul>	<ul style="list-style-type: none"> <li>The process for delivering products or services to customers.</li> </ul>	<ul style="list-style-type: none"> <li>Trucks</li> <li>Fuel</li> <li>Web site creation, hosting, and maintenance</li> </ul>
<ul style="list-style-type: none"> <li>Customer service</li> </ul>	<ul style="list-style-type: none"> <li>The support activities provided to customers for a product or service.</li> </ul>	<ul style="list-style-type: none"> <li>Call center personnel</li> <li>Returns processing</li> <li>Warranty repairs</li> </ul>

existing products might be incorporated in the development of new models of a product. Companies such as Apple Inc. solicit “feature requests” from customers for new versions of software.

Most organizations operate under the assumption that each of the value chain components adds value to the product or service. Before product ideas are formulated, no value exists. Once an idea is established, however, value is created. When research and development of the product begins, value increases. As the product reaches the design phase, value continues to increase. Each component adds value to the product or service.

You may have noticed that administrative functions are not included as part of the value chain. They are included instead in every business function of the value chain. For example, human resource management is involved in hiring employees for all business value chain functions. Accounting personnel and other managers use cost information from each business function to evaluate employee and departmental performance. Many administrative areas cover each value chain business function.

## Supply Chain and Distribution Chain

Firms buy resources from suppliers (other companies, employees, etc.). These suppliers form the **supply chain** for the firm. Firms also sell their products to distributors and customers. This is the **distribution chain** of the firm. At times in our discussion, we will consider the companies and individuals supplying to or buying from a firm and the effect of the firm’s decisions on these suppliers and customers. We can think of these suppliers and customers as being on the firm’s *boundaries*. Thus, the supply chain and distribution chain are the parts of the value chain outside the firm.

The value chain is important because it creates the value for which the customer is willing to pay. The customer is not particularly concerned with how work is divided among firms producing the product or providing the service. Therefore, one decision firms must make is where in the value chain a value-added component is performed most cost effectively. Suppose, for example, that some inventory is necessary to provide timely delivery to the customer. Managers need accounting systems that will allow them to determine whether the firm or its supplier can hold the inventory at the lower cost.

### supply chain

Set of firms and individuals that sells goods and services to the firm.

### distribution chain

Set of firms and individuals that buys and distributes goods and services from the firm.

## Focus on the Supply Chain

## In Action

Customers are concerned with the total cost of producing a product or service (because of the effect on its price), but are not concerned about which firm in the supply chain incurred the cost. Therefore, companies think about not only reducing their own costs but also reducing costs in the entire chain. The supply chain for cars and trucks includes multiple suppliers of parts and components. Chrysler LLC has set a goal of reducing its supply chain

costs by 25 percent over three years. John Campi, executive vice president for procurement, explains that this does not mean that Chrysler will simply pay its suppliers 25 percent less, but, “[I]t means, between us, we have to find ways to improve our supply chain operations.”

Source: P. Gupta, “Chrysler Aims to Cut Supply Chain Costs by 25 Percent,” *Reuters*, August 15, 2008.

## Using Cost Information to Increase Value

Using the value chain as a reference, how can cost information add value to the organization? The answer to this question depends on whether the information provided improves managers’ decisions. Suppose a production process is selected based on cost information indicating that the process would be less costly than all other options. Clearly, the information adds value to the process and its products. The measurement and reporting of costs is a valuable activity. Suppose cost information is received too late to help managers make a decision. Such information would not add value.



## Accounting and the Value Chain

If you have taken a financial accounting course, you focused, for the most part, on preparing and interpreting financial statements for the firm as a whole. You were probably not concerned with what stage in the value chain produced profits. In cost accounting, as we will see, we need to understand how the individual stages contribute to value and how to work with other managers to improve performance. Although financial accounting and cost accounting are related, there are important differences.

## Accounting Systems

### L.O. 2

Distinguish between the uses and users of cost accounting and financial accounting information.

### financial accounting

Field of accounting that reports financial position and income according to accounting rules.

All accounting systems are designed to provide information to decision makers. However, it is convenient to classify accounting systems based on the primary user of the information. Investors (or potential investors), creditors, government agencies, tax authorities, and so on are outside the organization. Managers are *inside* the organization. The classification of accounting systems into financial and cost (or managerial) systems captures this distinction between decision makers.

## Financial Accounting

**Financial accounting** information is designed for decision makers who are not directly involved in the daily management of the firm. These users of the information are often external to the firm. The information, at least for firms that are publicly traded, is public and typically available on the company's Web site. The managers in the company are keenly interested in the information contained in the financial accounting reports generated. However, the information is not sufficient for making operational decisions.

Individuals making decisions using financial accounting data are often interested in comparing firms, deciding whether, for example, to invest in Bank of America or Wells Fargo Bank. An important characteristic of financial accounting data is that it be *comparable* across firms. That is, it is important that when an investor looks at, say, revenue for Bank of America, it represents the same thing that revenue for Wells Fargo Bank does. As a result, financial accounting systems are characterized by a set of rules that define how transactions will be treated.

## Cost Accounting

### cost accounting

Field of accounting that measures, records, and reports information about costs.

**Cost accounting** information is designed for managers. Because the managers are making decisions only for their own organization, there is no need for the information to be comparable to similar information in other organizations. Instead, the important criterion is that the information be relevant for the decisions that managers operating in a particular business environment with a particular strategy make. Cost accounting information is commonly used in financial accounting information, but we are concerned primarily with its use by managers to make decisions.

This book is about accounting for costs; it is for those who currently (or will) use or prepare cost information. The book's perspective is that managers (you) add value to the organization by the decisions they (you) make. From a different perspective, accountants (you) add value by providing good information to managers making the decision. The better the decisions, the better the performance of your organization, whether it is a manufacturing firm, a bank, a not-for-profit hospital, a government agency, a school club, or, yes, even a business school. We have already identified some of the decisions managers make and will discuss many of the current trends in cost accounting. We do this to highlight the theme we follow throughout: The cost accounting system is not designed in a vacuum. It is the result of the decisions managers in an organization make and the business environment in which they make them.

Exhibit 1.2 summarizes some of the major differences between financial and cost accounting.

**Exhibit 1.2** Comparison of Financial and Cost Accounting

	Financial Accounting	Cost Accounting
• Users of the information (decision makers)	• External (investors, creditors, and so on)	• Internal (managers)
• Important criteria	• Comparability, decision relevance (for investors)	• Decision relevance (for managers), timeliness
• Who establishes or defines the system?	• External standard-setting group (FASB in the U.S.)	• Managers
• How to determine accounting treatment	• Standards (rules)	• Relevance for decision making

**Cost Accounting, GAAP, and IFRS**

The primary purpose of financial accounting is to provide investors (for example, shareholders) or creditors (for example, banks) information regarding company and management performance. The financial data prepared for this purpose are governed by **generally accepted accounting principles (GAAP)** in the United States and **international financial reporting standards (IFRS)** in many other countries. GAAP and IFRS provide consistency in the accounting data used for reporting purposes from one company to the next. This means that the cost accounting information used to compute cost of goods sold, inventory values, and other financial accounting information used for external reporting must be prepared in accordance with GAAP or IFRS. Although GAAP and IFRS are converging, differences remain. For the reasons discussed in the next paragraph, these differences are not important for our discussion, but you should remain aware of them.

In contrast to cost data for financial reporting to shareholders, cost data for managerial use (that is, within the organization) need not comply with GAAP or IFRS. Management is free to set its own definitions for cost information. Indeed, the accounting data used for external reporting are often entirely inappropriate for managerial decision making. For example, managerial decisions deal with the future, so estimates of future costs are more valuable for decision making than are the historical and current costs that are reported externally. Unless we state otherwise, we assume that the cost information is being developed for internal use by managers and does not have to comply with GAAP or IFRS.

This does not mean there is no “right” or “wrong” way to account for costs. It does mean that the best, or correct, accounting for costs is the method that provides relevant information to the decision maker so that he or she can make the best decision.

**generally accepted accounting principles (GAAP)**

Rules, standards, and conventions that guide the preparation of financial accounting statements for firms registered in the U.S.

**international financial reporting standards (IFRS)**

Rules, standards, and conventions that guide the preparation of the financial accounting statements in many other countries.

**Customers of Cost Accounting**

To management, customers are the most important participants in a business. Without customers, the organization loses its ability and its reason to exist; customers provide the organization's focus. There are fewer and fewer markets in which managers can assume that they face little or no competition for the customer's patronage.

Cost information itself is a product with its own customers. The customers are managers. At the production level, where products are assembled or services are performed, information is needed to control and improve operations. This information is provided frequently and is used to track the efficiency of the activities being performed. For example, if the average defect rate is 1 percent in a manufacturing process and data from the cost accounting system indicate a defect rate of 2 percent on the previous day, shop-floor employees would use this information to identify what caused the defect rate to increase and to correct the problem.

At the middle management level, where managers supervise work and make operating decisions, cost information is used to identify problems by highlighting when some aspect of operations is different from expectations. At the executive level, financial



Dispatchers at American Airlines use cost accounting data to evaluate alternatives when weather disrupts operations.

information is used to assess the company's overall performance. This information is more strategic in nature and typically is provided on a monthly, quarterly, or annual basis. Cost accountants must work with the users (or customers) of cost accounting information to provide the best possible information for managerial purposes.

Many proponents of improvements in business have been highly critical of cost accounting practices in companies. Many of the criticisms—which we discuss throughout the book—are warranted. The problem, however, is more with the misuse of cost accounting information, not the information itself. The most serious problems with accounting systems appear to occur when managers attempt to use accounting information that was developed for external reporting for decision making.

Making decisions often requires different information from that provided in financial statements to shareholders. It is important that companies realize that different uses of accounting information require different types of accounting information.

## Our Framework for Assessing Cost Accounting Systems

Individuals form organizations to achieve some common goal. Although the focus in this book is on economic organizations, such as the firm, most of what we discuss applies equally well to social, religious, or political organizations. The ability of organizations to remain viable and achieve their goals, whether profit, community well-being, or political influence, depends on the decisions made by managers of the organization.

Throughout the text, we emphasize that it is individuals (people) who make decisions. This theme and the following framework give us a common basis we can use to assess alternative accounting systems:

- Decisions determine the performance of the organization.
- Managers use information from the accounting system to make decisions.
- Owners evaluate organizational and managerial performance with accounting information.

### **The Manager's Job Is to Make Decisions**

Why do organizations employ people? What do they do to add value? For *line employees*, those directly involved in production or who interact with customers, the answer to this question is clear. They produce the product or service and deal with the customer. The job of managers, however, is more difficult to describe because it tends to be varied and ambiguous. The common theme among all managerial jobs, however, is decision making. Managers are paid to make decisions.

### **Decision Making Requires Information**

Accounting systems are important because they are a primary source of information for managers. We describe here some common decisions that managers make. Many, if not most, decisions require information that is likely to come from the accounting system. Our concern with the accounting system is whether it is providing the “best” information to managers. The decisions managers make will be only as good as the information they have.

#### **L.O.3**

Explain how cost accounting information is used for decision making and performance evaluation in organizations.

## **Finding and Eliminating Activities That Don't Add Value**

How do managers use cost information to make decisions that increase value? In their quest to improve the production process, companies seek to identify and eliminate **nonvalue-added activities**, which often result from the current product or process design. If a poor facility layout exists and work-in-process inventory must be moved during the production process, the company is likely to be performing nonvalue-added activities.

Why do managers want to eliminate nonvalue-added activities? An important concept in cost accounting is that *activities cause costs*. Moving inventory is a nonvalue-added activity that causes costs (for example, wages for employees and costs of equipment to move the goods). Reworking defective units is another common example of a nonvalue-added activity. In general, if activities that do not add value to the company can be eliminated, then costs associated with them will also be eliminated.

A well-designed cost accounting system also can identify nonvalue-added activities that cross boundaries in the value chain. For example, companies such as Steelcase, an office furniture manufacturer, have found it worthwhile to allow customers to order products using automated systems such as electronic data interchange (edi) rather than preparing orders and sending them by fax. This change has eliminated the need for two organizations to enter an order into the production scheduling system. (One was the customer preparing the fax and the other was the manufacturer retyping or scanning the fax into the scheduling system.) Not only does this save order entry costs, but it reduces the chances of costly errors in the order.

A major activity of managers is evaluating proposed changes in the organization. Ideas often sound reasonable, but if their benefits (typically measured in savings or increased profits) do not outweigh the costs, management will likely decide against them. The concept of considering both the costs and benefits of a proposal is **cost-benefit analysis**. Managers should perform cost-benefit analyses to assess whether proposed changes in an organization are worthwhile. The concept of cost-benefit analysis applies equally to deciding whether to implement a new cost accounting system. The benefits from an improved cost accounting system come from better decision making. If the benefits do not exceed the cost of implementing and maintaining the new system, managers will not implement it.

### **nonvalue-added activities**

Activities that do not add value to the good or service from the customer's perspective.

### **cost-benefit analysis**

Process of comparing benefits (often measured in savings or increased profits) with costs associated with a proposed change within an organization.

## **Identifying Strategic Opportunities Using Cost Analysis**

Using the value chain and other information about the costs of activities, companies can identify strategic advantages in the marketplace. For example, if a company can eliminate nonvalue-added activities, it can reduce costs without reducing the value of the product to customers. By reducing costs, the company can lower the price it charges customers, giving it a cost advantage over competitors. Or the company can use the resources saved from eliminating nonvalue-added activities to provide better service to customers.

Alternatively, a company can identify activities that customers value and which the company can provide at lower cost. Many logistics companies, such as Owens & Minor, a hospital supply company, offer their customers consulting services and inventory management.

The idea here is simple. Look for activities that do or do not add value. If your company can save money by eliminating those that do not, then do so. You will save your company money. Implement those activities that do. In both cases, you will make the organization more competitive.

## **Owners Use Cost Information to Evaluate Managers**

We have seen that it is important that managers make good decisions if they are to increase organizational value, but how will we know if they make good decisions? If managers own the organization, it is their money and resources that are at risk. We can assume that they will make decisions that are in their own interest. In other words, the interest of the organization



and the owner-manager can be assumed to be the same, or *aligned*. However, most large organizations, especially businesses, are not owned by the managers but by a large number of shareholders. Most of these shareholders are not involved in managing the business. Therefore, there is a second role of the accounting system in addition to aiding managerial decision making. It is to provide information, perhaps indirectly through financial reports, to the owners of the organization about the performance of the organization and the manager.

## Cost Data for Managerial Decisions

This book covers many topics on the use of cost data for managers. The following sections provide examples of these topics.

### *Costs for Decision Making*

One of the most difficult tasks in calculating the financial consequences of alternatives is estimating how costs (or revenues or assets) among the alternatives will differ. For example, Carmen's Cookies has been making and selling a variety of cookies through a small store downtown. One of Carmen's customers, the manager of the local coffee shop, suggests to Carmen that she expand her operation and sell some of her cookies wholesale to coffee shops, grocery stores, and the local university food service. The key is to determine which would be more profitable: remain the same size or expand operations.

Now Carmen has the difficult task of estimating how revenues and costs will change if she expands into this new distribution channel. She uses her work experience and knowledge of the company's costs to estimate cost changes. She identifies **cost drivers**, which are factors that cause costs. For example, to make cookies requires labor. Therefore, the number of cookies made is a cost driver that causes, or drives, labor costs. To estimate the effect of adding a wholesale channel, Carmen estimates how many additional cookies she would have to make. Based on that estimate, she determines the additional costs and revenues to the company that selling additional cookies will generate.

Do we "know" what will be the effect of this decision on the firm? We do not, of course. These are *estimates* that require making many assumptions and forecasts, some of which may not be realized. This is what makes this type of analysis both fun and challenging. In business, nobody knows for certain what will happen in the future. In making decisions, however, managers constantly must try to predict future events. Cost accounting has more to do with estimating future costs than recording past costs. For decision making, information about the past is a means to an end; it helps you predict what will happen in the future.

To complete the example, assume that Carmen estimates that her revenues would increase by 35 percent; food costs, labor, and utilities would increase 50 percent; rent per month would not change; and other costs would increase by 20 percent if she starts to sell through other outlets. Carmen enters the data into a spreadsheet to estimate how profits would change if she were to add the new channel. See Columns 1 and 2 of Exhibit 1.3 for her present and estimated costs, revenues, and profits. The costs shown in Column 3 are the differences between those in Columns 1 and 2.

We refer to the costs and revenues that appear in Column 3 as **differential costs** and **differential revenues**. These are the costs and revenues, respectively, that change in response to a particular course of action. The costs in Column 3 of Exhibit 1.3 are differential costs because they differ if Carmen decides to sell cookies through the wholesale channel.

The analysis shows a \$405 increase in operating profits if Carmen sells to the other stores. Based on this analysis, Carmen decides to expand her distribution channels. Note that only differential costs and revenues affect the decision. For example, rent does not change, so it is irrelevant to the decision.

In Chapters 2 through 11, we discuss methods to estimate and analyze costs, as well as how accounting systems record and report cost information.

#### **cost driver**

Factor that causes, or "drives," costs.

#### **differential costs**

Costs that change in response to a particular course of action.

#### **differential revenues**

Revenues that change in response to a particular course of action.

	A	B	C	D	E	F	G	H	I	J	K
1	<b>CARMEN'S COOKIES</b>										
2	<b>Projected Income Statement</b>										
3	<b>For One Week</b>										
4			(1)			(2)			(3)		
5			Status Quo: Original Shop Sales Only			Alternative: Wholesale and Retail Distribution			Difference		
6	Sales revenue		\$ 6,300			\$ 8,505 <sup>a</sup>			\$ 2,205		
7	Costs										
8	Food		1,800			2,700 <sup>b</sup>			900		
9	Labor		1,000			1,500 <sup>b</sup>			500		
10	Utilities		400			600 <sup>b</sup>			200		
11	Rent		1,250			1,250			—0—		
12	Other		1,000			1,200 <sup>c</sup>			200		
13	Total costs		\$ 5,450			\$ 7,250			\$ 1,800		
14	Operating profits		\$ 850			\$ 1,255			\$ 405		
15											
16	<sup>a</sup> 35 percent higher than status quo.										
17	<sup>b</sup> 50 percent higher than status quo.										
18	<sup>c</sup> 20 percent higher than status quo.										

**Exhibit 1.3**Differential Costs,  
Revenues, and Profits**Fast-Food Chain Menu Items and Costs***In Action*

It is not just small businesses that think about costs. With an increase in food and energy prices, fast-food chains, such as Burger King and McDonald's, are considering alternative ways to prepare some of their basic items. For example,

This month, McDonald's Corp. said it's testing less expensive ways to make its \$1 double cheeseburger; already, some restaurants are selling the burger with one slice of cheese instead of two. And in an interview, Burger King Holdings Inc. CEO John Chidsey said the

chain is testing a smaller Whopper Jr. hamburger as it tries to overcome high ingredient costs.

In these examples, increases in costs that are outside of the firm's control (food and energy, for example), combined with a reluctance to raise prices, means that other costs must be closely monitored so that profits will not be eroded.

Source: J. Jargon, "Food Makers Scrimp on Ingredients in an Effort to Fatten Their Profits," *The Wall Street Journal*, August 23, 2008.

**Costs for Control and Evaluation**

An organization of any but the smallest size divides responsibility for specific functions among its employees. These functions are grouped into organizational units. The units, which may be called *departments*, *divisions*, *segments*, or *subsidiaries*, specify the reporting relations within the firm. These relations are often shown on an organization chart. The organizational units can be based on products, geography, or business function. We use the general term **responsibility center** to refer to these units. The manager assigned to lead the unit is accountable for, that is, has responsibility for, the unit's operations and resources.

For example, the chief of internal medicine is responsible for the operations of a particular part of a hospital. The president of General Motors Europe is responsible for most of the company's operations in Europe. The president of a company is responsible for the entire company.

Consider Carmen's Cookies. When she first opened the store, Carmen managed the entire operation herself. As the enterprise became more successful, she added a new location exclusively to serve the wholesale distribution network. She then hired two managers: Ray Adams to manage the original retail store and Cathy Peterson to manage the wholesale network. Carmen, as president, oversaw the entire operation. See the top part of Exhibit 1.4 for the company's organization chart.

**responsibility center**

Specific unit of an organization assigned to a manager who is held accountable for its operations and resources.

**Exhibit 1.4**

Responsibility Centers,  
Revenues, and Costs

<div style="text-align: center;"> <div style="border: 1px solid black; background-color: #a0c0ff; padding: 5px; margin: 0 auto; width: 150px;">Carmen Diaz President</div> <div style="display: flex; justify-content: space-around; margin-top: 20px;"> <div style="border: 1px solid black; background-color: #c0e0a0; padding: 5px; width: 150px; text-align: center;">Ray Adams Vice President Retail Operations</div> <div style="border: 1px solid black; background-color: #ffcc99; padding: 5px; width: 150px; text-align: center;">Cathy Peterson Vice President Wholesale Operations</div> </div> </div>				
	A	B	C	D
1	<b>CARMEN'S COOKIES</b>			
2	<b>Income Statement</b>			
3	<b>For the Month Ending April 30</b>			
4		Retail Operations	Wholesale Operations	Total
5	Sales revenue	\$ 28,400	\$ 23,600	\$ 52,000
6	Department costs			
7	Food	13,500	9,800	23,300
8	Labor <sup>a</sup>	4,500	3,200	7,700
9	Utilities	1,800	2,100	3,900
10	Rent	5,000	2,500	7,500
11	Total department costs	\$ 24,800	\$ 17,600	\$ 42,400
12	Center margin <sup>b</sup>	\$ 3,600	\$ 6,000	\$ 9,600
13	General and administrative costs			
14	General manager's salary (Carmen)			5,000
15	Other (administrative)			3,200
16	Total general and administrative costs			\$ 8,200
17	Operating profit			\$ 1,400
18	<sup>a</sup> Includes department managers' salaries but excludes Carmen's salary.			
19	<sup>b</sup> The difference between revenues and costs attributable to a responsibility center.			

Exhibit 1.4 also includes the company income statement, along with the statements for the two centers. Each manager is responsible for the revenues and costs of his or her center. The Total column is for the entire company. Note that the costs at the bottom of the income statement are not assigned to the centers; they are the costs of running the company. These costs are not the particular responsibility of either Ray or Cathy. Consider the other (administrative) costs. Carmen, not Ray or Cathy, is responsible for designing the administrative systems (e.g., accounting and payroll), so she manages this cost as part of her responsibility to run the entire organization. Ray and Cathy, on the other hand, focus on managing food and labor costs (other than their own salaries) and responsibility center revenues.

**Budgeting** You have probably had to budget—for college, a vacation, or living expenses. Even the wealthiest people should budget to make the best use of their resources. (For some, budgeting could be one reason for their wealth.) Budgeting is very important to the financial success of individuals and organizations.

Each responsibility center in an organization typically has a **budget** that is its financial plan for the revenues and resources needed to carry out its tasks and meet its financial goals. Budgeting helps managers decide whether their goals can be achieved and, if not, what modifications are necessary.

Managers are responsible for achieving the targets set in the budget. The resources that a manager actually uses are compared with the amount budgeted to assess the responsibility center's and the manager's performance. For example, managers in an

**budget**

Financial plan of the revenues and resources needed to carry out activities and meet financial goals.

	A	B	C	D	E	F
1	<b>CARMEN'S COOKIES</b>					
2	<b>Retail Responsibility Center</b>					
3	<b>Budgeted versus Actual Costs</b>					
4	<b>For the Month Ending April 30</b>					
5		Actual	Budget	Difference		
6	Food					
7	Flour	\$ 2,100	\$ 2,200	\$ (100)		
8	Eggs	5,200	4,700	500		
9	Chocolate	2,000	1,900	100		
10	Nuts	2,000	1,900	100		
11	Other	2,200	2,200	—0—		
12	Total food	\$ 13,500	\$ 12,900	\$ 600		
13	Labor					
14	Manager	3,000	3,000	—0—		
15	Other	1,500	1,500	—0—		
16	Total labor	\$ 4,500	\$ 4,500	\$ —0—		
17	Utilities	1,800	1,800	—0—		
18	Rent	5,000	5,000	—0—		
19	Total cookie costs	\$ 24,800	\$ 24,200	\$ 600		
20	Number of cookies sold	32,000	32,000	—0—		
21						

**Exhibit 1.5**

Budget versus Actual Data

automobile dealership compare the daily sales to a budget every day. (Sometimes that budget is the sales achieved on a comparable day in the previous year.) Every day, managers of United Airlines compare the percentage of their airplanes' seats filled (the *load factor*) to a budget. Every day, managers of hotels and hospitals compare their occupancy rates to their budgets. By comparing actual results with budgets, managers can do things to change their activities or revise their goals and plans.

As part of the planning and control process, managers prepare budgets containing expectations about revenues and costs for the coming period. At the end of the period, they compare actual results with the budget. This allows them to see whether changes can be made to improve future operations. See Exhibit 1.5 for the type of statement used to compare actual results with the planning budget for Carmen's Cookies.

For instance, Ray observes that the retail responsibility center sold 32,000 cookies as budgeted but that actual costs were higher than budgeted. Costs that appear to need follow-up are those for eggs, chocolate, and nuts. Should Ray inquire whether there was waste in using eggs? Did the cost of nuts per pound rise unexpectedly? Was the company buying chocolate from the best source? Was there theft of the chocolate? As we will see, even costs that are lower than expected (like flour) should be evaluated. For example, is lower quality flour being purchased? These are just a few questions that the information in Exhibit 1.5 would prompt.

We discuss developing budgets and measuring the performance of managers and responsibility centers in Chapters 12 through 18.

### ***Different Data for Different Decisions***

One principle of cost accounting is that different decisions often require different cost data. "One size fits all" does *not* apply to cost accounting. Each time you face a cost information problem in your career, you should first learn how the data will be used. Are the data needed to value inventories in financial reports to shareholders? Are they for managers' use in evaluating performance? Are the data to be used for decision making? The answers to these questions will guide your selection of the most appropriate accounting data.



## Self-Study Questions

1. Suppose that *all* of the costs for Carmen's Cookies (Exhibit 1.3) were differential and increased proportionately with sales revenue. What would have been the impact on profits of adding the new distribution channel?
2. For what decisions would estimated cost information be useful if you were a hospital administrator? The director of a museum? The marketing vice president of a bank?

*The solutions to these questions are at the end of the chapter on pages 34–35.*

## Trends in Cost Accounting throughout the Value Chain

### L.O. 4

Identify current trends in cost accounting.

Cost accounting continues to experience dramatic changes. Developments in information technology (IT) have nearly eliminated manual bookkeeping. Emphasis on cost control is increasing in banks, hospitals, manufacturing industries (from computers to automobiles), airlines, school districts, and many other organizations that have traditionally not focused on it. Cost accounting has become a necessity in virtually every organization, including fast-food outlets, professional organizations, and government agencies.

One reason for this rapid change is that managers at each stage of the value chain require information on the performance of products, services, suppliers, customers, and employees. Managers of the activities and cost accountants must work together at each stage to make decisions that increase firm value. Because these processes themselves have undergone great change in recent years, cost accountants and cost accounting methods must continuously adapt to changes in all business areas.

### Cost Accounting in Research and Development (R&D)

Lean manufacturing techniques, in which Toyota Motor Company is considered a leader, are not simply about production. Companies partner with suppliers in the development stage to ensure cost-effective designs for products. Product engineers need cost accounting information to make decisions about alternative materials. For example, Johnson Controls, a manufacturer of automobile seats, needs to make trade-offs between the cost and weight of materials, which is an important factor in fuel economy and the cost of recycling the materials at the end of the car's life.

### Cost Accounting in Design

An important activity in product development is design. Product designers must write detailed specifications on a product's design and manufacture. The design of a product can have a significant impact on the cost to manufacture it. Designs that are complex might add additional functions, which, while making a product more desirable, may also require complex and expensive manufacturing processes. Design for manufacturing (DFM) is the concept that manufacturing cost and complexity need to be considered in the design of the product. Cost accountants help designers understand the trade-off by using methods such as **activity-based costing**, which considers the activities or processes that will be required to bring a product to market. Hewlett-Packard, for example, uses activity-based costing methods to communicate to designers the costs of alternative designs of testing equipment.

Activity-based costing is a product costing method that has received a great deal of attention since the 1990s. This costing method is more detailed and complicated than conventional costing methods, but it can provide more accurate cost numbers. ABC assigns costs to products based on several different activities, depending on how they drive costs, whereas traditional costing methods assign costs to products based on only one or two factors, generally based on volume. In general, ABC provides more detailed cost information, enabling managers to make more informed decisions.

#### activity-based costing (ABC)

Costing method that first assigns costs to activities and then assigns them to products based on the products' consumption of activities.

## Cost Accounting in Purchasing

Companies now partner with suppliers to increase the efficiency in the supply chain. Partnering requires information on the performance of partners to ensure the relationship adds value. **Performance measures** are being used to evaluate the performance of key suppliers and business partners. For example, United Technologies and Sun Microsystems both maintain extensive supplier metrics systems. Sun Microsystems also includes an effort to “value” nonperformance in understanding the effect of suppliers on Sun’s value.

The use of cost accounting methods such as target costing, activity-based costing, performance measures, and incentive systems that support teamwork, helps firms such as Federal Express and Dell Computers manage their partnerships to keep the supply chain “lean” and add value throughout the chain. Some firms, for example, Sainsbury, a super-market chain in the United Kingdom, maintain a Web portal for their suppliers that allows them to see their own performance over time and compare it to the average performance of other comparable suppliers. In the United States, Boeing Aircraft and United Technologies also use the Internet to provide comparative performance data to suppliers.

These approaches to managing suppliers allow firms to support continual improvement throughout the supply chain by facilitating **benchmarking**. Using benchmarking methods, managers measure a company’s own products, services, and activities against the best levels of performance that can be found either inside or outside the manager’s own organization. Because managers seek continual improvement, they do not treat benchmarking as a one-time event but as an ongoing process.

**performance measure**  
Metric that indicates how well an individual, business unit, product, or firm is working.

**benchmarking**  
Continual process of measuring a company’s own products, services, and activities against competitors’ performance.

## Cost Accounting in Production

Operations managers and financial accountants use cost information in the production stage to understand and report the costs of the multiple products produced. One of the most important developments in production, associated with lean manufacturing, is the use of **just-in-time (JIT) methods**. Using just-in-time methods, companies produce or purchase units just in time for use, keeping inventories at a minimum. If inventories are low, accountants can spend less time on inventory valuation for external reporting and more time on managerial activities.

The economic justification for JIT comes from the trade-off between the costs of setup and stock-outs as compared with the costs of holding inventory (obsolescence, storage space and associated tax and insurance, and costs associated with organizing and keeping track of inventory). Modern cost accounting systems have helped managers better understand the relative costs so that appropriate inventory policies can be set and targeted improvements sought.

Firms that use lean manufacturing techniques look to the cost accounting system to support these techniques by providing useful measurements at the work cell or process level. **Lean accounting** systems provide these measures. In addition, these systems are designed to avoid unnecessary transactions, in effect eliminating “waste” from the accounting processes, just as lean manufacturing is designed to eliminate waste from the manufacturing process.

The production process is not limited to manufacturing. Service firms, such as banks, insurance companies, and theme parks, produce or provide services demanded by customers. Efficient use of capacity (employees) in providing services is critical in increasing value. Managers look to cost accounting information to help them understand and plan capacity. For example, the brokerage firm Charles Schwab uses ABC information to allocate costs and thus determine the costs of capacity in various operational processes. The firm then builds up the product cost according to its use of time in regard to the key processes.

**just-in-time (JIT) method**  
In production or purchasing, each unit is produced or purchased just in time for its use.

**lean accounting**  
A cost accounting system that provides measures at the work cell or process level and minimizes wasteful or unnecessary transaction processes.

## Cost Accounting in Marketing

Marketing managers require cost accounting information to understand the profitability of different customer groups. Advances in accounting information systems that capture data at various levels of detail have made possible **customer relationship management (CRM)**,

**customer relationship management (CRM)**  
System that allows firms to target profitable customers by assessing customer revenues and costs.

which allows firms to target more precisely those customers who are profitable by assessing the costs to serve a customer along with the revenues a customer generates. For example, Harrah's Entertainment is able to compete on the basis of providing complimentary services to customers (typically called "comping") based on their expected personal profitability.

### ***Cost Accounting in Distribution***

Earlier, we said that managers use accounting information to determine where in the supply chain value-added activities will take place. Cost accountants work with managers to estimate whether it is more efficient (less costly) to perform an activity in the firm or to have another firm produce the product or perform the service. This is referred to as **outsourcing**. Firms frequently consider activities in the distribution stage for outsourcing. As business becomes more global, specialized information on markets, regulations, and customs is critical to the speed of delivery. As a result, cost information often identifies specialized companies as being more efficient in distributing products, as opposed to handling distribution internally.

The Japanese camera manufacturer Nikon, for example, now relies on UPS for distribution where it used to handle this activity internally. Many distribution companies such as UPS and Federal Express, in fact, have developed entirely new businesses consulting with firms in regard to distribution solutions. These consulting services rely heavily on cost information to identify cost-effective distribution systems.

### ***Cost Accounting in Customer Service***

Many companies have adopted the concept of **total quality management (TQM)**, which means that the organization is managed to excel on all dimensions and the customer ultimately defines quality. The customers determine the company's performance standards according to what is important to them (which is not necessarily what is important to product engineers, accountants, or marketers). Companies can indicate the high quality to consumers through the product warranty. Cost accountants help managers make decisions about quality in two ways. First, **cost of quality (COQ)** systems identify the costs associated with producing defective units as well as the lost sales associated with poor-quality products. Second, they provide information on the projected warranty claims, which can be compared to the increase in revenues estimated from offering a longer or more comprehensive warranty.

For example, Korean manufacturer Hyundai Motors determined that its quality improvements justified offering a 10-year warranty, something unique in the automobile industry. This decision was based on estimates of warranty costs and studies concerning the sales impact of the longer warranty.

### ***Enterprise Resource Planning***

We have seen how cost accounting is used throughout the value chain. It is important that the information be consistent in all components of the chain.

As the cost of information technology falls and the value of information increases, managers have adopted **enterprise resource planning (ERP)** systems. ERP systems are integrated information systems that link various activities in an organization. Typical systems include modules for production, purchasing, human resources, and finance. By integrating these systems, managers hope to avoid lost orders, duplication of effort, and costly studies to determine what is the current state of the enterprise.

Because all of the company's systems are integrated, the potential for ERP to provide information on costs of products and services is large. Implementation problems and the scale of the task in large firms (enterprises) have kept many companies from realizing that potential so far. However, with the increased emphasis on internal control from the Sarbanes-Oxley Act (discussed later in the chapter), ERP systems will become even more valuable.

### ***Creating Value in the Organization***

These trends in the way organizations do business create exciting times in cost accounting and excellent future opportunities for you to make important contributions to organizations.

#### **outsourcing**

Having one or more of the firm's activities performed by another firm or individual in the supply or distribution chain.

#### **total quality management (TQM)**

Management method by which the organization seeks to excel on all dimensions, with the customer ultimately defining quality.

#### **cost of quality (COQ)**

System that identifies the costs of producing low-quality items, including rework, returns, and lost sales.

#### **enterprise resource planning (ERP)**

Information technology that links the various processes of the enterprise into a single comprehensive information system.

Keep in mind that these new methods are not ends in themselves. They are tools to help you add value to organizations and their employees, customers, shareholders, and communities.

### Self-Study Question

3. What are the major causes of changes in cost accounting systems in recent years?

*The solution to this question is at the end of the chapter on page 35.*

## Key Financial Players in the Organization

All managers in the organization, not just financial professionals, use cost accounting information. Because our focus is on cost accounting and decision making, we will often be viewing a decision from an operational manager's perspective. For example, we might look at a pricing decision or a sourcing decision that a marketing or production manager has to make.

As a financial or operational manager in an organization, you will work closely with many financial professionals. See Exhibit 1.6 for a list of the typical financial titles in organizations and examples of their activities. If you work in the accounting or finance function in an organization, you are likely to have one of these jobs. If you are an auditor or consultant, you will work with many of these financial managers. If you work in marketing, operations, or management, these financial managers will be on one of many teams working with you.

Whatever your job, you will work in cross-functional teams of people from many areas such as engineering, production, marketing, finance, and accounting. Consider a

**Exhibit 1.6** Key Financial Managers in an Organization

Title	Major Responsibilities and Primary Duties	Example Activities
<ul style="list-style-type: none"> <li>Chief financial officer (CFO)</li> </ul>	<ul style="list-style-type: none"> <li>Manages entire finance and accounting function</li> </ul>	<ul style="list-style-type: none"> <li>Signs off on financial statements</li> <li>Determines policy on debt versus equity financing</li> </ul>
<ul style="list-style-type: none"> <li>Treasurer</li> </ul>	<ul style="list-style-type: none"> <li>Manages liquid assets</li> <li>Conducts business with banks and other financial institutions</li> <li>Oversees public issues of stock and debt</li> </ul>	<ul style="list-style-type: none"> <li>Determines where to invest cash balances</li> <li>Obtains lines of credit</li> </ul>
<ul style="list-style-type: none"> <li>Controller</li> </ul>	<ul style="list-style-type: none"> <li>Plans and designs information and incentive systems</li> </ul>	<ul style="list-style-type: none"> <li>Determines cost accounting policies</li> <li>Maintains the accounting records</li> </ul>
<ul style="list-style-type: none"> <li>Internal auditor</li> </ul>	<ul style="list-style-type: none"> <li>Ensures compliance with laws, regulations, and company policies and procedures</li> <li>Provides consulting and auditing services within the firm</li> </ul>	<ul style="list-style-type: none"> <li>Ensures that procurement rules are followed</li> <li>Recommends policies and procedures to reduce inventory losses</li> </ul>
<ul style="list-style-type: none"> <li>Cost accountant</li> </ul>	<ul style="list-style-type: none"> <li>Records, measures, estimates, and analyzes costs</li> <li>Works with financial and operational manager to provide relevant information for decisions</li> </ul>	<ul style="list-style-type: none"> <li>Evaluates costs of products and processes</li> <li>Recommends cost-effective methods to distribute products</li> </ul>