

Financial Management



LEARNING OBJECTIVES

After completing this chapter, you should be able to answer the following questions:

- 1 Why is cost consciousness important to all members of an organization?
- 2 How are costs determined to be committed or discretionary?
- 3 How are the benefits of expenditures for discretionary costs measured?
- 4 When are standards applicable to discretionary costs?
- 5 How does a budget help control discretionary costs?
- 6 What is an activity-based budget and how does it differ from traditional budgets?
- 7 What are the objectives managers strive to achieve in managing cash?
- 8 (Appendix) How is program budgeting used in not-for-profit entities?
- 9 (Appendix) Why is zero-base budgeting useful in cost control?

<http://www.lucent.com>

Lucent Technologies, formerly known as Western Electric and then AT&T Network Systems, became a stand-alone company on October 1, 1996, when AT&T separated into three companies. (The other two are the new AT&T and NCR.) Lucent, supported by Bell Laboratories, designs, develops, manufactures, and markets communications systems and technologies ranging from microchips to whole networks.

Throughout 1994 and 1995, Lucent's CFO (financial services) operation, while still embedded in various divisions and subsidiaries of AT&T, became involved in a benchmarking initiative that compared its costs with those of "best-in-class" companies. Company representatives worked with an outside consultant who manages a database containing current data on financial processes for more than 1,100 companies. They compared Lucent's financial processes to those of 22 other large companies in various industries with revenues ranging from \$5 billion to \$90 billion and with financial staffs of up to 15,000 employees.

The benchmarking data revealed that the cost of Lucent's CFO organization was significantly greater than that of several best-in-class companies. Inefficiencies fell primarily into the areas of staffing and systems (related costs included salaries, benefits, overtime, outside services such as for temps and contractors, system development, processing, storage, and printing). Benchmarking also revealed that the most efficient CFO organizations were operating at or below 1% of revenue. Lucent would have to make some significant changes to its systems and processes before it could operate that efficiently.

Lucent's change initiative began in early 1996 when it started the process toward becoming stand-alone. At that time, the CFO organization's mission was clear: Revamp systems and processes to meet its goal of costing the corporation no more than 1% of revenue, one of the benchmarks associated with the existing best-in-class companies.

SOURCE: Thomas A. Francesconi, "Transforming Lucent's CFO," *Management Accounting* (July 1998), p. 22. Copyright Institute of Management Accountants, Montvale, NJ.

This chapter focuses on several major topics related to cost control. First, discussion is provided on **cost control systems**, which are the formal and/or informal activities designed to analyze and evaluate how well costs are managed during a period. The second topic is control over costs (such as advertising) that management sets each period at specified levels. Because the benefits of these costs are often hard to measure, they may be more difficult to control than costs that relate either to the long-term asset investments or to "permanent" organizational personnel. Third, methods of using budgets to help in cost control are discussed. Next, a new approach to budgeting, activity-based budgeting, is introduced. Finally, costs associated with cash management are presented. The chapter appendix considers two alternative budgeting methods: program budgeting, which is often used in governmental and not-for-profit entities, and zero-base budgeting, which can be effective in some cost control programs.

cost control system

<http://www.att.com>

<http://www.ncr.com>

COST CONTROL SYSTEMS

The cost control system is an integral part of the overall organizational decision support system. The cost control system focuses on intraorganizational information and contains the detector, assessor, effector, and network components discussed in Chapter 2. Relative to the cost management system, the cost control system provides information for planning and for determining the efficiency of activities while they are being planned and after they are performed, as indicated in Exhibit 15-1.

EXHIBIT 15-1

Functions of an Effective Cost Control System

Control Point	Reason	Cost Control Method
Before an event	Preventive; reflects planning	Budgets; standards; policies concerning approval for deviations; expressions of quantitative and qualitative objectives
During an event	Corrective; ensures that the event is being pursued according to plans; allows management to correct problems as they occur	Periodic monitoring of ongoing activities; comparison of activities and costs against budgets and standards; avoidance of excessive expenditures
After an event	Diagnostic; guides future actions	Feedback; variance analysis; responsibility reports (discussed in Chapter 18)

Managers alone cannot control costs. An organization is composed of many individuals whose attitudes and efforts should help determine how an organization's costs can be controlled. Cost control is a continual process that requires the support of all employees at all times.

Exhibit 15-2 provides a general planning and control model. As shown in this exhibit, control is part of a management cycle that begins with planning. Without first preparing plans for the organization (such as those discussed in Chapter 13), control cannot be achieved because no operational targets and objectives have been established. The planning phase establishes performance targets that become the inputs to the control phase.

EXHIBIT 15-2

General Planning and Control Model

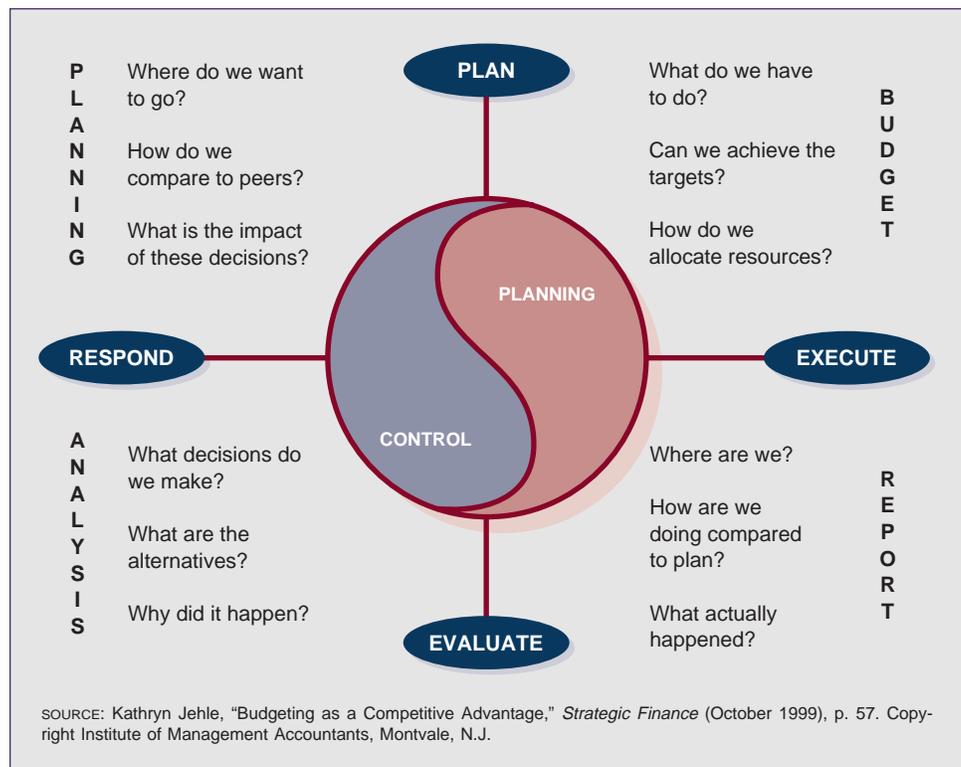


Exhibit 15-3 depicts a more specific model for controlling costs. A good control system encompasses not only the functions shown in Exhibit 15-1, but also the ideas about cost consciousness shown in Exhibit 15-3. **Cost consciousness** refers to a companywide employee attitude toward the topics of cost understanding, cost containment, cost avoidance, and cost reduction. Each of these topics is important at a different stage of control.

1

Why is cost consciousness important to all members of an organization?
cost consciousness

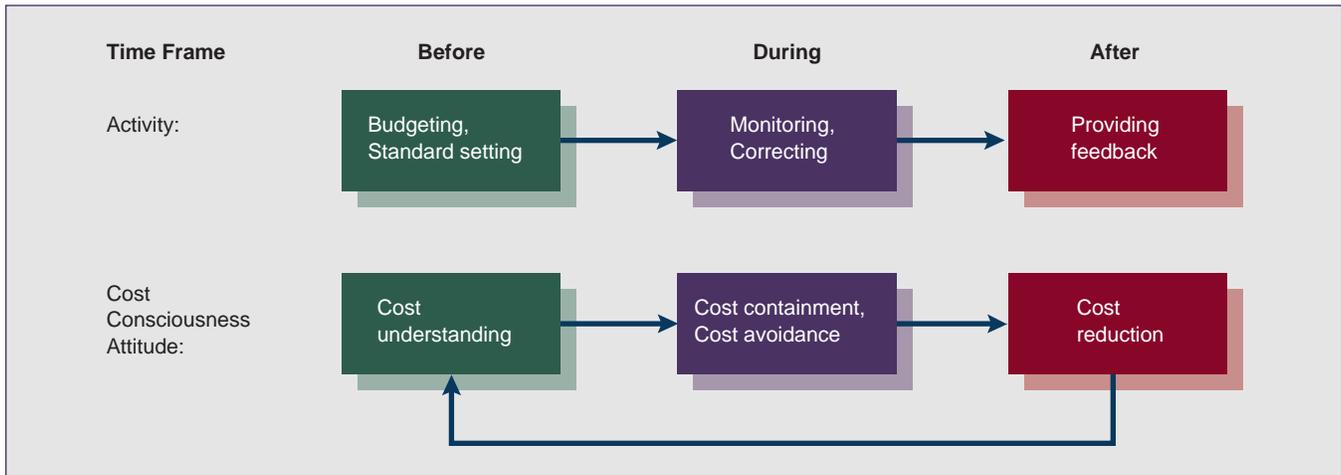


EXHIBIT 15-3

Cost Control System

Cost Understanding

Control requires that a set of expectations exist. Thus, cost control is first exercised when the budget is prepared. However, budgets cannot be prepared without an understanding of the reasons underlying period cost changes, and cost control cannot be achieved without understanding why costs may differ from the budgeted amounts. The opening vignette and the accompanying News Note show the increased use of shared services is one way companies are converting cost understanding into lower costs and higher profits.

<http://www.fordvehicles.com>
<http://www.ge.com>

GENERAL BUSINESS

NEWS NOTE

Finding Value in Sharing



A dozen years ago, pioneering companies began consolidating finance functions into “shared services” centers. They reasoned that handling all transactions in one place would save millions of dollars. They were right. Now these companies are moving beyond their original aims and are bringing in other functions like human resources and legal. They’re also linking their centers into regional and global networks and leveraging their capabilities. The centers create values that expand beyond administration to benefit the entire company and drive the growth of revenue and share value. Advisers can base recommendations on information that’s standardized worldwide, and managers can use “apples to apples” com-

parisons to make better strategic decisions. Sixteen of the top 20 Fortune 500 companies use shared service centers. For example:

Ford reduced its worldwide finance headcount from more than 14,000 to about 3,000. The center supports 300,000 Ford employees and \$125 billion in sales. General Electric cut its staff to one-fourth its original size. The smaller staff provides analytical insights as well as low-cost administrative work.

SOURCE: Bob Cecil, “Shared Services: Moving Beyond Success,” *Strategic Finance* (April 2000), pp. 67, 68. Copyright Institute of Management Accountants, Montvale, N.J.

COST CHANGES DUE TO COST BEHAVIOR

Costs may change from previous periods or differ from budget expectations for many reasons. Some costs change because of their underlying behavior. Total variable or mixed cost increases or decreases with, respectively, increases or decreases in activity. If the current period's actual activity differs from a prior period's or the budgeted activity level, total actual variable or mixed cost will differ from that of the prior period or of the budget. A flexible budget can compensate for such differences by providing expected costs at any activity level. By using a flexible budget, managers can then make valid budget-to-actual cost comparisons to determine whether costs were properly controlled.

In addition to the reactions of variable and mixed costs to changes in activity, other factors such as inflation/deflation, supply/supplier cost adjustments, and quantity purchased can cause costs to differ from those of prior periods or the budget. In considering these factors, remember that an external price becomes an internal cost when a good or service is acquired.

COST CHANGES DUE TO INFLATION/DEFLATION

Fluctuations in the value of money are called general price-level changes. When the general price level changes, the prices of goods and services also change. If all other factors are constant, general price-level changes affect almost all prices approximately equally and in the same direction. The statistics in Exhibit 15-4 represent the annual rates of inflation from 1970 through 1997 in the United States using the Consumer Price Index (CPI) as a measure. Thus, a company having office supplies expense of \$10,000 in 1970 would expect to have approximately \$41,300 of office supplies expense in 1997, for the same basic "package" of supplies. Inflation indexes by industry or commodity can be examined to obtain more accurate information about inflation effects on prices of particular inputs, e.g., paper products.

Some companies include price-escalation clauses in sales contracts to cover the inflation occurring from order to delivery. Such escalators are especially prevalent in industries having production activities that require substantial time. For instance, Congress passed the Debt Collection Improvement Act of 1996, which contained a provision to adjust the Environmental Protection Agency's fines for inflation on a periodic basis. The law allows EPA's penalties to keep pace with inflation and thereby maintain the deterrent effect Congress intended when it originally specified penalties. The first adjustments to penalties were made in 1997.¹

EXHIBIT 15-4

Cumulative Rate of Inflation
(1970-1997)

Year	Index	Year	Index	Year	Index	Year	Index
1970	1.00	1977	1.29	1984	1.68	1991	3.09
1971	1.03	1978	1.34	1985	1.85	1992	3.43
1972	1.05	1979	1.39	1986	2.10	1993	3.65
1973	1.09	1980	1.42	1987	2.34	1994	3.76
1974	1.12	1981	1.47	1988	2.52	1995	3.93
1975	1.17	1982	1.53	1989	2.68	1996	4.04
1976	1.23	1983	1.58	1990	2.83	1997	4.13

Note: For 1998 and thereafter the manner in which the Bureau of Labor Statistics computes the Consumer Price Index changed. Thus, it is difficult to compare data after 1997 to prior data.

SOURCE: Bureau of Labor Statistics, <http://146.142.4.24/cgi-bin/surveymost> (July 8, 2000).

¹ <http://www.epa.gov/docs/fedrgstr/EPA-GENERAL/1996/Dece.../pr-23925.htm> (July 9, 2000).

COST CHANGES DUE TO SUPPLY/SUPPLIER COST ADJUSTMENTS

The relationship between the availability of a good or service and the demand for that item affects its selling price. If supply is low but demand is high, the selling price of the item increases. The higher price often stimulates greater production, which, in turn, increases supply. In contrast, if demand falls but supply remains constant, the price falls. This reduced price should motivate lower production, which lowers supply. Therefore, price is consistently and circularly influenced by the relationship of supply and demand. Price changes resulting from independent causes are specific price-level changes, and these may move in the same or opposite direction as a general price-level change.

To illustrate, gasoline prices soared in the spring of 1996 because of two supply-related factors. The first factor was a harsh winter that caused refineries to reduce gasoline production so as to increase heating oil production. Second, several refineries had problems that caused shutdowns, which also reduced supply in the third week of April from 7.5 million barrels a day to 7.29 million barrels a day.² Specific price-level changes may also be caused by advances in technology. As a general rule, as suppliers advance the technology of producing a good or performing a service, its cost to producing firms declines. Assuming competitive market conditions, such cost declines are often passed along to consumers of that product or service in the form of lower selling prices. Consider the following: “You receive one of those little greeting cards that plays ‘Happy Birthday’ when you open it. Casually toss it into the trash, and you’ve just discarded more computer processing power than existed in the entire world before 1950.”³ This is a simple example of the interaction of increasing technology and decreasing selling prices and costs. The News Note on page 666 describes how Alcoa is leveraging existing technology to develop new production methods that squeeze out costs.

Alternatively, when suppliers incur additional production or performance costs, they typically pass such increases on to their customers as part of specific price-level changes. Such costs may be within or outside the control of the supplier. For example, an increase in fuel prices in the first half of 2000 caused the prices of many products and services to rise—especially those having a high freight or energy content.

The quantity of suppliers of a product or service can also affect selling prices. As the number of suppliers increases in a competitive environment, price tends to fall. Likewise, a reduction in the number of suppliers will, all else remaining equal, cause prices to increase. A change in the number of suppliers is not the same as a change in the quantity of supply. If the supply of an item is large, one normally expects a low price; however, if there is only one supplier, the price can remain high because of supplier control. Consider that combating illnesses commonly requires the use of various medications. When drugs are first introduced under patent, the supply may be readily available, but the selling price is high because there is only a single source. As patents expire and generic drugs become available, selling prices decline because more suppliers can produce the item. For example, when the patents on Syntex Corporation’s antiarthritis drugs Naprosyn and Anaprox expired in December 1993, two-thirds of the prescriptions filled within a month were filled with generic versions and the price plummeted more than 80 percent.⁴

Sometimes, cost increases are caused by increases in taxes or regulatory requirements. For example, paper manufacturers are continually faced with more stringent clean air, clean water, and safety legislation. Complying with these regulations increases costs for paper companies. The companies can (1) pass along the costs as price increases to maintain the same income level, (2) decrease other

<http://www.alcoa.com>
<http://www.toyota.com>

<http://www.syntexcorp.com>

² “They’re Back: High Gas Costs Fuel Carpools,” *(New Orleans) Times-Picayune* (April 26, 1996), p. C3.

³ John Huey, “Waking Up to the New Economy,” *Fortune* (June 27, 1994), p. 37.

⁴ Elyse Tanouye, “Price Wars, Patent Expirations Promise Cheaper Drugs,” *The Wall Street Journal* (March 24, 1994), p. B1.

NEWS NOTE



GENERAL BUSINESS

Real Time . . . Real Money

In 1999, Alcoa reduced inventories by more than a quarter of a billion dollars while increasing sales by just under \$1 billion. Credit goes to the Alcoa Business System, an adaptation of Toyota's production methods that will take more than \$1.1 billion out of the aluminum maker's cost base. A big piece of it: getting Alcoa, as much as possible, to operate in real time.

Managing in real time—making decisions now, on the basis of accurate, live information; eliminating filters and emptying catch basins of information and resources; producing to actual demand rather than to forecast or budget—is changing how business works.

Alcoa, already the aluminum industry's cost leader, began rolling out its new manufacturing methods in 1998, aiming to cut costs and improve responsiveness. "We were ill prepared to meet customers' needs," says executive vice president P. Keith Turnbull, who leads the effort. "We'd ship out a pile of dead 'inventory,' and if we didn't have what the customer wanted, we'd make the pile bigger." Inventories are a hedge against inefficiency: your own or that of your supplier or customer. Alcoa CEO Alain Belda calls them "monuments to incompetence."

Managing in real time is central to Alcoa's process. First, it's how Alcoa fixes plants: As at Toyota, any worker who has any problem—a machine out of kilter, a product defect—or has an idea pulls a cord summoning a

leader, with the aim of fixing the problem or implementing the idea then and there. One problem, one cause, one time, at once—that's how the plant gets better, rather than by batching tasks off to engineers. Second, inside the plants, real demand dictates production as much as possible; that is, a worker upstream responds to live "pull" signals from workers downstream—ideally workers he can actually see. Says Turnbull, "Workers need to have the authority to buy and sell. Joe says to Marie, 'I need three extrusions by such and such a time'; Marie says yes or no; then she in turn buys what she needs."

The results show up all over the company. A plant in Sorocaba, Brazil, turns its inventory 60 times a year. A Hernando, Miss., extrusion plant, a money loser when it was acquired in 1998, delivers custom orders in two days (versus three weeks previously) and makes money. In Portland, Australia, producing molten metal to real-time demand from an adjacent ingot mill raised asset utilization so much that the plant eliminated ten of 24 vacuum crucibles, saving about \$60 million a year. All this—\$832 million so far, toward the \$1.1 billion target—has taken just over two years. Real time flies.

SOURCE: Thomas A. Stewart, "How Cisco and Alcoa Make Real Time Work," *Fortune* (May 29, 2000), pp. 284–286. © 2000 Time Inc. Reprinted by permission.

costs to maintain the same income level, or (3) experience a decline in net income. The News Note on page 667 illustrates the cost of regulation in the case of pharmaceutical companies.

COST CHANGES DUE TO QUANTITY PURCHASED

Firms are normally given quantity discounts, up to some maximum level, when they make purchases in bulk. Therefore, a cost per unit may change because quantities are purchased in lot sizes differing from those of previous periods or those projected. Involvement in group purchasing arrangements can make quantity discounts easier to obtain.

The preceding reasons indicate why costs change. Next, the discussion addresses actions firms can take to control costs.

Cost Containment

To the extent possible, period-by-period increases in per-unit variable and total fixed costs should be minimized through a process of **cost containment**. Cost containment is not possible for inflation adjustments, tax and regulatory changes, and supply and demand adjustments because these forces occur outside the organization. Additionally, in most Western companies, adjustments to prices resulting from factors within the supply chain are not controlled by managers.

cost containment



Who Regulates the Cost of Regulation?

U.S. drug companies discover almost half the new drugs in the world. Americans now lead longer, more productive lives, due in part to the new drugs. New heart medicines have contributed greatly to the 74% drop in cardiac deaths over the past 40 years. AIDS deaths have dropped 70% because of new drug cocktails. Even deaths from cancer are beginning to decline.

Yet today, thanks in large part to FDA requirements, the average cost of developing a new drug is about \$650 million. American drug companies invest \$24 billion annually in research and development. It takes 12 to 15 years to discover and develop a new medicine. Only one in 5,000 chemicals looked at in the laboratory ever gets to market. Once approved by the FDA, only three in 10 return more than the development costs. This is a prohibitively costly process, and only some of the costs are justified.

Since the 1960s, the FDA has promoted the standard that a drug must be “safe and effective” to enter the U.S. market. Pre-approval safety studies cost less than \$50

million per drug. The remaining \$600 million in development costs for a new drug is spent on clinical human efficacy trials. Most of this money goes to research institutes. The trials create a four-to-eight year delay, and produce conflicting data. The conclusion often drawn is that more studies are necessary—in other words, please send us more grant money. This process simply transfers wealth from drug companies to research institutes, bypassing the sick.

The market does a better job of screening, rejecting 70% of drugs as not effective. This shouldn't be surprising. The market is where real patients—many on numerous medications—use a new drug, and it's also where ordinary doctors, unrestricted by protocols, observe a new drug in action.

SOURCE: William K. Summers and James Driscoll, “To Cut Drug Prices, Reform the FDA,” *The Wall Street Journal* (June 21, 2000), p. A26. Permission conveyed through the Copyright Clearance Center.

Japanese companies may not have the same view of supply-chain cost containment techniques. In some circumstances, a significant exchange of information occurs among members of the supply chain, and members of one organization may actually be involved in activities designed to reduce costs of another organization. For example, Citizen Watch Company has long set target cost reductions for external suppliers. If suppliers could not meet the target, they would be assisted by Citizen engineers in efforts to meet the target the following year.⁵

In the United States, some interorganizational arrangements of this kind do exist. For instance, an agreement between Baxter International (a hospital supply company) and BJC Health System allowed Baxter access to BJC's hospital computer information database. The information obtained was used by Baxter “to measure more precisely the types of procedures conducted and the exact amount of supplies needed.”⁶

However, costs that rise because of reduced supplier competition, seasonality, and quantities purchased are subject to cost containment activities. A company should look for ways to cap the upward changes in these costs. For example, purchasing agents should be aware of new suppliers for needed goods and services and determine which, if any, of those suppliers can provide needed items in the quantity, quality, and time desired. Comparing costs and finding new sources of supply can increase buying power and reduce costs.

If bids are used to select suppliers, the purchasing agent should remember that a bid is merely the first step in negotiating. Although a low bid may eliminate some competition from consideration, additional negotiations between the purchasing agent and the remaining suppliers may reveal a purchase cost even lower than the bid amount, or concessions (such as faster and more reliable delivery) might be

<http://www.citizenwatch.com>

<http://www.baxter.com>
<http://www.bjc.org>

⁵ Robin Cooper, *Citizen Watch Company, Ltd.* (Boston: Harvard Business School Case No. 194-033).

⁶ Thomas M. Burton, “Baxter Reaches Novel Supply Pact with Duke Hospital,” *The Wall Street Journal* (July 15, 1994), p. B2.

obtained. However, purchasing agents must remember that the supplier offering the lowest bid is not necessarily the best supplier to choose. Other factors such as quality, service, and reliability are important.

Reduced costs can often be obtained when long-term or single-source contracts are signed. For example, Ochsner Hospital in New Orleans has several limited (between one and three) source relationships for office and pharmaceutical supplies, food, and sutures. Most of these suppliers also provide just-in-time delivery. For instance, operating room (OR) supplies are ordered based on the next day's OR schedule. Two hours later, individual OR trays containing specified supplies for each operation are delivered by the vendor. By engaging in supplier relationships of this kind, Ochsner has not only introduced volume purchasing discounts but also effected timely delivery with total quality control.⁷

A company may circumvent seasonal cost changes by postponing or advancing purchases of goods and services. However, such purchasing changes should not mean buying irresponsibly or incurring excessive carrying costs. Economic order quantities, safety stock levels, and materials requirements planning as well as the just-in-time philosophy should be considered when making purchases. These concepts are discussed in the next chapter.

As to services, employees could repair rather than replace items that have seasonal cost changes. For example, maintenance workers might find that a broken heat pump can be repaired and used for the spring months so that it would not have to be replaced until summer when the purchase cost is lower.

Cost Avoidance and Reduction

Cost containment can prove very effective if it can be implemented. In some instances, although cost containment may not be possible, cost avoidance might be. **Cost avoidance** means finding acceptable alternatives to high-cost items and/or not spending money for unnecessary goods or services. Avoiding one cost may require that an alternative, lower cost be incurred. For example, some companies have decided to self-insure for many workers' compensation claims rather than pay high insurance premiums. Gillette avoids substantial costs by warehousing and shipping Oral-B toothbrushes, Braun coffeemakers, Right Guard deodorant, and Paper Mate ballpoint pens together because all of these products share common distribution channels.⁸

Closely related to cost avoidance, **cost reduction** refers to lowering current costs. Benchmarking is especially important in this area so that companies can become aware of costs that are in excess of what is necessary. The News Note on page 669 discusses benchmarks for the financial services function—the area in which Lucent Technologies is striving to cut costs and improve quality.

As discussed in Chapter 1 relative to core competencies, companies may also reduce costs by outsourcing rather than maintaining internal departments. Data processing and the financial and legal functions are prime targets for outsourcing in many companies. Distribution is also becoming a highly viable candidate for outsourcing, because “for many products, distribution costs can be as much as 30% to 40% of a product's cost.”⁹

Sometimes money must be spent to generate cost savings. Accountants may opt to use videotaped rather than live presentations to reduce the cost of continuing education programs. Some of the larger firms (such as Arthur Andersen) have their own in-house studios and staffs. Although the cost of producing a tape is high, the firms feel the cost is justified because many copies can be made and used in multiple presentations over time by all the offices. Other firms bring in specialists

<http://www.ochsner.org/ofh.htm>

cost avoidance

<http://www.gillette.com>

cost reduction

<http://www.arthurandersen.com>

⁷ Interview with Graham Cowie, Ochsner Medical Institutions, 1994.

⁸ Pablo Galarza, “Nicked and Cut,” *Financial World* (April 8, 1996), p. 38.

⁹ Rita Kosalika, “Distribution Revolution,” *Forbes* (May 25, 1992), p. 58.



Accounting for the Accounting Function

Finance is an expensive function. It costs the typical company 1.4 percent of its annual revenues to provide financial services. This cost includes processing basic transactions such as payables, payroll and receivables, as well as management reporting, budgeting and activities like tax, treasury and financial analysis. Three components make up the cost: fully loaded labor (wages, salaries and benefits), outsourcing systems (run time and maintenance for finance systems only) and “other” (such as facilities, suppliers and corporate allocations).

While finance costs remain high, they’ve been dropping quickly, as companies make a concerted effort to eliminate their unnecessary activities, streamline their organizations and leverage technology. The benchmark shows that costs have declined 36 percent since 1988, when they were 2.2 percent of revenue. Given this trend, we anticipate that the average cost of finance will drop to less than 1 percent of revenue within the next several years.

Leading the pack in our most recent analysis of the database is a multibillion-dollar global manufacturer that has finance costs of 0.36 percent of revenue—and incorporates a high degree of best practices into the function while providing exceptional levels of service. Yet even this stellar performer acknowledges that it still has room and plans for improvement. A point that’s important to note: The best keep getting better, elevating the standard for all competitors.

While, on average, finance costs a company 1.4 percent of revenue, the range between the lowest and the highest costs is large. The top 25 percent of companies in the database have costs of less than 1 percent of revenue, and fourth quartile companies have costs that are greater than 2.2 percent.

SOURCE: Greg Hackett, “But Are My Finance Costs Typical?” *Financial Executive* (July/August 1998), pp. 44–45. Copyright 1998 Financial Executives Institute, Morristown, N.J. Reprinted with permission.

or use satellite or two-way interactive television to provide continuing education to their employees.

Some companies are also beginning to look outside for information about how and where to cut costs. Consulting firms, such as Fields & Associates in Burlingame, California, review files for duplicate payments and tax overpayments. Fields “recovered about \$1 million for Intel Corp. in two years, in exchange for part of the savings.”¹⁰

Although many companies believe that eliminating jobs and labor are effective ways to reduce costs, the following quote provides a more appropriate viewpoint:

*Cutting staffs to cut costs is putting the cart before the horse. The only way to bring costs down is to restructure the work. This will then result in reducing the number of people needed to do the job, and far more drastically than even the most radical staff cutbacks could possibly do. Indeed, a cost crunch should always be used as an opportunity to re-think and to re-design operations.*¹¹

In fact, sometimes cutting costs by cutting people merely creates other problems. The people who are cut may have been performing a value-added activity; and by eliminating such people, a company may reduce its ability to do necessary and important tasks as well as reduce organizational learning and memory.

On-the-job training is an important component in instilling cost consciousness within an organization’s quest for continuous improvement. Giving training to personnel throughout the firm is an effective investment in human resources because workers can apply the concepts and skills they are learning directly to the jobs they are doing.

<http://www.intel.com>

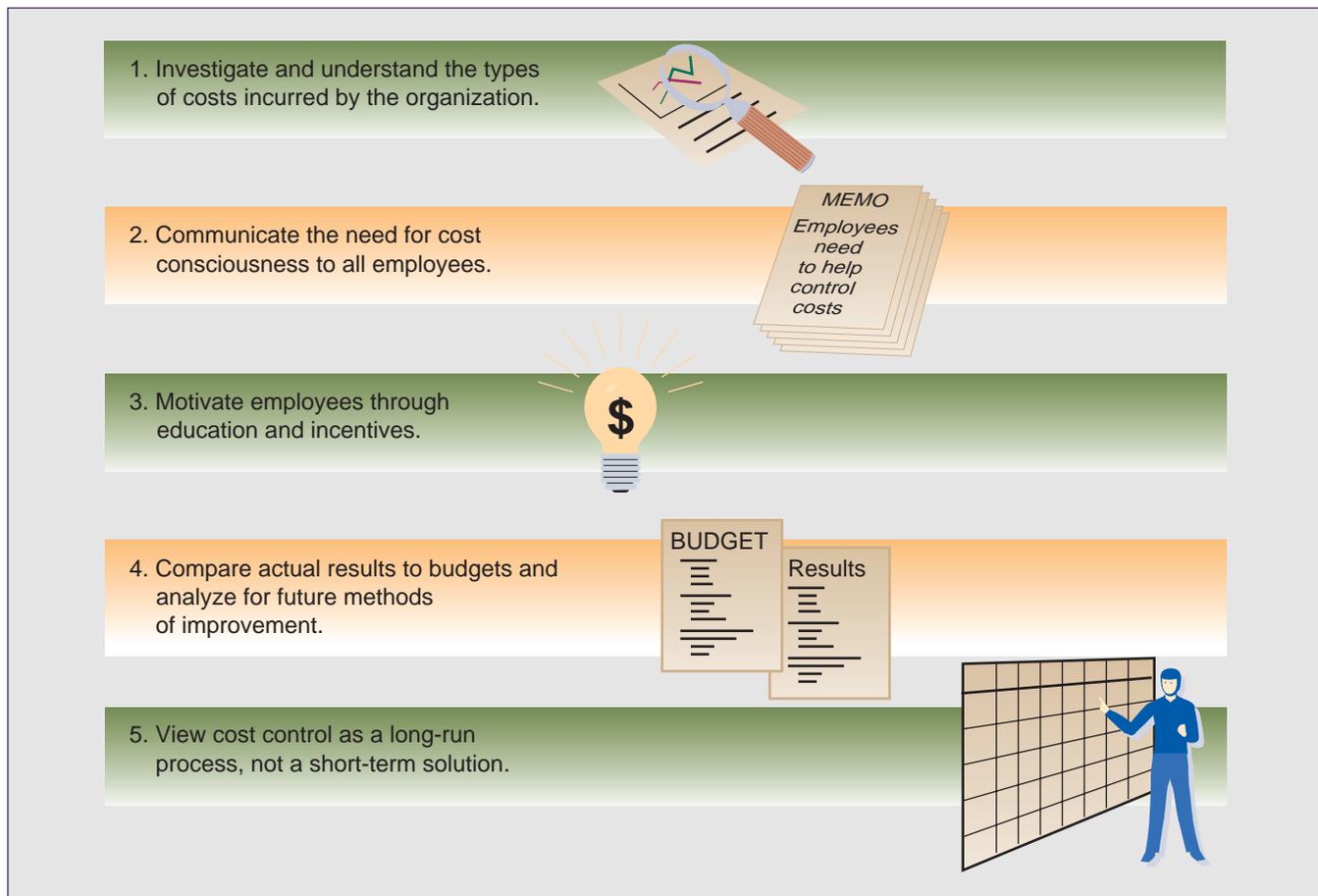
¹⁰ Jeffrey A. Tannenbaum, “Entrepreneurs Thrive by Helping Big Firms Slash Costs,” *The Wall Street Journal* (November 10, 1993), p. B2.

¹¹ Peter Drucker, “Permanent Cost Cutting,” *The Wall Street Journal* (January 11, 1991), p. A8. Permission conveyed by the Copyright Clearance Center.

Managers may adopt the five-step method of implementing a cost control system shown in Exhibit 15-5. First, the type of costs incurred by an organization must be understood. Are the costs under consideration fixed or variable, product or period? What cost drivers affect those costs? Does management view the costs as committed or discretionary? Second, the need for cost consciousness must be communicated to all employees for the control process to be effective. Employees must be aware of which costs need to be better controlled and why cost control is important to both the company and the employees themselves. Third, employees must be educated in cost control techniques, encouraged to provide ideas on how to control costs, and motivated by incentives to embrace the concepts. The incentives may range from simple verbal recognition to monetary rewards to time off with pay. Managers must also be flexible enough to allow for changes from the current method of operation. Fourth, reports must be generated indicating actual results, budget-to-actual comparisons, and variances. These reports must be evaluated by management to determine why costs were or were not controlled in the past. Such analysis may provide insightful information about cost drivers so that the activities causing costs to be incurred may be better controlled in the future. Last, the cost control system should be viewed as a long-run process, not a short-run solution. "To be successful, organizations must avoid the illusion of short-term, highly simplified cost-cutting procedures. Instead, they must carefully evaluate proposed solutions to ensure that these are practical, workable, and measure changes based on realities, not illusions."¹²

EXHIBIT 15-5

Implementing a Cost Control System



¹² Mark D. Lutchén, "Cost Cutting Illusions," *Today's CPA* (May/June 1989), p. 46.

Following these five steps will provide an atmosphere conducive to controlling costs to the fullest extent possible as well as deriving the most benefit from the costs that are incurred. Costs to be incurred should have been compared to the benefits expected to be achieved before cost incurrence took place. The costs should also have been incorporated into the budgeting system because costs cannot be controlled after they have been incurred. Future costs, on the other hand, may be controlled based on information learned about past costs. Cost control should not cease at the end of a fiscal period or because costs were reduced or controlled during the current period. However, distinct differences exist in the cost control system between committed and discretionary costs.

COMMITTED FIXED COSTS

Managers are charged with planning and controlling the types and amounts of costs necessary to conduct business activities. Many activities required to achieve business objectives involve fixed costs. All fixed costs (and the activities that create them) can be categorized as either committed or discretionary. The difference between the two categories is primarily the time period for which management binds itself to the activity and the cost.

The costs associated with basic plant assets or with the personnel structure that an organization must have to operate are known as **committed costs**. The amount of committed costs is normally dictated by long-run management decisions involving the desired level of operations. Committed costs include depreciation, lease rentals, and property taxes. Such costs cannot be reduced easily even during temporarily diminished activity.

One method of controlling committed costs involves comparing the expected benefits of having plant assets (or human resources) with the expected costs of such investments. Managers must decide what activities are needed to attain company objectives and what (and how many) assets are needed to support those activities. Once the assets are acquired, managers are committed to both the activities and their related costs for the long run. However, regardless of how good an asset investment appears to be on the surface, managers must understand how committed fixed costs could affect income in the event of changes in operations.

Assume the managers at Ace Engineered Products are considering an investment of \$1,000,000 in design technology. The technology will be depreciated at the rate of \$100,000 per year. The company's cost relationships indicate that variable costs are 45 percent of revenues, giving a contribution margin of 55 percent. Exhibit 15-6 (p. 672) shows the potential effects on net income of this long-term commitment under three conditions: maintenance of current revenues, a 20 percent increase in revenues, and a 20 percent decrease in revenues.

Note that the \$100,000 increase in depreciation expense affects the income statement more significantly when sales decline than when sales increase. This effect is caused by the operating leverage factor discussed in Chapter 11. Companies that have fairly high contribution margins can withstand large increases in fixed costs as long as revenues increase. However, these same companies feel greater effects of decreases in revenue because the margin available to cover fixed costs erodes so rapidly. As the magnitude of committed fixed costs increases, so does the risk of incurring an operating loss in the event of a downturn in demand. Therefore, managers must be extremely careful about the level of fixed costs to which the organization is committed.

A second method of controlling committed costs involves comparing actual and expected results from plant asset investments. During this process, managers are able to see and evaluate the accuracy of their cost and revenue predictions relative to the investment. This comparison is called a postinvestment audit and is discussed in Chapter 14.

2

How are costs determined to be committed or discretionary?

committed cost

EXHIBIT 15-6

Risk Related to Committed Costs

	Current Level of Operations	(a) Current Level of Revenues and Increase in Depreciation	(b) Increase in Revenues of 20% and Increase in Depreciation	(c) Decrease in Revenues of 20% and Increase in Depreciation
Revenues	\$2,500,000	\$2,500,000	\$3,000,000	\$2,000,000
Variable costs	(1,125,000)	(1,125,000)	(1,350,000)	(900,000)
Contribution margin	\$1,375,000	\$1,375,000	\$1,650,000	\$1,100,000
Fixed costs	(1,200,000)	(1,300,000)	(1,300,000)	(1,300,000)
Net income	<u>\$ 175,000</u>	<u>\$ 75,000</u>	<u>\$ 350,000</u>	<u>\$ (200,000)</u>

Each change from the original income level to the new income level is explained as the change in the contribution margin minus the increase in fixed costs:

Change to (a) = Increase in CM – Increase in FC = \$0 – \$100,000 = \$(100,000)
Change to (b) = Increase in CM – Increase in FC = \$275,000 – \$100,000 = \$175,000
Change to (c) = Decrease in CM – Increase in FC = \$(275,000) – \$100,000 = \$(375,000)

An organization cannot operate without some basic levels of plant and human assets. Considerable control can be exercised over the process of determining how management wishes to define “basic” and what funds will be committed to those assets. The benefits from committed costs can generally be predicted and are commonly compared with actual results in the future.

DISCRETIONARY COSTS**discretionary cost**

In contrast to a committed cost, a **discretionary cost** is one “that a decision maker must periodically review to determine if it continues to be in accord with ongoing policies.”¹³ A discretionary fixed cost is one that reflects a management decision to fund a particular activity at a specified amount for a specified period of time. Discretionary costs relate to company activities that are important but are viewed as optional. Discretionary cost activities are usually service oriented and include employee travel, repairs and maintenance, advertising, research and development, and employee training and development. There is no “correct” amount at which to set funding for discretionary costs, and there are no specific activities whose costs are always considered discretionary (or discretionary fixed) in all organizations. In the event of cash flow shortages or forecasted operating losses, discretionary fixed costs may be more easily reduced than committed fixed costs.

Discretionary costs, then, are generated by unstructured activities that vary in type and magnitude from day to day and whose benefits are often not measurable in monetary terms. For example, in 1996, McDonald’s decided to spend more than \$200 million to promote its quarter-pound Arch Deluxe hamburger and several other adult entrees.¹⁴ How could McDonald’s know whether this advertising campaign actually created a demand for these products? Expenditures of this magnitude require that management have some idea of the benefits that are expected, but measuring results is often difficult. Management can employ market research in an effort to gain knowledge of the effectiveness of advertising and other promotional tools.

Just as discretionary cost activities vary, the quality of performance may also vary according to the tasks involved and the skill levels of the persons performing

<http://www.mcdonalds.com>

¹³ Institute of Management Accountants (formerly National Association of Accountants), *Statements on Management Accounting Number 2: Management Accounting Terminology* (Montvale, N.J.: June 1, 1983), p. 35.

¹⁴ Bruce Horovitz and Dottie Enrico, “Chain Hoping Grown-Up Chow Boosts Sales,” *USA Today* (May 9, 1996), p. 1A.

them. Because of these two factors—varying activities and varying quality levels—discretionary costs are not usually susceptible to the precise measures available to plan and control variable production costs or the cost-benefit evaluation techniques available to control committed fixed costs. Because the benefits of discretionary cost activities cannot be assessed definitively, these activities are often among the first to be cut when profits are lagging. Thus, proper planning for discretionary activities and costs may be more important than subsequent control measures. Control after the planning stage is often restricted to monitoring expenditures to ensure conformity with budget classifications and preventing managers from overspending their budgeted amounts.

Budgeting Discretionary Costs

Budgets, described in Chapter 13 as both planning and controlling devices, serve to officially communicate a manager's authority to spend up to a predetermined amount (**appropriation**) or rate for each budget item. Budget appropriations serve as a basis for comparison with actual costs. Accumulated expenditures in each budgetary category are periodically compared with appropriated amounts to determine whether funds have been under- or overexpended.

appropriation

Before top management can address the issue of discretionary costs, company goals must be translated into specific objectives and policies that management believes will contribute to organizational success. Then, management must budget the types and funding levels of discretionary activities that will accomplish those objectives. Funding levels should be set only after discretionary cost activities have been prioritized and cash flow and income expectations for the coming period have been reviewed. Management tends to be more generous about making discretionary cost appropriations during periods of strong economic outlook for the organization than in periods of weak economic outlook.

Discretionary costs are generally budgeted on the basis of three factors: (1) the related activity's perceived significance to the achievement of objectives and goals, (2) the upcoming period's expected level of operations, and (3) managerial negotiations in the budgetary process. For some discretionary costs, managers are expected to spend the full amount of their appropriations within the specified time frame. For other discretionary cost activities, the "less is better" adage is appropriate.

As an example of "less is *not* better," consider the cost of preventive maintenance. This cost can be viewed as discretionary, but reducing it could result in diminished quality, production breakdowns, or machine inefficiency. Although the benefits of maintenance expenditures cannot be precisely quantified, most managers believe that incurring less maintenance cost than budgeted is not a positive type of cost control. In fact, spending (with supervisory approval) more than originally appropriated might be necessary or even commendable—assuming that positive results (such as a decline in quality defects) are obtained. Such a perspective illustrates the perception mentioned earlier that cost control should be a long-run process rather than a short-run concern.

Alternatively, spending less than budgeted on travel and entertainment (while achieving the desired results) would probably be considered positive performance, but requesting travel and entertainment funds in excess of budget appropriations might be considered irresponsible.

Managers may view discretionary activities and costs as though they were committed. A discretionary expenditure may be budgeted on an annual basis as a function of planned volume of company sales. Once this appropriation has been justified, management's intention may be that it is not to be reduced within that year regardless of whether actual sales are less than planned sales. A manager who states that a particular activity's cost will not be reduced during a period has chosen to view that activity and cost as committed. This viewpoint does not change the underlying discretionary nature of the item. In such circumstances, top management

must have a high degree of faith in the ability of lower-level management to perform the specified tasks in an efficient manner.

However, if revenues, profits, or cash flows are reduced, funding for discretionary expenditures should be evaluated not simply in reference to reduced operations, but relative to activity priorities. Eliminating the funding for one or more discretionary activities altogether may be possible while maintaining other funding levels at the previously determined amounts. For instance, if a company experiences a downturn in demand for its product, the discretionary cost budget for advertising is often reduced—a potentially illogical reaction. Instead, increasing the advertising budget and reducing the corporate executives' travel budget might be more appropriate.

Discretionary cost activities involve services that vary significantly in type and magnitude from day to day. The output quality of discretionary cost activities may also vary according to the tasks and skill levels of the persons performing the activities. Because of varying service levels and quality, discretionary costs are generally not susceptible to the precise planning and control measurements that are available for variable production costs or to the cost-benefit evaluation techniques available for committed fixed costs.

Part of the difference in management attitude between committed and discretionary costs has to do with the ability to measure the benefits provided by those costs. Whereas benefits of committed fixed costs can be measured on a before-and-after basis (through the capital budgeting and postinvestment audit processes), the benefits from discretionary fixed costs are often not distinctly measurable in terms of money.

3

How are the benefits of expenditures for discretionary costs measured?

Measuring Benefits from Discretionary Costs

Because benefits from some activities traditionally classified as discretionary cannot be adequately measured, companies often assume that the benefits—and, thus, the activities—are unimportant. But many of the activities previously described as discretionary (repairs, maintenance, R&D, and employee training) are critical to a company's position in a world-class environment. These activities, in the long run, produce quality products and services; therefore, before reducing or eliminating expenditures in these areas, managers should attempt to more appropriately recognize and measure the benefits of these activities.

Research and development is often considered a discretionary cost activity. Companies in industries such as pharmaceuticals and food, however, might consider some level of R&D cost as committed. In comparing actual and budgeted R&D costs in such companies, would "less" be "better?"



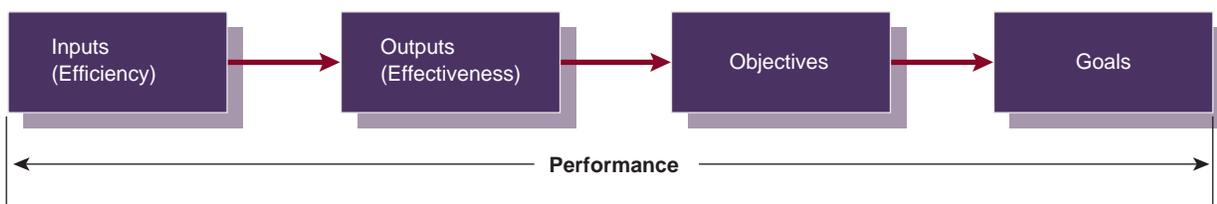
The value of discretionary costs should be estimated using nonmonetary, surrogate measures. Devising such measures often requires substantial time and creativity. Exhibit 15-7 presents some useful surrogate measures for determining the effectiveness of various types of discretionary costs. Some of these measures are verifiable and can be gathered quickly and easily; others are abstract and require a longer time horizon before they can be obtained.

Discretionary Cost Activity	Surrogate Measure of Results
Preventive maintenance	<ul style="list-style-type: none"> • Reduction in number of equipment failures • Reduction in unplanned downtime • Reduction in frequency of production interruptions caused by preventable maintenance activities
Advertising	<ul style="list-style-type: none"> • Increase in unit sales in the two weeks after an advertising effort relative to the sales two weeks prior to the effort • Number of customers referring to the ad • Number of coupons clipped from the ad and redeemed
University admissions recruiting trip	<ul style="list-style-type: none"> • Number of students met who requested an application • Number of students from area visited who requested to have ACT/SAT scores sent to the university • Number of admissions that year from that area
Prevention and appraisal quality activities	<ul style="list-style-type: none"> • Reduction in number of customer complaints • Reduction in number of warranty claims • Reduction in number of product defects discovered by customers
Staffing law school indigent clinic	<ul style="list-style-type: none"> • Number of clients served • Number of cases effectively resolved • Number of cases won
Executive retreat	<ul style="list-style-type: none"> • Proportion of participants still there at end of retreat • Number of useful suggestions made • Values tabulated from an exit survey

EXHIBIT 15-7

Nonmonetary Measures of Output from Discretionary Costs

The amounts spent on discretionary activities reflect resources that are consumed by an activity and should provide some desired monetary or surrogate output. Comparing input costs and output results can help to determine whether a reasonable cost-benefit relationship exists between the two. Managers can judge this cost-benefit relationship by how efficiently inputs (represented by costs) were used and how effectively those resources (again represented by costs) achieved their purposes. These relationships can be seen in the following model:



The degree to which a satisfactory relationship occurs when comparing outputs to inputs reflects the efficiency of the activity. Thus, efficiency is a yield concept and is usually measured by a ratio of output to input. For instance, one measure of automobile efficiency is miles driven per gallon of fuel consumed. The higher the number of miles per gallon, the greater the fuel efficiency of the car.

Comparing actual output results to desired results indicates the effectiveness of an activity or how well the objectives of the activity were achieved. When a valid output measure is available, efficiency and effectiveness can be determined as follows:

$$\text{Efficiency} = \frac{\text{Actual Output}}{\text{Actual Input}} \longrightarrow \text{compared to} \longrightarrow \frac{\text{Planned Output}}{\text{Planned Input}}$$

or, alternatively

$$\text{Efficiency} = \frac{\text{Actual Input}}{\text{Actual Output}} \longrightarrow \frac{\text{Planned Input}}{\text{Planned Output}}$$

$$\text{Effectiveness} = \frac{\text{Actual Output}}{\text{Planned Output}} \longrightarrow \text{Preestablished Standard}$$

A reasonable measure of efficiency can exist only when inputs and outputs can be matched in the same period and when a credible causal relationship exists between them. These two requirements make measuring the efficiency of discretionary costs very difficult. First, several years may pass before output occurs from some discretionary cost expenditures. Consider, for example, the length of time between making expenditures for research and development or a drug rehabilitation program and the time at which results of these types of expenditures are visible. Second, there is frequently a dubious cause-and-effect relationship between discretionary inputs and resulting outputs. For instance, assume that you clip and use a cents-off coupon for Crest toothpaste from the Sunday paper. Can Procter & Gamble be certain that it was the advertising coupon that caused you to buy the product, or might you have purchased the toothpaste anyway?

Effectiveness, on the other hand, is determined for a particular period by comparing the results achieved with the results desired. Determination of an activity's effectiveness is unaffected by whether the designated output measure is stated in monetary or nonmonetary terms. But management can only subjectively attribute some or all of the effectiveness of the cost incurrence to the results. Subjectivity is required because the comparison of actual output to planned output is not indicative of a perfect causal relationship between activities and output results. Measurement of effectiveness does not require the consideration of inputs, but measurement of efficiency does.

Assume that last month Ace Engineered Products increased its quality control training expenditures and, during that period, defective output dropped by 12 percent. The planned decrease in defects was 15 percent. Although management was 80 percent effective ($0.12 \div 0.15$) in achieving its goal of decreased defects, that result was not necessarily related to the quality control training expenditures. The decline in defects may have been caused partially or entirely by such factors as use of higher grade raw materials, more skilled production employees, or more properly maintained production equipment. Management, therefore, does not know for certain whether the quality control training program was the most effective way in which to decrease production defects.

The relationship between discretionary costs and desired results is inconclusive at best, and the effectiveness of such costs can only be inferred from the

relationship of actual to desired output. Because many discretionary costs result in benefits that must be measured on a nondefinitive and nonmonetary basis, exercising control of these costs during activities or after they have begun is difficult. Therefore, planning for discretionary costs may be more important than subsequent control measures. Control after the planning stage is often relegated to monitoring discretionary expenditures to ensure conformity with budget classifications and preventing managers from overspending their budgeted amounts.

CONTROLLING DISCRETIONARY COSTS

Control of discretionary costs is often limited to a monitoring function. Management compares actual discretionary expenditures with standards or budgeted amounts to determine variances in attempting to understand the cause-and-effect relationships of discretionary activities.

4

When are standards applicable to discretionary costs?

Control Using Engineered Costs

Some discretionary activities are repetitive enough to allow the development of standards similar to those for manufacturing costs. Such activities result in **engineered costs**, which are costs that have been found to bear observable and known relationships to a quantifiable activity base. Such costs can be treated as either variable or fixed. Discretionary cost activities that can fit into the engineered cost category are usually geared to a performance measure related to work accomplished. Budget appropriations for engineered costs are based on the static master budget level. However, control can be exerted through the use of flexible budgets if the expected level of activity is not achieved.

engineered cost

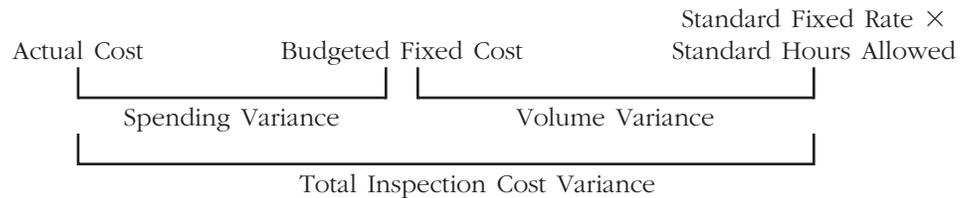
To illustrate the use of engineered costs, assume that Ace Engineered Products has found that quality control can be treated as an engineered cost. Taken as a whole, quality control inspections are similar enough to allow management to develop a standard inspection time. Company management, in a cost reduction effort, is willing to contract with part-time qualified quality control inspectors who will be paid on an hourly basis. Ace managers have found that inspection of each product averages slightly less than four minutes. Thus, each inspector should be able to perform approximately 15 inspections per hour. From this information, the company can obtain a fairly valid estimate of what inspection costs should be based on a particular activity level and can compare actual cost against the standard cost each period. The activity base of this engineered cost is the number of inspections performed.

In April, Ace management predicts that 26,250 inspections will be performed and, thus, 1,750 inspection hours should be provided. If the standard average hourly pay rate for inspectors is \$10, the April budget is \$17,500. In April, 25,575 inspections are made at a cost of \$17,034 for 1,670 actual hours. Using the generalized cost analysis model for variance analysis presented in Chapter 10, the following calculations can be made:

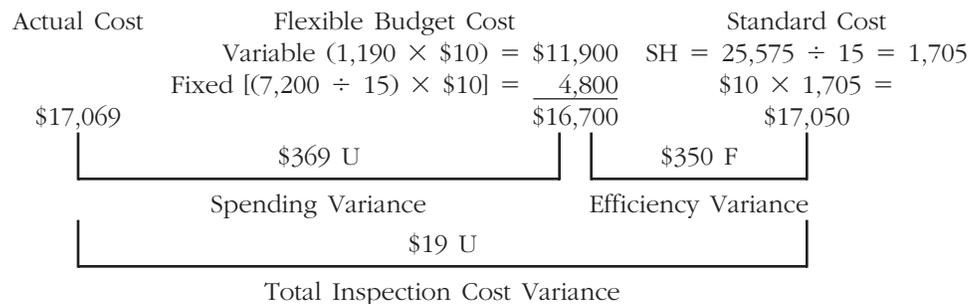
$AP \times AQ$	$SP \times AQ$	$SP \times SQ$
$\$10.20 \times 1,670$	$\$10 \times 1,670$	$\$10 \times (25,575 \div 15)$
\$17,034	\$16,700	\$17,050
\$334 U		\$350 F
Price Variance		Efficiency Variance
\$16 F		
Total Inspection Cost Variance		

The price variance shows that, on average, Ace Engineered Products paid \$0.20 more per hour for inspectors during April than was planned. The favorable efficiency variance results from using fewer hours than standard; however, recall that the standard requires only 15 inspections per hour even though the average inspection is expected to take “slightly less” than four minutes. Thus, a favorable variance is not surprising. A “generous” standard was set by Ace Engineered Products to reinforce the importance of making high-quality inspections regardless of the time taken.

The preceding analysis is predicated on the company being willing and able to hire the exact number of inspection hours needed. If Ace Engineered Products has to employ only full-time employees on a salary basis, analyzing inspection costs in the above manner is not very useful. In this instance, quality inspection cost becomes a discretionary fixed cost and Ace Engineered Products may prefer the following type of fixed overhead variance analysis:



In a third type of analysis, it is assumed that part-time help will be needed in addition to the full-time staffing, and the flexible budget is used as the center column measure in the following diagram. Assume the following facts: (1) There are three full-time inspectors, each earning \$1,600 per month and working 160 hours per month; (2) the standard hourly rate for part-time help is \$10; (3) the standard quantity of work is 15 inspections per hour; (4) 25,575 inspections were made during the month; and (5) actual payroll for 1,670 total hours was \$4,800 for full-time inspectors and \$12,269 for part-time inspectors who worked 1,190 hours. Ace Engineered Products prepares a flexible budget for its fixed inspection cost at \$4,800 ($3 \times \$1,600$) based on a normal processing volume of 7,200 inspections and \$10 per hour for part-time workers. The following variances can be computed:



The unfavorable spending variance was incurred because part-time employees had to be hired at approximately \$0.31 more per hour than standard [$(\$12,269 \div 1,190) - \10]. The favorable efficiency variance reflects above-normal productivity (1,705 standard hours allowed – 1,670 actual hours). To determine the implications of these figures, Ace Engineered Products management would need to know which employees did and did not perform 15 inspections per hour. Management can evaluate an individual’s productivity to ascertain whether it is within preestablished control limits. If productivity is outside those limits, management should seek the causes and work with the employee to improve performance.

The method of variance analysis and, thus, cost control must be appropriate to the cost category and management information needs. Regardless of the variance levels or the explanations provided, managers should always consider whether the activity itself and, therefore, the cost incurrence was sufficiently justified. For example, assume that \$76,000 is spent on the salary of an additional systems analyst in the Systems Department. During the year, systems activities take place, but there is no measurable output such as systems modifications or a new system. Before determining that the discretionary cost expenditure was justified, top management should review the systems manager's activity reports for the analysts in the department. The discretionary expenditure would not be considered effective if the new analyst spent a significant portion of the period doing menial tasks. In other words, postincurrence audits of discretionary costs are important in determining the value of the expenditure.

Control Using the Budget

Once discretionary cost budget appropriations have been made, monetary control is effected through the use of budget-to-actual comparisons in the same manner as for other costs in the budget. Actual results are compared to expected results and explanations should be provided for variances. Explanations for variances can often be found by recognizing cost consciousness attitudes. The following illustration involving two discretionary cost activities provides a budget-to-actual comparison that demonstrates employee cost consciousness.

Ace Engineered Products and several other companies outsource their payroll processing activities to Quality Financial Services. That company has prepared the condensed budget shown in Exhibit 15–8 for the first quarter of 2001. Ms. Toya Brown, the controller for Quality Financial Services, estimates 900,000 paychecks will be processed during that period; the company charges its clients \$0.85 per check processed.

In pursuing a strategy of total quality and continuous improvement, Quality Financial Service's management has chosen to fund employee training to improve employee and customer satisfaction. Maintenance is also considered a discretionary cost and is budgeted at \$1.00 per 30 checks processed. Office costs include utilities, phone service, supplies, and delivery. These costs are variable and are budgeted at \$70 for each hour that the firm operates. Quality Financial Services expects to operate 600 hours in the budget quarter. Wages are for the 10 employees who are paid \$31 per hour. Salaries and fringe benefits are for management level personnel and, like depreciation, are fixed amounts.

Ms. Brown collected the revenue and expense data shown in Exhibit 15–9 during the first quarter of 2001. Because of computer downtime during the quarter, Quality Financial Services stayed open 3 extra hours on 10 different workdays. Additional contracts were responsible for the majority of the increase in checks processed.

Revenues:		
Processing fees (900,000 × \$0.85)		\$765,000
Expenses:		
Employee training	\$ 40,000	
Maintenance	30,000	
Office	42,000	
Wages and fringe benefits	186,000	
Salaries and fringe benefits	114,000	
Depreciation	65,000	(477,000)
Operating Income before Tax		<u>\$288,000</u>

5

How does a budget help control discretionary costs?

EXHIBIT 15-8

Budget—First Quarter 2001

EXHIBIT 15-9

Actual Results—First Quarter
2001

Revenues:		
Processing fees (960,000 × \$0.85)		\$816,000
Expenses:		
Employee training	\$ 52,000	
Maintenance	30,720	
Office	44,730	
Wages and fringe benefits	199,080	
Salaries and fringe benefits	117,400	
Depreciation	74,000	(517,930)
Operating Income before Tax		<u>\$298,070</u>

After reviewing the actual results, the company's board of directors requested a budget-to-actual comparison from Ms. Brown and explanations for the cost variances. Because every cost was higher than budgeted, the board was of the opinion that costs had not been properly controlled. Ms. Brown prepared the comparison presented in Exhibit 15-10 and provided the following explanations for the variances. Each explanation is preceded by the related budget item number.

1. The discretionary cost for employee training was increased because the company took advantage of an unforeseen opportunity to obtain training on the company's new enterprise resource software. Additionally, employees received training on a new electronic data interchange (EDI) system that Quality Financial Services installed. *Comment: These explanations reflect an understanding of long-term variable cost behavior and of the long-run quality considerations of having well-trained employees.*
2. Maintenance cost decreased because managers obtained a favorable price on maintenance supplies obtained from a new Internet vendor. *Comment: This explanation reflects an understanding of how costs can be reduced without adversely affecting quality. The company has found a way to reduce costs without decreasing levels of maintenance or the quality of service delivered to clients. Costs have been reduced by obtaining the maintenance inputs at a lower unit cost.*
3. Office expenses were influenced by two factors: the additional 30 hours of operation and an increase in local utility rates, which caused Quality Financial Service's costs to rise \$1 per operating hour. *Comment: The first part of the explanation reflects an understanding of the nature of variable costs: additional hours worked caused additional costs to be incurred. The second part of*

EXHIBIT 15-10

Budget-to-Actual Comparison for
First Quarter 2001

	Budget Item #	Original Budget	Budget for Actual Results	Actual	Variances
Revenues:					
Processing fees		\$765,000	\$816,000	\$816,000	\$ 0
Expenses:					
Training	(1)	\$ 40,000	\$ 40,000	\$ 52,000	(12,000)
Maintenance	(2)	30,000	32,000	30,720	1,280
Office	(3)	42,000	44,730*	44,730	0
Wages and fringe benefits	(4)	186,000	195,300	199,080	(3,780)
Salaries and fringe benefits	(5)	114,000	114,000	117,400	(3,400)
Depreciation	(6)	65,000	65,000	74,000	(9,000)
Total expenses		<u>\$477,000</u>	<u>\$491,030</u>	<u>\$517,930</u>	<u>\$(26,900)</u>
Operating Income before Tax		<u>\$288,000</u>	<u>\$324,970</u>	<u>\$298,070</u>	

*This amount is based on the assumption that the higher hourly rate was attributable to an unforeseen utility rate increase: 630 hours × \$71 = \$44,730.

the explanation reflects an understanding of the nature of specific price-level adjustments. The increase in utility rates could possibly have been caused by inflation, an increase in demand with no corresponding increase in supply, or additional utility regulatory costs being passed along to the utility's customers.

4. The increase in wages was caused by two factors: 30 additional operating hours, and an increase in the hourly cost of fringe benefits because of an increase in health insurance premiums.

10 employees × 630 hours × \$31 per hour	\$195,300
Increase in cost of fringe benefits (10 × 630 × \$0.60)	3,780
Total wages cost	<u>\$199,080</u>

Comment: These cost changes reflect the nature of variable costs and an unavoidable increase caused by a vendor cost adjustment.

5. A new purchasing agent, hired at the beginning of the quarter, is being paid \$13,600 more per year than the previous agent. *Comment: Increases in salaries are typically caused either by inflation or supply-and-demand relationships for professional staff. In this case, the new manager is trained in EDI transactions, which should result in substantial cost savings to the company in future periods.*
6. The depreciation increase was related to the purchase and installation of the new EDI system. The purchase was made with board approval when a competitor went bankrupt during the quarter and had a distress liquidation sale. The purchase of this technology had been included in the capital budget for the end of 2001, not during the first quarter. *Comment: Acquiring the EDI technology is a good example of the cost containment concept. Quality Financial Services wanted to buy the software and equipment and had an opportunity to buy it at a substantial savings, but earlier than anticipated. This purchase created an unfavorable cost variance for depreciation in the first quarter, but it shows an instance of planning, foresight, and flexibility. The long-run benefits of this purchase are twofold. First, a favorable variance will be shown in the capital budget when the cost of this equipment is compared to the expected cost. Second, in future periods, the budgeted committed cost for depreciation will be less than it would have been had the purchase not been made at this time.*

Note that the variance computations in Exhibit 15–10 are based on comparisons between a revised budget that uses actual checks processed as the cost driver and the actual revenues and costs incurred. When comparing budgeted and actual expenditures, managers must be careful to analyze variances using an equitable basis of comparison. These variance computations illustrate the use of flexible budgeting. Comparisons between the original budget and actual results for the variable cost items would not have been useful for control purposes because variable costs automatically rise with increases in cost driver activity.

Suppose Quality Financial Services's board also wanted a better understanding of why the original budget indicated an operating income before tax of \$288,000, but the actual results showed \$298,070—an increase of \$10,070. A set of comparisons of each cost line of the original budget with its counterpart actual cost indicates an increase in expenses of \$40,930. Revenue can be analyzed in the following manner:

Actual Price × Actual Volume (\$0.85 × 960,000)	Standard Price × Actual Volume (\$0.85 × 960,000)	Standard Price × Budgeted Volume (\$0.85 × 900,000)
\$816,000	\$816,000	\$765,000
\$0		\$51,000 F
Price Variance		Volume Variance
\$51,000 F		
Total Revenue Variance		

The \$51,000 favorable variance for revenue is assigned completely to the 60,000 unit increase in checks processed over budget because there was no change in the per-check price. Thus, the increase in income from the original budget is ($\$51,000 - \$40,930$) or \$10,070. The standard costing models presented in Chapter 10 can be adapted if further analysis of expenses is desired. For the immediate purpose of explaining the increase in operating income before tax, the report shown in Exhibit 15–10 coupled with the previous explanations should suffice.

Quality Financial Services was more profitable by \$10,070 than originally planned. With the explanations presented to the board of directors, it does appear that costs were relatively well controlled. The larger variances were based on rational management decisions to incur greater-than-planned costs and uncontrollable cost increases.

Another approach to evaluating cost management and control is activity-based budgeting. This tool is used in the planning stage of the operating cycle.

ACTIVITY-BASED BUDGETING

6

What is an activity-based budget and how does it differ from traditional budgets?

Chapter 4 illustrates the benefits of activity-based management (ABM) and activity-based costing (ABC) in controlling costs. Specifically, it shows that reducing or eliminating non-value-added activities will cause the associated costs to be reduced or eliminated. This section introduces activity-based budgeting as an extension of activity-based management focused on the planning stage of the operating cycle.

Most companies rely on an annual budget as a key planning and control tool. Traditionally, budgetary expense categories are organized to align with subsequent reporting categories. For example, expense categories typically include cost of goods sold, marketing expenses, and administrative expenses. These categories are commonly found in both planning and reporting documents. However, when budgets are prepared using these categories, little insight is gained about how costs in these categories can be reduced—and if they were reduced, what consequences would result.

activity-based budgeting

Activity-based budgeting (ABB) is a planning approach applying activity drivers to estimate the levels and costs of activities necessary to provide the budgeted quantity and quality of production. ABB can be applied to nearly any activity and is useful for managing product and period costs. ABB is typically used in the course of an annual budgeting process that begins with the preparation of a sales budget followed by a production budget (as discussed in Chapter 13). These budgets establish expected output targets for sales, distribution, and manufacturing. Using these documents as basic inputs, the subsequent steps of ABB are given in Exhibit 15–11.

The distinction between ABB and traditional budgeting is illustrated in Exhibit 15–12 for the accounting department in a small manufacturing firm. On the left side of the exhibit is a traditional budget; on the right side is the activity-based budget. Both budgets provide for the same overall level of spending. The traditional budget provides an excellent delineation of the expected costs of various resources for the

EXHIBIT 15–11

Activity-Based Budgeting Steps

1. Select a function for which costs are to be estimated, i.e., distribution, marketing, finance, accounting.
2. Identify all activities necessary to execute the selected function.
3. Identify the activity driver for each activity.
4. Estimate the necessary volume of each activity driver to meet output objectives, i.e., sales and production levels specified in the master budget.
5. Identify the resources consumed by each activity.
6. Estimate the cost of providing each resource.

EXHIBIT 15-12*Traditional versus Activity-Based Budgeting*

Traditional Budget		Activity Description	Unit Cost	Activity Level	Activity Cost
Salaries	\$800,000	Compliance reporting	\$500	450	\$225,000
Occupancy	80,000	Answering phone calls	\$10	12,000	120,000
Supplies	28,000	Preparing mgmt reports	\$1,200	250	300,000
Depreciation	22,000	Gathering transaction data	\$2	55,000	110,000
Utilities	12,000	Transaction analysis	\$5	37,000	185,000
Travel	38,000	Training & mentoring	\$800	50	40,000
Total	<u>\$980,000</u>				<u>\$980,000</u>

SOURCE: Adapted from James A. Brimson and John Antos, *Driving Activity Value Using Activity-Based Budgeting* (New York: John Wiley & Sons, 1999), p. 11.

period. However, it leaves the reader with no understanding of how those resources specifically support the activities necessary for the firm to meet its objectives; and it leads to no strategies about how costs might be reduced without harming the achievement of the objectives. For example, managers could mandate a cut in travel cost for the accounting department with the hope that such a cut would increase profits. However, it is unlikely that managers understand how travel costs relate to achievement of corporate goals.

Alternatively, the activity-based budget provides a listing of costs associated with specific activities executed in the accounting department. With ABB data, costs can be managed by changing the level of specific activities and the impact on the objective function will be more easily understood. Also, the activity-based budget leads to more interesting questions about cost incurrence and cost management opportunities. For example, why are we processing 55,000 transactions per year? Can we recontract with our vendors under long-term supply agreements to reduce the number of transactions? Why does it cost us \$5 each to analyze transactions? Why are we analyzing 37,000 transactions per year? Why does it cost us \$10 to answer a phone call? Can we automate phone answering services to reduce the cost of handling phone calls? Can we outsource our compliance reporting to reduce expenses?

Once the budgeted level of activities is set for the period, the expected cost of each activity is determined. Then, the activity-based budget can be converted into a resource budget like the traditional budget shown in Exhibit 15-12 by relating the activity costs to specific resources.

If activity-based budgeting is effectively implemented, the result should be an increase in profits and cash flows. However, other tools are available that can be used with ABB to improve efficiency and increase available cash.

CASH MANAGEMENT ISSUES

Of all organizational resources, cash is one of the most important and challenging to manage. Two key cash management tools were introduced in Chapter 13: the cash budget and cash flow statement. This section provides an overview of cash management objectives and tools.

An organization's liquidity depends on having enough cash available to retire debts and other obligations as they come due. However, holding too much cash reduces a firm's profitability because the return on idle cash is below the return that can be earned on other productive assets.

Firms hold cash to liquidate transactions, to cover unexpected events, and for speculation. The objectives in managing cash are similar to objectives in managing

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What are the objectives managers strive to achieve in managing cash?

inventories. Cash levels should be sufficient to cover all needs (i.e., avoid stockouts), but be low enough to constrain opportunity costs associated with alternative uses of the cash (carrying costs). Models useful in managing inventory are also useful for managing cash levels. Optimal cash management requires answers to three questions.

What Variables Influence the Optimal Level of Cash?

The cash budget and pro forma cash flow statement provide managers with information about amounts and timing of cash flows. These data are the primary inputs to the determination of the “inventory” of cash that should be available at a specific point in the budget year. However, the actual level of cash maintained may differ from that necessary to meet the cash flow requirements in the cash budget.

The level of confidence managers have in the cash budget is a subjective factor that influences the desired cash balance. For example, the less certain managers are of either the amount or the timing of cash inflows or outflows, the more cash managers will hold. If actual cash flows fail to match the budgetary amounts, more cash may be required to satisfy all transactions. Similarly, the greater the variability in cash requirements throughout the year, the more conservative managers must be in managing cash. To avoid liquidity problems, managers of firms with higher variability in the operating cycle must hold more cash than managers of firms with very stable, predictable operating cycles. Firms that would have difficulty arranging for short-term credit to cover unexpected cash shortages are forced to carry an extra amount of cash to cover contingencies.

Also, securities ratings, particularly bond ratings, may induce firms to hold larger cash balances than justified based on all other considerations. A favorable bond rating is contingent on the organization having an ability to pay interest and principal. Security rating agencies encourage organizations to demonstrate conservative practices in managing cash. Related to bond ratings, firms with debt may be obligated by loan covenants to maintain minimum levels of cash.

What Are the Sources of Cash?

There are three usual sources for cash. Cash is generated by the sale of equity or debt securities and other shorter term instruments. Assets no longer necessary or productive are liquidated to provide cash. Last, cash is generated in the normal production/sales cycle assuming goods are sold above their costs of production. The capital budget is the key control tool for the first two sources of cash (Chapter 14).

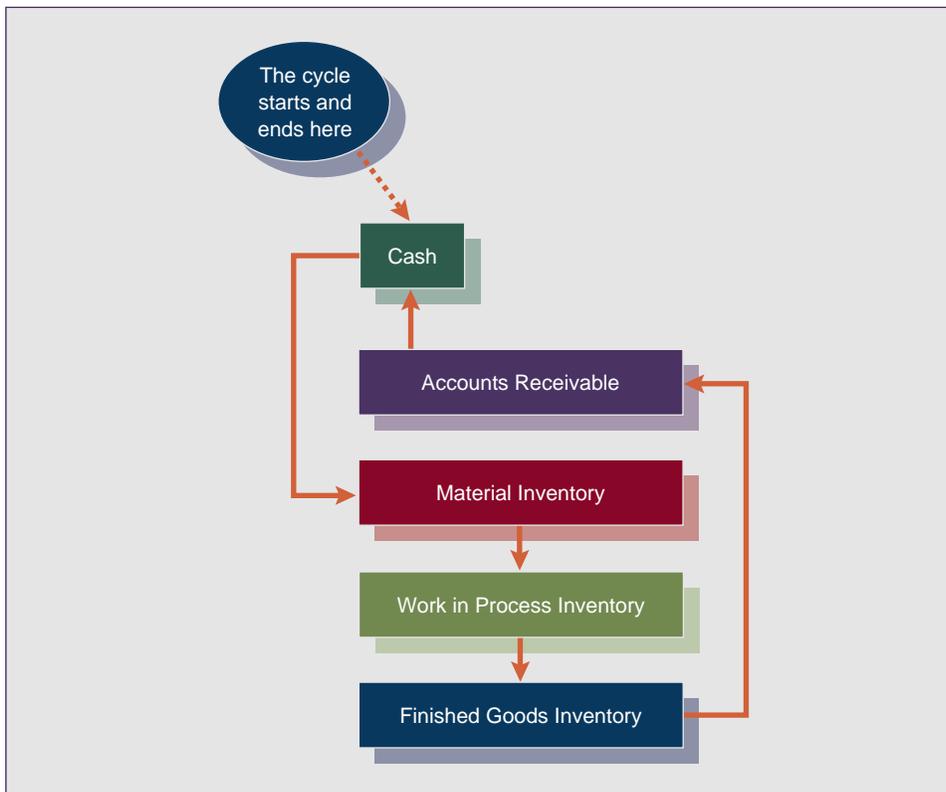
Management of cash consumed by and derived from the operating cycle is integral to the management of working capital. **Working capital** is total current assets minus current liabilities. In the operating cycle, cash is first invested in material and conversion costs, then finished goods inventory, followed by marketing and administrative activities, and finally accounts receivable. The cycle is completed when the accounts receivable are collected. Exhibit 15–13 illustrates the cash collection cycle.

Effective management of the cash collection cycle can both reduce the demand for cash and increase its supply. For example, if the amount of cash invested in the operating cycle (i.e., invested in inventories and receivables) can be reduced by speeding up the cycle, the cash balance will increase. In the utopian case, material would be instantly obtained when a customer placed an order. The material would then be instantly converted into a product and the finished product would instantly be converted to cash. Even without achieving the utopian ideal, any reduction in the length of the operating cycle will serve to reduce balances in inventory and accounts receivable and increase the cash balance.

working capital

EXHIBIT 15-13

*The Cash Collection Cycle—
Balance Sheet: Current Assets*



Managers can take explicit measures to accelerate cash collections. Inventory levels can be reduced if products can be produced more quickly after customer orders are received. Just-in-time and other inventory management practices that serve this objective are discussed in Chapter 16.

In addition to reducing inventory levels, cash collections can be accelerated to increase cash levels. The turnover of accounts receivable can be directly influenced by terms given on credit sales, policies governing credit approval, discounts given for early payment, and use of the services of financial intermediaries that specialize in purchasing or factoring accounts receivable. Other practices can be developed to accelerate customer payments including using electronic payments, customer debit cards, lock boxes, and bank courier services. Centralizing cash collection functions will also allow accounts receivable to be converted to cash more quickly.

Alternatively, the cash balance can be increased by slowing down payments for inputs. Managers can search among alternative vendors for the most desirable credit terms and policies. Credit cards rather than cash can be used to purchase inputs. Rather than paying factory employees weekly, a bi-monthly or monthly pay plan can be instituted. Also, decentralizing cash disbursement functions will increase the interval from when a check is issued until it clears.

What Variables Influence the Cost of Carrying Cash?

The cost of carrying cash varies over time. There are two classes of costs to manage. One is the cost of borrowing and cost of issuing equity capital. For example, short-term borrowing costs will rise and fall with changes in inflation rates, credit worthiness of the borrower, and availability of funds for lending. The higher these costs, the greater the incentive to minimize idle cash balances.

Second, there are opportunity costs of holding cash. Excess cash can be invested in productive projects or returned to investors. The more investment opportunities available to a firm, the greater the incentive to convert idle cash to other assets. Even if there are few investment opportunities available, managers can always return cash to investors by reducing debt or repurchasing shares. The higher a firm's capital costs, the greater the opportunity cost of holding idle cash.

REVISITING

Lucent
Technologies

<http://www.lucent.com>

An important step in redesigning Lucent's CFO function was to design a mission statement and develop a program that would let the workforce know exactly what was going on and what would be expected of them. Under the leadership of Don Peterson, executive vice president and chief financial officer, and Jim Lusk, controller, the concept of Team CFO was developed. The goal was to have the CFO organization be a key strategic partner in the formulation and implementation of Lucent strategies. It would furnish Lucent with finance functions that would allow its internal business partners to provide more competitive services to their customers. Then the people in the CFO organization would be seen as positive contributors to corporate results. The group adopted a souped-up race car as its symbol (Team CFO . . . Engine of Excellence . . . Powering Lucent) and began "racing to the future together."

Most of Lucent CFO's transaction-intensive operations are located in Alpharetta, Ga., where more than 800 Lucent colleagues perform various accounting, inventory, invoicing, accounts receivable, collections, analysis, payroll, and accounts payable functions for the corporation. (Lucent has about 130,000 employees overall.) In March 1996, the director of Lucent Financial Services' (LFS) Financial Process in Alpharetta met the challenge of reducing costs and becoming more efficient head-on. He called a

meeting with his Financial Services leadership team to devise a plan that would accomplish two seemingly contradictory objectives: (1) lower costs, and (2) improve service to internal customers—so much that the term *strategic business partner* would describe the new relationship. The improvement objective was dubbed "Project Quantum Leap."

Among other significant changes, Lucent Technologies decided to reorganize the CFO functions under a shared service model where similar or redundant functions performed within individual business units and the corporate controller's organization were combined. Many financial functions previously performed within the business units have been transferred to LFS and to LFS financial hubs located in Mexico, Argentina, Brazil, Singapore, China, Ireland, and the Netherlands.

LFS Financial Process, under the leadership of Danny Lanier, had cut operating costs by about 40% by 1998 from their 1996 levels. Over the same period, service levels improved and stress levels of CFO colleagues declined. When asked what key ingredients made Project Quantum Leap successful, Danny Lanier commented, "The commitment and sacrifices made by all LFS colleagues, top-down measurable commitments, a willingness to learn from others, and the project-by-project approach to continuous process improvement."

SOURCE: Thomas A. Francesconi, "Transforming Lucent's CFO," *Management Accounting* (July 1998), pp. 22, 30. Copyright Institute of Management Accountants, Montvale, NJ.

CHAPTER SUMMARY

Cost control over expenditures is essential to an organization's long-run success. An effective cost control system encompasses efforts before, during, and after a cost is incurred. Regardless of the type of cost involved, managers and employees must exercise attitudes of cost consciousness to provide the best means of cost control. Cost consciousness reflects cost understanding, cost containment, cost avoidance, and cost reduction.

Fixed costs can be classified as either committed or discretionary. Committed fixed costs relate to long-run investments in plant assets or personnel. Discretionary costs are annually appropriated for the conduct of activities that could be temporarily reduced without impairing the firm's capacity to function.

Costs are incurred to provide results, but measuring the outputs generated by cost inputs is not always easy. Comparing inputs to actual outputs reflects efficiency, whereas comparing actual outputs to desired results reflects effectiveness. Efficiency plus effectiveness indicates performance.

Budgeting is a primary tool in planning and controlling discretionary costs. Budget appropriations provide authorization for spending and the bases against which actual costs are compared. Managers should clearly state and adhere to an overall management philosophy so that expenditures for discretionary items can be budgeted to achieve results that fit within this philosophy. Managers must avoid making expenditures for discretionary activities that may be conducted efficiently, but for which the results are of dubious effectiveness. To obtain effective cost control, care must be taken to use appropriate levels of activity for budget-to-actual comparisons.

Difficulty is often encountered with discretionary fixed costs because many of these costs are incurred to provide service-type activities that are often considered optional in the short run. Additionally, the outputs of discretionary cost activities often are not measurable in dollars. Surrogate measures of the outputs provided by discretionary costs can be developed; however, even when surrogate measures are used, ascribing a cause-and-effect relationship between the result and the current amounts of input costs may be questionable.

Some discretionary costs, such as quality control costs, may be conducive to treatment as engineered costs. Engineered costs are those that are routine and structured enough to allow for the computation of standards. One aspect of control over engineered costs can be provided by performing variance analysis similar to that used for variable manufacturing overhead.

Activity-based budgeting is a new planning tool. This approach reassigns costs in traditional resource budgets to the activities that must be executed to achieve organizational objectives. The activity-based budget is an effective mechanism to understand how resource consumption is tied to organizational objectives.

The cash budget and the pro forma cash flow statement are effective tools for managing cash. However, before these tools can be wielded, managers must understand the objectives that are to be achieved in cash management. There are costs associated with having too much cash on hand just as there are costs associated with cash shortages. Effective cash management requires a proper evaluation of both classes of costs.

APPENDIX

Program and Zero-Base Budgeting

In addition to the traditional master, flexible, and activity based budgets, two other types of budgets (program and zero-base) are useful for cost control in certain types of organizations. Program budgeting focuses on the relationship of benefits to cost expenditures; zero-base budgeting requires that all budgeted amounts be justified.

Program Budgeting

The problems of controlling discretionary costs are particularly acute in governmental and other not-for-profit entities. These organizations' activities produce results that are often difficult to measure in monetary terms or that may take several

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How is program budgeting used in not-for-profit entities?

program budgeting

years to be measured (although the related activities must continue to be funded annually). Thus, relating outputs to inputs is often extremely difficult. **Program budgeting** is an approach that relates resource inputs to service outputs.¹⁵

Program budgeting generally starts by defining objectives in terms of output results rather than in terms of quantity of input activities. For instance, an input measure of an executive development program would be the number of courses each person must complete by year-end. An output measure would state the objective in terms of expected improvement rates on executive annual performance evaluations. Once output results have been defined in some measurable terms, effectiveness can be measured.

The process of program budgeting requires a thorough analysis of the alternative activities that may achieve an organization's objectives. Such an analysis includes projecting both quantitative and qualitative costs and benefits for each alternative. Then, those alternatives are selected that, in the judgment of top management, yield a satisfactory result at a reasonable cost. These choices are translated into budget appropriations to be acted on by the manager(s) responsible for the related programs.

Program budgeting requires the use of detailed surrogate measures of output and necessitates answers to the following questions.

1. When should results be measured? Because many not-for-profit programs are effective only after some period of time, multiple measurements are necessary to determine effectiveness. When should these measures begin to be made and how often should they be made thereafter?
2. What results should be chosen as output measures? Many not-for-profit programs have multiple results. For example, the institution of reading programs for illiterate adults can reduce unemployment rates, overall crime statistics, welfare dollars provided, and so forth. Should a determination be made of which results are more important than others or should all results be given equal weight?
3. What program actually caused the result? There are questions about the legitimacy of cause-and-effect relationships when measuring the results of not-for-profit programs. For example, did an adult literacy program reduce the unemployment statistics or was that reduction more appropriately deemed a result of money spent for job placement programs?
4. Did the program actually affect the target population? An adult literacy program may be aimed at the unemployed. If the majority of persons who attended the program already had jobs, the program had no impact on the target group. However, the program could still be considered effective if the participants increased their job skills and employment levels.

Program budgeting is useful in government and not-for-profit organizations as well as for service activities in for-profit businesses. This process can help managers evaluate and control discretionary costs, avoid excessive cost expenditures, and make certain that expenditures are used for programs and activities that generate the most beneficial results.

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Why is zero-base budgeting useful in cost control?

Zero-Base Budgeting

Traditional budgeting is often limited in its usefulness as a cost control tool because poor budgeting techniques are used. For instance, many managers prepare budgets

¹⁵ *Program* and *performance* budgeting have often been used as interchangeable terms. The Municipal Finance Officers Association has suggested that the term *program budgeting* be used when dealing with one function regardless of the number of organizational units involved and *performance budgeting* be used when dealing with the inputs and outputs of a single organizational unit.

by beginning with the prior year's funding levels and treat these appropriations as given and essential to operations. Decisions are then made about whether, and by what percentage, to raise existing appropriations. Such an approach has often resulted in what is known as the "creeping commitment syndrome" in which activities are funded without systematic annual regard for priorities or alternative means for accomplishing objectives.

Zero-base budgeting (ZBB) is a comprehensive budgeting process that systematically considers the priorities and alternatives for current and proposed activities in relation to organizational objectives. Annual justification of programs and activities is required to have managers rethink priorities within the context of agreed-on objectives. ZBB does not necessarily mean that each operation is specified from a zero-cost base, because this would be unrealistic and extreme. However, ZBB requires that managers reevaluate all activities at the start of the budgeting process to make decisions about which activities should be continued, eliminated, or funded at a lower level. Some basic differences between traditional budgeting and zero-base budgeting are shown in Exhibit 15-14.

ZBB is difficult to implement because of the significant effort needed to investigate the causes of prior costs and justify the purposes of budgeted costs. To be workable, it also requires a wholehearted commitment by the organization's personnel. Without the necessary time, effort, and commitment, ZBB should not be attempted. With these ingredients, an organization can be more effective in planning and controlling costs.

zero-base budgeting

Traditional Budgeting	Zero-Base Budgeting
Starts with last year's funding appropriation	Starts with a minimal (or zero) figure for funding
Focuses on money	Focuses on goals and objectives
Does not systematically consider alternatives to current operations	Directly examines alternative approaches to achieve similar results
Produces a single level of appropriation for an activity	Produces alternative levels of funding based on fund availability and desired results

EXHIBIT 15-14

Differences between Traditional Budgeting and Zero-Base Budgeting

KEY TERMS

activity-based budgeting (p. 682)
 appropriation (p. 673)
 committed cost (p. 671)
 cost avoidance (p. 668)
 cost consciousness (p. 663)
 cost containment (p. 666)
 cost control system (p. 661)

cost reduction (p. 668)
 discretionary cost (p. 672)
 engineered cost (p. 677)
 program budgeting (p. 688)
 working capital (p. 684)
 zero-base budgeting (p. 689)

SOLUTION STRATEGIES

Efficiency: Relationship of input and output

$$\text{Actual Yield Ratio} = \text{Actual Output} \div \text{Actual Input}$$

or

$$\text{Actual Input} \div \text{Actual Output}$$

$$\text{Desired Yield Ratio} = \text{Planned Output} \div \text{Planned Input}$$

or

$$\text{Planned Input} \div \text{Planned Output}$$

Effectiveness: Relationship of actual output and desired output

Efficiency + Effectiveness = Performance

Cost Variances

Comparison of actual costs with budgeted costs: allows management to compare discrepancies from the original plan

Comparison of actual costs with budgeted costs at actual activity level: allows management to determine how well costs were controlled; uses a flexible budget

Variance analysis using standards for discretionary costs: allows management to compute variances for routine, structured discretionary costs

For discretionary costs susceptible to engineered cost treatment:

$$\begin{array}{r} \text{Actual Cost} \quad \text{Standard Price per Hour} \times \text{Actual Hours} \quad \text{Standard Price per Hour} \times \text{Standard Hours Allowed for Output} \\ \hline \text{Rate Variance} \quad \text{Efficiency Variance} \\ \hline \text{Total Variance} \end{array}$$

For discretionary costs that are managed as lump-sum fixed costs:

$$\begin{array}{r} \text{Actual Cost} \quad \text{Budgeted Fixed Cost} \quad \text{Standard Fixed Rate per Hour} \times \text{Standard Hours Allowed for Output} \\ \hline \text{Spending Variance} \quad \text{Volume Variance} \\ \hline \text{Total Variance} \end{array}$$

For discretionary costs involving both fixed and variable elements:

$$\begin{array}{r} \text{Actual Cost} \quad \text{Flexible Cost Budget} \quad \text{Standard Price per Hour} \times \text{Standard Hours Allowed for Output} \\ \hline \text{Spending Variance} \quad \text{Efficiency Variance} \\ \hline \text{Total Variance} \end{array}$$

Activity-Based Budgeting Steps

1. Select a function for which costs are to be estimated; i.e., distribution, marketing, finance, accounting.
2. Identify all activities necessary to execute the selected function.
3. Identify the activity driver for each activity.
4. Estimate the volume for each activity driver necessary to meet output objectives, i.e., sales and production levels specified in the master budget.
5. Identify the resources consumed by each activity.
6. Estimate the cost of providing each resource.

DEMONSTRATION PROBLEM

Cantrell Manufacturing just purchased an evolutionary metal stamping machine. It operated for 130 hours during the first month. Management wants to know the efficiency and effectiveness of the machine. The production supervisor has provided you with the following statistics:

Planned output:	80 product components per hour
Power usage planned:	600 kWh per running hour
Actual output:	10,800 product components
Actual power used:	80,000 kWh

Required:

- a. Calculate the planned output for 130 operating hours.
- b. Calculate the degree of effectiveness of the machine in its first week.
- c. Calculate planned efficiency for the machine.
- d. Calculate the actual efficiency of the machine in its first week.
- e. Comment on the machine's performance.

Solution to Demonstration Problem

- a. Planned output: $130 \text{ hours} \times 80 \text{ units} = 10,400 \text{ components}$
- b. Degree of effectiveness: $\text{Actual output} \div \text{Planned output} = 10,800 \text{ components} \div 10,400 \text{ components} = 104 \text{ percent}$
- c. Planned efficiency: $\text{Planned input} \div \text{Planned output} = 600 \text{ kWh} \div 80 \text{ units} = 7.5 \text{ kWh per unit}$
- d. Actual efficiency: $\text{Actual input} \div \text{Actual output} = 80,000 \text{ kWh} \div 10,800 \text{ units} = 7.41 \text{ kWh per unit}$
- e. The performance of the machine is better than expected. The machine exceeded both effectiveness and efficiency expectations.

QUESTIONS

1. How does the cost control system interact with the overall cost management system?
2. The general control model begins with planning activities. Why?
3. When is cost control for any specific organizational activity exercised? Why are these points of cost control important?
4. What factors can cause costs to change? Which of these are subject to cost containment and which are not? What creates the difference in controllability?

5. Compare and contrast general and specific price-level changes.
6. How might members of the supply chain be helpful in an organization's quest for cost containment activities?
7. "A company will always experience reduced costs if long-term or single-source contracts are signed." Is this statement true or false? Discuss the rationale for your answer.
8. How are cost avoidance and cost reduction related? How do they differ?
9. What are some reasons supporting the use of temporaries in what used to be full-time labor positions? What are some reasons against such usage?
10. Differentiate between committed and discretionary costs. Could a cost be considered discretionary by one firm and committed by another? If so, discuss and give an example. If not, discuss why not.
11. Are all discretionary costs fixed? If yes, justify your answer. If no, provide an example to prove your point.
12. Is an investment in expensive, automated technology wise in an industry characterized by wide variations in demand? What if that industry were highly competitive? Provide underlying reasons for your answers.
13. What issues does management need to consider when setting the budget appropriations for discretionary costs?
14. Why are income levels generally more important considerations for budget decisions about discretionary costs than for committed costs?
15. Why is it difficult to measure the output of activities funded by discretionary costs?
16. What are surrogate measures of output and how are they used in conjunction with discretionary costs?
17. Define efficiency and effectiveness and distinguish one from the other. Why is measuring the efficiency of discretionary costs often difficult? Explain how effectiveness of discretionary cost activities can be measured.
18. Why does performance encompass the spectrum from organizational goals to inputs to outputs?
19. What is an engineered cost? How can engineered costs be used in controlling some discretionary costs?
20. What types of discretionary costs are subject to control as engineered costs? Provide several examples.
21. How can variance analysis be used to investigate the control of engineered costs?
22. Is a budget-to-actual comparison essential in the control of discretionary costs? Provide reasoning for your answer.
23. Why is the budget used for planning purposes not necessarily the best budget to use for evaluating cost control?
24. How is activity-based budgeting an improvement over traditional financial budgeting?
25. For what purposes do firms hold cash balances? Why do some firms require larger cash balances than other firms?
26. (*Appendix*) Compare and contrast a programmed budget, a zero-base budget, and a traditional budget.
27. (*Appendix*) What problems are encountered in using program budgeting? Why might such problems arise?
28. (*Appendix*) What problems are encountered in using zero-base budgeting? Why might such problems arise?

EXERCISES

29. (*Matching*) Match the following lettered terms on the left with the appropriate numbered description on the right.
- | | |
|---|---|
| <p>a. Appropriation</p> <p>b. Committed cost</p> <p>c. Cost avoidance</p> <p>d. Cost consciousness</p> <p>e. Cost containment</p> <p>f. Discretionary cost</p> <p>g. Effectiveness</p> <p>h. Efficiency</p> <p>i. Engineered cost</p> | <p>1. An attitude regarding cost understanding, cost containment, cost avoidance, and cost reduction</p> <p>2. A cost incurred to provide physical or organizational capacity</p> <p>3. A measure of input–output yield</p> <p>4. Any cost that bears an observable and known relationship to an activity base</p> <p>5. A process of finding acceptable alternatives for high-priced items and not buying unnecessary goods or services</p> <p>6. A maximum allowable expenditure</p> <p>7. An assessment of how well a firm’s goals and objectives were achieved</p> <p>8. A fixed cost incurred to fund an activity for a specified period of time</p> <p>9. A process by which unit variable costs and total fixed costs are not allowed to increase from prior periods</p> |
|---|---|
30. (*Cost control activities*) The firm of Kanton Associates, CPAs, hires full- and part-time clerical employees. Full-time clerical staff can be hired for \$27,500 per year; fringe benefit costs for each full-time employee amount to 20 percent of base salary. Kanton Associates pays part-time clerical employees \$20 per hour, but does not provide any fringe benefits. If, however, a part-time employee has worked for the firm for over 1,600 hours by year-end, he or she receives a \$2,000 bonus.
- a. Does the firm’s policy of hiring part-time clerical staff represent an example of cost containment, cost avoidance, or cost reduction? Explain.
 - b. For a given clerical position, at what level of annual hours worked should the firm consider hiring full-time clerical staff rather than part-time?
31. (*Cost control activities*) Kendra Smith has just been appointed the new director of Youth Hot-Line, a not-for-profit organization that operates a phone bank for individuals experiencing emotional difficulties. The phones are staffed by qualified social workers and psychologists who are paid on an hourly basis. Ms. Smith took the following actions in the first week at Youth Hot-Line. Indicate whether the actions represent cost understanding, cost containment, cost avoidance, or cost reduction. Some actions may have more than one implication; if they do, indicate the reason.
- a. Increased the budget appropriation for advertising of the Hot-Line.
 - b. Exchanged the more expensive pushbutton, cream-colored designer telephones for regular, pushbutton desk telephones.
 - c. Eliminated the call-forwarding feature installed on all telephones because Youth Hot-Line will now be staffed 24 hours a day.
 - d. Eliminated two paid clerical positions and replaced these individuals with volunteers.
 - e. Ordered blank notepads for the counselors to keep by their phones; the old notepads (stock now depleted) had the Youth Hot-Line logo and address printed on them.

(continued)

- f. Negotiated a new contract with the telephone company; Youth Hot-Line will now pay a flat rate of \$100 per month, regardless of the number of telephones installed by the Hot-Line. The previous contract charged the organization \$10 for every telephone. At the time that contract was signed, Youth Hot-Line only had ten telephones. With the increased staff, Ms. Smith plans to install at least five additional telephones.
32. (*Committed versus discretionary costs*) A list of committed and discretionary costs follows:
- | | |
|--|-----------------------------------|
| Annual audit fees | Internal audit salaries |
| Annual report preparation and printing | Marketing research |
| Building flood insurance | Preventive maintenance |
| Charitable contributions | Property taxes |
| Corporate advertising | Quality control inspection |
| Employee continuing education | Research and development salaries |
| Equipment depreciation | Research and development supplies |
| Interest on bonds payable | Secretarial pool salaries |
- a. Classify each of the above costs as normally being either committed (C) or discretionary (D).
- b. Which of the above costs may be either committed or discretionary based on management philosophy?
- c. For the expenses marked discretionary in part (a), provide a monetary or nonmonetary surrogate output measure. For each output measure, briefly discuss any objections that may be raised to it.
33. (*Committed versus discretionary costs*) Choose letter C (for committed cost) or D (for discretionary cost) to indicate which type of cost each of the sentences below best relates. Explain the rationale for your choice.
- a. Control is first provided during the capital budgeting process.
- b. Examples include advertising, research and development, and employee training.
- c. This type of cost cannot be easily reduced even during temporary slow-downs in activity.
- d. There is usually no “correct” amount at which to set funding levels.
- e. Examples include depreciation, lease rentals, and property taxes.
- f. This type of cost often provides benefits that are not monetarily measurable.
- g. Temporary reductions can usually be made without impairing the firm’s long-range capacity or profitability.
- h. This cost is primarily affected by long-run decisions regarding desired capacity levels.
- i. It is often difficult to ascribe outcomes as being closely correlated with this type of cost.
- j. This cost usually relates to service-type activities.
34. (*Effectiveness measures*) Lakeside Wellness Center has used funds during 2001 for the following purposes. Provide nonmonetary, surrogate measures that would help evaluate the effectiveness of the monies spent.
- a. Sent two cost accounting staff members to seminars on activity-based costing.
- b. Installed a kidney dialysis machine.
- c. Built an attached parking garage for the hospital.
- d. Redecorated the main lobby.
- e. Placed a full-page advertisement in the local Yellow Pages.
- f. Acquired new software to track patient charges and prepare itemized billings.

35. (*Surrogate measures of output*) The Coast Casino and Hotel has established performance objectives for each major operational area for the budget year. Some of the major objectives that were established for the budget year 2001 follow. For each objective, identify a surrogate measure of performance.
- Increase volume of customer traffic at the gaming tables.
 - Decrease the labor cost per beverage served to customers.
 - Increase the length of stay per hotel guest.
 - Attract more out-of-state visitors and reduce the number of in-state visitors.
 - Increase convention business.
 - Increase the quality of room-cleaning services.
 - Increase the relative amount of gaming revenue generated by the slot machines.
36. (*Effectiveness and efficiency measures*) The president at Midland State University has formed a new department to recruit top out-of-state students. The department's funding for 2001 is \$400,000 and the department was given a goal of recruiting 300 new nonresident students. By year-end 2001, the department had been credited with recruiting 325 new students. The department actually consumed \$460,000 in its recruiting efforts.
- How effective was the newly formed department? Show calculations.
 - How efficient was the department? Show calculations.
37. (*Engineered cost variances*) Candyland Courier employs three drivers who are paid an average of \$16 per hour for regular time and \$24 for overtime. A pickup and delivery requires, on average, one hour of driver time. Drivers are paid for a 40-hour week because they must be on call all day. One driver stands by for after-hour deliveries.
- Analyze the labor costs for one week in which the company made 105 daytime deliveries and 12 after-hour deliveries. The payroll for drivers for that week was \$2,280. The employees worked 120 hours of regular time and 15 hours of overtime.
38. (*Engineered cost variances*) Management at Rivertown Electronics has estimated that each quality control inspector should be able to make an average of 12 inspections per hour. Retired factory supervisors are excellent quality control inspectors because of their familiarity with the products and processes in the plant. Rivertown management has decided to staff the quality control program with these individuals and has set \$18 as the standard hourly rate. During the first month of the new program, 12,560 inspections were made and the total pay to the inspectors was \$19,928 for 1,030 hours of work.
- Perform a variance analysis for management on the quality control labor cost.
 - Assume that management could hire four full-time inspectors for a monthly salary of \$5,000 each and hire part-timers for the overflow. Each full-time inspector would work 170 hours per month. How would total cost of this alternative compare to the cost of a 1,030-hour month at the standard rate of \$18?
39. (*Revenue variances*) The manager of a lumber mill has been asked to explain to the company president why sales of scrap firewood were above budget by \$4,200. He requests your help. On examination of budget documents, you discover that budgeted revenue from firewood was \$75,000 based on expected sales of 1,875 cords of wood at \$40 per cord. Further investigation reveals that 1,800 cords were actually sold at an average price of \$44. Prepare an analysis of firewood sales and explain what happened.





40. (*Revenue variances*) “Tot Toons” is a videotape series that is marketed to day care centers and parents. The series has been found to make babies who watch it extremely content and quiet. In 2001, Angels Ltd., maker of the tapes, sold 400 of the series for \$60 per package. In preparing the 2002 budget, company management estimated a 15 percent increase in sales volume because the price was to be reduced by 10 percent. At the end of 2002, company management is disappointed that actual revenue is only \$24,440 although 470 packages of the series were sold.
- What was the expected revenue for 2002?
 - Calculate the price and volume variances for Angels Ltd.
41. (*Budgeting concepts; includes appendix*) Select the letter of the budget category from the list below that best corresponds to items a through j.

T = traditional budgeting
 Z = zero-base budgeting
 P = program budgeting
 B = both zero-base and program budgeting

- Requires annual justification of programs and activities.
 - Is concerned with alternative approaches to achieve similar results.
 - Begins by defining objectives in terms of output results rather than quantity of input activities.
 - Requires development and assessment of decision packages.
 - Treats prior year’s funding levels as given and essential to operations.
 - Is particularly well suited to budgeting for discretionary cost expenditures.
 - Produces alternative levels of funding based on fund availability and desired results.
 - Requires the use of detailed surrogate measures of output.
 - Focuses more on monetary levels of appropriations rather than on goals, objectives, and outputs.
 - Results in the “creeping commitment syndrome.”
42. (*Cost changes*) Alyssa Enterprises has been in existence since 1996. The company board of directors is interested in how well certain office costs have been controlled from 1996 to 2001. Following are several cost categories and the related 1996 and 2001 expenditures:

Cost Category	1996 Cost	2001 Cost
Wages and fringe benefits	\$160,000	\$125,000
Supplies	50,000	85,000
Equipment depreciation	36,000	58,000
Utilities	4,800	6,600

Over this five-year period, Alyssa Enterprises has downsized from eight office staff to five and made substantial investments in computer hardware and software.

- Use the above information and information in Exhibit 15–4 to prepare an alternative comparison for the board of directors relative to the office costs in these two years.
 - Write a detailed memo to provide explanations of the cost changes.
43. (*Variance analysis*) Cost control in the Personnel Office of Minnesota Wholesale is evaluated based on engineered cost concepts. The office incurs both variable and fixed costs. The variable costs are largely driven by the amount of employee turnover. For 2000, budgeted costs in the Personnel Office were:

Fixed \$200,000
 Variable 400,000 (based on projected turnover of 1,000 employees)



For 2000, actual costs in the Personnel Office were:

Fixed	\$210,000
Variable	450,000 (actual turnover of 1,050 employees)

Using traditional variance analysis, evaluate the control of fixed and variable costs in the Personnel Office of Minnesota Wholesale. Does this method of evaluation encourage the Personnel Office managers to hire low-quality workers? Explain.

44. (*Cost consciousness; team activity*) All organizations seek to be aware of and control costs. In a team of three or four, choose one of the following industries and do research to identify methods that have been used to control costs. Prepare a written presentation that discusses the various methods of cost control, dollars of costs saved (if available), and your perceptions of the positive and negative implications of each of the cost control methodologies. You may choose a particular company within the industry should you so desire.

- a. Internet e-tailers
- b. Automobile manufacturers
- c. Hospitals
- d. Software companies
- e. Government entities

45. (*Cost control*) The California State University system once placed a purchase order (PO) for a book published by a small New Canaan, Conn., company, The Information Economics Press. The following is a copy of the letter the Press sent back to the California procurement officer:

We have your eight page PO#940809 for one copy of our book "The Politics of Information Management." We are unable to fill your \$49 order for the following reasons:

- *In the Purchase Order Terms and Conditions you wish us to waive any infringement of our copyrighted materials by officers, agents and employees of the California State University. We cannot agree to make available a valuable Copyright for the price of a book.*
- *You will withhold all payments or make a 38% withholding in order to file a year-end 1099 form. We are unable to handle the paperwork of a separate 1099 for every book we sell. That would double our paperwork.*
- *You are requiring us to file a Vendor Data Record (form 204) which is largely identical with your Vendor Information form. Filing both forms takes excessive amounts of time.*
- *We are a small business, and therefore you require that we submit a copy of the OSMB Small Business Certification. We do not have an OSMB Certification and we do not know where to get one.*
- *Your attachment to form 204 specifies that I obtain a determination with regard to my being classified either as resident or non-resident subject to California tax withholdings, to be reclaimed by filing at year-end California tax returns. We do not plan to make any tax filings in California.*
- *Your contract rider contains a Privacy Statement on unspecified disclosures that makes us liable for penalties of up to \$20,000.*
- *As a condition of our filling out the order you are asking us to post statements notifying all employees of compliance with Code Section 8355 and certifying as to our adopting a four point Drug-Free Awareness program that complies with California law. Deviations are punishable as perjury under the laws of the State of California. Please note our firm has only two employees, who do not take even an aspirin.*
- *Your Minority/Women Business Enterprise Self Certification Form 962 requires detailed statistics on ethnic characteristics of our firm, defining each ethnic group according to their stated geographic origins. To assist in making such*

distinctions you provide a check-list of ethnic identity of the owners of this firm, leaving us by default with only one open choice, Caucasian, which you do not define. My husband and I do not know of any ancestors who may have ever been in the proximity of the Caucasian mountains, and therefore we are unable to comply with your requirement to identify our ethnic origin according to your geographic rules.

We therefore suggest that you purchase our book at a bookstore.

*Mona Frankel
Publisher*

SOURCE: Mona Frankel, "Just Go to the Bookstore and Buy One," *The Wall Street Journal* (October 18, 1994), p. A20. Reprinted by permission of *The Wall Street Journal*, © 1994 Dow Jones & Company, Inc. All Rights Reserved Worldwide. Permission conveyed through the Copyright Clearance Center.

- a. What cost control strategy was the author of the preceding letter employing in her decision to reject the book order? Explain.
 - b. What appears to be the source of most of the complexity associated with the purchase order? Explain.
 - c. What does the letter suggest about the opportunity for improved cost control in the California State University purchasing system? Explain.
46. (*Cost control and financial records*) Robotic Solutions is a medium-sized manufacturing plant in a capital-intensive industry. The corporation's profitability is very low at the moment. As a result, investment funds are limited and hiring is restricted. These consequences of the corporation's problems have placed a strain on the plant's repair and maintenance program. The result has been a reduction in work efficiency and cost control effectiveness in the repair and maintenance area.
- The assistant controller proposes the installation of a maintenance work order system to overcome these problems. This system would require a work order to be prepared for each repair request and for each regular maintenance activity. The maintenance superintendent would record the estimated time to complete a job and send one copy of the work order to the department in which the work was to be done. The work order would also serve as a cost sheet for a job. The actual cost of the parts and supplies used on the job as well as the actual labor costs incurred in completing the job would be recorded directly on the work order. A copy of the completed work order would be the basis of the charge to the department in which the repair or maintenance activity occurred.
- The maintenance superintendent opposes the program on the grounds that the added paperwork will be costly and nonproductive. The superintendent states that the departmental clerk who now schedules repairs and maintenance activities is doing a good job without all the extra forms the new system would require. The real problem, in the superintendent's opinion, is that the department is understaffed.
- a. Discuss how such a maintenance work order system would aid in cost control.
 - b. Explain how a maintenance work order system might assist the maintenance superintendent in getting authorization to hire more mechanics.
- (CMA adapted)*
47. (*Activity-based budgeting*) As a newly hired staff person in the accounting department of Midwest Technical Products, you have been invited to help the controller and her staff prepare for a meeting with the CFO and CEO to discuss ways to improve the profitability of the Medical Products Division. Profitability in the division has leveled off in the past three years and the division is now mediocre relative to the rest of the industry in the return it generates on invested assets. Discuss how you could apply activity-based budgeting concepts to explore ways to improve profitability in the Medical Products Division.

48. (*Cash management*) Data extracted from a recent balance sheet of Huntington Tire Company follow. The firm manufactures tires that are sold both to car manufacturers and tire wholesalers.

Current assets (in millions)	
Cash	\$ 10
Accounts receivable	140
Finished goods inventory	25
Work in process inventory	170
Materials	90
Current liabilities	
Accounts payable	\$ 22
Other	7

Discuss recommendations that could be made to Huntington Tire Company managers to improve its cash position. Focus your discussion on the operating cycle rather than on other means of raising cash.

PROBLEMS

49. (*Cost consciousness*) Tony and Keri Calihan are preparing their household financial budget for December. They have started with their November budget and are adjusting it to reflect the difference between November and December in planned activities. The Calihans are expecting out-of-town guests for two weeks over the holiday season. The following list describes the budgetary changes from November to December that are contemplated by the Calihan family:

- Increase the grocery budget by \$135.
- Decrease the commuter transportation budget by \$50 to reflect the days off from work.
- Change food budget to reflect serving pizza rather than steak and lobster each weekend.
- Budget an extra \$70 for utilities.
- Reduce household maintenance budget by \$60 to reflect the fact that outside maid services will not be needed over the holiday period.
- Buy generic breakfast cereal rather than name brand due to the quantity the guests will consume.
- Buy paper plates rather than run the dishwasher.
- Buy the institutional-size packages of paper plates rather than smaller size packages.
- Budget the long-distance phone bill at \$50 less because there will be no need to call the relatives who will be visiting.
- Budget movie rentals for \$3 per tape rather than spend \$7 per person to go to the movies.
- Postpone purchasing needed work clothes until January.
- Budget funds to repair the car. Keri plans to use part of her vacation time to make the repairs herself rather than take the car to a garage in January.

Indicate whether each of the above items is indicative of cost understanding (CU), cost containment (CC), cost avoidance (CA), or cost reduction (CR). Some items may have more than one answer.

50. (*Use of temporaries*) Temporary or part-time employees may be used rather than full-time employees in each of the following situations:
- To teach undergraduate accounting courses at a university.
 - To serve as security guards.
 - To staff a health clinic in a rural area.
 - To write articles for a monthly technical magazine.

(continued)

- e. To clean the house when the regular maid is ill.
- f. To answer questions on a tax help-line during tax season.
- g. To work in department stores during the Christmas rush.
- h. To do legal research in a law firm.
- i. To perform quality control work in a car manufacturing plant.
- j. To do seamstress work in a custom dress shop.
- k. To work as a clerk/cashier in a small retail store. The store is a mom-and-pop operation and the clerk is the only employee in the store when he or she works.

Indicate the potential advantages and disadvantages of the use of temporaries in each of the above situations. These advantages and disadvantages can be viewed from the standpoint of the employer or the user of the employer's products or services.



51. (*Efficiency standards*) Tory Kline has been asked to monitor the efficiency and effectiveness of a newly installed machine. The specialized machine has been guaranteed by the manufacturer to package 7,800 engine gaskets per kilowatt-hour (kWh). The rate of defects on production is estimated at 1.5 percent. The machine is equipped with a device to measure the number of kWhs used. During the first month of use, the machine packaged 1,390,000 gaskets, of which 17,900 were flawed, and it used 175 kWhs.
- a. What is the efficiency standard for flawless output?
 - b. Calculate the achieved efficiency for the first month and briefly comment on it.
 - c. Determine the achieved effectiveness and briefly comment on it.
 - d. Assume that the company was charged \$3.20 per kWh during the first month this machine was in service. Estimate the company's savings or loss in power costs because of the machine's efficiency level in the first month of operations.
 - e. If you were a customer buying this company's gaskets for use in automobile production, what amount of quality control would you want the company to have and why?
52. (*Effectiveness/efficiency*) Top management of RX Hospital Administrators observed that the budget for the EDP department had been growing far beyond what was anticipated for the past several years. Each year, the EDP manager would demonstrate that increased usage by the company's non-EDP departments would justify the enlarged appropriations. The administrative vice president commented that she was not surprised because user departments were not charged for the EDP department services and EDP department personnel were creative and eager to continue expanding services.

A review of the current year's statistics of the EDP department revealed the following:

Budgetary appropriation	\$500,000, based on 2,000 hours of run time; \$400,000 of this appropriation is related to fixed costs
Actual department expenses	Variable, \$87,750 (incurred for 1,950 hours of run time) Fixed, \$402,000

- a. Did the EDP manager stay within his appropriation? Show calculations.
- b. Was the EDP department effective? Show calculations. Comment.
- c. Was the EDP department efficient? Show calculations. (*Hint:* Treat variable and fixed expenses separately.)
- d. Using the formulas for analyzing variable and fixed costs, calculate the variances incurred by the EDP department.
- e. Propose a rate per hour to charge user departments for EDP services. Do you think charging users will affect the demand for services by user departments? Why or why not?

53. (*Efficiency versus effectiveness*) The health-care industry has recently found itself in a new era that is characterized by cost competition. As a result of the new emphasis on cost management, many existing practices are being revised or dropped. A list follows of changes that have been made by specific health-care providers. For each change mentioned, indicate whether the change is intended to control cost through increased efficiency or increased effectiveness. Also indicate whether the change represents cost understanding, cost containment, cost avoidance, or cost reduction. Discuss your justification for each answer.
- Before entering the hospital for chemotherapy, a patient's health-care provider required her to drink more than two quarts of water at home. By doing so, a day's stay in the hospital for hydration was avoided.
 - By administering an antibiotic within two hours of each operation, a hospital reduced the postoperative infection rate from 1.8 percent of patients to 0.4 percent of patients.
 - Some surgeons have started removing the drainage tubes from heart-bypass patients 24 hours after the operation rather than 48 hours after the operation. The change reduces the length of the typical hospital stay.
 - Doctors at a major hospital tightened scheduling requirements for blood analysis so that results were obtained on the same day that the blood was drawn. The change allowed many patients to be dismissed immediately.
 - A hospital began a practice of paying about \$130 per average dose of a new antinausea drug to be administered to chemotherapy patients. The drug allowed vomiting to be controlled much faster and the patient to be more comfortable and dismissed a day earlier.

SOURCE: Facts based on Ron Winslow, "Health-Care Providers Try Industrial Tactics to Reduce Their Costs," *The Wall Street Journal* (November 3, 1993), pp. A1, A5.

54. (*Budget-to-actual comparison*) Lighting Systems, Inc., evaluates performance in part through the use of flexible budgets. Selling expense budgets at three activity levels within the relevant range are shown below.

ACTIVITY MEASURES

Unit sales volume	15,000	17,500	20,000
Dollar sales volume	\$15,000,000	\$17,500,000	\$20,000,000
Number of orders processed	1,500	1,750	2,000
Number of salespersons	100	100	100

MONTHLY EXPENSES

Advertising and promotion	\$ 1,500,000	\$ 1,500,000	\$ 1,500,000
Administrative salaries	75,000	75,000	75,000
Sales salaries	90,000	90,000	90,000
Sales commissions	450,000	525,000	600,000
Salesperson travel	200,000	225,000	250,000
Sales office expense	445,000	452,500	460,000
Shipping expense	650,000	675,000	700,000
Total	<u>\$ 3,410,000</u>	<u>\$ 3,542,500</u>	<u>\$ 3,675,000</u>

The following assumptions were used to develop the selling expense flexible budgets:

- The average size of the company's sales force during the year was planned to be 100 people.
- Salespersons are paid a monthly salary plus commission on gross dollar sales.
- The travel costs have both a fixed and a variable element. The fixed portion is related to the number of salespersons, whereas the variable portion tends to fluctuate with gross dollars of sales.

- Sales office expense is a mixed cost with the variable portion related to the number of orders processed.
- Shipping expense is a mixed cost with the variable portion related to the number of units sold. (An order consists of 10 units.)

A sales force of 90 persons generated a total of 1,600 orders, resulting in a sales volume of 16,000 units during November. The gross dollar sales amounted to \$14.9 million. The selling expenses incurred for November were as follows:

Advertising and promotion	\$1,450,000
Administrative salaries	80,000
Sales salaries	92,000
Sales commissions	460,000
Salesperson travel	185,000
Sales office expense	500,000
Shipping expense	640,000
Total	<u>\$3,407,000</u>

- Explain why the selling expense flexible budget would not be appropriate for evaluating the company's November selling expense, and indicate how the flexible budget would have to be revised.
 - Determine the budgeted variable cost per salesperson and variable cost per sales order for the company.
 - Prepare a selling expense report for November that the company can use to evaluate its control over selling expenses. The report should have a line for each selling expense item showing the appropriate budgeted amount, the actual selling expense, and the monthly dollar variation.
 - Determine the actual variable cost per salesperson and variable cost per sales order processed for the company.
 - Comment on the effectiveness and efficiency of the salespersons during November. *(CMA adapted)*
55. *(Appendix)* Joe Cannon is the controller of Winston Labs, a manufacturer and distributor of generic prescription pharmaceuticals. He is currently preparing the annual budget and reviewing the current business plan. The business unit managers of Winston Labs prepare and assemble the detailed operating budgets, with technical assistance from the corporate accounting staff. The final budgets are then presented by the business unit managers to the corporate executive committee for approval. The corporate accounting staff reviews the budgets for adherence to corporate accounting policies, but not for reasonableness of the line items within the budget.
- Cannon is aware that the upcoming year for Winston may be a difficult one due to the expiration of a major patent and the loss of a licensing agreement for another product line. He also knows that during the budgeting process, budget slack is created in varying degrees throughout the organization. He believes this slack has a negative effect on the overall business objectives of Winston Labs and should be eliminated where possible.
- Define budget slack.
 - Explain the advantages and disadvantages of budget slack for (1) the business unit manager who must achieve the budget and (2) corporate management.
 - Mr. Cannon is considering implementing zero-base budgeting at Winston Labs. (1) Define zero-base budgeting. (2) Describe how zero-base budgeting could be advantageous to Winston Labs in controlling budget slack. (3) Discuss the disadvantages Winston Labs might encounter from using zero-base budgeting. *(CMA adapted)*
56. *(Activity-based budgeting)* Several years ago, Kingsley Electronic Systems adopted activity-based management and activity-based costing. This year the

firm also prepared an activity-based budget for all of its major functions. An illustrative budget is presented below for the receiving department.

Signing receipts for shipments received	\$ 3,000
Opening shipping containers	80,000
Verifying count and content of container	63,000
Inspecting goods	120,000
Writing receiving reports	48,000
Supervising	68,000
Delivering goods to inventory warehouses	56,000
Total	<u>\$438,000</u>

While managers are enthused with the potential of the activity-based budgets, they are concerned about how the activity-based budgets relate to resource consumption. Write a memo to management discussing how the activity-based budget can be converted to a resource budget.

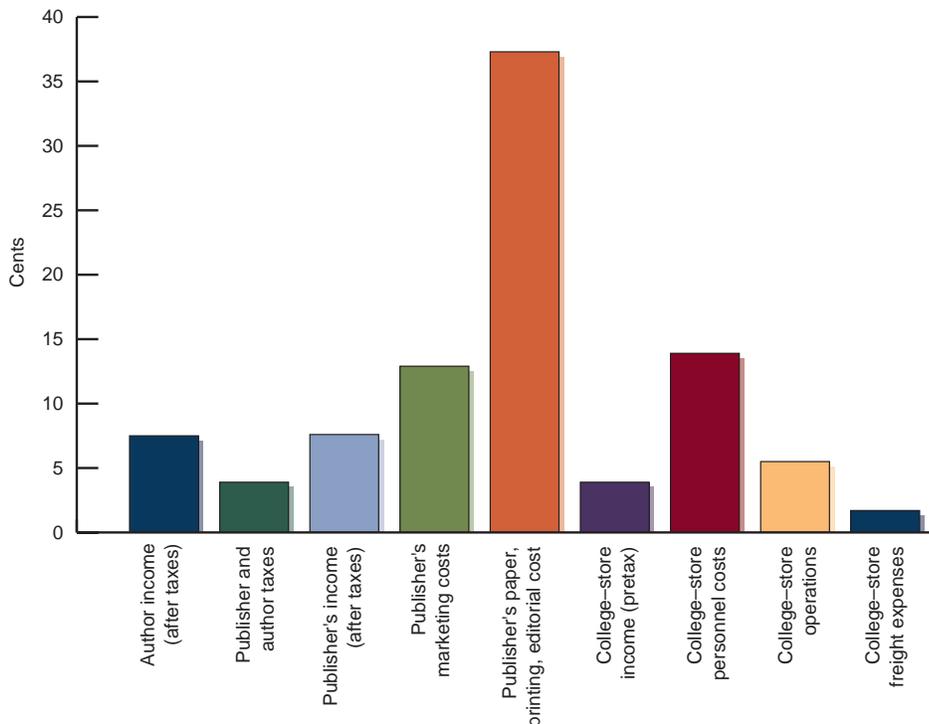
57. (*Cash management*) As the economy enters the new millennium, Internet companies are competing head-to-head in many markets with established, traditional retailers for the consumer's dollar. In comparing the financial statements of "e-tailers" relative to traditional retailing firms such as Wal-mart, one interesting difference is the comparatively large amount of cash held by the Internet firms. Using concepts presented in this chapter, discuss the most plausible explanations for the Internet companies holding such large sums of cash.



CASES

58. (*Cost control*) The following graph indicates where each part of the dollar that a student pays for a new college textbook goes.

SOURCE: Association of American Publishers and National Association of College Stores, "Where Does the Textbook Dollar Go?," *The Chronicle of Higher Education* (September 22, 1995), p. A51.



Students are frustrated with the cost of their textbooks, but most publishers would say that the selling prices have merely kept pace with inflation. Buying used books is an option, but publishers say that used books simply drive up the cost of future texts: If the publisher cannot sell as many of the new edition as are printed, the price is raised “to compensate for decreased sales volume, and the cycle starts again.” Publishers also must cover the costs of many nonsalable supplements that are requested by faculty such as instructor’s manuals, solutions manuals, transparency acetates, videos, and test banks (hard copy and electronic). Additionally, as the books become “fancier” with multiple colors, photographs, and periodical cites, costs also increase. Write a paper that does the following:

- a. Provides suggestions for ways the college/university bookstore could control costs.
 - b. Provides suggestions for ways the publisher could control costs.
 - c. Provides suggestions for ways students can legally control textbook expenditures (i.e., substantial reproduction of the text is illegal).
 - d. Discusses why college textbooks today are so different from college textbooks of 20 years ago. Are these differences cost beneficial from your perspective?
59. (*Analyzing cost control*) The financial results for the Continuing Education Department of BusEd Corporation for November 2001 are presented in the schedule at the end of the case. Mary Ross, president of BusEd, is pleased with the final results but has observed that the revenue and most of the costs and expenses of this department exceeded the budgeted amounts. Barry Stein, vice president of the Continuing Education Department, has been requested to provide an explanation of any amount that exceeded the budget by 5 percent or more.

Stein has accumulated the following facts to assist in his analysis of the November results:

- The budget for calendar year 2001 was finalized in December 2000, and at that time, a full program of continuing education courses was scheduled to be held in Chicago during the first week of November 2001. The courses were scheduled so that eight courses would be run on each of the five days during the week. The budget assumed that there would be 425 participants in the program and 1,000 participant days for the week.
- BusEd charges a flat fee of \$150 per day of course instruction, so the fee for a three-day course would be \$450. BusEd grants a 10 percent discount to persons who subscribe to its publications. The 10 percent discount is also granted to second and subsequent registrants for the same course from the same organization. However, only one discount per registration is allowed. Historically, 70 percent of the participant day registrations are at the full fee of \$150 per day, and 30 percent of the participant day registrations receive the discounted fee of \$135 per day. These percentages were used in developing the November 2001 budgeted revenue.
- The following estimates were used to develop the budgeted figures for course-related expenses.

Food charges per participant day (lunch/coffee breaks)	\$27
Course materials per participant	\$8
Instructor fee per day	\$1,000

- A total of 530 individuals participated in the Chicago courses in November 2001, accounting for 1,280 participant days. This number included 20 per-

sons who took a new, two-day course on pension accounting that was not on the original schedule; thus, on two of the days, nine courses were offered, and an additional instructor was hired to cover the new course. The breakdown of the course registrations were as follows:

Full fee registrations	704
Discounted fees	
Current periodical subscribers	128
New periodical subscribers	128
Second registrations from the same organization	<u>320</u>
Total participant day registrations	<u>1,280</u>

- A combined promotional mailing was used to advertise the Chicago program and a program in Cincinnati that was scheduled for December 2001. The incremental costs of the combined promotional price were \$5,000, but none of the promotional expenses (\$20,000) budgeted for the Cincinnati program in December will have to be incurred. This earlier-than-normal promotion for the Cincinnati program has resulted in early registration fees collected in November as follows (in terms of participant days):

Full fee registrations	140
Discounted registrations	<u>60</u>
Total participant day registrations	<u>200</u>

- BusEd continually updates and adds new courses, and includes \$2,000 in each monthly budget for this purpose. The additional amount spent on course development during November was for an unscheduled course that will be offered in February for the first time.

Barry Stein has prepared the following quantitative analysis of the November 2001 variances:

BUSED CORPORATION
Statement of Operations
Continuing Education Department
For the Month Ended November 30, 2001

	Budget	Actual	Favorable (Unfavorable) Dollars	Favorable (Unfavorable) Percent
Revenue				
Course fees	\$145,500	\$212,460	\$ 66,960	46.0
Expenses				
Food charges	\$ 27,000	\$ 32,000	\$ (5,000)	(18.5)
Course materials	3,400	4,770	(1,370)	(40.3)
Instructor fees	40,000	42,000	(2,000)	(5.0)
Instructor travel	9,600	9,885	(285)	(3.0)
Staff salaries and benefits	12,000	12,250	(250)	(2.1)
Staff travel	2,500	2,400	100	4.0
Promotion	20,000	25,000	(5,000)	(25.0)
Course development	2,000	5,000	(3,000)	(150.0)
Total expenses	<u>\$116,500</u>	<u>\$133,305</u>	<u>\$(16,805)</u>	<u>(14.4)</u>
Revenue over expenses	<u>\$ 29,000</u>	<u>\$ 79,155</u>	<u>\$ 50,155</u>	<u>172.9</u>

(continued)

BUSED CORPORATION
Analysis of November 2001 Variances

Budgeted revenue		\$145,500
Variances:		
Quantity variance $[(1,280 - 1,000) \times \$145.50]$	\$40,740 F	
Mix variance $[(\$143.25 - \$145.50) \times 1,280]$	2,880 U	
Timing difference $(\$145.50 \times 200)$	<u>29,100 F</u>	66,960 F
Actual revenue		<u>\$212,460</u>
Budgeted expenses		\$116,500
Quantity variances		
Food charges $[(1,000 - 1,280) \times \$27]$	\$ 7,560 U	
Course materials $[(425 - 530) \times \$8]$	840 U	
Instructor fees $(2 \times \$1,000)$	<u>2,000 U</u>	10,400 U
Price variances		
Food charges $[(\$27 - \$25) \times 1,280]$	\$ 2,560 F	
Course materials $[(\$8 - \$9) \times 530]$	<u>530 U</u>	2,030 F
Timing differences		
Promotion	\$ 5,000 U	
Course development	<u>3,000 U</u>	8,000 U
Variances not analyzed (5% or less)		
Instructor travel	\$ 285 U	
Staff salaries and benefits	250 U	
Staff travel	<u>100 F</u>	435 U
Actual expenses		<u>\$133,305</u>

After reviewing Barry Stein's quantitative analysis of the November variances, prepare a memorandum addressed to Mary Ross explaining the following: (See chapter 18 for more discussion of revenue variances.)

- a. The cause of the revenue mix variance
- b. The implication of the revenue mix variance
- c. The cause of the revenue timing difference
- d. The significance of the revenue timing difference
- e. The primary cause of the unfavorable total expense variance
- f. How the favorable food price variance was determined
- g. The impact of the promotion timing difference on future revenues and expenses
- h. Whether or not the course development variance has an unfavorable impact on the company *(CMA adapted)*

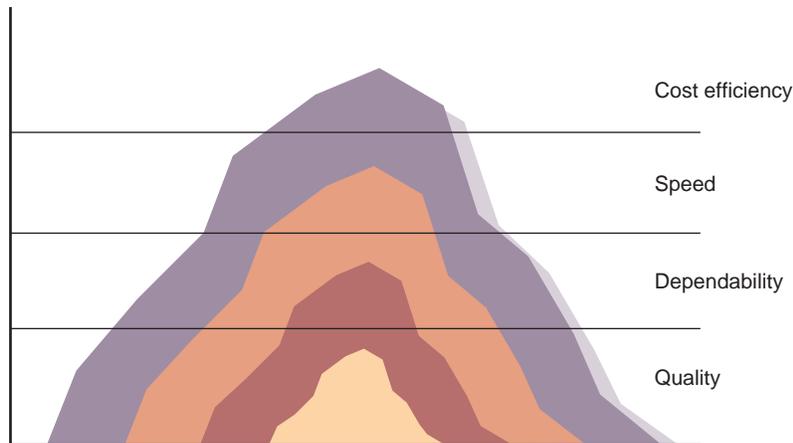
REALITY CHECK

60. *Ferdows and De Meyer argue that long-term cost improvement is the result of having first achieved improvement in quality, then dependability, and finally speed. There is a cumulative effect by which prior gains influence current gains, a process that can be illustrated as a pile of sand with four layers: quality at the bottom and cost at the top (see figure). [The sand represents management effort and resources.] Increases in quality help increase dependability; then gains in both quality and dependability spur gains in speed. Finally, the cumulative effects of these prior gains result in cost efficiency gains.*

Ferdows and De Meyer also point out that, due to the shape of the pile of sand, achieving a small gain in cost requires successively larger gains for the other aspects of performance (e.g., a 10 percent cost gain may require a 15 percent gain in speed, a 25 percent gain in dependability, and a 40 percent gain in quality). The implication is that long-term successful cost reduction is achieved indirectly—through gains made in other strategically important ar-

ees. Thus, the cost reduction strategy should be deeply embedded in the firm's competitive strategy.

SOURCE: Michael D. Shields and S. Mark Young, "Effective Long-Term Cost Reduction: A Strategic Perspective," *Journal of Cost Management* (Spring 1992), pp. 20–21. © 1992 Warren Gorham & Lamont. Reprinted with permission of RIA.



SOURCE: Reprinted from "Lasting Improvements in Manufacturing Performance: In Search of a New Theory," *Journal of Operations Management* (April 1990), p. 175, by Karsa Ferdows and Arnoud De Meyer, with permission of Elsevier Science.

- a. How does the depiction of cost control in the figure relate to the concept of activity-based management?
 - b. If the relation between cost and quality is as depicted in the figure, how does the quality level of the production process serve as a constraint on organizational profitability?
 - c. What does the figure suggest about the prospects of competing via a strategy of offering low-cost/low-quality products?
61. The cost of "people" constitutes 75 percent to 80 percent of the total costs of operating a public accounting firm. In periods of economic contractions (such as the late 1980s and early 1990s), accounting firms have to look to cut labor costs to keep costs in line with decreasing revenues. Many firms have resorted to the restricted use of part-time employees who can be laid off during the slack periods in the year. Part-timers include college interns, and parents with young children who only want to work during the busy season. Firms have also resorted to the use of paraprofessionals, individuals with two-year degrees in business.

SOURCE: Don Istvan, "Cost Cutting: A Survival Plan," *Accounting Today* (November 11, 1991), p. 26. © 2000 Thomson Financial. Reprinted with permission.

- a. Discuss the use of part-timers and paraprofessionals from the perspective of controlling costs.
 - b. How could the use of part-timers and paraprofessionals impair the quality of work performed by public accounting firms?
 - c. How could the use of part-timers and paraprofessionals affect the effectiveness and efficiency with which work is performed in public accounting firms?
62. For Caesar O'Neal, a nausea-free day is priceless. But for the hospital treating the 6-foot-8-inch University of Florida football player for liver cancer, the price of delivering that relief is becoming troublesome.
- Mr. O'Neal has been getting massive chemotherapy, including a round last fall that left him vomiting so much that he nearly quit treatment. After that

crisis, doctors gave him Zofran, a powerful anti-nausea drug. Now chemotherapy isn't so frightening, Mr. O'Neal says as he sits on his bed sipping Gatorade. Instead of suffering anguish after each treatment, he can enjoy small pleasures such as video games, big meals or chats with relatives.

But Zofran is one of the most expensive drugs around—and a hot issue as hospitals and drug makers clash over the cost of medications. A standard 32-milligram dose of Zofran—less than a single teardrop—costs hospitals \$143. Factor in expenses for stocking it and having nurses administer it intravenously, and each use of Zofran can turn into a \$300 patient charge. By weight, gem-quality diamonds are cheaper.

Many doctors and nurses, however, think they can slash Zofran costs without making patients feel worse. “We may be overusing the drug,” says Robert Benjamin, an oncologist who treats Mr. O'Neal at the University of Texas M.D. Anderson Cancer Center in Houston. He and other doctors around the U.S. think Glaxo's official package inserts, though approved by the Food and Drug Administration, overstate the Zofran dose that many patients need.

M.D. Anderson is seeking to trim its spending on costly anti-nausea drugs such as Zofran by 10% this year. Other teaching hospitals, in Boston, New York and Chicago, are looking for cuts of 25% to 50%—mostly by drafting new treatment standards that lean on doctors to shrink dosages or try less costly substitutes.

SOURCE: George Anders, “Costly Medicine Meets Its Match: Hospitals Just Use Lower Doses,” *The Wall Street Journal* (August 1, 1994), pp. A1, A6. Reprinted by permission of *The Wall Street Journal*, © 1994 Dow Jones & Company, Inc. All Rights Reserved Worldwide. Permission conveyed through the Copyright Clearance Center.

- a. What cost control strategy are health administrators attempting to employ for Zofran?
 - b. What are the ethical considerations in cutting drug costs by cutting doses and switching to less costly substitutes?
 - c. What is the ethical responsibility of the pharmaceutical manufacturer in setting the prescribed doses for medicines it develops?
63. *Kirsh Guilory pumped out Cajun music, vendors hawked Creole crafts, but the crawfish delicacies dished out along food row at the New Orleans Jazz and Heritage Festival were not from the bayous and backwaters of Louisiana. The Chinese have taken over the crawfish pies, etouffee, file gumbo and most other crawfish dishes served at the festival. Captured, cooked, peeled and processed with low-cost labor in China, the crawfish from overseas are too cheap to pass up, say the merchants who sell food at the fest.*

“I had to go to the Chinese tails,” said Clark Hoffpauer, whose festival specialty is crawfish etouffee. “They’re at least \$2 a pound cheaper, and when you talk 1,700 pounds, that’s quite a bit of change. I’d rather use Louisiana crawfish. After all, this is about Louisiana heritage, but business is business.”

SOURCE: Mary Foster, “China Syndrome,” (*New Orleans Times-Picayune*) (May 3, 1996), p. C1. © The Times-Picayune Publishing Corporation.

- a. Is “business is business” a true statement? Discuss the concept of this statement relative to costs, to employment, and to tradition.
- b. Provide some examples in which you would believe that the quality of a product and/or the ethics of a company would be enhanced if management considered all of the stakeholders in an organization in addition to costs when making a “business is business” decision.