# 1 Differing Perspectives on Quality

## CHAPTER OBJECTIVES

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

1. Recognize and discuss different dimensions of quality for both products and services.
2. Communicate different functional perspectives on quality.
3. Understand why it is important to know that the different perspectives exist.
4. Define a quality system using the three spheres of quality control, assurance, and management.
5. Understand how the three spheres complement each other.
6. Consider different employment paths using quality management principles and tools.
7. Understand the value-added perspective on quality.
8. Discuss differing cultural perspectives on quality.



Quality management involves flows. There are process flows, information flows, material flows, and flows of funds. Each of these flows has to operate effectively, efficiently, and with outstanding quality. Like a river, we refer to these as upstream and downstream flows. The sums of these flows comprise the supply chain.

Considering the **supply chain** causes us to think about quality differently. One of the problems with quality efforts has been that they tend to be too internally oriented. The supply chain causes us to expand our vision as we *externalize* processes that had previously been *internalized.* They include **upstream** processes relating to our dealing with suppliers—negotiating, selecting, and improving supplier performance—and **downstream** processes—delivering products and services and serving customers.

The supply chain encompasses many differing functions and processes. It includes all the core activities from the raw materials stage to after-sale service. To execute all of these processes correctly involves integrating differing functions, expertise, and dimensions of quality. This need for integration increases the requirement for flexible, cross-functional problem solving and employees who can adapt to rapidly changing markets.

There are many different definitions and dimensions of quality in the supply chain. We present several of these definitions and dimensions in this chapter. For the present, you can view quality as a measure of goodness that is inherent to a product or service. Employees working for the same firm often view quality differently. Think of the different functions involved in creating products and services. They include design engineering, marketing, operations, cost accounting, financial management, and others throughout the supply chain. A product design engineer might feel that customer satisfaction is mostly influenced by product design and product attributes, and take great pains to design a product that satisfies the customer. However, the product also needs to satisfy marketing's need for quick design cycle times and accounting's need for low-cost products. So perceptions differ on a variety of levels, including what our goals for the product or service are. A Closer Look at Quality 1-1 illustrates this point by comparing Asian perceptions concerning apparel purchases.

## A CLOSER LOOK AT QUALITY 1-1 Buying Clothing in Asia

One of the benefits of the global supply chain has been the opening of markets in places such as China and India. A recent study by PwC[1] shows that Asian preferences for apparel among affluent shoppers are very different from the United States and Europe. It is fair to say that wealthy Asian shoppers are addicted to luxury-brand products. Affluent Asian shoppers are four times more likely to pay high prices for luxury brands such as Gucci, Prada, and Hermes than US and European consumers. Why is this true? In Asian cultures, these name-brand products signal a shopper's wealth or social status. Affluent Asians crave conspicuous consumption.

In developing Asia, product quality and guaranteed authenticity are more important than price. In developed countries, price is considered a much more important purchase criterion. In developing countries, upward mobility is a newer reality, and luxury products are seen as a method for moving up the social ladder and tapping into the newest fashions. Asians are twice as likely as developed country people to use the Internet and social media to identify which brands are currently the hottest.

As a result, retailers moving into Asian countries can maximize their success by building brand equity, using web-based brand advocates, and tapping celebrities to advertise their products. Using social media in this way can influence perceptions of quality in these rapidly growing markets by following influencers.

Perceptions affect every aspect of our world—including the business world. To communicate effectively about quality, managers need to recognize that differences in perceptions of quality exist. Although this observation may not seem too startling, many managers have strong opinions about what quality is. Sometimes these opinions can be at variance with the beliefs of the majority of their customers, which may hurt the competitiveness of a firm. For that reason, in this chapter we study quality from a variety of perspectives. Later we provide a means for recognizing and resolving differences in perception. Finally, we introduce the contingency view of quality management that we emphasize throughout this book.

[1] Based on Bu, L., Dmaud-Serroingt, D., Kim, A., and Yamabaua, N., "*Chinese Luxury Consumers: More Global, More Demanding, Still Spending*," McKinsey and Company, Tokyo Office, August 2017.

# What Is Quality?

If you ask 10 people to define quality, you will probably get 10 different definitions.

## Product Quality Dimensions

There are several definitions of quality, or **quality dimensions.** One of the most respected collections of quality dimensions was compiled by David Garvin[2] of the Harvard Business School (see Table 1-1).

Garvin developed a list of eight quality dimensions (see Table 1-1). These dimensions describe product quality specifically in the following paragraphs.

**Performance** refers to the efficiency with which a product achieves its intended purpose. This might be the return on a mutual fund investment, the distance an electric automobile can travel on a single charge, or the acoustic range of a pair of stereo speakers. Better performance is usually synonymous with better quality.

**Features** are attributes of a product that supplement the product's basic performance. They include many of the "bells and whistles" contained in products. A visit to any television or computer retail store will reveal that features such as surround sound, HDTV capability, 3-D, and size are powerful marketing tools for which customers will pay a premium. A full-line television retail store may carry televisions priced from $200 to $12,000. This range represents a 6000% price premium for additional features!

**Reliability** refers to the propensity for a product to perform consistently over its useful design life. A subfield in quality management has emerged, called *reliability management,* based on the application of probability theory to quality. A product is considered reliable if the chance that it will fail during its designed life is very low. For example, if a refrigerator has a 2% chance of failure in a useful life of 10 years, we say that it is 98% reliable.

**Conformance** is perhaps the most traditional dimension of quality. When a product is designed, certain numeric dimensions for the product's performance are established, such as capacity, speed, size, durability, or the like. These numeric product dimensions are referred to as *specifications.* The number of ounces of pulp allowed in a half-gallon container of "pulp-free" orange juice is one example. Specifications typically are allowed to vary a small amount called *tolerance.* If a particular dimension of a product is within the allowable range of tolerance of the specification, it conforms.

**Table 1-1 Product Quality Dimensions**

| |
|---|
| Performance |
| Features |
| Reliability |
| Conformance |
| Durability |
| Serviceability |
| Aesthetics |
| Perceived quality |

*Source:* © 1984 from MIT Sloan Management Review/ Massachusetts Institute of Technology.

[2] Garvin, D., "What Does 'Product Quality' Really Mean?" *Sloan Management Review* (Fall 1984): 25–43.

The advantage of the conformance definition of quality for products is that it is easily quantified. However, it is often difficult for a service to conform to numeric specifications. For example, imagine trying to measure the quality of a counselor's work versus that of a carmaker. Because counseling is intangible, it is very difficult to measure.

**Durability** is the degree to which a product tolerates stress or trauma without failing. An example of a product that is not very durable is a lightbulb. Lightbulbs can be damaged easily and cannot be repaired. In contrast, a trash can is a very durable product that can be subjected to much wear and tear.

**Serviceability** is the ease of repair for a product. A product is very serviceable if it can be repaired easily and cheaply. Many products require service by a technician, such as the technician who repairs your personal computer. If this service is rapid, courteous, easy to acquire, and competent, the product generally is considered to have good serviceability. Note that different dimensions of quality are not mutually exclusive.

**Aesthetics** are subjective sensory characteristics such as taste, feel, sound, look, and smell. Although vinyl interiors in automobiles require less maintenance, are less expensive, and are more durable, leather interiors are usually considered more aesthetically pleasing. We measure aesthetic quality as the degree to which product attributes are matched to consumer preferences.

**Perceived quality** is based on customer opinion. As we said in the beginning of this chapter, quality is as the customer perceives it. Customers imbue products and services with their understanding of their goodness. This is perceived quality. We can witness an example of the effect of perceived quality every year in college football polls that rank teams. In many cases, the rankings are based on past records, team recognition, university tradition, and other factors that are generally poor indicators of team quality on a given Saturday. In the same way that these factors affect sportswriters' perceptions, factors such as brand image, brand recognition, amount of advertising, and word of mouth can affect consumers' perceptions of quality.

The Garvin list of quality dimensions, although it is the most widely cited and used, is not exhaustive. Other authors have proposed lists of additional quality measures, such as safety. Carol King[3] identified dimensions of service quality such as *responsiveness, competence, access, courtesy, communication, credibility, security,* and *understanding.* Allowed time, you probably could think of additional dimensions as well.

## Service Quality Dimensions

Service quality is even more difficult to define than product quality. Although services and production share many attributes, services have more diverse quality attributes than products. This often results from wide variation created by high customer involvement. For example, the consumer of a fountain pen probably will not care that the factory worker producing the pen was in a foul mood (as long as the quality of the pen is good). However, excellent food served in a restaurant generally will not suffice if the server is in a foul mood. In addition, a consumer probably will not consider a pen poor quality if he or she is in a bad mood when using the pen. However, food and service in a restaurant could be excellent and still be perceived poorly if the patron is feeling bad.

Parasuraman, Zeithamel, and Berry (PZ&B), three marketing professors, published a widely recognized set of service quality dimensions. These dimensions have been used in many service firms to measure quality performance. The PZ&B dimensions are defined here (see Table 1-2).

**Tangibles** include the physical appearance of the service facility, the equipment, the personnel, and the communication materials. For example, a hotel with yellowed linens will be rated low for quality. Hair salons catering to an elite clientele might invest in ambient lighting and

[3] King, C., "A Framework for a Service Quality Assurance System," *Quality Progress* 20, no. 9 (1987): 27–32.

**Table 1-2 PZ&B's Service Quality Dimensions**

| |
|---|
| Tangibles |
| Service reliability |
| Responsiveness |
| Assurance |
| Empathy |

*Adapted from Parasuraman, A., Zeithamel, V., and Berry, L., "A Conceptual Model of Service Quality" (Report No. 84–106). Copyright © 1984 by Marketing Science Institute. Reprinted by permission.*

employ only well-dressed hairstylists. That the hairstylist is dressed well does not affect the service being provided; however, clients believe that their hair will be better styled by someone who is dressed stylishly.

**Service reliability** differs from product reliability in that it relates to the ability of the service provider to perform the promised service dependably and accurately. For example, a firm might hire a consultant based on reputation alone. If the consultant delivers what the customer wants, the customer will be satisfied and pay the consultancy fee. If the consultant delivers something other than what the customer expects, the customer will not pay the consultancy fee.

**Responsiveness** is the willingness of the service provider to be helpful and prompt in providing service. When you last called your bank for service, how long did it take for a response? Were your problems taken care of quickly, or did you have to wait while you listened to "elevator music" for an hour? Does your service provider always respond to you within three rings of the phone—without forwarding your call to another location?

**Assurance** refers to the knowledge and courtesy of employees and their ability to inspire trust and confidence. If you needed heart surgery, you probably would not opt for a doctor who appeared forgetful and disorganized during an office consultation. Rather, you would want assurance that the doctor is competent.

Finally, consumers of services desire **empathy** from the service provider. In other words, the customer desires caring, individualized attention from the service firm. A maxim in the restaurant industry is that "if you are in it for the money, you probably won't survive." A restaurant in which the employees are constantly focused on efficiency will not give the customers the feeling that their needs are important. Therefore, no empathy will be shared, and restaurant employees will not adequately provide service that will make customers want to return again and again.

Just as there are many quality dimensions relating to production, there are several other dimensions of service quality, such as *availability, professionalism, timeliness, completeness*, and *pleasantness.* Note that service design strives to address these different service dimensions simultaneously. It is not sufficient for a services firm to provide only empathy if responsiveness and service reliability are inadequate.

## Why Does It Matter That Different Definitions of Quality Exist?

One problem with having multiple dimensions of quality is communication. It is difficult to devise a coherent strategic plan relating to quality when communication is imprecise. One important attribute of a strategic plan is functional alignment or consistency. If different departments in a company understand quality differently, the strategic plan will not be in alignment. Understanding that different definitions and dimensions of quality exist allows measures to be taken

to provide a good basis for communication and planning. By sharing a common definition of quality, each department within a company can work toward a common goal. In addition, understanding the multiple dimensions of quality desired by consumers can lead to improved product and service design. Hewlett-Packard Corporation, a producer of laser printers, understands this concept very well. Early in its quality journey, Hewlett-Packard developed products that consistently conformed to specifications. This involved years of product design, process control, and process improvement. Once the printers conformed to specifications, the company emphasized reliability. After the printers were found to be reliable, the company was able to improve the aesthetics of its printers. After years of working on these different quality dimensions, Hewlett-Packard embarked on a "customer one-on-one" program that emphasized customer interaction with production workers. In this program, Hewlett-Packard production workers take time to call customers on the phone to assess and improve the "relationship" that the customer has with a printer.

## Differing Functional Perspectives on Quality

One of the important determinants of how we perceive quality is the functional role we fulfill organizationally. Just as artists and scientists process information differently, so do employees who perform different functions in an organization.

Differences between artists and scientists are only one instance of different perspectives created by functional differences. Accountants are interested in information for accounting and tax purposes, operations people want information for process control and scheduling, finance people need information to manage cash, and marketing needs information to see whether sales quotas are being met.

The **organic view of the organization**[4] sees the whole as the sum of different parts uniting to achieve an end. The heart and the liver do not perform the same function in a body, but they each perform processes that are necessary for survival of the whole. Just as the body is subject to breakdown when different parts do not perform properly, so are organizations. Unfortunately, firms do not have the magnificent communication network (i.e., the central nervous system) to coordinate activities that human bodies have. For this reason, firms must constantly improve their communication. Recognizing fundamental differences between how different functions view quality is an important first step in understanding and resolving problems associated with mismatches of quality perceptions within organizations.

As organizational processes become more cross-functional, many of these communications issues will find resolution. However, experience with cross-functional teams has been difficult for many firms because of poor communication skills among team members. Therefore, it is expected that cognitive differences between different functions will continue to be a major problem that firms must overcome.

This section of the chapter views quality management from the perspectives of several different functions. Many of the topics discussed in this chapter are presented in concept only. More in-depth discussions of these topics appear in later chapters. This chapter is designed to lay out the field of quality management from an interdisciplinary, integrative perspective. As you gain greater understanding of functional perspectives, you can increase your ability to interact with and manage people and resources across multiple functions—a highly sought-after skill by many organizations. The functions discussed here include supply chain management, engineering, operations, strategic management, marketing, finance/accounting, and human resources.

[4] Foster, S. T., Howard, L., and Shannon, P., "The Role of Quality Tools in Improving Satisfaction with Government," *Quality Management Journal* 9, no. 3 (2002): 20–31.

## A Supply Chain Perspective

Supply chain management grew out of the concept of the value chain, which includes **inbound logistics, core processes,** and **outbound logistics**. Other functions, such as human resources, information systems, and purchasing, support these core processes. Operations, purchasing, logistics, and marketing are the primary participants in the supply chain. In recent years, supply chain management has moved to the forefront in importance. This is largely due to the opportunity for cost savings along with quality and service improvement. There are many important quality-related activities that are part of supply chain management. We discuss these separately as upstream activities, core processes, and downstream activities.

Figure 1-1 shows a global supply chain management model.[5] The two-way arrow at the center is the supply chain with the suppliers upstream and the customers downstream. At the center of the supply chain is operations management, or the transformation of inputs into products and services. (Operations management is discussed later in the chapter.) Upstream is supplier and purchasing management, which is associated with bringing in parts and components used in production. Downstream is marketing and customer relationship management. As is shown at the bottom, logistics and quality management are used to optimize performance throughout the entire supply chain. The entire model is tied together by strategy.

Upstream activities include all those activities involving interaction with suppliers. **Supplier qualification** involves evaluating supplier performance to determine whether they are worthy providers. This often requires grading suppliers using established criteria, such as conformance rates, cost levels, and delivery reliability. Many times, **supplier filters** are used, such as **ISO 9000**,

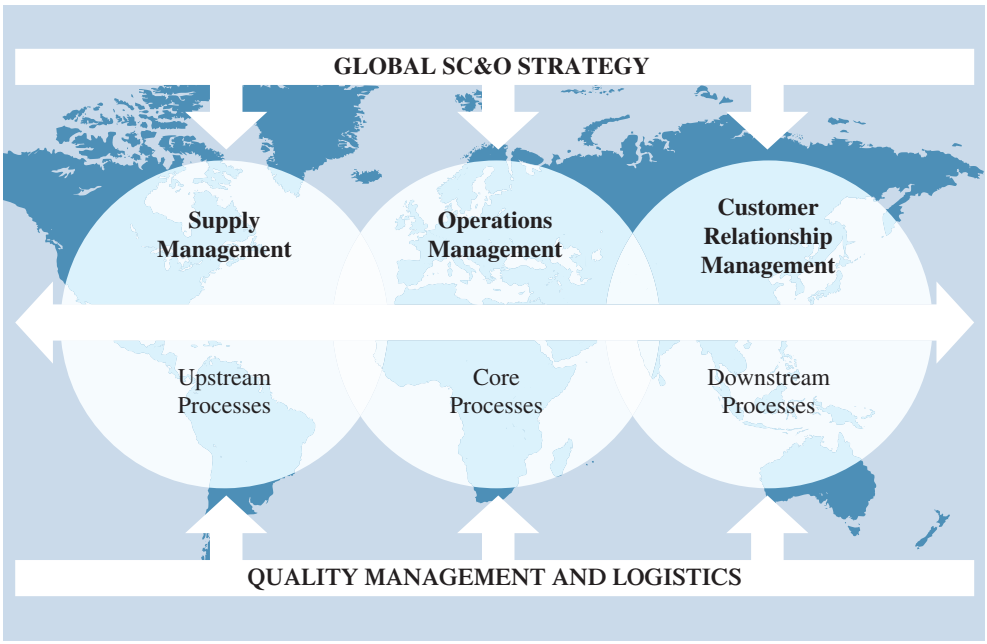


**FIGURE 1-1** A Global Supply Chain Model

*Source:* Foster, S. Thomas; Sampson, Scott E.; Wallin, Cynthia; Webb, Scott W, *Managing Supply Chain and Operations: An Integrative Approach*, 2nd Ed., © 2019, p.15. Reprinted and electronically reproduced by permission of Pearson Education, Inc., New York, NY.

[5] Holstein, W., "Hyundai's Capability Play," *Strategy and Business* 70 (Spring 2013): 13–18.

an international standard. This means that you can filter suppliers based on whether they are ISO 9000 registered. **Supplier development** activities include evaluating, training, and implementing systems with suppliers. This often includes the use of **electronic data interchange (EDI)** to link customer purchasing systems to supplier enterprise resource planning systems. **Acceptance sampling** may be needed to determine whether supplier products meet requirements. **Global sourcing** is an important supply chain issue with many companies—especially in China. This is discussed in more depth in Chapter 3.

Core process activities include traditional process improvement as well as **value stream mapping**. This requires flowcharting processes to determine where customer value is created as well as identifying non-value-added process steps. Value stream mapping involves analyzing processes from a systems perspective such that upstream and downstream effects of core process changes can be evaluated. **Six Sigma** is a procedure for implementing quality improvement analysis to reduce costs and improve product, service, and process design. Six Sigma black belts become supply chain quality consultants who can lead value-adding improvements. The steps in Six Sigma include **define, measure, analyze, improve, and control (DMAIC)**-related activities. A major tool used in Six Sigma is the **design of experiments (DOE)**.

Downstream activities include shipping and logistics, customer support, and focusing on delivery reliability. Supply chain management has also focused more attention on **after-sale service**. A Closer Look at Quality 1-2 discusses Covid-related supply chain problems.

### A CLOSER LOOK AT QUALITY 1-2 Covid and Quality

Covid has affected supply chain management in many key ways—container ships stuck in ports worldwide, not enough truck drivers, shortage of computer chips, shortages of many consumer items such as toilet paper. One thing the Covid pandemic has taught us is that worldwide supply chains were not well prepared for disruptions in supply and major changes in consumer behavior.

Pre-pandemic, it was rare in the United States that customers would go to a grocery store and not find everything they wanted. However, as people began panic-buying many months' supplies of item such as bottled water, those supplies ran out and stores experienced empty shelves. While many of these problems were blamed on worldwide supply chains, they were often actually the result of distorted consumer buying patterns. Once supplier caught up to the new distorted demand, stores had too much stock in those key items.

Staffing shortages related to government stimulus checks and people figuring out how to get better jobs during Covid made getting good service difficult. Wages for service workers increased as service firms such as restaurants had trouble attracting enough employees to ensure good service. Strictures on immigration also affected the availability of unskilled workers. It will be interesting to see how long lasting the global supply chain will be impacted by the pandemic.

## An Engineering Perspective

Engineering is an applied science. As such, engineers are interested in applying mathematical problem-solving skills and models to the problems of business and industry. One outgrowth of this approach is the field of operations research. For example, in the early twentieth century, Sir R. A. Fisher and other researchers in England expanded the field of mathematical statistics to problems related to variation experienced in the production area.

Two of the major emphases in engineering are the areas of product design and process design. **Product design engineering** involves all those activities associated with developing a product

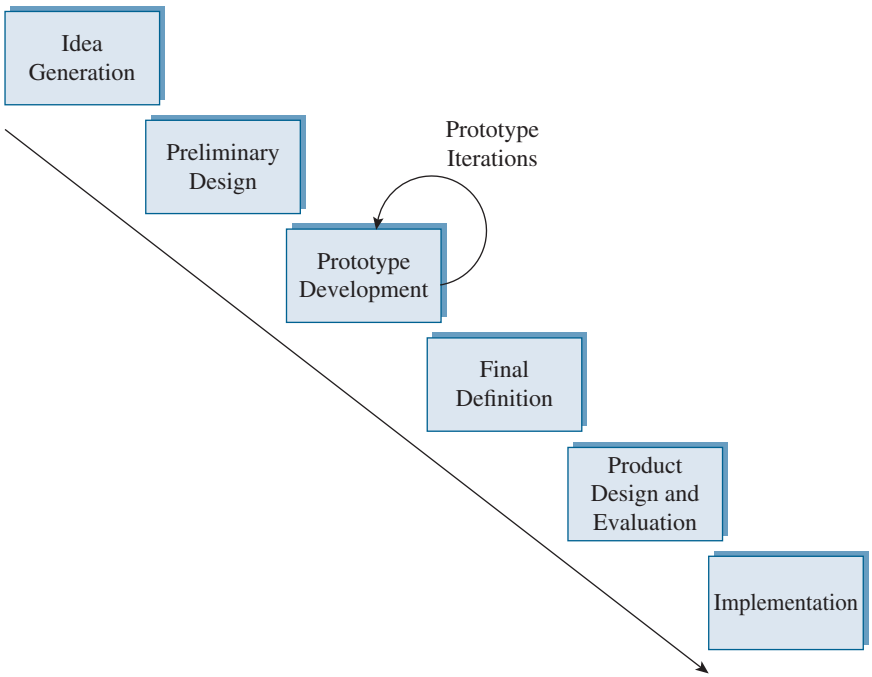


**FIGURE 1-2** Design Life Cycle

from concept development to final design and implementation. Figure 1-2 demonstrates the six steps in the engineering life cycle for the design of products. The product design process results in a final design, possibly generated using a computer-aided design (CAD) system. Product design is the key because quality is assured at the design stage.

Process design consists of methods and equipment to make a product. These choices will be discussed in Chapter 5 in more depth.

Product and process design are fields of engineering that have experienced major changes in recent years. Whereas traditionally they were considered separate and in most cases sequential activities, **concurrent engineering** has resulted in the simultaneous performance of these activities. Typically, concurrent engineering involves the formation of cross-functional teams, which allow engineers and managers of differing disciplines to work together simultaneously in developing product and process designs. The result of concurrent design has been improved quality and faster speed to market for new products.

Engineers also have applied statistical thinking to the problem of *reliability.* As already discussed, reliability management is concerned with assessing and reducing the propensity of a product failure. Reliability engineers use probability theory to determine the rate of failure that a product will experience over its useful life. **Life testing** is a facet of reliability engineering that determines whether a product will fail under controlled conditions during a specified life. Also, reliability engineers are interested in knowing whether failure of certain product components will result in failure of the overall product. If a component has a relatively high probability for failure that will affect the overall function of a product, **redundancy** is applied so that a backup system can take over for the failed primary system. Many redundant systems are used on the NASA space shuttle in case of primary system breakdown. After all, if a computer crashes in space, it is not easy to find a replacement close by.

Another engineering-related contribution to quality management is **statistical process control (SPC, synonymous with SQC)**, which is concerned with monitoring process capability and

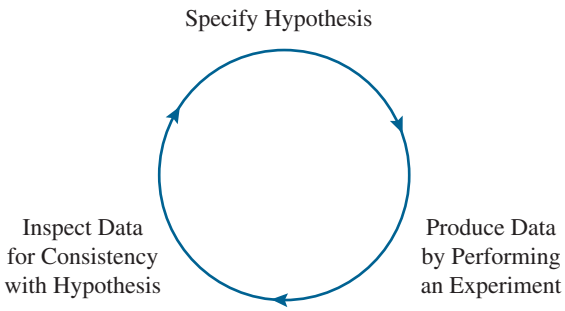


**FIGURE 1-3** Shewhart's Control Process

process stability. If a process is capable, it will consistently produce products that meet specification. If a process is stable, it will only exhibit random or **common cause variation** instead of nonrandom **special cause variation**. This type of variation is often acceptable, if kept within limits. The control process as specified by Walter Shewhart in his book *Statistical Method from the Viewpoint of Quality Control* (1939) is shown in Figure 1-3. This is the process underlying SPC. A hypothesis is specified that the process meets a given specification, data about the process are gathered, and a hypothesis test is performed to see if the process is stable.

In summary, the engineering view of quality is technically oriented, focusing on statistics and technical specification that are needed to produce high-quality products.

## An Operations Perspective

The operations management view of quality is rooted in the engineering approach. However, operations management has grown beyond the technical engineering perspective. In many ways, because of the close interplay between operations management and engineering, engineers also have extended their view of quality management.

Operations was the first functional field of management to adopt quality as its own and is the core of the global supply chain model presented earlier in this chapter. Like engineers, operations managers are concerned about product and process design. However, rather than focusing on only the technical aspects of these activities, operations concentrates on the management of these activities. Initially, operations quality was focused almost entirely on SPC. Later, statistical quality control (SQC) courses became more managerial in nature, including teachings by W. E. Deming, an important quality expert, and others. Today, operations management has developed into an integrative field combining concepts from engineering, operations research, organizational theory, organizational behavior, and strategic management to address quality problems.

Operations management (OM) uses the **systems view** that underlies modern quality management thinking. The systems view involves the understanding that product quality is the result of the interactions of several variables, such as machines, labor, procedures, planning, and management. OM focuses on the management and continual improvement of conversion processes. This systems view focuses on interactions between the various components (i.e., people, policies, machines, processes, and products) that combine to produce a product or service. The systems view also focuses management on the *system as the cause of quality problems.*

In summary, the historically internally focused view of operations managers has become externalized. Still, the customer needs to become more central in the thinking of many operations managers who still tend to be too product focused. This will occur as operations management becomes more service oriented.

## A Strategic Management Perspective

**Strategy** refers to the planning processes used by an organization to achieve a set of long-term goals. The keys here are planning processes and a long-term orientation. Firms establish a planned course of action to attain their objectives. Further, this planned course of action must be cohesive and coherent in terms of goals, policies, plans, and sequencing to achieve quality improvement.

When the concept first arose, practitioners treated quality-related strategic planning as if it were a separate exercise from strategic planning. However, we soon realized that quality management, to become pervasive in a firm, needed to be included in all the firm's business processes, including strategic planning. Thus quality-related goals, tactics, and strategies are becoming more a part of the strategic planning process instead of a separate entity.

Company strategies are rooted in the building blocks of mission and core values. An organization's **mission** states why the organization exists. The **core values** of an organization refer to guiding principles that simplify decision making in that organization. Therefore, if a company states "sustainability" as a core value, it will institute policies leading to practices that favor a clean environment. Companies go to great extents to establish, communicate, and reinforce a sense of mission and values in their organizations because mission and values strongly influence organizational culture. Organizational culture is often seen as a major determinant (and sometimes a roadblock) to the successful implementation of quality improvement.

The quality movement has greatly influenced strategy process in recent years. *Strategy process* refers to the steps an organization uses in the development of its strategic plans. Although we discuss this in greater depth in Chapter 4, strategic planning processes often involve a comprehensive environmental analysis that includes the remote, operating, and external environments that influence quality performance.

Figure 1-4 shows a generic strategic planning process and its components. Based on the analysis of mission, vision, and goals, strategic options and business-level and functional-level strategies are developed.

Development of functional-level strategies helps improve the coherence and alignment of strategic plans within an organization. *Alignment* refers to consistency between different operational subplans and the overall strategic plan. For example, if an organization pursues a quality emphasis from a strategic standpoint, the company should pursue supply chain, human resources, budgetary, or marketing courses of action that support a quality emphasis.

The ultimate goal of strategic quality planning is to aid an organization to achieve sustainable competitive advantage. In many markets, such as the auto industry, it is becoming difficult to sustain a competitive advantage based on quality alone. This is also true in many other markets where quality is an order qualifier. In some markets, such as semiconductors, where yield rates are low, competitive advantage in cost can be gained by a quality conformance strategy. Thereby, the quality–cost combination can be used as an order winner.

As quality has become integral to competitiveness, strategic planning for quality has become more important. Research shows that quality is still the major competitive concern of CEOs. Quality Highlight 1-1 shows how Hyundai has made quality a key strategic imperative. This Highlight also demonstrates the interrelatedness among strategy, finance, and operations in achieving strategic objectives.

## A Marketing Perspective

Traditionally, the term *marketing* has referred to activities involved with directing the flows of products and services from the producer to the consumer. More recently, in a trend known as **customer relationship management**, marketing has directed its attention toward satisfying the customer and delivering value to the customer.

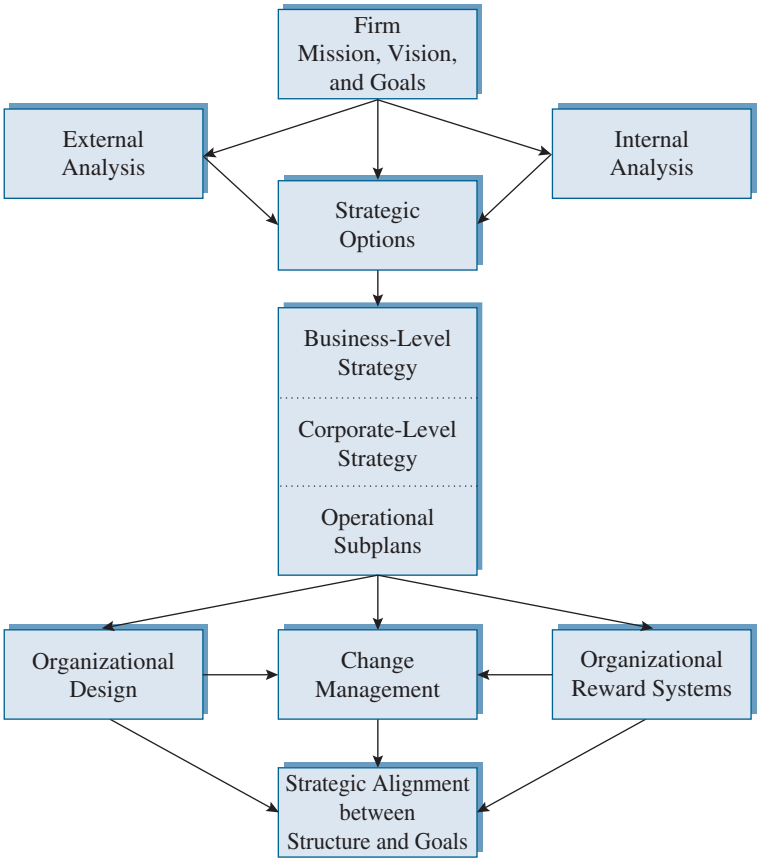


**FIGURE 1-4** A Generic Strategic Planning Process

More and more well-managed companies are basing sales commissions on perceptual measures of customer satisfaction rather than merely on volume of sales. The reasons for this are obvious. Studies show that the value of the loyal customer is much greater than an individual transaction. For example, although the profit on a customer's single pizza might be $5, the same customer is worth $600 if he or she orders one pizza per month for 10 years. This figure becomes $3,600 if the satisfied customer influences five friends to buy one pizza a month over 10 years. If all customers are satisfied, sales increase exponentially! Therefore, more firms are focusing on relationship management, which increases the importance of high levels of customer service and after-sales support.

## *QUALITY HIGHLIGHT 1-1*

### Quality Strategy at Hyundai

***www.hyundaiusa.com***

You might be surprised to know that Hyundai has been the fastest–growing automotive brand in the United States. How has it accomplished this? By strategically using quality improvement and working at "Hyundai speed."

(*continued*)

In the last 30 years, Hyundai has gone from being a marginal purveyor of cheap cars to owning 5% of the US market. With $66 billion in sales, it has focused on quality, understanding customers, and new product design to achieve strategic success. This focus on design was recently rewarded when the Hyundai Elantra was named the North American Car of the Year. In fact, the only other firms to have improved their brand recognition more in recent years than Hyundai were Google, Apple, Amazon, and Samsung—not bad company!

Hyundai has achieved this design enhancement by making the strategic choice to allow domestic US teams to develop their own innovative automobile designs. In addition, it doesn't save the best design features for just the expensive models. Modestly priced vehicles are given luxury features such as push-button ignition, back-up cameras, and automatic headlights. Hyundai is also number one in fuel economy.

The operational choice that Hyundai made is to build world–class production capabilities. This was in part, to support its service elements of 10-year/100,000-mile powertrain and 5-year/60,000-mile bumper-to-bumper warranty. By combining service and operations capabilities to support strategic objectives, Hyundai seems to be hitting on all cylinders.

The marketer focuses on the *perceived quality* of products and services. As opposed to the engineering-based conformance definition of quality, perceived quality means that quality is as the customer views it. Therefore, marketing efforts are often focused on managing quality perceptions.

Although the primary marketing tools for influencing customer perceptions of quality are price and advertising, they are imperfect mechanisms for influencing perceptions of quality. Toothpaste that sells for $4 is not necessarily better than toothpaste that costs $3. The link between price and quality could be significant if all products were priced based on cost of materials and production only. However, not all products are priced this way.

Advertising and quality levels might be related. However, the relationship is not as straightforward as one would hope. Tellis and Johnson[6] proposed a contingency theory of advertising and quality saying that this relationship is "more likely when product quality is produced at lower cost and consumers rely less on advertising for their information." Their research showed that the positive effects of quality also were more pronounced later in the life cycle of a product. In these later stages, products are more likely to be standardized. This would give consumers more time to become informed about products and give firms more time to standardize and control costs.

Marketing is also concerned about systems. The marketing system involves the interactions between the producing organization, the intermediary, and the final consumer (see Figure 1-5). Because of this relationship, it is often very difficult for firms and organizations to agree on who the customer is.

Another important contribution of the marketing perspective has been the focus on service at the time of the transaction and after-sales support.

One of the ways marketing has helped improve product and service quality has been to interact closely with engineering and operations in product design. The role of marketing in design has been to bring the voice of the customer[7] into the design process.

Customer service surveys are important tools for assessing the multiple dimensions of quality. Surveys provide a means for developing multidimensional perceptual measures of quality.

[6] Tellis, G., and Johnson, J., "The Value of Quality," *Marketing Science* 26, no. 6 (2007): 758–773.

[7] Griffin, A., and Hauser, J., "The Voice of the Customer," *Marketing Science* 12, no. 1 (1993): 1–26.

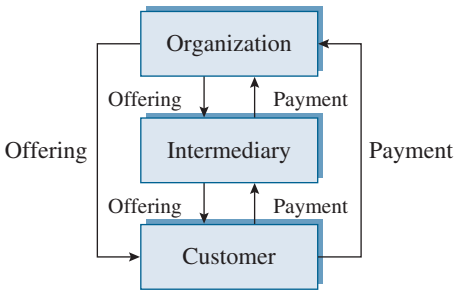


**FIGURE 1-5** A Marketing System

In short, the marketing perspective on quality is unique because the customer is the focus of marketing-related quality improvement. In trying to satisfy customer needs, marketing often wants to develop specialized products for different customers to perfectly satisfy customer needs. This can make life more difficult for producers because operations wants to standardize products to reduce processing complexity. Often, quality strategies result in a compromise between these two polar positions.

## A Financial Perspective

One of the most commonly asked questions about quality management is "will it pay us financial benefits?" The answer to this question is an unqualified "maybe." Implemented correctly, improved quality reduces waste and can lead to reduced cost and improved profitability. However, these returns tend to be long term rather than short term. W. E. Deming, the influential quality expert, made the first theoretical attempt to link quality improvement to financial results through the "Deming value chain." In his value chain, Deming linked quality improvement to reduction in defects and improved organizational performance. He also stressed quality as a way to increase employment.

The finance function is primarily interested in the relationships between the risks of investments and the potential rewards resulting from those investments. The goal of finance is to maximize return for a given level of risk. A comptroller for a large US corporation stated this as "helping the customer to decide where to buy assets." In this sense, this comptroller viewed his primary customers as the stockholders (i.e., owners) of the corporation.

Communication relating to quality might be made more difficult for comptrollers and treasurers because accounting is the primary language of the financial function. Joseph Juran, another influential quality expert, referred to this communication problem when he stated that "*the language of management is money.*" One way to translate quality concerns is to identify and measure the costs of quality. These quality-related costs can be in lost sales because of a poor reputation for reliability. Also, training and inspection cost money. Therefore, trade-off and break-even analyses can be performed using the various costs of quality. Often what is discovered is that although improving quality seems expensive, the savings from reducing scrap, defects, and rework results in favorable returns on investment. This is why companies such as Motorola, Westinghouse, and GE are willing to pay millions of dollars to pursue quality.

However, the relationship between quality improvement and financial success is confounded by several intervening variables. For example, a firm that invests a great deal of effort and money to establish a quality program for a product in the decline stage of the product life cycle may not receive the expected benefits. Top management involvement that is limited to lip service often

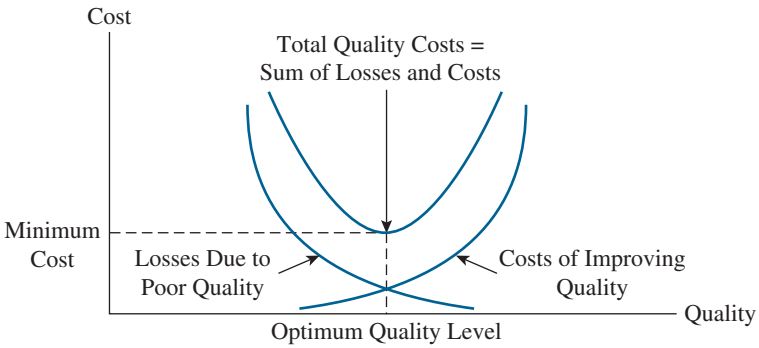


**FIGURE 1-6** Basic Economic Quality Level Model

results in great expenditure, and great effort, but eventually failure. *The pursuit of quality does not safeguard a company against bad management.*

Another concept that affects financial officers' perceptions of quality improvement is the **law of diminishing marginal returns**. According to this law, there is a point at which investment in quality improvement will become uneconomical. Figure 1-6 shows a quadratic economic quality level model. According to this model, the pursuit of higher levels of quality will result in higher expenditures. So to invest beyond the minimum cost level will result in noneconomic decisions. This view is at odds with the ethic of continual improvement. Such debate has resulted in much controversy in the quality field. Although we save resolution of these issues for Chapter 4, it should be emphasized that quality evangelizers who claim that the pursuit of quality is eternal and that any investment in quality is always justified will be met with skepticism by financial officers trained in economics.

In summary, the financial perspective on quality relies more on quantified, measurable, results-oriented thinking. This has influenced quality thinking as quality professionals have had to seek approval for funding quality improvement efforts. If the objective of a firm is to return value to its shareholders, the financial view toward quality must be well understood and used.

## The Human Resources Perspective

Human resources (HR) managers are involved in enabling the workforce to develop and use its full potential to meet the company's objectives. Understanding the HR perspective on quality is essential because it is impossible to implement quality without the commitment and action of employees. Although leadership is an important antecedent to successful quality efforts, the involvement and participation of employees is just as key. After all, it is the rank and file that implements quality throughout the organization.

Of particular interest to HR managers is **employee empowerment**. Empowering employees involves moving decision making to the lowest level possible in the organization. For example, empowerment can involve something fairly minor, such as allowing employees to replace broken or worn-out tools without management approval. In more spectacular instances, empowerment has resulted in the elimination of management as employees do their own scheduling, design, and performance of work.

The topic of empowerment is closely related to **organizational design**. HR managers are involved in many aspects of organizational design, such as the design of reward systems, pay

systems, organizational structure, compensation, training mechanisms, and employee grievance arbitration.

HR balances the needs of the employee and the organization by advocating the employee to management and advocating the company's needs to employees. *Quality management flourishes where the workers' and the company's needs are closely aligned.* When needs are aligned, actions that are good for the company are also good for the employee.

**Job analysis** is a major function of HR.[8] Job analysis involves collecting detailed information about a particular job. This information includes tasks, skills, abilities, and knowledge requirements that relate to certain jobs. The information then defines a job description that is used in setting pay levels. Job analysis sometimes has limited the capability of organizations to adapt to the flexibility needed for quality management. Important HR functions are recruitment and hiring of employees. A process called **selection** is employed. Traditionally, selection involved finding workers who have the technical preparation to perform the tasks associated with a job. Fast learners are becoming more valued by today's organizations. Of course, this does not mean that nuclear engineers will be replaced by former romance languages majors. However, it could mean that groups of engineers might report directly to a romance languages expert.

HR departments typically administer and oversee performance appraisal and evaluation. Traditionally, these evaluations involved face-to-face reporting sessions with employees and supervisors. Although some critics, such as Deming, have found this system ineffective, many companies believe performance evaluations are a key method for motivating employees. One quality-related approach to improving the process of performance evaluation is the **360-degree evaluation**, in which an employee's peers, supervisors, and subordinates are involved in evaluating the worker's performance. The College of Business at the University of North Carolina at Greensboro performs 360-degree teaching evaluations for its faculty. Each semester, students fill out teaching evaluations. Fellow faculty members attend each other's classes and read each other's student evaluations every semester. A meeting is then held, at which the faculty members evaluate and critique the others' teaching performance. In this setting, the focus is on constructive criticism. Finally, the professor's supervisor uses the student and peer input to complete an annual evaluation. This approach seems to be effective in improving teaching performance.

In summary, the focus of quality management is to manage properly the interactions among people, technology, inputs, processes, and systems to provide outstanding products and services to customers. HR managers have been very active in advocating quality approaches to improve organizational performance. Therefore, an HR focus on human performance provides important insights to quality thinking.

## Is Quality Management Its Own Functional Discipline?

A quick perusal of websites such as Indeed.com, Monster, LinkedIn, or Zip Recruiter will reveal thousands of job openings for quality managers and engineers. The companies that place these ads seek people who, like you, are committed to and interested in improving the quality of products and services globally. Organizations have expanded their use of quality beyond mere inspection, to striving for total quality management (TQM). Increasingly, leaders understand the importance of involving all employees in managing quality at all levels in their organizations. This broader perspective involves supportive training and coaching, typically performed by quality specialists who facilitate individual and team development that leads to continuous improvement.

[8] Morgeson, F., Spitzmuller, M., and Garza, A., "Pay Attention! The Liabilities of Respondent Experience and Carelessness When Making Job Analysis Judgments," *Journal of Management* 2, no. 7 (2016): 1904–1933.

Is quality management its own discipline? Yes and no. Individuals working in quality management positions such as those summarized above play a critical role in the operations of their organizations. Consultants, quality engineers, Six Sigma black belts, trainers, coaches, and managers are still needed. Therefore, the demand for quality specialists persists. However, because the eventual goal is to completely immerse the organization in quality thinking and commitment, the need for the specialist decreases with time. Therefore, a strong knowledge of quality is best coupled with technical expertise in other areas such as materials management, supply chain management, finance, accounting, operations management, HR management, strategy, industrial engineering, or myriad other disciplines. Indeed, the eventual goal of many organizations is to completely distribute the quality management function throughout the firm.

Regardless of your chosen functional discipline, your decisions about quality will influence the progress and success of the organizations and customers you serve. Therefore, understanding and applying quality principles and tools successfully can enhance the value that you can provide in whatever field you may choose. These same principles and tools can also enhance your personal life as you apply them to understand and improve the processes in your life that help accomplish your goals.

In this section of the chapter, we have discussed many different functional perspectives toward quality. Skilled management must recognize that these functional differences exist and provide communication in a way that completely addresses the different perspectives. Recognition that these multiple dimensions exist improves understanding among these disparate coalitions and helps all members of an organization to work toward a common goal.

## The Three Spheres of Quality

One way to conceptualize the field of quality management and related employment opportunities is through the **three spheres of quality**. These spheres are quality control, quality assurance, and quality management, and their functions overlap, as seen in Figure 1-7.

The first sphere is **quality control**. The control process is based on the scientific method, which includes the phases of analysis, relation, and generalization. In the *analysis* phase, quality workers break a process down into its fundamental pieces. They then seek to understand the relationships between the parts during the *relation phase*. Finally, workers and leaders strive to interrelate the various processes and relationships with their impact on quality


**FIGURE 1-7** Three Spheres of Quality

during the *generalization* phase. Employment activities that relate to quality control include the following:

- Monitoring process capability and stability
- Measuring process performance
- Reducing process variability
- Optimizing processes to nominal measures
- Performing acceptance sampling
- Developing and maintaining control charts

**Quality assurance** refers to work activities associated with guaranteeing the quality of a product or service. These activities are often design-related. Those who strive for resilient adaptation and improvement following quality problems can add value to their organizations by helping avoid greater quality failures. Given this, the best way to ensure quality is in the design of products, services, and processes. Quality assurance employment activities include tasks such as

- Failure mode and effects analysis
- Concurrent engineering
- Experimental design
- Process improvement
- Design team formation and management
- Off-line experimentation
- Reliability/durability product testing

The management processes that overarch and tie together the control and assurance activities make up **quality management**. See Quality Highlight 1-2 for an example of a company with effective quality management. The integrative view of quality management supports the idea that quality is the responsibility of all employees and all levels of management, not just quality managers. For this reason, a number of managers, supervisors, and employees are involved in quality management activities such as

- Planning for quality improvement
- Creating a quality organizational culture
- Providing leadership and support
- Providing training and retraining
- Designing an organizational system that reinforces quality ideals
- Providing employee recognition
- Facilitating organizational communication

Many quality-related activities can occur simultaneously within the framework of the three spheres of quality. Because these activities overlap, communication between those performing the different activities becomes key.

## *QUALITY HIGHLIGHT 1-2*

### Federal Express Corporation[9]

***www.fedex.com***

#### Federal Express at a Glance

Conceived by Chairman and Chief Executive Officer Frederick W. Smith, Federal Express began operations in 1973. At that time, a fleet of eight small aircraft was sufficient to handle demand. The firm's cargo fleet is now the world's largest—at more than 650.

FedEx's "People–Service–Profit" philosophy guides management policies and actions. The company has a well-developed and thoroughly deployed management evaluation system called SFA (survey/feedback/action) that involves a survey of employees, analysis of each group's results by the work group's manager, and a discussion between the manager and the work group to develop written action plans for the manager to improve and become more effective. Data from the SFA process are aggregated at all levels in the organization for use in policy making.

Training of frontline personnel is a responsibility of managers, and "recurrency training" is a widely used instrument for improvement. Consistently included in listings of the best US companies to work for, FedEx has a "no-layoff" philosophy, and its "guaranteed fair treatment procedure" for handling employee grievances is used as a model by firms in many industries. Frontline employees can participate in a program to qualify themselves for management positions. In addition, Federal Express has a well-developed recognition program for team and individual contributions to company performance.

#### Service Quality Indicators

To spur progress toward its ultimate goal of 100% customer satisfaction, FedEx replaced its old measure of quality performance, percentage of on-time deliveries, with a 12-item service quality indicator (SQI) that measures service quality and customer satisfaction. To reach its aggressive quality goals, the company has set up one cross-functional team for each service component of the SQI. A senior executive heads each team for each service component of the SQI and ensures the involvement of frontline employees, support personnel, and managers from all parts of the corporation when needed. Two of these corporate-wide teams have a network of more than 1,000 people working on improvements.

Employees are encouraged to be innovative and to make decisions that advance quality goals. FedEx provides employees with the information and technology they need to continuously improve their performance. An example is the Digitally Assisted Dispatch System (DADS), which communicates to some 47,500 couriers through screens in their vans. The system enables quick response to pickup and delivery dispatches and allows couriers to manage their time and routes with great efficiency.

# Other Perspectives on Quality

Although we have discussed a variety of perspectives on quality, there are a few others.

## The Value-Added Perspective on Quality

A customer-based perspective on quality that is used by services, manufacturing, and public sector organizations involves the concept of value. A **value-added** perspective on quality involves a subjective assessment of the efficacy of every step of the process for the customer. A value-added

[9] Adapted from the Malcolm Baldrige award "*Profiles of Malcolm Baldrige Award Winners*," National Institute for Standards and Technology, Gaithersburg, MD, 2019.

activity can be pinpointed by asking, "Would this activity matter to the customer?" In other words, in most cases, a value-added activity will have economic value to the customer.

## Cultural Perspectives on Quality

International marketers have long noted differences in tastes and preferences between cultures and nations. For example, Mexican food sold in the United States by the major restaurant chains is very different from the food sold in Mexico. This is so because American restaurant chains have found that customers prefer the Americanized versions of these foods.

Although it is somewhat obvious that differences in tastes and preferences exist between different cultures, it is not so obvious that approaches to quality improvement may differ according to culture. However, differences do exist. For example, Japanese companies tend to stress conformity and uniformity in producing quality. This results in high consistency among Japanese products. American firms are more likely to favor empowerment approaches that reward creativity and individualism. Certainly, cultures that are more class conscious or command-and-control-oriented might have trouble delegating decision making to lower levels of employees. We dive deeper into cultural influences on quality in Chapter 3.

## Arriving at a Common Understanding of Quality Using a Contingency Perspective of Quality

Businesses differ in key areas such as mission, core competence, customer attributes, target markets, technology deployment, employee knowledge, management style, culture, and myriad other environmental variables. **Contingency theory** presupposes that there is no theory or method for operating a business that can be applied in all instances. A coherent quality strategy will address these key environmental variables. For example, a company that defines part of its mission as "valuing and satisfying our customers through personalized service" likely will pursue a different technological approach toward its customers than a company with the mission of "applying technology to solving customer problems." One approach implies personalized service in interacting with customers, whereas the second company focuses on digital interfaces with the customer. Both companies are focused on satisfying the customer. The difference is that they pursue different paths and strategies to achieve customer service.

The contingency approach to quality also helps settle the different perceptions concerning the definition of quality. By adopting a contingency philosophy, we find that the definitions and dimensions of quality applied within organizations will (and should) vary. The definitions of quality used by the Department of Agriculture, Ford Motor Company, and the University of Colorado at Boulder will not be the same. Different definitions of quality also might exist within an organization, even though their quality definitions should be consistent. In an organization that adopts the contingency approach, the dimensions of quality will depend on the environment in which the company operates. This approach provides useful flexibility to managers in pursuing quality.

# Employment in Quality Management

Whether you specialize in quality management or work in more general management positions, the concepts in this book are very important for your career. As your career progresses, you will be asked to manage a variety of things, including people, budgets, and processes. This book focuses you on the basics of process and people management for improvement. It is no longer

good enough to manage processes to remain competitive, you must also continuously improve your processes.

Broadly, quality management is used in the jobs of both generalists and specialists. Generalists will use quality management processes to improve the performance of their teams, departments, divisions, or firms. Quality management specialists will perform a variety of highly professional functions. These include:

- Quality Analysts use various methods such as those covered in Chapters 10–12 to analyze processes and their outputs using quality-related data.
- Quality Assurance Inspectors monitor and report the quality of produced products or services and ensure that they conform to specified standards set by the organization and their customers.
- Supplier Quality Professionals assess the quality of new and existing suppliers and lead efforts to improve quality throughout their supply chain.
- Software Quality Engineers design, develop, and implement software systems using quality management and assurance principles.
- Quality Consultants are experts that examine an organization's technical and/or cultural quality efforts, then advise leaders and train employees on how to improve quality at various levels of the organization.
- Six Sigma Black Belts are quality leaders with expertise in Six Sigma methodologies and tools and lead important process improvement projects that increase productivity. They also train others in those methodologies and guide teams through improvement projects.
- Quality Managers/Directors lead overall quality efforts in an organization including the implementation of strategic improvement programs, employee quality training, and change management to delivery according to customer expectations.

Whether you are a generalist or specialist in quality management, the topics in this book will be key to your performance as a manager of people and processes.

## SUMMARY

There are many different perspectives on quality management. We found that customers and producers viewed quality differently. A focus on production and a focus on services provide two very different perspectives on quality.

There is even a great deal of disagreement about an appropriate definition of quality. A contingency perspective on quality shows that different definitions of quality are appropriate for different organizations.

The functional perspectives on quality vary greatly. As we understand these different functional perspectives, we form the basis for alignment in strategies and improvement in quality communication.

The fundamental areas of quality control, quality assurance, and quality management within the field of quality focus us on different aspects of quality. By designing plans and systems in each of these areas simultaneously, we develop a robust system of quality improvement that will set the stage for improved competitiveness.

Something else that becomes apparent is that quality improvement, despite the simplicity of many principles, requires a complex mix of systems design, organizational design, rewards design, and process design. As discussed throughout this text, these issues can be tied together in a strategic framework.

## KEY TERMS

360-degree evaluation
Acceptance sampling
Aesthetics
After-sale service
Assurance
Common cause variation
Concurrent engineering
Conformance
Contingency theory
Core processes
Core values
Customer relationship management
Define, measure, analyze, improve, and control (DMAIC)
Design of experiments (DOE)
Downstream
Durability
Electronic data interchange (EDI)
Empathy
Employee empowerment
Features
Global sourcing
Inbound logistics
ISO 9000
Job analysis
Law of diminishing marginal returns
Life testing
Mission
Organic view of the organization
Organizational design
Outbound logistics
Perceived quality
Performance
Product design engineering
Quality assurance
Quality control
Quality dimensions
Quality management
Redundancy
Reliability
Responsiveness
Selection
Serviceability
Service reliability
Six Sigma
Special cause variation
Statistical process control (SPC)
Strategy
Supplier development
Supplier filters
Supplier qualification
Supply chain
Systems view
Tangibles
Three spheres of quality
Upstream
Value-added
Value stream mapping

## DISCUSSION QUESTIONS

1. Why is *quality* a difficult term to define? How can we improve our understanding of quality?
2. Briefly discuss Garvin's eight dimensions of quality. Is Garvin's multidimensional approach a step forward in improving our understanding of quality? Why or why not?
3. Is there a difference between service quality and product quality? If so, what are the implications of these differences for a manager of a service business, such as a restaurant or a retail store?
4. Define the concept of *empathy.* Provide an example of empathy as a dimension of service quality.
5. Why is communication within an organization an important part of the quality improvement process?
6. Compare and contrast the engineering perspective and the marketing perspective of quality. How could an overemphasis on the engineering perspective work to the disadvantage of a business organization?
7. Describe the "systems view" that underlies modern quality management thinking. Which of the perspectives of quality discussed in Chapter 1 is most closely aligned with the systems view?
8. Why is planning an important part of the quality management process? How could a firm's quality management initiatives be adversely affected if planning were not a part of the process?
9. Research has shown that quality is a major competitive concern of CEOs in American corporations. Is this level of concern about quality warranted? Explain your answer.
10. What is meant by the phrase *cost of quality*? How can this phrase help a firm address its quality concerns?
11. What are the major differences between traditional human resource management and total quality human resource management? How does total quality human resource management transcend traditional human resource management in regard to providing an environment that is supportive of quality concerns?
12. Describe the three spheres of quality. How do these spheres provide another way to place the field of quality in perspective?
13. Discuss the value-added perspective on quality. What are the implications of this perspective for the manager of a business organization?
14. How does contingency theory inform decision making when implementing improvement efforts?
15. Should a firm consider the law of diminishing marginal returns when striving to improve quality? Why or why not?
16. Are the perspectives of quality independent of one another? If not, describe ways in which they are interrelated.
17. How can an understanding of the multiple dimensions of quality lead to improved product and service designs?

18. What is your concept of quality? Is it multidimensional, or does it focus on a single dimension such as features, reliability, or conformance? Explain your answer.

19. Describe an instance in which you may be required to use quality management concepts in your career.

20. What concepts from this book can you use to be successful in an employment interview? What should you emphasize in an interview for employment?

## CASES

### *Case 1-1* FedEx: Managing Quality Day and Night

*FedEx Homepage: www.fedex.com*

As darkness falls across America and most businesses are locking up for the evening, one company is gearing up for a long night's work. FedEx, the world leader in the overnight package delivery market, delivers more than 7.6 million packages per business day. Most of us know FedEx as the overnight delivery company with white delivery vans, courteous drivers, and the distinctive purple-and-orange FedEx logo. But behind what the casual observer sees is a very complex company with the capacity to deliver millions of packages to millions of addresses around the globe overnight. Throughout the course of virtually every day and night, FedEx mobilizes its army of 165,000 employees, 47,500 vans and trucks, and over 650 planes to get the job done.

For FedEx, getting the job done means managing quality 24 hours per day, with a watchful eye on customer expectations. The company's goals are simple: 100% customer satisfaction, 100% on-time deliveries, and 100% accurate information available on every shipment to every location around the world. Although these sound like far-fetched goals, the company goes to great lengths to try to make them a reality. One of the principal weapons that FedEx uses in pursuit of its goals is its total commitment to quality management.

> Quality management at FedEx encompasses all its operations. Although the company is the acknowledged leader in the air freight industry, a formal Quality Improvement Process (QIP) plays an integral role in all the company's activities.[10]

At the heart of the QIP program is the philosophy that quality must be a part of the way that FedEx does business, not part of the time, but all the time. As a result, themes such as "Do it right the first time," "Make the first time you do it the only time anyone has to," and "Q = P" (quality = productivity) are important parts of the FedEx culture. To reinforce these themes, the company teaches its employees the 1–10–100 rule. According to the rule, if a problem is caught and fixed as soon as it occurs, it costs a certain amount of time and money to correct. If a mistake is caught later in a different department or location, it may cost 10 times that much to repair. And if a mistake is caught by a customer, it may cost 100 times as much to fix.

A number of substantive strategies have been implemented by FedEx to support its quality efforts. Quality action teams (QATs) design work processes to support new product and service offerings. A set of service quality indicators (SQIs) has been established to determine the main areas of customers' perception of service. Through careful tracking of these indicators, the company generates a weekly summary of how well it is meeting its customer satisfaction targets. An SQI team works through problems revealed by the indicators. For example, if problems were being created by confusion in FedEx labeling instructions, the team would work on improving the clarity of the instructions. Some of the company's tactics to ensure total quality are extraordinary. For example, every night FedEx launches an empty airliner from Portland, Oregon, bound for Memphis. The jet follows a course that brings it close to several FedEx terminal airports. The purpose of the jet is to swoop down and pick up FedEx packages if any of the company's regularly scheduled airplanes is experiencing mechanical difficulty.

Along with a focus on its external customers, FedEx's approach to quality also involves strengthening the bonds between its internal customers, or employees. To reinforce this notion, the company asks all its employees to ask the following three questions when they interface with a co-worker:

1. What do you need from me?
2. What do you do with what I give you?
3. Are there any gaps between what I give you and what you need?

[10] www.fedex.com.

## Case 1-1 FedEx: Managing Quality Day and Night (*Continued*)

The company also reaches out to its employees in a number of substantive ways. To do this, the company adopted its People–Service–Profit (PSP) philosophy, which articulates the view that when people are placed first, service and profit follow. An aggressive training program, competitive wages and benefits, profit sharing, bonuses, and a state-of-the-art employee grievance process are all elements of the PSP philosophy. Employee recognition also plays an important role in the company's quality pursuits. For example, each quarter FedEx divisions select their best quality success story, which is entered in a company-wide competition. Presentations are made by the finalists before the company's CEO, executive vice president, and other top managers. The award for being a finalist is a gold quality pin for each member of the team and the opportunity to be interviewed on the company's internal television network.

The quality efforts practiced by FedEx have paid off. The company has achieved a remarkable 99.7% on-time delivery level. The list of awards the company has won are too numerous to publish. The most impressive are the Malcolm Baldrige award; the AT&T Top Performer award; the Quality Carrier of the Year award, presented by Merck Pharmaceuticals; and the Company of the Year Distinguished Service award, presented by the National Alliance of Businesses. Will FedEx's pursuit of quality end here? Asked if winning the Malcolm Baldrige award signifies that FedEx has achieved the ultimate level of quality, CEO Fred Smith said, "Receipt of the award is simply our license to practice." Apparently, the quest for improved quality at FedEx will continue, day and night.

*Discussion Questions*

1. What is FedEx's "common language" of quality? Is it important for a company to establish a "common language" of quality? If so, why?
2. There are several different perspectives of quality, including the operations perspective, the strategic perspective, the marketing perspective, the financial perspective, the HR perspective, and the systems perspective. Which of these perspectives are being emphasized by FedEx? Why?
3. Is FedEx's level of emphasis on quality appropriate? Why or why not?

## Case 1-2 Graniterock Company: Achieving Quality through Employees

*Graniterock Homepage: www.graniterock.com*

Graniterock, a California-based mining and construction company, was founded in 1900, but its journey toward improved quality did not start until many decades later. The managers at Graniterock knew that a resulting decline in customer satisfaction was inevitable and responded to this self-assessment by deciding it needed to become more customer focused. At Graniterock, this meant not only learning more about the customer but also providing its employees the training and skills necessary to properly implement the company's new philosophy.

At first, this focus on HR management was emphasized through employee training. As explained by ex-CEO Bruce Woolpert, you can't have employees out telling customers "yes" unless everyone else in the company knows how to follow up on "yes." As a result, an aggressive training program was implemented, involving on-the-job training and classroom time for a majority of the firm's employees. A program called IPDP (Individual Personal Development Plan) was created to help each employee take responsibility for his or her own training program. As the program gained momentum, remarkable things started to happen. One employee indicated that he wanted to learn to read better. As a result of that request, the company initiated a reading program that has helped a number of Graniterock's employees improve their reading skills. As part of the company's effort to reduce process variability and increase product reliability, many employees were trained in statistical process control, root-cause analysis, and other quality-minded competencies. Today, Graniterock spends up to $1600 per year for training of each employee, which is more than 10 times the average for the mining and construction industries.

An equally important step in equipping its employees to contribute to the firm's efforts was establishing an atmosphere of trust between management and the rank-and-file employees. That effort has been pursued in a number of ways, and the trust developed throughout the company has resulted in the effective implementation of employee empowerment and teamwork. In addition, the company has done away with its conventional performance-appraisal system (feeling that it was ineffective) and has incorporated performance appraisal into each employee's IPDP. As part of this plan, each employee meets with his or her supervisor at least once per year to discuss job responsibilities, review accomplishments, assess skills,

(*continued*)

## *Case 1-2* Graniterock Company: Achieving Quality through Employees (*Continued*)

and set skill and career development goals. Although the IPDP is not mandatory for the company's unionized workers, overall participation stands at 83%. Because the IPDP approach to training and appraisal prepares employees to assume greater responsibilities, Graniterock promotes heavily from within.

Graniterock, having won the Malcolm Baldrige award and one of *Fortune* magazine's best 100 companies to work for, is aggressively pursuing its quality initiatives, with the cooperation of its 700 employees.

*Discussion Questions*

1. Rather than focusing on human resource management (HRM) as a means of supporting its quality initiatives, Graniterock could have chosen another area as its focal point (e.g., marketing, operations, and information systems). How does a focus on HRM support a company's quality initiatives?
2. Discuss the different components of Graniterock's HRM initiatives. How can each of these components support the company's quality efforts?
3. Discuss ex-CEO Woolpert's feelings about communication with the customers (paragraph 2). What happens when others in the company don't know what has been promised to the customer? How can quality management help to overcome this situation?