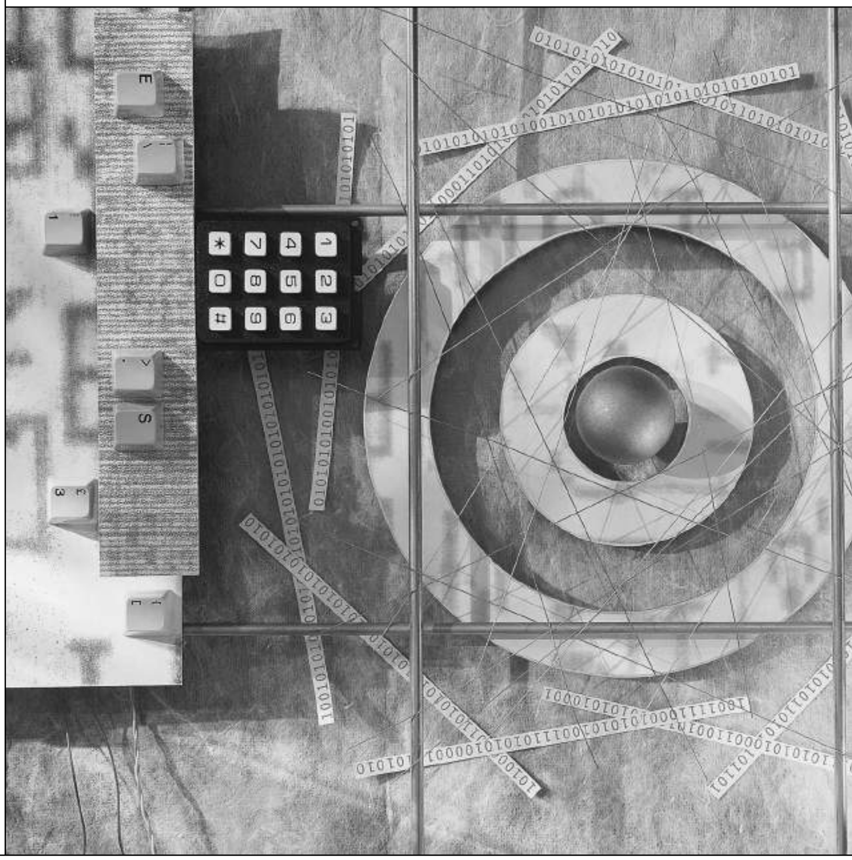
MODULE

Strategy and Management Accounting



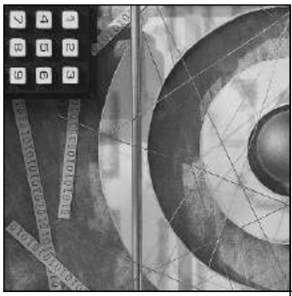
VERSION 1.2

AUTHORS

Jan Bell and Shahid Ansari, California State University Northridge
Thomas Klammer, University of North Texas
Carol Lawrence, University of Richmond

SERIES CONCEPT DEVELOPED BY:

Shahid Ansari • Jan Bell • Thomas Klammer • Carol Lawrence



Strategy and Management Accounting

REQUIEM FOR REEL TAPE

Reel Tape was a great company to work for in the 1960s. We were one of the premiere companies in the reel-to-reel tape business. There was little competition on the West Coast, and we had the region pretty much to ourselves. When cassettes came in, we switched our product line but not our attitudes. We still did business the old way. But the market had changed. There was competition from the Europeans, the Japanese, and from other Far East producers. These competitors were pricing products below our costs. They had also improved their quality, were delivering products on time, and were introducing new products such as high bias chromium oxide tapes before we did. When we woke up, it was too late. We discovered that we had lost touch with our customers. Many had left or were leaving us. Why did we not wake up earlier?

I guess there are many reasons, but an important one was the lack of a good management-accounting system. We thought of accounting systems as necessary evils for external financial and tax reporting. As long as we were making money, no one cared. The words from the song in the musical Evita captured our mood:

When the money keeps rolling in you don't keep books
You can tell by the happy grateful looks
Accountants only slow things down, figures get in the way…

When we began to address our problems seriously, we found out that our accounting system had no information on many of the questions our management needed to know. For example, we did not collect information on:

What were our defect rates and sales return rates?
What caused our quality problems?
What was our on-time delivery record? What was the competition's record?
Which market segments and customers were more profitable?
Which types of cassettes had higher profit margins?
What was it costing us to introduce new products late?

I can go on with this list. The point is we mistook the profits we were showing on our external financial statements for profits we could sustain!

This story comes from an interview the authors did a few years ago with a senior executive of Reel Tape Inc. It is a real company whose name is disguised for privacy reasons. The story, however, is true and very familiar. Insert Xerox, Eastman-Kodak, Ford, Chrysler, GM, Harley-Davidson, Caterpillar, and many other U.S. and European companies, and the story probably captures the experiences of these companies in the 1970s and early 1980s. Fortunately, unlike Reel Tape Inc., these companies woke up and turned things around. What is noteworthy is that a good management-accounting system played an instrumental role in supporting the comeback of these companies.

■ PURPOSE OF THIS MODULE

The story of Reel Tape Inc. illustrates the importance of a good management-accounting system for accomplishing key organizational objectives. These include providing the information the firm needs to help it produce low cost products, maintain quality, deliver on time, and keep up with the pace of innovation. Reel Tape's story raises two important questions that are addressed in this module.

- What is management accounting and what role does it play in an organization?
- What are the attributes of a good management-accounting system?

In developing answers to these questions two conceptual triangles are introduced. Learning to use these two triangles will help you understand, evaluate, and even design a good management-accounting system.

KEY POINT

The first triangle focuses on quality, cost, and time (QCT). This is the strategic triangle. It highlights the three strategic variables that are the central objectives of most organizations today.

KEY POINT

The second triangle focuses on the technical, behavioral, and cultural (TBC) attributes of management-accounting information. This is the attribute triangle. It focuses on the properties needed in a good management-accounting system.

■ WHAT IS MANAGEMENT ACCOUNTING?

Management accounting is a system of measuring and providing operational and financial information that guides managerial action, motivates behaviors, and supports and creates the cultural values necessary to achieve an organization's strategic objectives.

There are four key ideas contained in this definition of management accounting. These ideas capture the nature, scope, purpose, and attributes of management accounting.

1. By ***nature*** management accounting is a measurement process.
2. The ***scope*** of management accounting includes financial information, such as cost, and operational information, such as percentage of defective units produced.
3. The ***purpose*** of management accounting is to help an organization reach its key strategic objectives. It is not meant for mandated financial and tax reporting purposes.
4. Good management accounting information has three ***attributes:***

   - **Technical—**it enhances the understanding of the phenomena measured and provides relevant information for strategic decisions.
   - **Behavioral—**it encourages actions that are consistent with an organization's strategic objectives.
   - **Cultural—**it supports and/or creates a set of shared cultural values, beliefs, and mindsets in an organization and society.

This definition of management accounting contains some ideas that are different from other definitions of the field. For example, the Institute of Management Accountants (IMA), the professional association of practicing and academic management accountants, defines management accounting as:

> The process of identification, measurement, accumulation, analysis, preparation, interpretation, and communication of financial information used by management to plan, evaluate, and control within an organization and to assure appropriate use of and accountability for its resources. Management accounting also comprises the preparation of financial reports for nonmanagement groups such as shareholders, creditors, regulatory agencies, and tax authorities.[1]

A comparison of IMA's definition with the one used in this module reveals several key differences:

- The IMA definition focuses heavily on what management accountants do. The definition in this module includes their list but emphasizes the purpose of these activities—attaining strategic objectives.
- The IMA definition includes only financial information. This module includes operational information as well. Both financial and operational data are critical if a firm is going to be able to compete.
- The IMA definition includes nonmanagement reporting for tax and regulatory purposes as part of management accounting. We agree that it is management's function to prepare these statements. However, these reports have to conform to mandated rules and do not provide the type of strategic information management needs. The focus in this module is on strategic management reporting.
- Finally, the IMA definition is silent on the attributes of management-accounting information. The definition in this module gives prominent recognition to the three attributes of management accounting.

The next section explains more fully the key ideas in our definition.

NATURE AND SCOPE OF MANAGEMENT ACCOUNTING

Management-accounting systems report the results of operations using financial and nonfinancial measures. These systems also help project and plan future operations. The Reel Tape Inc. story contains several examples of information that managers need. These include better product cost data and metrics of on-time delivery of products. These items exemplify two of the many measures dealt with in management accounting. Cost is an example of a measure expressed in financial terms, while on-time delivery is an example of an operational measure.

Learning the procedures for measuring, collecting, reporting, interpreting, and presenting these data to managers is the subject matter of managerial accounting. There are formal procedures that govern the measurement process. However, applying these procedures poses problems since there are many alternative methods of measuring the same phenomenon. For example, product cost or customer profitability can be computed in several ways. Similarly, quality can be measured using a variety of methods. Each alternative is a valid measure, and each may be useful under certain conditions. Understanding these multiple methods of measurement, and knowing when and how to use them, is a major part of studying management accounting.

[1] National Association of Accountants (former name of the Institute of Management Accountants), Statement on Objectives of Management Accounting, New York, 1981.

■ PURPOSE OF MANAGEMENT ACCOUNTING—THE STRATEGIC TRIANGLE

The fundamental purpose of management accounting is to help an organization achieve its strategic objectives. Meeting these objectives satisfies the needs of its customers and other stakeholders. Typical stakeholders include shareholders, creditors, suppliers, employees, and labor unions.

Strategy is the way that a firm *positions* and *distinguishes* itself from its competitors. Positioning refers to the selection of target *customers* or *markets.* Distinctions are made on the three dimensions of *quality, cost,* and *time.* Different customers have different expectations about the features and performance reliability (quality) they want in a product, the price (cost) they are willing to pay, and when and how quickly they want the product or services delivered (time). An ice cream company, such as Häagen Dazs, specializes in premium high-butterfat content and high-priced ice creams. Häagen Dazs is quite different from Lady Lee which makes an everyday variety of low butterfat and lower-priced ice creams. The two companies compete for different types of ice-cream consumers. Häagen Dazs also competes more directly with Ben & Jerry's on providing a high-quality premium ice cream, at the best price (cost), with timely introduction of new flavors.

A typical statement of strategic objectives contains elements of both positioning and distinction. Consider the following statements of strategic goals from DIRECTV, a unit of Hughes Electronics Corporation that markets direct broadcast satellite systems (DBSS).

- Continue expanding marketing efforts in the United States to increase subscriber base.
- Increase customer value with superior programming choice, quality, and additional programming packages.[2]

THINK ALONG

Can you identify the elements of quality, cost, and time implicit in DIRECTV's strategic goals?

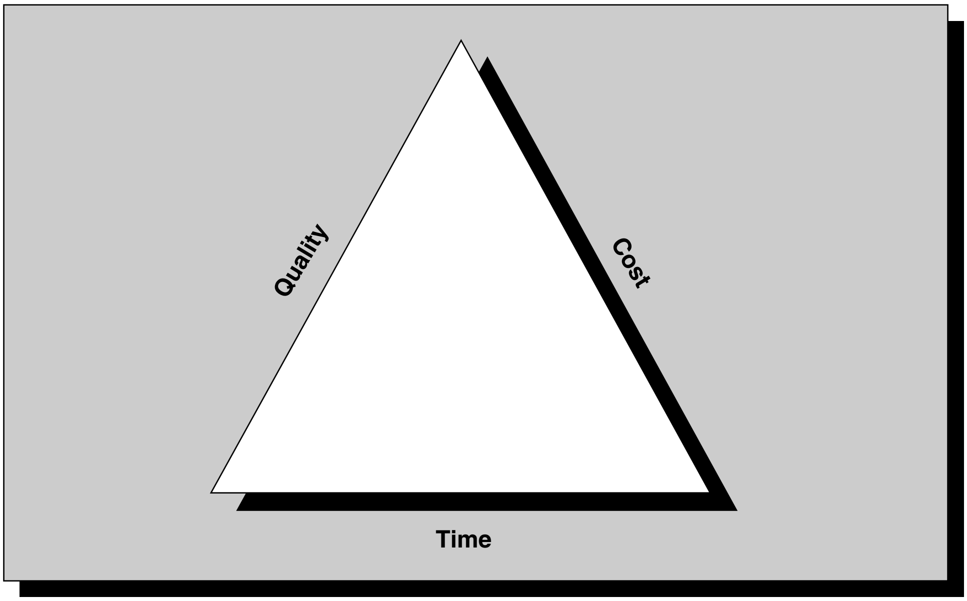
DIRECTV is positioned to compete for subscribers currently served by cable TV companies and sellers of traditional 12- to 18-foot satellite dish antennas. It plans to distinguish itself from competitors by providing more programming choices at a lower price (cost), multiple start times for the same movie (time), and superior video and sound using digital technology (quality).

Nonprofit organizations make the same types of distinctions. The Guggenheim Museum of Art in New York appeals to patrons and art lovers with an interest in contemporary art. The Metropolitan Museum of Art in New York has a wider range of art work and attracts different patrons and art lovers. Both compete on the quality of the museum visit experience and through the timely introduction of new exhibits.

Historically it was common for organizations to take a one-dimensional approach to strategy. For example, some business firms chose to compete by being low cost producers. Others chose to differentiate their product through quality or service. Still others focused exclusively on the timely introduction of innovative products or technologies. The Reel Tape story shows that today most organizations face stiff global competition. To keep

[2] Excerpted from Hughes Electronics Corporation Annual Report, 1995, p. 22.

Exhibit 1
The Strategic (QCT) Triangle



customers[3] satisfied and meet the demands of other resource providers, contemporary firms must compete ***simultaneously*** on three dimensions: quality, cost, and time. These three elements form a strategic triangle. Each one is quite broad.

- **Quality** is the total experience of a customer with a product. It includes the physical characteristics of a product, such as its *features,* and the reliability of *performance* of these features. Quality also includes service features such as after-sale support and service, and the performance level at which these services are performed by an organization.
- **Cost** includes the resources expended by producers and their support organizations such as suppliers and dealers. Production costs encompass the entire "value chain," that is, all parties from suppliers to after-sales service and disposers or recyclers that create value for customers. Cost also includes resources expended by customers. Customer's cost includes the cost of maintaining and disposing of a product. This is often called their "cost of ownership."
- **Time** means that existing products must be available when a customer needs them. Time also means that a firm develops products with new features or innovative technologies rapidly and takes these products to the market quickly. It also encompasses the time it takes to complete a cycle of activities such as start to end of production.

Exhibit 1 is a depiction of this strategic triangle. This triangle is critical in understanding how to design and evaluate management-accounting systems, and is used repeatedly when discussing specific management-accounting measures.

[3] The term *customer* is used in a generic sense. The customer may be another department or an outside buyer. Also the customer may be the public at large, as in the case of government agencies. An organization may have many classes of customers. A university's customers include students, alumni, employers, and taxpayers.

KEY POINT

Management accounting is not an end by itself. It is an important tool for achieving an organization's strategic goals.

The triangle in Exhibit 1 is simply a convenient way to capture the many elements of competitive strategy. While the basic elements of strategy have been in the literature for a long time, the use of a trilogy to represent them is recent. This triangle is very similar to one used by Arthur Andersen.[4] Robin Cooper uses a three-dimensional space represented by price (cost), quality, and functionality to represent competitive strategy.[5]

The three elements of the strategic triangle are relevant to all organizations: business, government, and not-for-profit. These organizations face the same demand for low cost, high quality, and timely delivery of product or services. For example, universities must provide a quality education at an affordable cost while offering classes when students need them.

Finally, note that the *specific* meaning of quality, cost, and time varies by the nature of an organization or product. For instance, quality in the case of a car means features (comfort of ride, safety, music system, etc.) and reliability (frequency of repairs). Quality in the case of education is harder to define. It may be general literacy, job skills, thinking ability, communication skills, and so on. Similarly, time for a manufacturer of semiconductors such as INTEL may mean being first to market on the next generation of microprocessors. For a company such as Federal Express, time means on-time delivery.

■ THE NATURE OF STRATEGIC MANAGEMENT ACCOUNTING

To have strategic value, management accounting must help accomplish the three strategic objectives of quality, cost, and time by providing information that:

1. Links the daily actions of managers to the strategic objectives of an organization.
2. Enables managers to effectively involve the entire extended enterprise of customers, suppliers, dealers, and recyclers in achieving the strategic objectives.
3. Takes a long-term view of organizational strategies and actions.

Linkage to daily actions.
Achieving strategic goals requires linking the daily actions of everyone in an organization to the larger strategic objectives. The Japanese refer to this as hoshin planning or "policy deployment."[6] The following story illustrates this concept of linkage.

> A computer equipment manufacturer in the Midwestern United States prided itself on communicating its strategies so that every employee at every level of the organization was aware of the company goals. Some skeptical outsiders visiting the plant decided to test this claim. They asked a janitor sweeping the factory loading dock how his job related to the goals of the company. The janitor replied as follows. "My company's goal is to reduce the cost of its

---

[4] See Steve Hronec. *Vital Signs: Using Quality, Cost and Time Performance Measures to Chart Your Company's Future,* Arthur Andersen & Co., 1993.

[5] Robin Cooper. *Cost Management in a Confrontation Strategy,* Harvard Business School Press, 1994.

[6] For a discussion of hoshin planning and strategy deployment in general, see S. Ansari, J. Bell, and J. Blumenthal. *Strategy Deployment In Organizations,* Research Monograph, Arlington, Texas, CAM-I, 1993.

products. A major cost for us is inventory. We recently shifted to just-in-time production to reduce inventory stocking cost. This means that our suppliers deliver products to us every two hours. If I do not clean this loading dock before the next load arrives, we are unable to accept delivery. This would set back the production schedule in the plant and increase the cost of production. We would also have the added cost of returning the materials to the supplier."

A key point of this story is that successful communication allowed the janitor to link his daily actions to the organization's strategy. It encouraged him to behave in ways that helped the company reach an important objective of reducing inventory. In addition, the linkage allowed the janitor to give meaning to his work. He was important to the accomplishment of a larger strategic objective!

Management accounting performs a similar function for individuals in an organization. It provides operational and higher management with the information that helps them do their job and achieve the quality, cost, and time objectives of the organization.

- Management accounting information helps managers achieve ***quality*** goals by measuring and reporting the resources used in preventing defects; the cost of reworking defective units; the cost of doing warranty repairs; lost sales from selling poor quality products; new investment needed for increasing product quality; and by determining whether the spending on quality is producing tangible financial benefits.
- Examples of information that helps managers attain the strategic objective of ***cost*** management include reporting resources consumed by the products produced during a period; measuring resources consumed by activities performed in a period; analyzing factors that drive or cause costs to be incurred; analyzing product profitability; analyzing suppliers' cost structures; and comparing (benchmarking) their cost against competitors' costs.
- Management accounting helps attain the strategic objective of ***time*** by measuring and reporting lost sales and profits from late product introductions; costs of delayed deliveries from suppliers; sales from new versus old products; response time to ship customer orders; and unused capacity available for new product introductions.

Exhibit 2 captures this interactive relationship between organizational strategies, management accounting, and the daily activities of individuals in the organization. The information flows in both directions.

Exhibit 2
Role of Management Accounting in Strategy Deployment

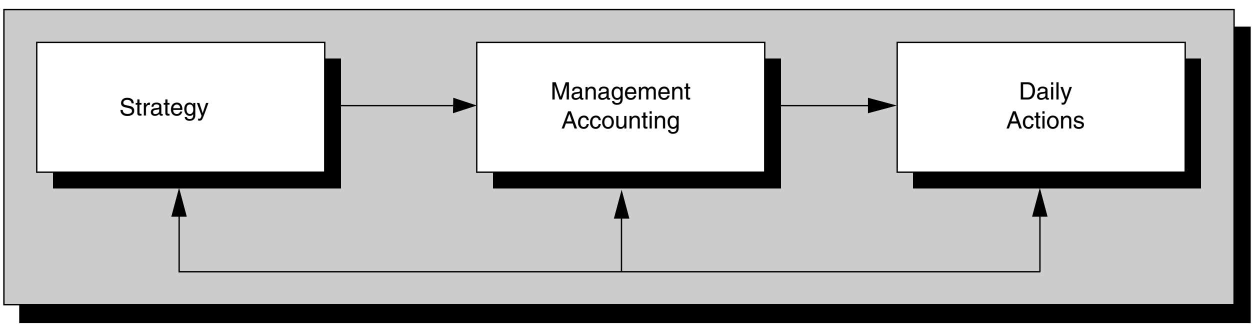
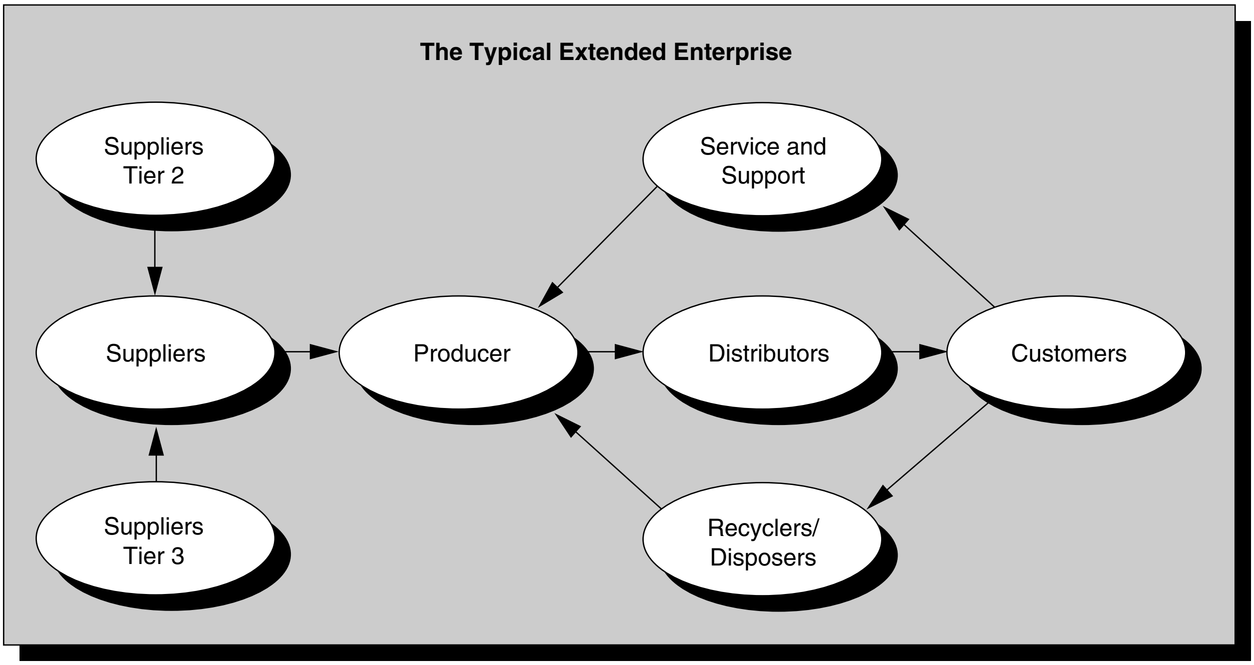


Exhibit 3
Value Chain or the Extended Enterprise



Extended enterprise.

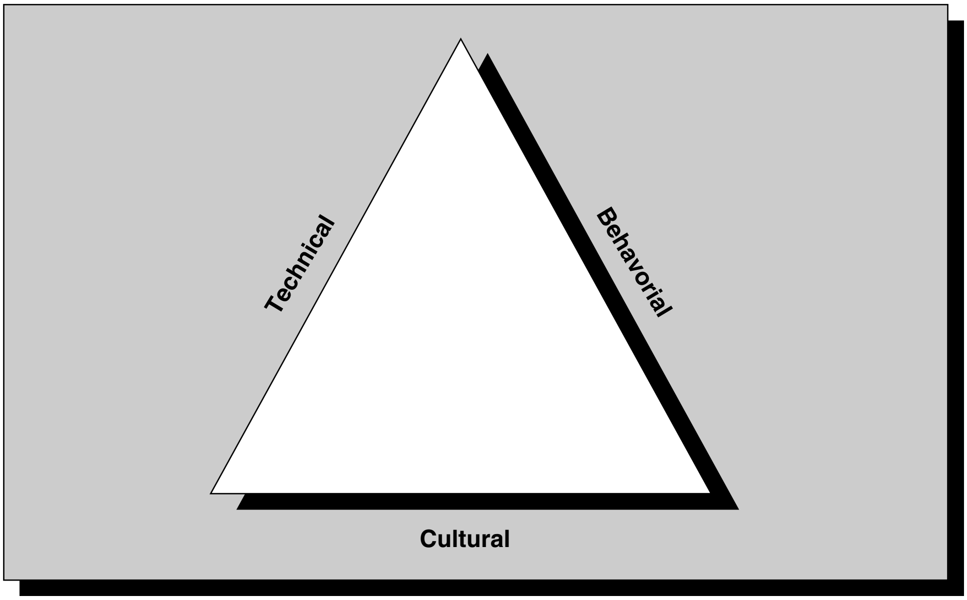
Most organizations are dependent on their suppliers, dealers, and recyclers to meet the quality, cost, and time requirements of their customers. These interdependencies are part of a firm's value chain and represent the extended enterprise that is involved in serving customers. Exhibit 3 shows the typical extended enterprise for a business firm.

Management accounting must help management focus beyond the legal organizational boundaries by providing pertinent information from or about the extended enterprise. Some examples of the type of management-accounting information needed about the extended enterprise are: customer expectations of features and price; percent distribution of cost between internal and external parties; impact of management's actions on suppliers' costs and margins; dealer's cost of marketing and servicing the product; dealer's data on customer perception of quality; and environmental disposal and recycling costs.

Long-term view.

Actions taken to reduce short-term costs may adversely affect the long-term interests of an organization. For example, using cheaper materials or environmentally unsafe materials may save in the short term, but create higher costs or poorer quality in the long term. A management-accounting system should provide information that makes the long-term impact of management decisions visible. A good example is measuring life-cycle costs, or the cost of owning a product over its life. In making its own product and choosing its suppliers, a firm needs to consider customers' operating, repair, maintenance, and disposal costs as well as their initial purchase cost.

Exhibit 4
Attributes of a Good Management-Accounting System—The (TBC) Triangle



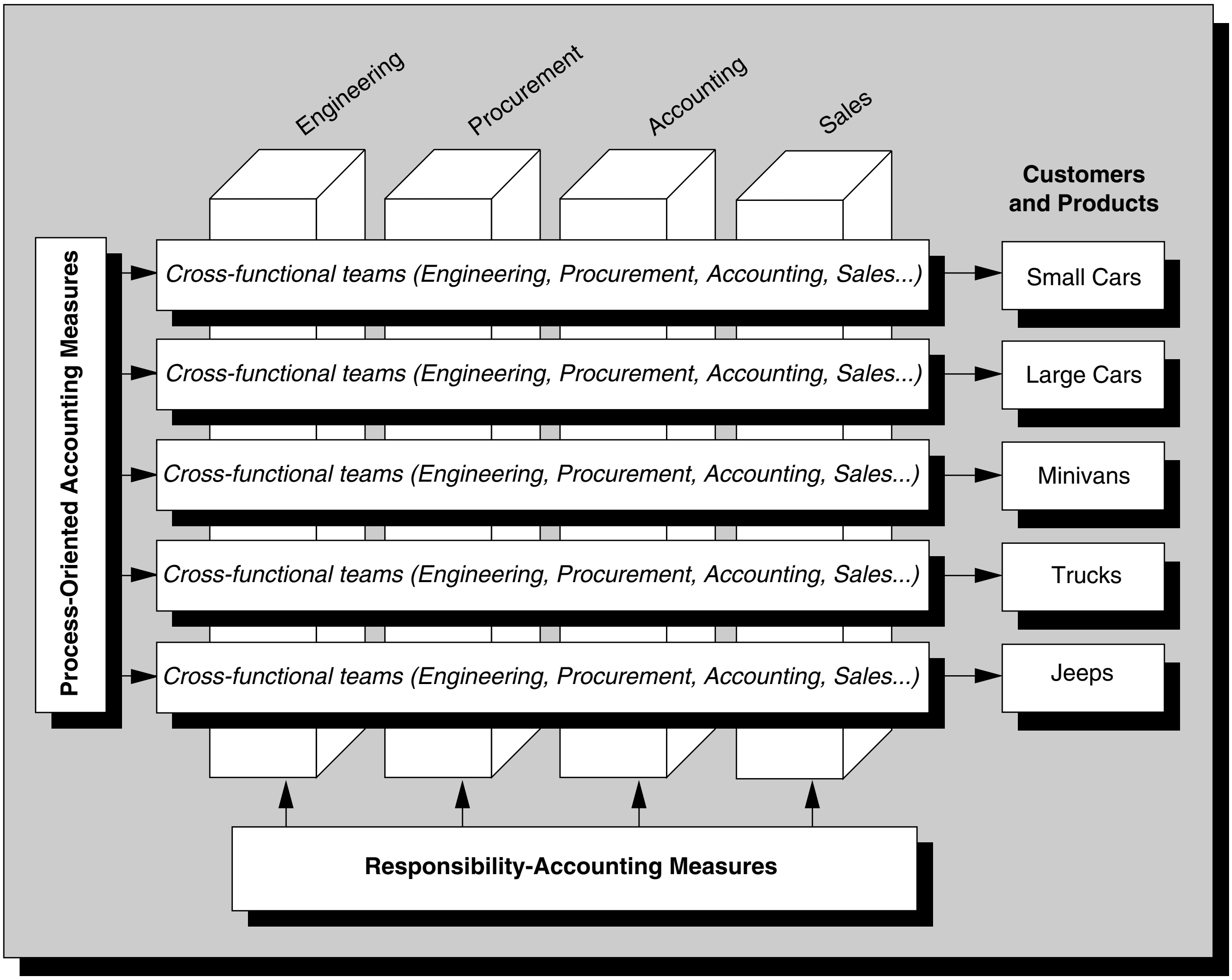
■ ATTRIBUTES OF A GOOD MANAGEMENT-ACCOUNTING SYSTEM

Our definition of management accounting emphasizes three key attributes of good management-accounting information: the technical, behavioral, and cultural attributes. These three attributes represent the attribute triangle shown in Exhibit 4. The attributes are explained in the following text.

Technical attributes refer to *the measurement-related qualities* desired in management-accounting information. All good measurements have two key technical properties: decision relevance and process understanding.

- *Decision relevance.* A measure is decision relevant if the information it provides changes and improves decisions. Further, the change should be positive, that is, it improves payoff from that decision. If management information is ignored or does not enter into management decisions, then it lacks decision relevance. For example, many accounting systems continue to collect and report detailed information about labor usage in a factory even after automation has made labor costs an insignificant proportion of total costs. That information is processed and stored, unused by anyone.
- *Process understanding.* Traditionally, management accounting was based on the principle of "responsibility-accounting" which focuses on measuring results and assigning them to individuals or organizational units. This reflects a philosophy of managing people and units. Today managers understand that results are a function of how work processes are organized. A work process is a connected set of tasks performed to produce products or services. Since work flows horizontally, that is, across organizational units, and a responsibility-accounting system measures

Exhibit 5
Responsibility- Versus Process-Focused Management Accounting



results by departments (vertically), the system does not provide the information needed to manage work. A process-oriented management accounting system is needed. Exhibit 5 uses Chrysler Corporation as an example to show the difference between responsibility-focused and process-focused management accounting.[7]

As Exhibit 5 shows, making cars requires specialists from various functional areas such as production, procurement, engineering, accounting, and sales to work together to meet customer needs. At Chrysler, the work teams are called “platform teams.” Each platform team includes people from all major functional areas. The team is responsible for a product family such as small cars, jeeps, and so on. They carry out all the work on the product from design, sourcing, manufacturing, sales, service, and support.

[7] Exhibit 5 shows only some of the many organizational units that are part of Chrysler’s platform teams. It is only to emphasize the cross-functional nature of work and not provide a complete work flow diagram for Chrysler.

A responsibility-accounting system measures the outputs and results of the specialized organizational units, such as engineering, purchasing, manufacturing, or sales. A good example of a responsibility-oriented measure is whether engineering has designed a car within the engineering design budget. A process-oriented accounting system measures the results of the platform teams and how their work processes satisfy customer needs. An example of a process-oriented accounting measure is whether a car design meets a customer's (price-cost) target.

KEY POINT

Responsibility-accounting systems focus on the goals of individual organizational units. Meeting these goals does not guarantee customer satisfaction. A process-oriented accounting system measures the outputs of cross-departmental work processes relative to customers' needs.

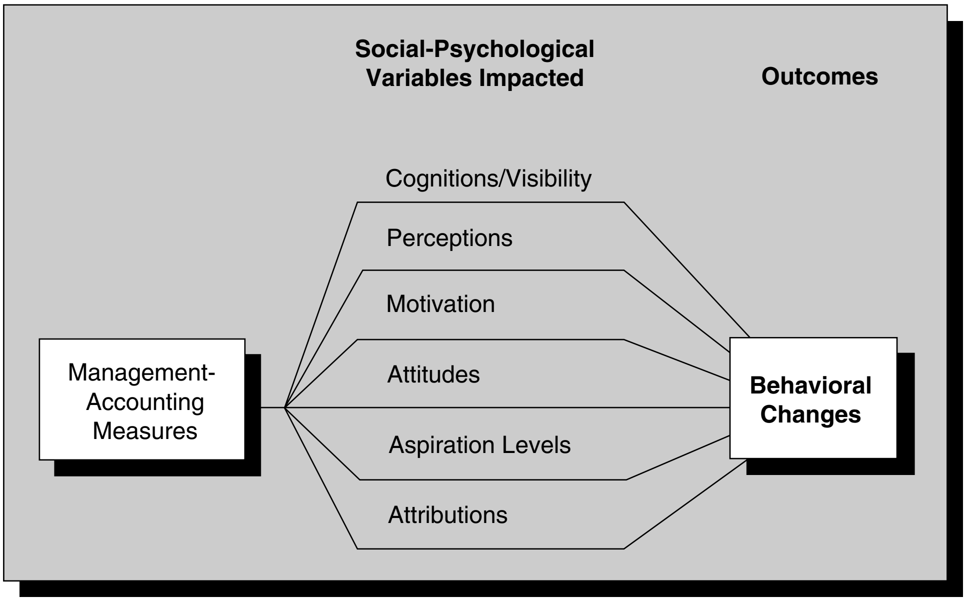
A good process-oriented management-accounting system helps managers to:

- Understand *causal relations.* For example, management accounting can aid in understanding what *drives* or *causes* costs or why there is unproductive or idle capacity.
- Identify *nonvalue-added* or *dysfunctional* activities. For example, management accounting assists work process redesign by identifying unsynchronized or redundant tasks or activities that do not address customer requirements.
- Comprehend *relationships* between the various parts of a value chain. For example, management-accounting information can show the impact of supplier or dealer actions on what a customer ultimately pays for a product.
- Isolate *process bottlenecks* inside or outside a firm. For example, management accounting can show what parts of a work process (machine or human) constrain the productivity of a system and result in customer dissatisfaction.

Behavioral attributes refer to the ways that measurements affect behavior. There are several ways in which management-accounting measures can impact the behavior of people in organizations. Management accounting:

- *Changes cognitions and alters perceptions* by making things visible. What is measured takes on an air of importance and precision. People attend to measures; they assign greater decision weight to measured items. For example, measuring environmental costs highlights their existence and makes them visible to decision makers.
- *Motivates* behavior. When items are measured, they also signal desired behaviors. People typically respond to these measures by changing behavior. Measuring the percent of deliveries made on time motivates purchasing agents to select suppliers who have good delivery records.
- Changes *attitudes* and *aspirations.* Measures, particularly evaluative, have a tendency to change attitudes and aspiration levels. For example, a time standard for performing a task establishes a target which employees expect to be able to achieve with reasonable effort. When they succeed, they may revise their aspiration level upward resulting in even better performance next time. When they fail, their aspirations and performance may be lower in the next period.
- Changes *attributions.* People have a tendency to attribute success to their decisions and actions while they attribute failure to environmental factors beyond

Exhibit 6
Behavioral Impact of Management Accounting



their control. Research shows that these causal attributions can be changed by management-accounting measures and ultimately can lead to changed behaviors as well.

Exhibit 6 summarizes how management accounting impacts the behavior of people in organizations by influencing several intervening social-psychological variables.

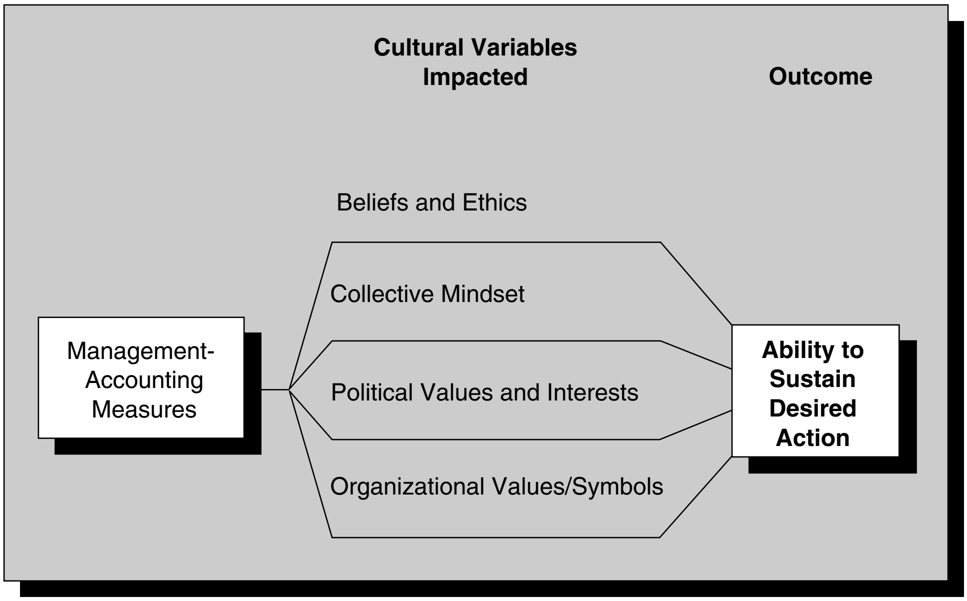
Cultural attributes refer to the beliefs, values, and mindsets imbedded in a measure. Management-accounting measures are symbols that reflect and support values, beliefs, and mindsets of members of an organizational or societal culture. These collectively shared beliefs guide the behavior of people at the *subconscious* level. The resulting behaviors are easier to sustain because they are not driven by the threat of punishment or the lure of rewards, but because people believe in them.

Values are used to interpret the meaning of accounting measures. If these measures are consistent with the beliefs, values, and symbols important to the groups people belong to—family, firm, community, ethnic group, or country—then it is likely these measures will be acceptable as a basis for action. For example, if individuals believe that meeting budgets reflects that they are disciplined, hard-working, and responsible, then they will try very hard to achieve the budget.

Accounting measures can signify *different* cultural dimensions. Four important ones are:

- *Beliefs and ethical values* are used to interpret and decide whether an action is worthwhile. Fiscal prudence is a strongly held belief in many cultures. Honesty and integrity are ethical values in most societies. Measures that support these beliefs and values are likely to provide a better base for action than those that conflict with beliefs and ethical values.
- *Mindsets* represent the collective worldview that dominates the thinking of a group, culture, or society. Measures that are at odds with the collective mindset are not accepted. The use of financial measures of quality are likely to be

Exhibit 7
Cultural Impact of Management Accounting



unacceptable in a hospital that has a collective mindset that quality health care cannot be measured.

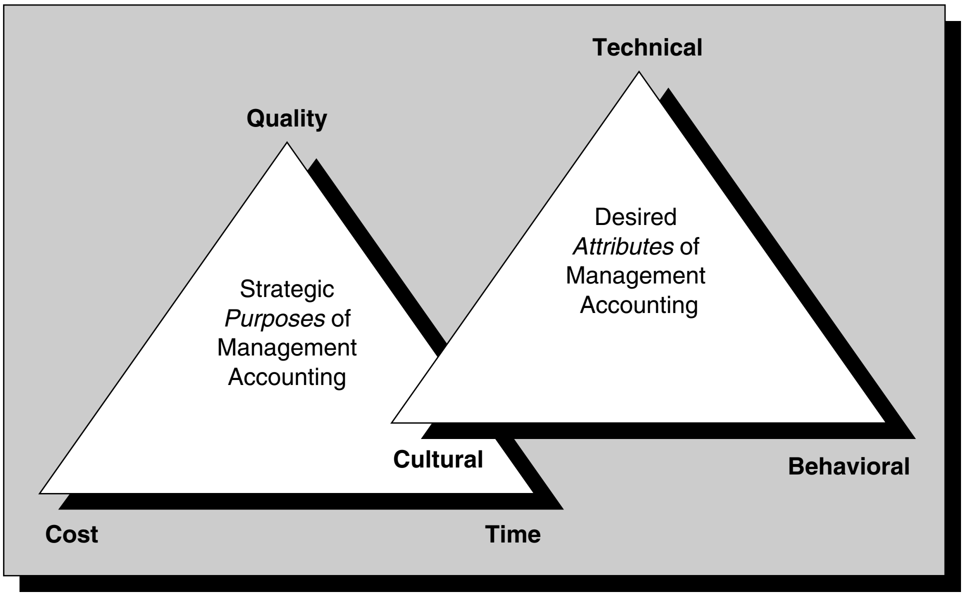
- *Political values* are a special type of cultural values. These deal with values that impact resource distribution or other interests of groups in society. For example, measures such as cost per patient or cost per student reflect a political value of efficiency and influence the amount of resources available to a hospital or a university. When measures violate the political values and interests of certain groups, resistance will be generated.
- *Organizational values* are another special case of cultural values. These reflect the image and focus of a particular organization. An organization whose culture is built around tradition, stability, and formal authority is less likely to accept accounting measures that promote change and egalitarian work processes.

Exhibit 7 shows the cultural variables impacted by management-accounting measures and how this affects the ability to sustain desired action by an organization.

USING THE TRIANGLES TO EVALUATE MANAGEMENT-ACCOUNTING METHODS

How are the strategic and attribute triangles used to evaluate alternative management-accounting methods, measures, and systems? The two triangles are intimately linked together. The strategic triangle focuses on what is important for organizational success. The attribute triangle pinpoints properties needed in management-accounting information to attain strategic goals. The strategic triangle provides a concrete way to define the technical, behavioral, and cultural attributes of accounting information. The two triangles,

Exhibit 8
The Mutual Dependence Between the Strategic and Attribute Triangles



therefore, are mutually reinforcing and dependent upon each other. This mutual dependence between the two triangles is depicted in Exhibit 8. It is used to examine and explain specific management-accounting topics in the other modules.

This mutual dependence can be illustrated in several ways. The attribute triangle shows that management-accounting information should have the technical properties of decision relevance and process understanding.

Consider some typical information and measures provided by management-accounting systems:

- Costs to produce products.
- Resources used by activities.
- Deviations between budgeted and actual cost for factory rent.
- Sharing (allocation) of common costs between products.
- Costs of using a distribution channel.
- Profitability by customers.
- Lost sales from lost customers.
- Production cycle time (time from start to finish) for products.
- Fines from improper material handling.

THINK ALONG

Are these measures decision-relevant? Why?

The strategic triangle defines decision relevance as the ability of a method to provide information about the way costs, quality, or time variables are managed. The decision relevance of the items listed above can be evaluated by simply asking:

- How does this management-accounting method, measure or information help to manage cost, quality, and time?

If a management-accounting information or method of the type listed above helps manage cost, improve quality, or reduce time, it has decision relevance. Otherwise it does not. Use this question to test the decision relevance of the techniques discussed in subsequent modules.

The same thing holds for process understanding. A measure provides process understanding if it clarifies the drivers, causes, relationships, and activities that create cost and value for customers. A management-accounting system or method is process-oriented if it can address questions such as:

- What causes or drives costs to be incurred?
- What causes defects? How can sources of defects be eliminated?
- What actions or decisions cause budget variances?
- Why is there unused capacity? What can be done to reduce this cost?
- What actions increase time to market?

The QCT triangle also helps define the type of behaviors desired. As the behavioral effects of management-accounting measures are examined, think about how the measures make items visible or impact motivations, aspiration levels, and attitudes relative to QCT goals. Here are some examples:

- Do methods for measuring cost of quality help focus attention on quality?
- Does rewarding employees for purchasing at the lowest cost motivate them to purchase poor quality materials?
- How does budget achievement impact aspiration levels and future budget achievement?
- How will the use of activity-based costing impact the cost reduction and quality improvement attitudes of employees?

The QCT triangle also allows culture to be dealt with in a concrete way. It questions whether the values, symbols, beliefs, ethics, and political values imbedded in a management-accounting system create a long-term base for sustained action that helps to improve quality, reduce cost, and decrease time. Here are some examples:

- Are cost allocations using “ability to pay” fair?
- Does the term “nonvalue-added activity” used in activity-based costing violate beliefs of workers about the importance of work?
- Are methods that create pressure to meet budgets ethical?
- How would the use of life-cycle cost impact the interests of industries that produce toxic waste?
- Should a measurement method be changed to support or rationalize a decision made by a manager?

Taken together, the two triangles provide a powerful basis for evaluating alternative management-accounting methods and for choosing between them in different circumstances. They avoid doing accounting for its own sake.

■ LESSONS LEARNED

- The purpose of management accounting is to help an organization meet its strategic goals of providing high-quality products or services at a low cost at the right time. This is the strategic QCT triangle.
- This strategic focus differs from traditional responsibility accounting by providing information which:
  - Links daily actions of employees to strategic objectives.
  - Involves the entire extended enterprise in achieving these objectives.
  - Focuses attention on the long-term strategic implications of management decisions.
- Management-accounting information has three attributes—technical, behavioral, and cultural. This is called the TBC attribute triangle. Good management-accounting information guides decisions, provides process understanding, motivates proper behaviors, and reflects the values and beliefs that are important to an organization and to society.
- The two triangles are mutually dependent. The QCT triangle provides a concrete framework for the attribute triangle and provides criteria by which to evaluate and choose between alternative management-accounting measures, methods, and systems.

■ PROBLEMS AND CASES—INTRODUCTORY LEVEL

1. Self-test questions.

a. Explain how the definition of management accounting in the module differs from the definition used by the Institute of Management Accounting.

b. An implication of the definition of management accounting used in the module is that employees know the purpose of the organization. What steps would you suggest a firm take if employees do not have a good understanding of an organization's purpose?

c. List several reasons it is important that every individual in the organization be able to link his or her job to the organization's strategic objectives.

d. Wal-Mart advertises "always low prices." Is this inconsistent with the module idea that a firm must compete on quality, cost, and time? Explain.

e. Explain the difference between measuring costs and understanding what drives or causes costs.

f. Kodak manufactures film for the consumer market. Identify specific elements of Kodak's value chain.

g. Think about purchases you have made. Give a specific example of a purchase you made where the low purchase price was offset by a very expensive life cycle cost. Would a product with a higher initial purchase price been less expensive over the life of the product?

h. Accounting has traditionally been about financial information, such as cost. Assume you are an accountant for a local plumber. Explain to the owner why you should be concerned about (i) quality and (ii) time.

2. The Reel Tape story that opens this module describes a successful company that failed. After reading this story one of your friends asks you to explain how this could happen.

a. Prepare a list of five (or more) factors that you believe were significant contributing factors in Reel Tape's failure. Use what you learned from reading the module and your general knowledge of business to develop this list.

b. Be prepared to discuss why you included each item on your list.

3. Provide a specific example (from the customer perspective) of why (i) quality, (ii) cost, and (iii) time matter to:

a. A government entity

b. A nonprofit charity

c. An educational institution

d. A small business

4. Provide two specific examples of (i) financial measures and (ii) nonfinancial measures the following organizations would use:

a. A fire department

b. The YMCA

c. The athletic department of a university

d. A local shoe store

5. Measurements affect how people behave. For a person working in the jobs listed below, provide a specific example of a financial or nonfinancial measure that would (i) focus attention, (ii) motivate behavior, and (iii) change attitudes and aspirations.

a. An automobile mechanic
b. A grocery checkout clerk
c. A restaurant manager

6. Review the story of how the janitor at the computer equipment company tied his job to the company's strategic objectives. Use your current job (or your most recent job if you are not currently working) to answer the following questions.

a. Try and explain, in a manner similar to the janitor, how your job links to the strategic objectives of your organization and why it is performed.
b. If you are unable to make this linkage, identify what additional information you would need before you could make the linkage.

7. For each of the products listed below indicate two of the most obvious examples of (i) quality, (ii) cost, and (iii) time.

a. A breakfast buffet
b. An airplane flight
c. An automobile replacement tire
d. A commercial bookstore that emphasizes hard cover, new edition sales
e. A used car dealership

8. Measurements may have several attributes. For each of the following indicate whether the primary attribute of this measurement is (i) technical, (ii) behavioral, or (iii) cultural. Explain your reasoning.

a. A large sign in a department store reading "this rack 50 percent off."
b. A banner noting a month without a lost-time accident.
c. A computer model that allows the sales force to quickly determine the cost of a feature requested by a customer.

9. Large camera manufacturers such as Kodak and Olympus have operations in many countries of the world. Can you think of some specific ways in which the cultural differences across countries might influence the type of management accounting data collected, reported, or used by management?

10. L.L. Bean is a well-known manufacturer of outdoor equipment and clothing that has employees test clothes and equipment such as tents and sleeping bags in actual environments. L.L. Bean ensures quality with a 100 percent money-back guarantee.

a. Explain how L.L. Bean is likely to compete on the basis of (i) quality, (ii) cost, and (iii) time.
b. Provide a specific example of a measurement that L.L. Bean would probably want available about quality. Explain the technical, behavioral, and cultural attributes of this measure that help L.L. Bean meet its quality strategy.

■ PROBLEMS AND CASES—ADVANCED LEVEL

11. Listed below are items of information produced by the management-accounting system of a major bank's branch:

i. Cost of processing a loan application
ii. Total deposits
iii. Ratio of loans to deposits
iv. Cost of linking customers so they can do "home banking"
v. Bad or unrecoverable loans purchased from other mortgage companies
vi. Time taken to process a loan application

a. Explain the decision relevance of each item. Which of these items also helps you understand work processes aimed at customer satisfaction?
b. How might each measure impact the behavior of customers or the bank's employees?
c. What symbols might each information item convey to customers, employees, or society in general? (Think about the beliefs, values, or mindsets embedded in each measure.)

12. Visit a local business of reasonable size. Try to talk with an accountant and an executive in another functional area such as production or marketing.

a. Diagram specific elements of its value chain.
b. Discuss the role of management accounting in this company with several employees.

13. The purchasing manager of a local university ordered 100 personal computers (PC) for faculty offices from a new supplier because each PC was $300 cheaper than the other leading brands. One reason is that this brand uses a cheaper hard disk drive and a lower quality video card. The internal auditor of the university, who has extensive training in modern management accounting, has just sent the purchasing manager a note suggesting that purchasing reconsider practices that were costly for the university. He cited the PC purchase as an example of costly practices. The purchasing manager is confused and has asked you to explain the internal auditor's comments.

a. Discuss some reasons why the internal auditor may believe the new PCs may be costly for the university.
b. Assume the auditor is correct. Why would the existing accounting system not show this higher cost?

14. Collect examples of the strategic purpose of one local organization in each of these categories.

a. Small business
b. Local charity
c. Government agency

15. Identify two competing firms that are well-known in your area. (Your professor may provide you with a list of possible firms.)

a. Explain how each firm positions itself strategically in the market.
b. Illustrate how the firm you selected distinguishes itself from the named competitor.

16. Assume you own a 5-acre blueberry farm. Blueberries ripen over a period of weeks and must be picked as they reach the proper blue color. Traditionally, blueberries have been picked by hand, usually with migrant labor. Laborers are currently paid $.10 a pint. In a typical year it is necessary to pick the same bush four or five times to get 90 percent of the potential crop. Each time the field is picked it takes approximately three 12-hour days. An acre of blueberries will typically yield between 10 and 15 thousand pints if 90 percent of the crop is picked. Three supervisors must be available throughout each day of picking to log in picked berries, help with basic sorting, and keep track of equipment. Each of these individuals receives $8 an hour. More recently a blueberry patch owner has had the option of having the field machine picked. This process will typically allow the owner to harvest 60 percent of the crop if the mechanical picker is used twice. A third pass will raise the yield to 75 percent. Rental on the picking machine is $2,400 for each use. One supervisor at $8 an hour is needed for the 8 hours it takes to pick the berries mechanically.

a. How does the cost to pick blueberries differ if you use the machine instead of hand picking the berries? List the assumptions you are making and show computations.
b. Is quality an issue in your decision of how to pick? If yes, why? If no, why not?
c. How is time likely to be a factor in your decision about whether to pick mechanically or by hand?
d. What other factors would influence your decision about how to pick the blueberries? Explain.
e. How would you choose to get the crop picked? Why?
f. List the type of management accounting information you would collect for the hand picking operation. Explain why you chose this information using the technical, behavioral, and cultural attribute triangle.
g. Explain how the accounting information for a mechanical picking operation would differ from the hand picking one.

17. Choose a car manufacturer, or compare several different manufacturers, and answer the following questions:

a. Explain how the manufacturer competes on the basis of (i) quality, (ii) cost, and (iii) time.
b. Provide a specific example of a measurement that the car manufacturer (or the dealer) would probably want available about (i) quality, (ii) cost, and (iii) time. Explain the technical, behavioral, and cultural attributes of this measure that helps the manufacturer or dealer meet their strategies in each area of (i) quality, (ii) cost, and (iii) time.

18. The following quotation is taken from a paper reporting the results of a cross-cultural study by Professors Birnberg and Snodgrass on the differences in control systems in the United States and Japan.[8]

> " . . . the presence of a culture which is homogeneous and possesses the critical dimension of cooperation would lead to less emphasis being placed on the 'enforcing' of management's

---

[8] Jacob G. Birnberg and C. Snodgrass. "Culture and Control: A Field Study," *Accounting Organizations and Society,* Vol. 13, No. 5, 1988, pp. 447–464.

wishes. In turn, greater emphasis and resources can be spent on communicating across organizational levels and directing information to the proper individual or work group."

a. Can you think of some examples of how management-accounting data can be used to enforce management's wishes?
b. For the examples in part a above, how might the same information be used to enhance communication between organization levels?
c. What role does culture play in these different uses of management-accounting data?

Case 1: Vincent's Cappuccino Express.[9]

Three years ago, Vincent Chow completed his degree in accounting from a California university. The economy was in a depressed state at that time, and Vincent managed to get an offer of only $20,000 per year as a bookkeeper. In addition to its relatively low pay, this job had limited advancement potential.

Since Vincent was an enterprising and ambitious young man, he declined this offer and started a business of his own. He was convinced that because of changing lifestyles, a drive-through coffee establishment would be profitable. He was able to obtain backing from his parents to open such an establishment in the center courtyard of a major office complex. The office complex had several large buildings and was located in the inland valley where temperatures in the summer can reach 100° plus in the summer time. Vincent named his business The Cappuccino Express and initially decided to sell only two types of coffee: cappuccino and decaffeinated.

As Vincent had expected, The Cappuccino Express was very well received. Within a year he had done well enough to think about opening another location in an office complex north of the town. However, several problems had surfaced during the first year of operations. First, his sales were primarily during the morning period. He did little the rest of the day. Summer months were even slower. Due to the heat, coffee demand was lower. His customers also wanted snacks to go with coffee.

Vincent decided that he needed to hire site managers so he could better focus his own attention on strategic issues. He hired an assistant to do record keeping and other administrative tasks.

a. What factors can be expected to have a major impact on the future success of The Cappuccino Express? Classify these factors in the categories of quality, cost, and time.
b. Describe the work process relationships that are important for satisfying the customers of The Cappuccino Express.
c. What are the major decisions that Vincent must make in order to grow and manage his business? What management-accounting data does he need to improve these decisions?
d. What behaviors does Vincent need from his employees? How can management accounting help him to foster these behaviors?
e. What values or mindsets does Vincent need to create in his growing organization to sustain the behaviors he needs? How can management accounting help to sustain these values?

---

[9] This case has been adapted by permission from the original case that was published in *Issues in Accounting Education*, Vol. 10, No. 1, Spring, 1995. We thank Professor Chee Chow for allowing the original case to be changed into the present version.