NINTH EDITION

Quality Management for Organizational Excellence

Introduction to Total Quality

DAVID L. GOETSCH STANLEY B. DAVIS

QUALITY MANAGEMENT FOR ORGANIZATIONAL EXCELLENCE

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Ninth Edition

David L. Goetsch

Stanley B. Davis

Pearson

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Full-Service Project Management and Composition: Integra Software Services, Ltd.
Printer/Binder: LSC Communications, Inc.
Cover Printer: Phoenix Color/ Hagerstown
Text Font: Minion Pro, 10/12 pt

Library of Congress Cataloging-in-Publication Data

Names: Goetsch, David L., author. | Davis, Stanley B.
Title: Quality management for organizational excellence : Introduction to total quality / David L. Goetsch, Stanley B. Davis.
Description: Ninth edition. | Boston : Pearson, [2021] | Includes bibliographical references and index.
Identifiers: LCCN 2019008777 | ISBN 24575698 | ISBN 9780135577325
Subjects: LCSH: Total quality management.
Classification: LCC HD62.15 .G64 2021 | DDC 658.4/013—dc23
LC record available at https://lccn.loc.gov/2019008777

ScoutAutomatedPrintCode

ISBN 10: 0-13-557732-2
ISBN 13: 978-0-13-557732-5

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PREFACE

BACKGROUND

At one time in history, Great Britain was the world's leader in commerce and industry. Eventually, the United States emerged as a major friendly competitor. Then, following World War II, the United States took over as the undisputed world leader of commerce and industry. During these post-war years, while the United States was enjoying unparalleled prosperity, Japan and Germany were rebuilding from the ashes of the war. With a great deal of help from the United States, Japan was able to rebound and during the 1970s began to challenge the United States in such key manufacturing sectors as automobiles, computers, and consumer electronics. By 1980, Japan had emerged as a world-class competitor and a global leader in selected areas of commerce and industry. German industry had also reemerged by this time. By 2000, Korea, China, and the Pacific Rim nations had also emerged as global competitors.

As a result, the United States found itself losing market share in economic sectors it had dominated (and taken for granted) for decades. At first, industrialists in the United States turned their backs on the lesson their counterparts in other industrialized nations had learned. This lesson was that the key to competing in the international marketplace was to simultaneously improve quality and productivity on a continual basis. However, as more and more market share slipped away, the message started to sink in for the United States. This belated awareness gave rise to a quality movement that began to take hold. Its progress was slow at first. However, an approach to doing business known as quality management has caught on and is now widely practiced as a way to achieve organizational excellence. Organizational excellence is a combination of peak performance, superior quality, and continual improvement.

This book advocates an approach to doing business that focuses all the resources of an organization on the continual and simultaneous improvement of quality and productivity. The purpose of this approach is to continually improve the organization's performance and, in turn, competitiveness.

WHY WAS THIS BOOK WRITTEN AND FOR WHOM?

This book was written in response to the need for a practical teaching resource that encompasses all of the various elements of quality management, including Lean, Six Sigma, and Lean Six Sigma, and pulls them together in a coherent format that allows the reader to understand both the big picture and the specific details of quality management. It is intended for use in universities, colleges, community colleges, corporate environments, and any other settings in which people want to learn to be effective agents of quality management. Students enrolled in technology, engineering, and management programs will find this book both valuable and easy to use. Practitioners in corporate settings will find it a valuable guide in understanding and implementing quality management.

The direct, straightforward presentation of material focuses on making the theories and principles of quality management practical and useful in a real-world setting. Up-to-date research has been integrated throughout in a down-to-earth manner.

ORGANIZATION OF THIS BOOK

The text consists of 22 chapters, organized in two parts. Part I explains the philosophy and concepts of quality management. Part II covers the tools and techniques of quality management. A standard format is used throughout the book. Each chapter begins with a list of objectives and provides a comprehensive summary. Key terms and concepts, factual review questions, a critical thinking activity, discussion assignments, and endnotes are found at the end. The endnotes provide readers with comprehensive lists of additional reading and research material that can be pursued at the discretion of the student and/or the instructor. The other materials encourage review, stimulate additional thought, promote discussion, and facilitate additional research.

USING THIS BOOK FOR ONE COURSE OR TWO

Some professors use this book for one course and some use it for two courses. Those who use the book for one course cover all or most of the chapters and make decisions concerning any chapters that are not covered on the basis of local considerations. Those who use the book for two courses typically cover Chapters 1–14 in the first course and Chapters 15–22 in the second course. Although this approach to dividing the content is not balanced in terms of the number of chapters, it is balanced in terms of the time required to cover the material. Feedback from most professors indicates that the degree of difficulty of the content of Chapters 15–22 requires them to spend more time

on these chapters than is required to cover any of the first 14 chapters. Consequently, in terms of time requirements, dividing the book at Chapter 14 results in two courses of equal length. Feedback from the classroom has been positive concerning both of these approaches.

HOW THIS BOOK DIFFERS FROM OTHERS

Most books in the market deal with one of the several elements of quality management, such as teamwork, just-in-time manufacturing, scientific measurement (SPC or quality tools), continual improvement, and employee involvement. Many of the books available were developed with the advanced-level practitioner in mind rather than the beginner. Few of the books in the market were formatted for use in a classroom setting. This book was written to provide both comprehensive and in-depth coverage of quality management. All the elements of quality management are covered, including several that receive little or no attention in other quality management books (e.g., peak performance, continual improvement, superior value, partnering, manufacturing networks, quality culture, and how to implement total quality). These subjects are covered in sufficient depth to allow a beginner to learn everything necessary to understand and implement total quality without having to look to any other source of information.

New in the Ninth Edition

The ninth edition contains major improvements that reflect the ongoing evolution of quality management, as well as recommendations from reviewers and users of the text. These improvements include the following:

- Chapter 1: Added new content on quality and competitiveness, Deming's 14 points as updated for contemporary times, Armand V. Feigenbaum's pioneering contribution to quality management, role of managers in achieving organizational excellence, and the impact of technology on the future of quality management.
- Chapter 2: Added new content on inhibitors of competitiveness.
- Chapter 4: Expanded the section of corporate social responsibility including coverage of "greenwashing."
- Chapter 6: Added a new section on behavior-based quality culture.
- Chapter 7: Added a new section on customer loyalty and retention strategies.
- Chapter 9: Added a new section on ensuring compatibility of quality and innovation.
- Chapter 14: Rewritten to bring it up to date with ISO 9000-2015.
- Chapter 15: Added a seven-step process for implementing Design of Experiments (DOE).
- Chapter 16: Added material to the section on applying the Five Whys to problem solving, explaining contributing versus root causes, a new section of human error as a root cause and applicable cautions, and common errors made in problem solving.
- Chapter 19: Added a new section on why some Lean Six Sigma projects fail when other succeed and a new section on Risk Priority Numbers (RPNs) and continual improvement. Download Instructor Resources from the Instructor Resource Center.

To access supplementary materials online, instructors need to request an instructor access code. Go to www.pearsonhighered.com/irc to register for an instructor access code. Within 48 hours of registering, you will receive a confirming e-mail including an instructor access code. Once you have received your code, locate your text in the online catalog and click on the Instructor Resources button on the left side of the catalog product page. Select a supplement, and a login page will appear. Once you have logged in, you can access instructor material for all Pearson textbooks. If you have any difficulties accessing the Web site or downloading a supplement, please contact Customer Service at http://247pearsoned.custhelp.com/.

ACKNOWLEDGMENTS

The authors would like to thank the following reviewers for the helpful insights:

Kristopher Blanchard
Upper Iowa University

Lynda Fuller
Wilmington University

Melissa Weathersby
Alamo Colleges District

ABOUT THE AUTHORS

David L. Goetsch is the Vice President Emeritus and Professor at Northwest Florida State College. Prior to entering higher education full time, Dr. Goetsch had a career in the private sector that included positions in quality management, safety management, and project management with engineering, manufacturing, and construction firms. Dr. Goetsch is the founder of The Quality Institute, a partnership of Northwest Florida State College and the Okaloosa Economic Development Council, and the Leadership Institute of Northwest Florida State College. Dr. Goetsch has been selected as Professor of the Year at Northwest Florida State College and the Emerald Coast Campus of the University of West Florida (five times). He was selected as Florida's Outstanding Technical Instructor of the Year and his program at Northwest Florida State College was selected as the recipient of the U.S. Secretary of Education's Outstanding Technical Program in the United States for Region 10.

Stanley B. Davis was a manufacturing executive with Harris Corporation until his retirement in 1992. He was the founding managing director of The Quality Institute and is a well-known expert in the areas of total quality management and its implementation, statistical process control, just-in-time manufacturing, Six Sigma, benchmarking, quality management systems, and environmental management systems. He currently serves as Professor of Quality at the institute and heads his own consulting firm, Stan Davis Consulting, which is dedicated to assisting private industry and public organizations throughout North America achieve world-class performance and competitiveness.

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PART ONE

PHILOSOPHY AND CONCEPTS

CHAPTER ONE

THE TOTAL QUALITY APPROACH TO QUALITY MANAGEMENT: ACHIEVING ORGANIZATIONAL EXCELLENCE

LEARNING OBJECTIVES

After completing this chapter, you should be able to:

- Define the terms *quality, competitive advantage*, and *organizational excellence*.
- Compare and contrast *quality* and *total quality*.
- Summarize the two views of quality.
- Describe the key elements of total quality.
- Identify the pioneers of total quality.
- Explain the keys to success with total quality.
- Explain the role of managers in quality management.
- Analyze the future of quality management in the twenty-first century.
- Explain how to become certified in quality management.

The concept of total quality as an approach to doing business began to gain wide acceptance in the United States in the late 1980s and early 1990s. However, individual elements of the concept—such as the use of statistical data, Six Sigma, Lean, teamwork, continual improvement, customer satisfaction, and employee involvement—have been used by visionary organizations for years. It is the pulling together and coordinated use of these and other previously disparate elements that gave birth to the comprehensive concept known as *total quality*. This chapter provides an overview of that concept, laying the foundation for the study of all remaining chapters.

WHAT IS QUALITY?

To understand total quality, we must first understand *quality*. Customers that are businesses will define quality very clearly using specifications, standards, and other measures. This makes the point that quality can be defined and measured. Although few consumers could define *quality* if asked, all know it when they see it. This makes the critical point that quality is in the eye of the beholder. With the total quality approach, customers ultimately define quality.

People deal with the issue of quality continually in their daily lives. We concern ourselves with quality when we are shopping groceries, eating in a restaurant, and making a major purchase, such as an automobile, a home, a television, or a personal computer. Perceived quality is a major factor by which people make distinctions in the marketplace. Whether we articulate them openly or keep them in the back of our minds, we all apply a number of criteria when making a purchase. The extent to which a purchase meets these criteria determines its quality in our eyes.

One way to understand quality as a consumer-driven concept is to consider the example of eating at a restaurant. How will you judge the quality of the restaurant? Most people apply such criteria as the following:

- Service
- Response time
- Food preparation
- Environment or atmosphere
- Price
- Selection

This example gets at one aspect of quality—the *results* aspect. Does the product or service meet or exceed customer expectations? This is a critical aspect of quality, but it is not the only one. *Total quality* is a much broader concept that

encompasses not just the results aspect but also the quality of people and the quality of processes.

Quality has been defined in a number of different ways by a number of different people and organizations. Consider the following definitions:

- Performance that meets or exceeds expectations.[1]
- Performance that meets the customer's needs.[2]
- Consistently meeting customer needs and expectations.[3]
- Satisfying the customer today and getting better tomorrow.[4]

In his landmark book *Out of the Crisis*, quality pioneer W. Edwards Deming makes the point that quality must be defined from the perspective of the stakeholder. The customer has a stake in the quality of a product or service, the production workers have a stake in it, and the organization that employs the production worker has a stake in it. Each of these entities should have their own view of quality and all of their views should mesh.[5]

Although Deming's landmark book is now dated, his thoughts on quality are still valid and insightful. Deming makes the point that quality has many different criteria and that these criteria change continually.[6] To complicate matters even further, different people value the various criteria differently. For this reason, it is important to measure consumer preferences and to remeasure them frequently. Deming gives an example of the criteria that are important to him in selecting paper:[7]

- It is not slick and, therefore, takes pencil or ink well.
- Writing on the back does not show through.
- It fits into a three-ring notebook.
- It is available at most stationery stores and is, therefore, easily replenished.
- It is reasonably priced.

Each of these preferences represents a variable the manufacturer can measure and use to continually improve decision making. Deming is well known for his belief that 94% of workplace problems are caused by management and especially for his role in helping Japan rise up out of the ashes of World War II to become a major industrial power. Deming's contributions to the quality movement are explained in greater depth later in this chapter.

Although there is no universally accepted definition of quality, enough similarity does exist among the definitions that common elements can be extracted:

- Quality involves meeting or exceeding customer expectations.
- Quality applies to products, services, people, processes, and environments.
- Quality is an ever-changing state (i.e., what is considered quality today may not be good enough to be considered quality tomorrow).

With these common elements extracted, the following definition of *quality* can be set forth:

> Quality *is a dynamic state associated with products, services, people, processes, and environments that meets or exceeds expectations and helps produce superior value.*

Consider the individual elements of this definition: The *dynamic state* element speaks to the fact that what is considered quality can and often does change as time passes and circumstances are altered. For example, gas mileage is an important criterion in judging the quality of modern automobiles. However, in the days of 20-cent-per-gallon gasoline, consumers were more likely to concern themselves with horsepower, cubic inches, and acceleration rates than with gas mileage.

The *products, services, people, processes,* and *environments* element is critical. It makes the point that quality applies not just to the products and services provided, but also to the people and processes that provide them and the environments in which they are provided. In the short term, two competitors who focus on continual improvement might produce a product of comparable quality. But the competitor who looks beyond just the quality of the finished product and also focuses on the continual improvement of the people who produce the product, the processes they use, and the environment in which they work will win in the long run and, most frequently, in the short run. This is because quality products are produced most consistently by quality organizations.

The *superior value* element acknowledges that quality is a key element in providing superior value (i.e., superior quality, cost, and service).

Quality, Value, and Organizational Excellence

It is important for quality professionals to understand how quality fits into the bigger picture of providing superior value to customers. Organizations survive and thrive in a globally competitive marketplace by providing superior value to customers. Achieving organizational excellence is about developing the ability to consistently provide superior value to customers over the long term. Superior value has three basic elements: superior quality, superior cost, and superior service.

In order to achieve organizational excellence—the level of performance necessary for long-term success in a global environment—it is necessary to consistently provide superior value to customers. Quality is obviously one of the key elements in providing superior value. But total quality is even more than that. Total quality is a broad-based approach that encompasses all three of the elements of superior value. Continually improving the quality of products, processes, services, and costs is what total quality is all about—hence the name *total quality*. Organizations that effectively apply the total quality approach to management are the ones most likely to achieve organizational excellence.

THE TOTAL QUALITY APPROACH DEFINED

Just as there are different definitions of *quality*, there are different definitions of *total quality*. The authors define total quality as follows:

An easy way to grasp the concept of total quality is to consider the analogy of a three-legged stool, as shown in

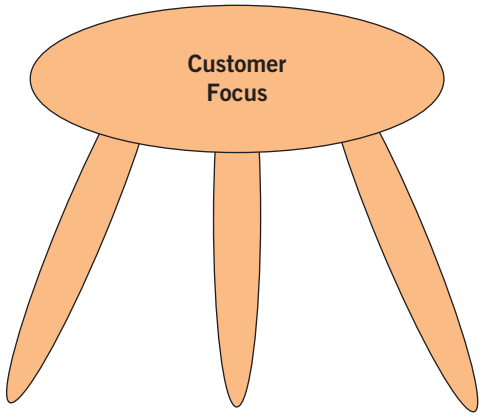


FIGURE 1.1 Three-Legged Stool of Total Quality.

Figure 1.1. The seat of the stool is customer focus. This means with total quality the customer is in the "driver's seat" as the primary arbiter of what is acceptable in terms of quality. Each of the three legs is a broad element of the total quality philosophy (i.e., measures, people, and processes). The "measures" leg of the stool makes the point that quality can and must be measured. The "people" leg of the stool makes the point that quality cannot be inspected into a product or service. Rather, it must be built in by people who are empowered to do their jobs the right way. The "processes" leg of the stool makes the point that processes must be improved, continually and forever. What is considered excellent today may be just mediocre tomorrow. Consequently, "good enough" is never good enough.

Another way to understand total quality as a concept is shown in Figure 1.2. Notice that the first part of the definition in Figure 1.2 explains the *what* of total quality; the second part explains the *how*. In the case of total quality, the *how* is important because it is what separates this approach to doing business from all of the others.

The *total* in *total quality* indicates a concern for quality in the broadest sense—what has come to be known as the "Big Q." Big Q refers to quality of products, services, people, processes, and environments. Correspondingly, "Little Q" refers to a narrower concern that focuses on the quality of one of these elements or individual quality criteria within an individual element.

How Is Total Quality Different?

What distinguishes the total quality approach from traditional ways of doing business can be found in how it is achieved. The distinctive characteristics of total quality are these: strategically based, customer focus (internal and external), obsession with quality, use of the scientific approach in decision making and problem solving, long-term commitment, teamwork, continual process improvement, bottom-up education and training, freedom through control, unity of purpose, and employee involvement and empowerment, all deliberately aimed at supporting the organizational strategy. The underlying concept that drives the need for total quality is *competitiveness*. Although pride of product (or service) is a philosophical driver of the total quality concept—organizations that produce a product or provide a service should want it to represent them

What It Is

Total quality is an approach to doing business that attempts to maximize the competitiveness of an organization through the continual improvement of the quality of its products, services, people, processes, and environments.

How It Is Achieved

The total quality approach has the following characteristics:

- Strategically based
- Customer focus (internal and external)
- Obsession with quality
- Scientific approach to decision making and problem solving
- Long-term commitment
- Teamwork
- Continual improvement of people, processes, products, services, and environments
- Education and training
- Freedom through control
- Unity of purpose
- Employee involvement and empowerment
- Peak performance as a top priority

FIGURE 1.2 Total Quality: What It Is and How It Is Achieved.

in a way they can be proud of—the practical driver is competitiveness. In today's globally competitive business environment, organizations cannot survive, much less thrive, unless they outperform the competition in proving superior value. And quality is an essential ingredient in superior value (quality, cost, service). The individual characteristics relating to total quality shown in Figure 1.2 are explained later in this chapter.

QUALITY AND COMPETITIVE ADVANTAGE

Competitive advantage is a characteristic an organization has that allows it to outperform other organizations. The most widely accepted building blocks of competitive advantage are as follows:

- Efficiency
- Innovation
- Responsiveness to customers
- Organizational agility
- Quality

Efficient organizations are those that produce the most in goods or services using the least resources (people, raw materials, time, etc.). Innovation is the process of developing new or improving existing goods and services in response to evolving customer needs or, better yet, in anticipation of those needs. Responsiveness to customers involves having mechanisms in place for receiving and gauging customer feedback and taking appropriate action on the basis of it. Organizational agility is the ability to rapidly adjust to changing circumstances such as the innovations of competitors.

Quality is the most essential of the building blocks of competitive advantage because if the goods and services an organization provides fail to meet customer expectations, the other building blocks do not matter. For example, consider the concept of efficiency. If you are producing substandard goods or services—no matter how efficient your processes—the good and services are still of poor quality. No customer is going to reward an organization for efficiently providing junk.

The Historic Development of Total Quality

The total quality movement had its roots in the time and motion studies conducted by Frederick Taylor in the 1920s. Table 1.1 is a time line that shows some of the major events in the evolution of the total quality movement since the days of Taylor. Taylor is now known as "the father of scientific management."

The most fundamental aspect of scientific management is the separation of planning and execution. Although the division of labor spawned tremendous leaps forward in productivity, it virtually eliminated the old practice of one highly skilled individual performing all the tasks required to produce a quality product. In a sense, that individual was CEO, production worker, and quality controller all rolled into one. Taylor's scientific management did away with this by making planning the job of management and production the job of labor. To keep quality from falling through the cracks, it was necessary to create a separate quality department. Such departments had shaky beginnings, and just who was responsible for quality became a clouded issue.

As the volume and complexity of manufacturing grew, quality became an increasingly difficult issue. Volume and complexity together gave birth to quality engineering in the 1920s and reliability engineering in the 1950s. Quality engineering, in turn, resulted in the use of statistical methods in the control of quality, which eventually led to the concepts of *control charts* and *statistical process control*, which are now fundamental aspects of the total quality approach.

Reliability engineering emerged in the 1950s. It began a trend toward moving quality control away from the traditional after-the-fact approach and toward inserting it throughout the design and production processes. However, for the most part, quality control in the 1950s and 1960s involved inspections that resulted in nothing more than cutting out bad parts.

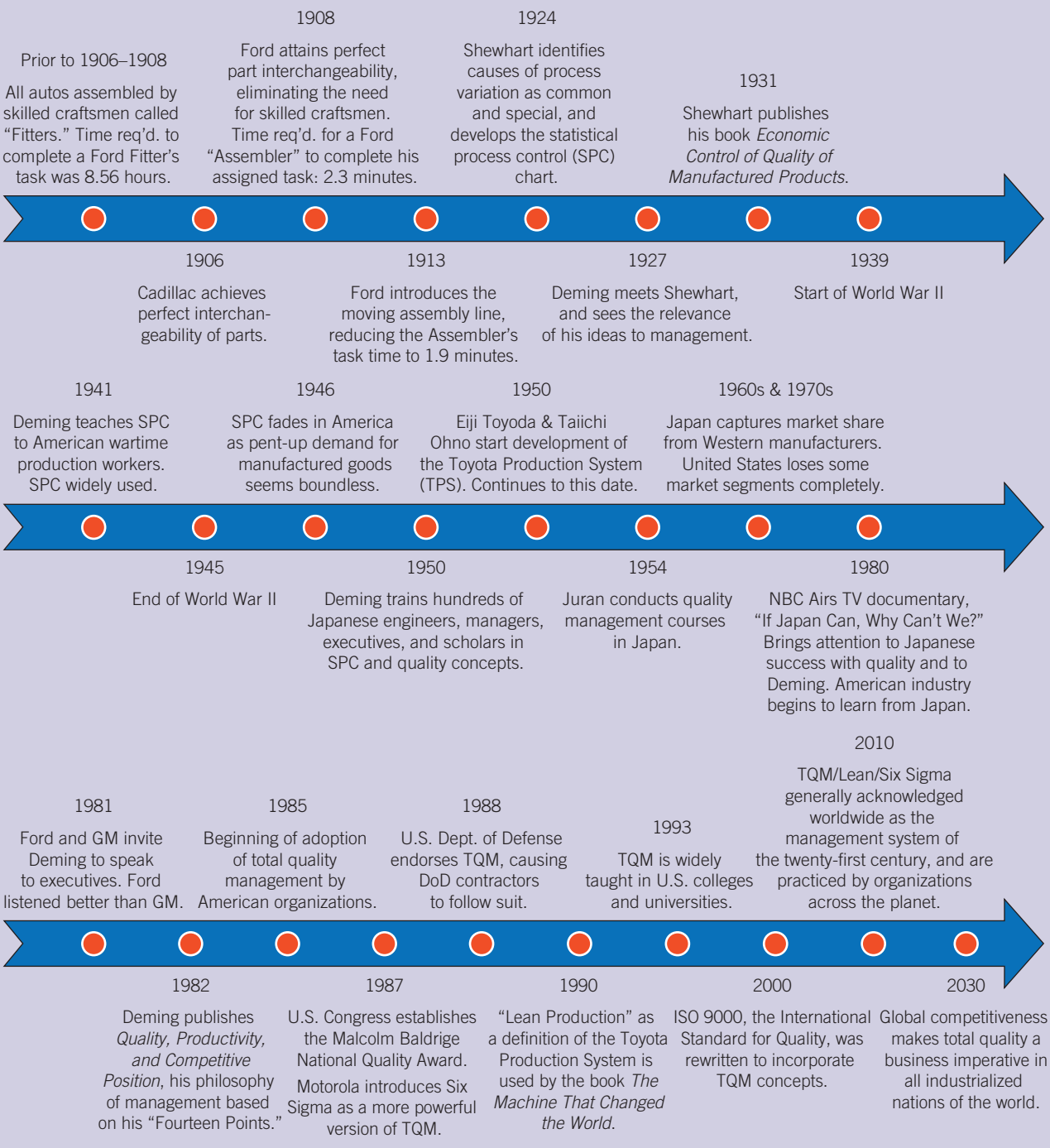
World War II had an impact on quality that is still being felt. In general, the effect was negative for the United States and positive for Japan. Because of the urgency to meet production schedules during the war, U.S. companies focused more on meeting delivery dates than on quality. This approach became a habit that carried over even after the war.

Japanese companies, on the other hand, were forced to learn to compete with the rest of the world in the production of nonmilitary goods. At first, their attempts were unsuccessful, and "Made in Japan" remained synonymous with poor quality, as it had been before World War II. Around 1950, however, Japan decided to get serious about quality and establishing ways to produce quality products.

Japanese manufacturers overcame a reputation for producing cheap, shabby products and developed a reputation as world leaders in the production of quality products. More than any other single factor, it was the Japanese miracle—which was not a miracle at all but the result of a concerted effort that took 20 years to really bear fruit—that got the rest of the world to focus on quality. When Western companies finally realized that quality was the key factor in global competition, they responded. Unfortunately, their first responses were the opposite of what was needed.

In spite of these early negative reactions, Western companies began to realize that the key to competing in the global marketplace was to improve quality. With this realization, the total quality movement finally began to gain momentum.

TABLE 1.1 100 Years of Selected Historic Milestones in the Global Quality Movement



TWO VIEWS OF QUALITY

The total quality philosophy introduced a whole new way of looking at quality. The traditional view of quality measured process performance in defective parts per hundred produced. With total quality, the same measurement is thought of in terms of defective parts per million produced. The traditional view focused on after-the-fact inspections of products. With total quality, the emphasis is on continual improvement of products, processes, and people in order to prevent problems before they occur. The traditional view of quality saw employees as passive workers who followed orders given by supervisors and managers. It was their labor, not their brains, that was wanted. With total quality, employees are empowered to think and make recommendations for continual improvement. They are also shown the control boundaries within which they must work and are given freedom to make decisions within those boundaries.

The traditional view of quality expected one improvement per employee per year. Total quality organizations expect to make at least 10 or more improvements per employee per year. Organizations that think traditionally focus on short-term profits. The total quality approach focuses on long-term profits and continual improvement.

The following statements summarize some of the major differences between the traditional view of quality and the total quality perspective:

- ***Productivity versus quality.*** The traditional view is that productivity and quality are always in conflict. You cannot have both. The total quality view is that lasting productivity gains are made only as a result of quality improvements.
- ***How quality is defined.*** The traditional view is that quality is defined solely as meeting customer specifications. The total quality view is that quality means satisfying customer needs and exceeding customer expectations.
- ***How quality is measured.*** The traditional view is that quality is measured by establishing an acceptable level of nonconformance and measuring against that benchmark. The total quality view is that quality is measured by establishing high-performance benchmarks for customer satisfaction and then continually improving performance.
- ***How quality is achieved.*** The traditional view is that quality is inspected into the product. The total quality view is that quality is determined by product and process design and achieved by effective control techniques.
- ***Attitude toward defects.*** The traditional view is that defects are an expected part of producing a product. Measuring defects per hundred is an acceptable standard. The total quality view is that defects are to be prevented using effective control systems and should be measured in defects per million (Six Sigma).
- ***Quality as a function.*** The traditional view is that quality is a separate function. The total quality view is that quality should be fully integrated throughout the organization—it should be everybody's responsibility.
- ***Responsibility for quality.*** The traditional view is that employees are blamed for poor quality. The total quality view is that at least 85% of quality problems are management's fault.
- ***Supplier relationships.*** The traditional view is that supplier relationships are short term and cost driven. The total quality view is that supplier relationships are long term and quality oriented.

KEY ELEMENTS OF TOTAL QUALITY

The total quality approach was defined in Figure 1.2. This definition has two components: the *what* and the *how* of total quality. What distinguishes total quality from other approaches to doing business is the *how* component of the definition. This component has several critical elements, each of which is explained in the remainder of this section and all of which relate to one of the components of the three-legged stool in Figure 1.1.

Strategically Based

Total quality organizations have a comprehensive strategic plan that contains at least the following elements: vision, mission, broad objectives, and activities that must be completed to accomplish the broad objectives. The strategic plan of a total quality organization is designed to give it a *sustainable competitive advantage* in the marketplace. The competitive advantages of a total quality organization are geared toward achieving world-leading quality and improving on it, continually and forever.

Customer Focus

In a total quality setting, the customer is the driver. This point applies to both internal and external customers. External customers define the quality of the product or service delivered. Internal customers help define the quality of the people, processes, and environments associated with the products or services.

Obsession with Quality

In a total quality organization, internal and external customers define quality. With quality defined, the organization must then become obsessed with meeting or exceeding this definition. This means all personnel at all levels approach all aspects of the job from the perspective of "How can we do this better?" When an organization is obsessed with quality, "good enough" is never good enough.

Scientific Approach

Total quality detractors put off by such concepts as employee empowerment sometimes view total quality as nothing more than another name for "soft" management or "people" management. Although it is true that people skills, involvement, and empowerment are important in a total quality setting, they represent only a part of the equation. Another important part is the use of the scientific approach in structuring work and in making decisions and solving problems that relate to the work. This means that hard data are used in establishing benchmarks, monitoring performance, and making improvements.

Long-Term Commitment

Organizations that implement management innovations after attending short-term seminars often fail in their initial attempt to adopt the total quality approach. This is because they look at total quality as just another management innovation rather than as a whole new way of doing business that requires an entirely new corporate culture. Too few organizations begin the implementation of total quality with the long-term commitment to change that is necessary for success.

Teamwork

In traditionally managed organizations, the best competitive efforts are often among departments within the organization. Internal competition tends to use energy that should be focused on improving quality and, in turn, external competitiveness.

Continual Process Improvement

Products are developed and services delivered by people using processes within environments (systems). To continually improve the quality of products or services—which is a fundamental goal in a total quality setting—it is necessary to continually improve systems.

Education and Training

Education and training are fundamental to total quality because they represent the best way to improve people on a continual basis. It is through education and training that people who know how to work hard learn how to also work smart.

Freedom Through Control

Involving and empowering employees is fundamental to total quality as a way to simultaneously bring more minds to bear on the decision-making process and increase the ownership employees feel about decisions that are made. Total quality detractors sometimes mistakenly see employee involvement as a loss of management control, when in fact control is fundamental to total quality. The freedoms enjoyed in a total quality setting are actually the result of well-planned and well-carried-out controls. Controls such as scientific methodologies lead to freedom by empowering employees to solve problems within their scope of control.

Unity of Purpose

Historically, management and labor have had an adversarial relationship in the U.S. industry. One could debate the reasons behind management–labor discord *ad infinitum* without achieving consensus. From the perspective of total quality, who or what is to blame for adversarial management–labor relations is irrelevant. What is important is this: To apply the total quality approach, organizations must have unity of purpose. This means that internal politics have no place in a total quality organization. Rather, collaboration should be the norm.

QUALITY TIP

Continually Improving People, Processes, and Products

The total quality approach seeks to improve everything all the time forever. This means that it encompasses continually improving (1) how well people are able to do their jobs, (2) how well processes perform, and (3) the quality of products and services provided by the people and processes. To achieve total quality, it is necessary to focus more on solving problems and continually improving and less on blaming individuals for problems.

A question frequently asked concerning this element of total quality is "Does unity of purpose mean that unions will no longer be needed?" The answer is that unity of purpose has nothing to do with whether unions are needed. Collective bargaining is about wages, benefits, and working conditions, not about corporate purpose and vision. Employees should feel more involved and empowered in a total quality setting than in a traditionally managed situation, but the goal of total quality is to enhance competitiveness, not to eliminate unions. For example, in Japan, where companies are known for achieving unity of purpose, unions are still very much in evidence. Unity of purpose does not necessarily mean that labor and management will always agree on wages, benefits, and working conditions, but it does mean that *all* employees work toward the common goal.

Employee Involvement and Empowerment

Employee involvement and empowerment is one of the most misunderstood elements of the total quality approach and one of the most misrepresented by its detractors. The basis for involving employees is twofold. First, it increases the likelihood of a good decision, a better plan, or a more effective improvement by bringing more minds to bear on the situation—not just any minds but the minds of the people who are closest to the work in question. Second, it promotes ownership of decisions by involving the people who will have to implement them.

Empowerment means not just involving people but also involving them in ways that give them a real voice. One of the ways this can be done is by structuring work that allows employees to make decisions concerning the improvement of work processes within well-specified parameters. Should a machinist be allowed to unilaterally drop a vendor if the vendor delivers substandard material? No. However, the machinist should have an avenue for offering his or her input into the matter.

Should the same machinist be allowed to change the way he or she sets up his or her machine? If by so doing he or she can improve his or her part of the process without adversely affecting someone else's, yes. Having done so, his or her next step should be to show other machinists his or her innovation so that they might try it.

Peak Performance

When effectively practiced, total quality allows every aspect of an organization to operate at peak levels. This means that all personnel and processes are operating at their best. Peak performance is essential to organizations that operate in a global environment where competition is intense, constant, and unforgiving.

TOTAL QUALITY PIONEERS

Total quality is not just one individual concept. It is a number of related concepts pulled together to create a comprehensive approach to doing business. Many people contributed in meaningful ways to the development of the various concepts

that are known collectively as *total quality*. The three major contributors are W. Edwards Deming, Joseph M. Juran, and Philip B. Crosby. To these three, many would add Armand V. Feigenbaum and a number of Japanese experts, such as Shigeo Shingo.

Deming's Contributions

Of the various quality pioneers in the United States, the best known is W. Edwards Deming. Deming's contribution was his ability to see the big picture, envision the impact of quality on it, and meld different management philosophies into a new, workable, unitary whole. More than any other quality pioneer, Deming is responsible for the *total quality* approach.

Deming came a long way to achieve the status of internationally acclaimed quality expert. During his formative years, Deming's family bounced from small town to small town in Iowa and Wyoming, trying in vain to rise out of poverty. These early circumstances gave Deming a lifelong appreciation for economy and thrift. In later years, even after he was generating a substantial income, Deming maintained only a simple office in the basement of his modest home out of which he conducted his international consulting business.

Working as a janitor and at other odd jobs, Deming worked his way through the University of Wyoming, where he earned a bachelor's degree in engineering. He went on to receive a master's degree in mathematics and physics from the University of Colorado and a doctorate in physics from Yale.

His only full-time employment for a corporation was with Western Electric. Many feel that what he witnessed during his employment there had a major impact on the direction the rest of his life would take. Deming was disturbed by the amount of waste he saw at Western Electric's Hawthorne plant. It was there that he pioneered the use of statistics in quality.

Although Deming was asked in 1940 to help the U.S. Bureau of the Census adopt statistical sampling techniques, his reception in the United States during these early years was not positive. With little real competition in the international marketplace, major U.S. corporations felt little need for his help. Corporations from other countries were equally uninterested. However, attitudes toward Deming's idea were changed by World War II. The need to rebuild after the devastation of World War II, particularly in bombed-out Japan, brought Deming's ideas on quality to the forefront.

During World War II, almost all of Japan's industry went into the business of producing war materials. After the war, those firms had to convert to the production of consumer goods, and the conversion was not very successful. To have a market for their products, Japanese firms had to enter the international marketplace. This move put them in direct competition with companies from the other industrialized countries of the world, and the Japanese firms did not fare well.

By the late 1940s, key industrial leaders in Japan had finally come to the realization that the key to competing in the international marketplace is quality. At this time, Shigeiti Mariguti of Tokyo University, Sizaturo Mishibori of Toshiba, and several other Japanese leaders invited Deming to visit Japan and share his views on quality. Unlike their counterparts in the United States, the Japanese industrialists accepted Deming's views, learned his techniques, and adopted his philosophy. So powerful was Deming's impact on industry in Japan that the most coveted award a company there can win is the Deming Prize. In fact, the standards that must be met to win this prize are so difficult and so strenuously applied that it is now being questioned by some Japanese companies.

By the 1980s, leading industrialists in the United States were where their Japanese counterparts had been in the late 1940s. At last, Deming's services began to be requested in his own country. By this time, Deming was over 80 years old. He had not been received as openly and warmly in the United States as he was in Japan. Deming's attitude toward corporate executives in the United States can be described as cantankerous at best.

Deming's contributions to the quality movement would be difficult to overstate. Many consider him the founder of the movement. The things for which he is most widely known are the Deming Cycle, his Fourteen Points, and his Seven Deadly Diseases.[8]

The Deming Cycle Summarized in Figure 1.3, the Deming Cycle was developed to link the production of a product with consumer needs and focus the resources of all departments (research, design, production, marketing) in a cooperative effort to meet those needs. The Deming Cycle proceeds as follows:

1. Conduct consumer research and use it in planning the product (plan).
2. Produce the product (do).

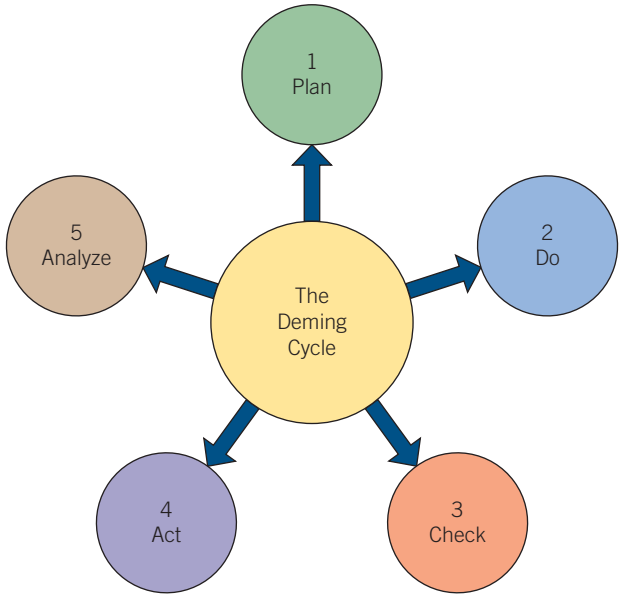


FIGURE 1.3 The Deming Cycle.

1. Create constancy of purpose toward the improvement of products and services in order to become competitive, stay in business, and provide jobs.
2. Adopt the new philosophy. Management must learn that it is a new economic age and awaken to the challenge, learn their responsibilities, and take on leadership for change.
3. Stop depending on inspection to achieve quality. Build in quality from the start.
4. Stop awarding contracts on the basis of low bids.
5. Improve continuously and forever the system of production and service, to improve quality and productivity, and thus constantly reduce costs.
6. Institute training on the job.
7. Institute leadership. The purpose of leadership should be to help people and technology work better.
8. Drive out fear so that everyone may work effectively.
9. Break down barriers between departments so that people can work as a team.
10. Eliminate slogans, exhortations, and targets for the workforce. They create adversarial relationships.
11. Eliminate quotas and management by objectives. Substitute leadership.
12. Remove barriers that rob employees of their pride of workmanship.
13. Institute a vigorous program of education and self-improvement.
14. Make the transformation everyone's job and put everyone to work on it.

FIGURE 1.4 Deming's Fourteen Points.

3. Check the product to make sure it was produced in accordance with the plan (check).
4. Market the product (act).
5. Analyze how the product is received in the marketplace in terms of quality, cost, and other criteria (analyze).

Deming's Fourteen Points Deming's philosophy is both summarized and operationalized by his Fourteen Points, which are contained in Figure 1.4. Deming modified the specific wording of various points over the years, which accounts for the minor differences among the Fourteen Points as described in various publications. Deming stated repeatedly in his later years that if he had it all to do over again, he would leave off the numbers.

UPDATING DEMING'S FOURTEEN POINTS

Deming was prescient when he developed his Fourteen Points. But that was a long time ago. These points are still valid, but they could use some tweaking to bring them up to date and in line with current conditions, conditions they helped create. For example, his second point about adopting the new philosophy is dated. Quality management is no longer a "new" philosophy. Various quality experts have proposed revamped versions of Deming's original Fourteen Points, the authors included. The revisions we propose are as follows:

1. Gain organization-wide commitment at all levels to providing superior value to customers.
2. Establish a quality-first corporate culture.
3. Replace after-the-fact inspections with continuous process improvement strategies.
4. Establish a core of trusted and proven suppliers based on a shared commitment to providing superior value.
5. Continually improve every factor that affects quality (people, processes, environments, management commitment).
6. Make on-going training part of the normal workday.
7. Establish leadership at all levels of the organization, not just in positions of authority.
8. Set the bar high, expect all personnel at all levels to take responsibility for meeting or exceeding expectations, and hold all personnel accountable for doing so.
9. Expect organization-wide cooperation and collaboration horizontally and vertically and make it a required performance criterion for individuals, teams, and departments.
10. Establish observable performance metrics based on customer needs and use them for identifying areas of strength to exploit and areas of weakness to improve.
11. Replace quotas with meaningful performance indicators that can be measured.
12. Replace annual performance appraisals with Personal Improvement Plans that require individuals, teams, and departments to continually improve performance against their individual bests.
13. Establish a comprehensive, on-going training program for personnel at all levels that provides individualized training on the basis of clearly identified needs (no one-size-fits-all training).
14. Align all components from executive management to employees to suppliers in a commitment to efficiency, innovation, responsiveness, agility, and quality.

Deming's Seven Deadly Diseases The Fourteen Points summarize Deming's views on what a company must do to effect a positive transition from business as usual to world-class quality. The Seven Deadly Diseases summarize the factors that he believed can inhibit such a transformation (see Figure 1.5).

1. Lack of constancy of purpose to plan products and services that have a market sufficient to keep the company in business and provide jobs.
2. Emphasis on short-term profits; short-term thinking that is driven by a fear of unfriendly takeover attempts and pressure from bankers and shareholders to produce dividends.
3. Personal review systems for managers and management by objectives without providing methods or resources to accomplish objectives. Performance evaluations, merit ratings, and annual appraisals are all part of this disease.
4. Job hopping by managers.
5. Using only visible data and information in decision making with little or no consideration given to what is not known or cannot be known.
6. Excessive medical costs.
7. Excessive costs of liability driven up by lawyers who work on contingency fees.

FIGURE 1.5 Deming's Seven Deadly Diseases.

The description of these factors rings particularly true when viewed from the perspective of U.S. firms trying to compete in the global marketplace. Some of these factors can be eliminated by adopting the total quality approach, but three cannot. This does not bode well for U.S. firms trying to regain market share. Total quality can eliminate or reduce the impact of a lack of consistency, personal review systems, job hopping, and using only visible data. However, total quality will not free corporate executives from pressure to produce short-term profits, excessive medical costs, or excessive liability costs. These are diseases of the nation's financial, health care, and legal systems, respectively.

By finding ways for business and government to cooperate appropriately without collaborating inappropriately, other industrialized countries have been able to focus their industry on long-term rather than short-term profits, hold down health care costs, and prevent the proliferation of costly litigation that has occurred in the United States. Excessive health care and legal costs represent non-value-added costs that must be added to the cost of products produced and services delivered in the United States.

Juran's Contributions

Joseph M. Juran ranks near Deming in the contributions he has made to quality and the recognition he has received as a result. His Juran Institute Inc. in Wilton, Connecticut, is an international leader in conducting training, research, and consulting activities in the area of quality management (see Figure 1.6). Quality materials produced by Juran have been translated into 14 different languages.

Juran holds degrees in both engineering and law. The emperor of Japan awarded him the Order of the Sacred Treasure medal, in recognition of his efforts to develop quality in Japan and to promote friendship between Japan and the United States. Juran is best known for the following contributions to the quality philosophy:

- Juran's Three Basic Steps to Progress
- Juran's Ten Steps to Quality Improvement
- The Pareto Principle
- The Juran Trilogy

- Quality-related research and development
- Quality-related consulting
- Quality-related education and training
- Quality-related training support materials

FIGURE 1.6 Services Provided by the Juran Institute.

Juran's Three Basic Steps to Progress Juran's Three Basic Steps to Progress (listed in Figure 1.7) are broad steps that, in Juran's opinion, companies must take if they are to achieve world-class quality. He also believes there is a point of diminishing return that applies to quality and competitiveness.

Juran's Ten Steps to Quality Improvement Examining Juran's Ten Steps to Quality Improvement (in Figure 1.8), you will see some overlap between them and Deming's

- Continual structured improvements
- Extensive training
- Higher management commitment and leadership

FIGURE 1.7 Juran's Basic Recommendations for Progress.

1. Awareness
2. Improvement goals
3. Organization
4. Training
5. Problem-solving projects
6. Progress reports
7. Recognition
8. Communicating results
9. Monitor (keep score)
10. Build-in all improvements

FIGURE 1.8 Juran's Recommendations for Quality Improvement.

Fourteen Points. They also mesh well with the philosophy of quality experts whose contributions are explained later in this chapter.

The Pareto Principle The Pareto Principle espoused by Juran shows up in the views of most quality experts, although it often goes by other names. According to this principle, organizations should concentrate their energy on eliminating the vital few sources that cause the majority of problems. Further, both Juran and Deming believe that systems that are controlled by management are the systems in which the majority of problems occur.

The Juran Trilogy The Juran Trilogy summarizes the three primary managerial functions. Juran's views on these functions are explained in the following sections.

Quality Planning Quality planning involves developing the products, systems, and processes needed to meet or exceed customer expectations. The following steps are required:

1. Determine who the customers are.
2. Identify customers' needs.
3. Develop products with features that respond to customer needs.
4. Develop systems and processes that allow the organization to produce these features.
5. Deploy the plans to operational levels.

Quality Control The control of quality involves the following processes (see Figure 1.9):

1. Assess actual quality performance.
2. Compare performance with goals.
3. Act on differences between performance and goals.

Quality Improvement The improvement of quality should be ongoing and continual:

1. Develop the infrastructure necessary to make annual quality improvements.
2. Identify specific areas in need of improvement, and implement improvement projects.
3. Establish a project team with responsibility for completing each improvement project.
4. Provide teams with what they need to be able to diagnose problems to determine root causes, develop solutions, and establish controls that will maintain gains made.

QUALITY TIP

The Pareto Principle

The Pareto Principle, named after economist Vilfredo Pareto, is more commonly known in quality circles as the 80/20 rule. This rule is used variably to contend that 80% of the quality issues in an organization are caused by 20% of the problems or that 80% of the problems can be traced to a few critical sources (the 20%). Joseph Juran is credited with applying what was originally an economic principle to management and quality. He advised organizations to focus the bulk of their improvement efforts on identifying and eliminating these few critical sources of problems.

FIGURE 1.9 Traditional Quality Control Is Part of Juran's Approach. Source: Sezer66/Shutterstock.

FEIGENBAUM'S CONTRIBUTIONS

Armand V. Feigenbaum's quality journey started at the bottom of an organization, but it took him to the top of the quality world. He began his career as a toolmaker for General Electric (GE), but rapidly climbed the career ladder eventually serving as director of manufacturing and quality for the company. Feigenbaum is the author of the classic, *Total Quality Control.* Whereas the other quality pioneers profiled made their marks by establishing principles, methods, and approaches to quality management, Feigenbaum is best remembered for making quality a fully integrated component of organizational management.

For example, consider the traditional composition of the executive team for a manufacturing company. The team would consist of a CEO and executive-level leaders (their actual titles would vary) from finance, marketing, sales, engineering, manufacturing, and human resources. Quality had no representative at the table. Feigenbaum is credited with changing this. One of his major contributions was to transform quality into a profession and get it the appropriate level of involvement and authority within organizations.

He is also known for helping transform quality management into a recognized profession with its own professional organizations. He helped found the American Society for Quality (ASQ), the European Organization for Quality (EOQ), and the International Academy for Quality (IAQ). Before his death, Feigenbaum was awarded the National Medal of Technology by President George W. Bush.

Crosby's Contributions

Philip B. Crosby started his career in quality later than Deming and Juran. His corporate background includes 14 years as director of quality at ITT Corporation (1965–1979). He left

1. Gain management commitment
2. Form cross-functional quality teams
3. Identify problems
4. Assess the cost of quality
5. Increase quality awareness
6. Correct problems immediately
7. Implement a zero defects approach
8. Train supervisors
9. Hold a "Zero Defects Day"
10. Establish improvement goals
11. Identify obstacles to quality
12. Recognize employees
13. Establish quality councils
14. Repeat all 13 steps continually

FIGURE 1.10 Summary of Crosby's Fourteen Steps for Quality Improvement.

ITT in 1979 to form Philip Crosby Associates, an international consulting firm on quality improvement, which he ran until 1992, when he retired as CEO to devote his time to lecturing on quality-related issues. More recently, Crosby had once again entered the business arena as a quality consultant until his death in 2001.

Crosby, who defined quality simply as conformance, is best known for his advocacy of zero-defects management and prevention as opposed to statistically acceptable levels of quality. He is also known for his Quality Vaccine and Crosby's Fourteen Steps to Quality Improvement.

Crosby's Quality Vaccine consists of three ingredients:[9]

1. Determination
2. Education
3. Implementation

His Fourteen Steps to Quality Improvement are listed in Figure 1.10.

MANAGERS, QUALITY, AND ORGANIZATIONAL EXCELLENCE

The concept is known as "quality management," but what does it mean to manage quality? What exactly do managers do? Although the bulk of the information in this book is focused on quality as a concept and how to effectively achieve it, it is important for students of quality management to begin their studies with a look at the overall responsibilities of managers—all kinds of managers. This is important because "total quality" requires a commitment of not just quality professionals but all personnel in an organization at all levels. This requires a strong commitment from an organizations' management team. Hence, quality professionals must have a good grasp of what management is and what managers are supposed to do.

Managers are the leaders of an organization. They provide the vision, policies, and organizational infrastructure that enable and empower employees to do their jobs well. They set the goals and inspire employees to join them in seeking to achieve peak performance in pursuing those goals. Managers are responsible for ensuring organizational excellence and making sure their organizations have a competitive advantage in the marketplace. To do these things, managers perform four broad functions:

- ***Planning.*** Managers participate in strategic planning and operational planning. Quality professionals should be part of both types of planning to ensure that all plans incorporate, encourage, and ensure quality.
- ***Organizing.*** Managers organize their functional areas to ensure efficiency and effectiveness. Quality professionals should ensure that the organizational structure of their company promotes efficiency, effectiveness, responsiveness to customers, continual improvement, innovation, and quality.
- ***Leading.*** Leaders establish a worthy vision (e.g., organizational excellence) and inspire their followers to give their best effort (peak performance) to achieving that vision. Leaders inspire by their examples. They set the bar high for their followers and then set a consistent example of meeting or exceeding the expectations themselves.
- ***Controlling.*** Managers make sure the policies, procedures, and best practices required to achieve organizational excellence are in place and being followed.

Quality professionals should endeavor to effectively carry out the functions of managers while also being prepared to influence their management colleagues to do the same. Organizational excellence requires cooperation and collaboration on the part of all managers in an organization. To achieve that goal, quality professionals need to know what cooperation and collaboration look like. When all managers in an organization—executive, finance, marketing, sales, engineering, manufacturing, quality—plan, organize, lead, and control in ways that ensure the highest possible quality, then and only then can organizational excellence be achieved.

KEYS TO TOTAL QUALITY SUCCESS

Organizations that succeed never approach total quality as just another management innovation or, even worse, as a quick fix. Rather, they approach total quality as a new way of doing business. What follows are common errors organizations commit when implementing total quality. The successful organizations avoid these errors.

- ***Senior management delegation and poor leadership.*** Some organizations attempt to start a quality initiative by delegating responsibility to a hired expert rather than applying the leadership necessary to get everyone involved.
- ***Team mania.*** Ultimately teams should be established, and all employees should be involved with them. However, working in teams is an approach that must be learned. Supervisors must learn how to be effective coaches, and employees must learn how to be team players. The organization must undergo a cultural change before teamwork

can succeed. Rushing in and putting everyone in teams before learning has occurred and the corporate culture has changed will create problems rather than solve them.

- ***Deployment process.*** Some organizations develop quality initiatives without concurrently developing plans for integrating them into all elements of the organization (operations, budgeting, marketing, etc.).
- ***Taking a narrow, dogmatic approach.*** Some organizations are determined to take the Deming approach, Juran approach, or Crosby approach and use only the principles prescribed in them. None of the approaches advocated by these and other leading quality experts is truly a one-size-fits-all proposition. Even the experts encourage organizations to tailor quality programs to their individual needs.
- ***Confusion about the differences among education, awareness, inspiration, and skill building.*** In order for people to do their part in making the total quality approach work effectively, they must have the skills to apply the fundamental tools of quality. Making them aware of quality and inspiring them to accept it at a philosophical level are good and necessary steps in the right direction. But helping them develop the actual skills necessary to implement the concept must also be part of the transformational process.

THE FUTURE OF QUALITY MANAGEMENT IN THE TWENTY-FIRST CENTURY

There are several trends that will shape the future of quality management. These trends are as follows:

- ***Increasing global competition.*** More and better competition from emerging industrialized nations will be an ongoing part of life for organizations.
- ***Increasing customer expectations.*** Today's global customer is interested in not just the quality of a product provided but also the quality of the organization that backs it up. Customers want an excellent product or service from an organization that also provides accurate billing, reliable delivery, after-purchase support, and social responsibility.
- ***Opposing economic pressures.*** The global marketplace exerts enormous, unrelenting pressure on organizations to continually improve quality while simultaneously reducing the prices they charge for goods and services. The key to achieving higher quality and lower prices for customers is the reduction of the expenses associated with satisfying unhappy customers—expenses that amount to as much as 25% of the cost of sales in many companies.
- ***New approaches to management.*** Companies that succeed in the global marketplace have learned that *you manage budgets, but lead people*. The old approach of providing an occasional seminar or motivational speech for employees without making any fundamental changes in the way the organization operates will no longer work.
- ***Increased impact of technology.*** Quality management, like all professions, will continue to enjoy the benefits and face the challenges of technological developments. Technology will help organizations satisfy the never-ending demand for products that are produced faster, better, and less expensively. As more work is done by an electronic workforce from remote locations, quality professionals will have to stay on the cutting edge of technology to ensure that their work meets specifications and expectations. Technology will continue to help people work faster and easier. But faster and easier does not necessarily mean better quality. The challenge for quality processionals will be to secure the benefits of technology without the liabilities.

Quality Management Characteristics for the Future

To succeed in the global marketplace for now and in the future, organizations need to operate according to the principles of quality management. Such companies will have the following characteristics:

- A total commitment to continually increasing value for customers, investors, and employees
- A firm understanding that *market driven* means that quality is defined by customers, not the company
- A commitment to *leading* people with a bias for continuous improvement and communication
- A recognition that sustained growth requires the simultaneous achievement of four objectives continually forever: (a) customer satisfaction, (b) cost leadership, (c) effective human resources, and (d) integration with the supplier base
- A commitment to fundamental improvement through knowledge, skills, problem solving, and teamwork
- A commitment to fast-paced, constant learning, and an ability to respond quickly to changes in the competitive environment
- A commitment to achieving end-to-end collaboration using Web-based, on-demand tools that are fully integrated throughout the supply chain
- A commitment to maintaining an environment in which creativity, critical thinking, and innovation are not just encouraged and supported but demanded

As long as the concept of competition exists, there will be a need for quality management. In the twenty-first century, globalization will only intensify the level of competition businesses face. That is why the book you are now reading has been translated into Korean and Indonesian. The concept of quality management is being adopted globally and, as a result, will continue to be applied and refined through this century.

Companies that develop the aforementioned characteristics will be those that fully institutionalize the principles of quality management. Quality management as both a practice and a profession has a bright future. In fact, in terms of succeeding in the global marketplace, quality management

FIGURE 1.11 Quality That Improves Forever.
Source: Docstockmedia/Shutterstock.

is the future. Consequently, more and more companies are making quality management the way they do business, and more and more institutions of higher education are offering quality management courses and programs (Figure 1.11).

QUALITY CERTIFICATIONS

In a competitive work environment, one of the ways that quality professionals can distinguish themselves, enhance their credibility, and improve their career potential is to become certified in an appropriate quality discipline. The ASQ offers certifications in a variety of disciplines, including Manager of Quality/Organizational Excellence, Quality Engineer, Reliability Engineer, Software Quality Engineer, Quality Auditor, Six Sigma Black Belt, Six Sigma Green Belt, Quality Technician, Calibration Technician, Quality Improvement Associate, Quality Inspector, Quality Process Analyst, Hazard Analysis and Critical Point Auditor, Biomedical Auditor, and Pharmaceutical GMP Professional.

The requirements for all of these certifications are available at the ASQ's Web site: www.asq.org/certification. At this Web site, there is a list of the various certifications available through the ASQ. Simply click on the certification of interest, and all relevant information pertaining to that certification will be available. In addition, the ASQ provides assistance to potential examinees who are preparing for certification examinations: They may find the help they need under the heading "Prepare for the exam" at the applicable page on the ASQ's certification Web site address (www.asq.org/certification). The requirements and body of knowledge relating to the most pertinent of these certifications—Manager of Quality/Organizational Excellence, Quality Engineer, and Quality Technician—are summarized in the following paragraphs.

Manager of Quality/Organizational Excellence[10]

This certification is for managers who lead and champion continual process-improvement initiatives, facilitates and leads team efforts to establish and monitor customer and supplier relations, supports strategic planning and deployment efforts, assists in the development of measurement systems, motivates staff, evaluates staff, manages projects, manages human resources, analyzes budgets and finances, evaluates risk, and uses management tools and techniques.

Education and Experience Requirements In order to sit for the Manager of Quality/Organizational Excellence examination, individuals must have 10 years of experience in one or more of the following areas: leadership, strategic plan development and deployment, management elements and methods, quality management tools, customer focus, supply-chain management, and training and development. At least 5 of the 10 years of experience in one or more of these areas of expertise must be at the decision-making level. Education waivers of up to five years are allowed for individuals who have completed a diploma or degree from an institution accredited by the ASQ. The waivers apply as follows: (1) one year for a technical diploma, (2) two years for an associate degree, (3) four years for a baccalaureate degree, and (4) five years for a master or doctorate degree.

Examination Topics The ASQ offers a practice examination that helps prospective examinees determine what the test covers and what areas or topics they might need to review more thoroughly. The body of knowledge covered on the examination for certification as a Manager of Quality/Organizational Excellence is as follows:

- ***Leadership.*** Organizational structures and culture, leadership challenges, team and team processes, and the ASQ Code of Ethics.
- ***Strategic plan development and deployment.*** Strategic planning models, business environment analysis, and strategic plan deployment.
- ***Management elements and methods.*** Management skills and abilities, communication skills and abilities, project management, quality systems, and quality models and theories.
- ***Quality management tools.*** Problem-solving tools, process management, and measurement/metrics.
- ***Customer-focused organizations.*** Customer identification, segmentation, and relationship management.
- ***Supply-chain management.*** Supplier selection, supplier communications, supplier performance, supplier improvement, supplier certification/partnerships/alliances, and supplier logistics.
- ***Training and development.*** Training plans, needs analysis, training material/curriculum development and delivery, and training effectiveness/evaluation.

Quality Engineer[11]

The Quality Engineer certification is for individuals who develop and operate quality control systems, apply and analyze testing and inspection procedures, use metrology and statistical systems to diagnose and correct quality problems,

understand human factors and motivation, understand quality cost techniques, develop and administer management information systems, and audit quality systems for identifying deficiencies and correcting them.

Education and Experience Requirements In order to sit for the Quality Engineer certification examination, individuals must have a minimum of eight years of work experience in one or more of the following disciplines: management and leadership, the quality system, product and process design, product and process control, and continuous improvement. Waivers of part of the experience requirement available to individuals who have completed a diploma or degree from an institution accredited by the ASQ are as follows: (1) one year for a technical diploma, (2) two years for an associate degree, (3) four years for a baccalaureate degree, and (4) five years for a masters or doctorate degree.

Examination Topics The ASQ provides a practice examination that helps prospective examinees find out what the test covers and what areas or topics they might need to review more thoroughly. The body of knowledge covered on the examination for certification as a Quality Engineer is as follows:

- ***Management and leadership.*** Topics include quality philosophies and foundations, the quality management system, the ASQ Code of Ethics, leadership principles and techniques, facilitation principles and techniques, communication skills, customer relations, supplier management, and barriers to quality.
- ***The quality system.*** Topics include elements of the quality system, documentation of the quality system, quality standards and other guidelines, quality audits, cost of quality, and quality training.
- ***Product and process design.*** Topics include classification of quality characteristics, design inputs and review, technical drawings and specifications, design verification, and reliability/maintainability.
- ***Product and process control.*** Topics include tools, material control, acceptance sampling, measurement and testing, metrology, and measurement analysis.
- ***Continuous improvement.*** Topics include quality control tools, quality management planning tools, continuous improvement techniques, corrective action, and preventive action.
- ***Quantitative methods and tools.*** Topics include collecting and summarizing data, quantitative concepts, probability distributions, statistical decision making, relationships between variables, statistical process control, process and performance capability, and design and analysis of experiments.

Quality Technician[12]

This certification is for paraprofessionals who—under the direction of quality engineers and managers—analyze and solve quality problems, prepare inspection plans and instructions, select applications for sampling plans, prepare procedures, train inspectors, perform audits, analyze quality data, analyze quality costs, and apply basic statistical methods for process control.

Education and Experience Requirements In order to sit for the Quality Technician examination, individuals must have at least four years of higher education and/or work experience in one or more of the following disciplines: quality concepts and tools, statistical techniques, metrology and calibration, inspection and testing, quality audits, and preventive/corrective action. Education waivers of up to three years are allowed for individuals who have completed a certification program or degree from an institution accredited by the ASQ. The waivers apply as follows: (1) one year for certification through the Quality Technology program of a community college or technical school, (2) two years for an associate degree, and (3) three years for a baccalaureate, masters, or doctorate degree.

Examination Topics The ASQ offers a practice examination that helps prospective examinees find out what the test covers and what topics they might need to review more thoroughly. The body of knowledge covered on the examination for certification as a Quality Technician is as follows:

- ***Quality concepts and tools.*** Topics include quality concepts, quality tools, and team functions.
- ***Statistical techniques.*** Topics include general concepts, calculations, and control charts.
- ***Metrology and calibration.*** Topics include measurement and test equipment and calibration.
- ***Inspection and testing.*** Topics include blueprint reading and interpretation, inspection concepts, inspection techniques and processes, and sampling.
- ***Quality audits.*** Topics include audit types, audit components, and tools/techniques.
- ***Preventive and corrective action.*** Topics include preventive action, corrective action, and nonconforming material.

For more detail concerning the certification examinations, readers are encouraged to visit the certification pages of the ASQ's Web site: www.asq.org/certification. Details concerning study materials, costs, examination dates, and application procedures are provided on these pages.

OTHER QUALITY CERTIFICATIONS

In addition to the quality certifications just described there are others relating specifically to Six Sigma and Lean. The ASQ also offers a professional certification in Six Sigma that has four successive levels: Yellow Belt, Green Belt, Black Belt, and Master. For additional information about Six Sigma certification, contact the ASQ at: asq.org/certification. Lean certification is offered by the Society of Manufacturing Engineers (SME). Lean certification has three successive levels: Bronze, Silver, and Gold. For additional information about Lean certification, contact the SME at: sme.org.

SUMMARY

1. *Quality* has been defined in a number of different ways. When viewed from a consumer's perspective, it means meeting or exceeding customer expectations.
2. Total quality is an approach to doing business that attempts to maximize an organization's competitiveness through the continual improvement of the quality of its products, services, people, processes, and environments.
3. Key characteristics of the total quality approach are as follows: strategically based, customer focus, obsession with quality, scientific approach, long-term commitment, teamwork, continual process improvement, bottom-up education and training, freedom through control, unity of purpose, employee involvement and empowerment, and peak performance. The rationale for total quality can be found in the need to compete in the global marketplace. Countries that are competing successfully in the global marketplace are seeing their quality of living improve. Those that cannot are seeing theirs decline.
4. W. Edwards Deming is best known for his Fourteen Points, the Deming Cycle, and his Seven Deadly Diseases.
5. Joseph M. Juran is best known for Juran's Three Basic Steps to Progress, Juran's Ten Steps to Quality Improvement, the Pareto Principle, and the Juran Trilogy.
6. Common errors made when starting quality initiatives include senior management delegation and poor leadership; team mania; the deployment process; a narrow, dogmatic approach; and confusion about the differences among education, awareness, inspiration, and skill building.
7. Trends affecting the future of quality management include increasing global competition, increasing customer expectations, opposing economic pressures, and new approaches to management.
8. The American Society for Quality (ASQ) offers certifications in several disciplines including Manager of Quality/Organizational Excellence, Quality Engineer, and Quality Technician.

KEY TERMS AND CONCEPTS

Bottom-up education and training
Continual process improvement
Crosby's Fourteen Steps to Quality Improvement
Crosby's Quality Vaccine
Customer focus
Deming Cycle
Deming's Fourteen Points
Deming's Seven Deadly Diseases
Employee involvement and empowerment
Freedom through control
Global customer
The Juran Trilogy
Long-term commitment
Obsession with quality
Pareto Principle
Peak performance
Quality
Quality control
Quality improvement
Quality planning
Scientific approach
Teamwork
Total quality
TQC (Total Quality Control)
Unity of purpose

FACTUAL REVIEW QUESTIONS

1. Define the term *quality*.
2. What is total quality?
3. List and explain the key elements of total quality.
4. Explain the rationale for the total quality approach to doing business.
5. Describe the following concepts:
   - Deming's Fourteen Points
   - The Deming Cycle
   - Deming's Seven Deadly Diseases
6. List and explain Juran's main contributions to the quality movement.
7. Why do some quality initiatives fail?
8. For what contributions to the quality movement is Philip B. Crosby known?
9. Summarize the most common errors made when starting quality initiatives.
10. Explain the trends that are affecting the future of quality management.

CRITICAL THINKING ACTIVITY

Have We Spoiled Customers?

"If you want to understand how the worldwide quality movement has benefited consumers, just look at automobiles. What used to be considered a luxury option is now just standard," said one quality manager. "That is precisely the problem," said another quality manager, "We have spoiled the consumer. Now customers will never be happy no matter what we do." Join this debate. What is your opinion concerning the following questions?

1. What features in the modern automobile are customer driven?
2. Henry Ford once said something to the effect that the customer can have any color Model T he or she wants, as long as it's black. How did the world evolve from Henry Ford's attitude toward customers to the modern attitude of customer-driven quality?
3. Are global consumers spoiled and unrealistic in their expectations, or are they finally demanding their rights in the marketplace?
4. How has the worldwide demand for quality driven the concept of innovation? How has innovation changed your life?

DISCUSSION ASSIGNMENT 1.1

Winning and Longevity

A professional baseball team set its sights on winning the World Series. The team owner wanted to win big and win fast. Consequently, the team sank all of its resources into trading for the best players in the league. It was able to obtain enough of them that

within two seasons the team was the World Series champion. However, the team had committed such a high percentage of its financial resources to players' salaries that other important elements of the team began to suffer. Its stadium quickly fell into such a state of disrepair that fans began to stay home. Training facilities also began to suffer, which caused discontent among the players. The money left over to pay the salaries of coaches wasn't enough to hold onto the good ones, most of whom accepted better offers from other teams. In short, by focusing so intently on the desired end result, this organization neglected other important aspects of building a competitive team. As a result, the team's World Series championship was a short-lived once-in-a-lifetime victory. The very next season the team's crumbling infrastructure sent it tumbling to the bottom of its division. Without the people, processes, and environment to turn the situation around, the team was eventually sold at a loss and moved to another city.

DISCUSSION QUESTIONS

Discuss the following questions in class or outside of class with your fellow students:

1. Why would a company that is turning out a satisfactory product want to continually examine its processes and the work environment? What happened to the old adage "If it's not broke, don't fix it?"
2. Create a manufacturing, processing, or service sector parallel for this activity. Discuss how this assignment would apply to a company.

DISCUSSION ASSIGNMENT 1.2

How Japan Caught Up with the United States and How the United States Caught Up with Japan Again

Immediately following World War II, the quality of products produced by Japanese companies was not good enough to compete in the international marketplace. The only advantage Japanese companies had was price. Japanese goods, as a rule, were cheap. For this reason, Western manufacturers, particularly those in the United States, saw the Japanese threat as being rooted in cost rather than quality.

Reading the future more accurately, albeit belatedly, Japanese companies saw quality as the key to success and, in 1950, began doing something about it. While Japanese companies were slowly but patiently and persistently creating a quality-based infrastructure (people, processes, and facilities), American companies were still focusing on cost, shifting the manufacture of labor-intensive products offshore and, at the same time, neglecting infrastructure improvements.

By the mid-1970s, the quality of Japanese manufactured goods in such key areas as automobiles and consumer electronics products was better than that of competing American firms. As a result, Japanese exports increased exponentially, while those of Western countries experienced corresponding decreases.[13]

This explains how Japan rose up out of the ashes of World War II to become a world-leading industrial nation. But the story does not end there. After losing market share to the Japanese for more than two decades, companies in the United States began to embrace the principles of quality management. As a result, by the mid-1990s, companies in the United States had reasserted themselves in the global marketplace.

Now, the two countries are like well-matched heavyweight boxers who slug it out every day in the world of global business. On any given day, either can win the global business battle. There are no longer any automatic winners. Regardless of whether they are Japanese or American, those companies that adhere to the principles of quality management and continually improve are the ones that will win in today's marketplace.

DISCUSSION QUESTION

Discuss the following question in class or outside of class with your fellow students:

1. Why do you think that companies in the United States were slow to adopt the quality management principles Japanese companies had used to gain market share worldwide?

ENDNOTES

1. *Quality Management Seminar, by David L. Goetsch, January 2019, p. 2.*
2. Ibid.
3. Ibid.
4. Ibid.
5. W. Edwards Deming, *Out of the Crisis* (Cambridge: Massachusetts Institute of Technology Center for Advanced Engineering Study, 1986), 168.
6. Ibid., 169.
7. Ibid.
8. Ibid., 136.
9. Retrieved from www.philipcrosby.com on January 4, 2019.
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11. *Quality Engineer Certification*. Retrieved from www.asq.org/certification/quality-engineer/index.html on January 6, 2019.
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CHAPTER TWO

QUALITY AND GLOBAL COMPETITIVENESS

LEARNING OBJECTIVES

After completing this chapter, you should be able to:

- Explain the relationship between quality and competitiveness.
- Describe how poor quality costs an organization.
- Summarize the effects of competitiveness on the U.S. economy.
- Recognize the factors that inhibit competitiveness.
- Explain human resources as a factor in competitiveness.
- Summarize the characteristics of world-class organizations.
- Explain why management-by-accounting is the antithesis of total quality.
- Describe the global strengths and weaknesses of U.S. organizations.
- Compare and contrast quality management practices in Asia with those in the United States.

One of the results of World War II combined with subsequent technological advances was the creation of the global marketplace. Following the war, industrialized countries began looking for markets outside their own borders. Although the war gave the world a boost in this regard, it was advances in technology that really made the global marketplace possible. Advances in communications technology have made people from all over the world electronic neighbors and electronic customers.

Advances in transportation technology allow raw materials produced in one country to be used in the manufacture of products in a second country that are, in turn, sold to end users in a third country. For example, leather produced in Australia might be shipped as raw material to Italy, where it is used in the manufacture of shoes and purses that are sold in the United States, France, and Japan. At the same time, leather produced in South America is sent to shoe manufacturers in Indonesia. These manufacturers, like their Italian counterparts, sell their shoes in the United States, France, and Japan. This means the manufacturers in Italy compete with the manufacturers in Indonesia. This simple example demonstrates the kind of competition that takes place on a global scale every day. Such competition has become the norm, and it can be intense.

At one time, only large corporations and large multinationals faced global competition; now even small companies are affected. Today no company is immune to the effects of global competition.

THE RELATIONSHIP BETWEEN QUALITY AND COMPETITIVENESS

The relationship between quality and competitiveness is best illustrated by an example from the world of athletics. Consider track star Juan Arballo. In high school, he was his track team's best sprinter. Competing at the district level, Juan easily topped the competition in such events as the 100-, 200-, and 400-meter runs and several relays in which he was the anchor. He did well enough in high school to win a college scholarship. However, at the college level the competition was of a higher quality, and Juan found he had to train harder and run smarter to win. This he did, and although he no longer won every race, Juan did well enough to pursue a spot on the U.S. Olympic team. In the Olympic Trials, the quality of the competition was yet again better than that to which Juan was accustomed. He made the Olympic team but only in two events: the 200-meter dash and the 4 x 100 relay.

In the preliminary events at the Olympics, Juan Arballo found the quality of his competitors to be even better than he had imagined it would be. Some competitors had preliminary times better than the best times he had ever run in meets. Clearly, Juan faced the competitive challenge of his career. When his event was finally run, Juan, for the first time in his life, did not place high enough to win a medal. The quality of the global competition was simply beyond his reach.

In this example, at each successive level of competition the quality of the competitors increased. A similar phenomenon happens to businesses in the marketplace. Companies that used to compete only on a local, regional, or national level now find themselves competing against companies

from throughout the world. Like Juan Arballo, some of these companies find the competition to be more intense than any they have ever encountered. Only those who are able to produce world-class quality can compete at this level. In practical terms, it is extremely important for a country's businesses to be able to compete globally. When they can't, jobs are lost and the quality of life in that country declines correspondingly.

How Quality and Competitiveness Encourage Job Satisfaction and Financial Benefits

Human resource professionals know that job satisfaction is affected by several factors including working conditions, opportunity for advancement, workload, stress level, relationships with coworkers, relationships with supervisors, and financial benefits. What is less known is that all of these job satisfaction factors are affected by an organization's commitment to quality and, in turn, competitiveness. The formula is simple. The better an organization's quality, the more competitive the organization is. The more competitive an organization, the better everything in the organization functions.

For example, because everything that affects quality and competitiveness is continually improved in an organization that is committed to total quality, working conditions, workload, and stress levels tend to be better in the organization. Because competitive organizations have no trouble finding customers for their products and services, they are able to stay in business and even grow which, in turn, provides opportunities for advancement. In addition, because competitive organizations generate a profit, they are better able to reward their personnel financially (salary, benefits, bonuses, incentive pay, and perquisites).

Finally, in competitive organizations that continually improve quality, interpersonal relationships among employees and between employees and supervisors tend to be more positive because the quality of these relationships is stressed and continually improved. Further, relationships always go better when they are not complicated by the stress of wondering about layoffs, reductions in force, restructuring, buyouts, and all of the other pressures inflicted on employees of organizations that struggle to stay in business. In short, everything tends to work better in organizations that effectively use quality management to maintain their competitive edge.

COST OF POOR QUALITY

Many business executives adopt the attitude that ensuring quality is good thing to do until hard times set in and cost cutting is necessary. During tough times, quality initiatives are often the first functions to go. Companies that take this approach are those that have never integrated continual quality improvement as a normal part of doing business. Rather, they see it as a stand-alone, separate issue. What executives in such companies fail to calculate or to even understand is the costs associated with poor quality. This ironic dilemma is best illustrated with an example of two companies.

A Tale of Two Companies

Two companies, ABC Inc. and XYZ Inc., both need to compete in the global marketplace in order to survive. As might be expected, over the years competition has become increasingly intense. In order to be more competitive, ABC's executives undertook a major company-wide cost-cutting initiative. They eliminated quality audits; changed from trusted, proven suppliers to low-bid suppliers; purchased new computer systems; cut back on research and development; and reduced customer service staff.

These cost-cutting strategies did have the desired effect of decreasing the company's overhead, but they also had the unplanned consequences of disrupting the company's ability to satisfy customers and reducing the company's potential to develop new business in the future. The net outcome of all this was unhappy customers, disenchanted employees, and a decline in business. To make matters even worse, the company was still struggling with the poor performance record that caused its executives to want to cut costs in the first place.

The executives of XYZ Inc. also needed to make some changes in order to stay competitive, but they decided to take a different approach. XYZ's management team set out to identify all of the costs that would disappear if their company improved its performance in key areas. The costs identified included those associated with the following: late deliveries to customers, billing errors, scrap and rework, and accounts payable errors. In other words, XYZ's executives decided to identify the costs associated with poor quality. Having done so, they were able to begin improvement projects in the areas identified without making cuts in functions essential to competitiveness (e.g., product quality, research and development, customer service).

Cost of Poor Quality and Competitiveness

Few things affect an organization's ability to compete in the global marketplace more than the costs associated with poor quality. When an organization does what is necessary to improve its performance by reducing deficiencies in key areas (cycle time, warranty costs, scrap and rework, on-time delivery, billing, etc.), it can reduce overall costs without eliminating essential services, functions, product features, and personnel. Reducing the costs associated with poor quality is mandatory for companies that hope to compete in the global marketplace. Reducing such costs is one of the principal drivers behind the total quality concept of continual improvement.

Figure 2.1 summarizes both the traditional and the hidden costs of poor quality. The key principle to understand when examining the hidden costs shown in Figure 2.1 is that if every activity in an organization is performed properly every time, these costs simply disappear.

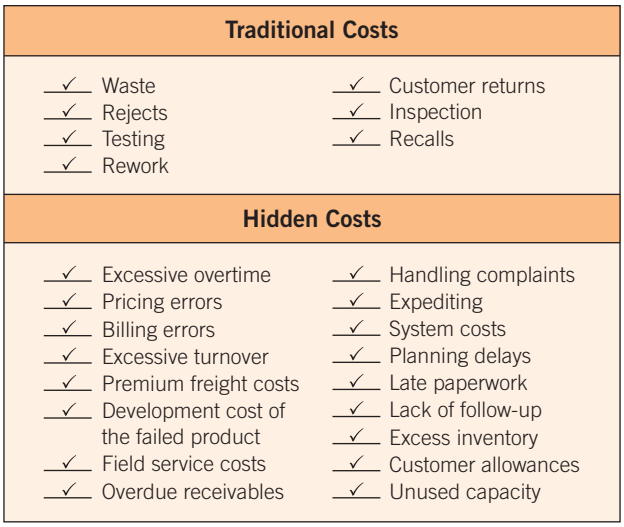

FIGURE 2.1 Factors to Consider When Quantifying the Costs of Poor Quality.

Interpreting the Costs of Poor Quality

Once activities have been identified that exist only or primarily because of poor quality, improvement projects can be undertaken to correct the situation. It is important at this stage to select those projects that have the greatest potential to yield the highest return. The following steps can be used to measure the costs of poor quality so that selected improvement projects have the highest priority:

1. Identify all activities that exist only or primarily because of poor quality.
2. Decide how to estimate the costs of these activities.
3. Collect data on these activities and make the cost estimates.
4. Analyze the results and take necessary corrective actions in the proper order of priority.

Reducing the cost of poor quality reduces all other costs—product costs, the cost of doing business, and so on. This, in turn, improves the superior value equation: quality, cost, and service.

COMPETITIVENESS AND THE U.S. ECONOMY

The United States came out of World War II as the only major industrialized nation with its manufacturing sector completely intact. A well-oiled manufacturing sector and the availability of abundant raw materials helped the United States become the world leader in the production and export of durable goods. This resulted in a period of unparalleled prosperity and one of the highest standards of living ever experienced by any country.

While the United States was enjoying its position as the world's preeminent economic superpower, the other industrialized nations of the world, particularly Japan and Germany, were busy rebuilding their manufacturing sectors. As Japanese and German manufacturers rebuilt, two things became apparent to them:

1. To succeed, they would have to compete globally.
2. To compete globally, they would have to produce goods of world-class quality, which meant producing better goods but at reasonable, competitive prices.

Basking in their prosperity, U.S. manufacturers were slow to catch on that the game had changed from mass production with acceptable levels of waste to quality production with things done right the first time every time to provide superior value for customers. The old game was best cost. The new game had become best cost *and* best quality. When foreign companies—through a combination of better training, better technology, and better management—began to eat away at markets, U.S. companies, mistakenly seeing cost rather than quality as the issue, began sending work offshore to hold down labor costs. By the time U.S. companies learned that quality and value were key to success in the global marketplace, Japan, Germany, Taiwan, and Korea had made major inroads into global markets previously dominated by U.S. manufacturers (e.g., steel, automobiles, computers, and consumer electronics). In a relatively short period of time, the United States went from the world's leading lender and exporter to the world's biggest debtor, with a huge balance-of-trade deficit. By 1980, the United States was consuming more than it produced and the trend continues to this day.

Impact of Competitiveness on Quality of Life

A nation's ability to compete in the global marketplace has a direct bearing on the quality of life of its citizens. Because the ability to compete translates into the ability to do a better job of producing quality goods, it is critical that nations and individual organizations within them focus their policies, systems, and resources in a coordinated way on continually improving both quality and competitiveness.

The United States began the first decade of the new century poised on the precipice of a growing gap between the haves and the have-nots. While Canada, France, Germany, Italy, Japan, Sweden, and Great Britain have taken steps to link economics, education, and labor market policy in ways that promote competitiveness, the United States is still debating the need for an industrial policy and struggling to reverse the decline of its public schools.

During the 1980s, the United States improved productivity by putting more people to work. Other countries improved their productivity by making the individual worker more efficient. Most new entrants into the workforce during the 1970s and 1980s were people who had not worked previously, primarily women. This influx of new workers helped the United States maintain its traditionally high level of productivity. However, by the 1990s, the gains that could be made by increasing the number of people in the workforce had been made.

QUALITY TIP

The United States and the Global Marketplace

Companies in the United States have had to learn the hard way that the key to winning in the global marketplace is consistently providing superior value for customers. Superior value consists of superior quality, cost, and service. By the time this realization set in, the U.S. companies in such sectors as automobiles and consumer electronics had lost substantial market share to their competitors in Japan, Korea, and such emerging industrial nations as China and Indonesia. The companies, regardless of their country of origin, that will survive and thrive in the global marketplace are those that can (1) achieve consistent peak performance from people, processes, suppliers, management systems, and all other factors that can affect their ability to deliver superior value and (2) continually improve what passes for peak performance.

From 2010 to the foreseeable future, the number of people in the prime working-years age groups in the United States will be on the decline.[1] As the size of the workforce continues the downward trend that began in the early 1990s, the only way to improve productivity will be to do what other industrialized countries have done—concentrate on improving the efficiency of individual workers. In other words, businesses in the United States will need to get more work out of fewer workers. As some businesses have already learned, the best way to do this is to adopt the total quality philosophy.

Figure 2.2 contains several vignettes relating to the quality of life in the United States. This figure presents either a bleak picture of bad times to come or an unprecedented national challenge. To meet the challenge, companies in the United States will have to produce world-class value, which will require a commitment to superior quality, cost, and service.

FACTORS INHIBITING COMPETITIVENESS

Improving competitiveness on a national scale is no simple matter. Much can be done at the level of the individual company, where the total quality approach can be applied to great advantage, but competitiveness on a national scale requires more than just total quality. Students of quality management must understand this point. Failure to understand the limits of total quality has caused some business leaders to expect too much too soon. This, as a result, has turned them into detractors.

This section describes factors that can inhibit competitiveness but are beyond the scope of total quality. They are socioeconomic and sociopolitical in nature and are indigenous to the United States. In the age of global competition, managers should apply the principles of total quality to help make their individual organizations more competitive. Simultaneously, they should work through the political and social systems as private citizens and community leaders to help level the playing field among nations by correcting the inhibitors explained in this section. These inhibitors fall into the following categories: business- and government-related factors, family-related factors, and education-related factors.

Business- and Government-Related Factors

Those U.S. companies trying to compete in the global marketplace are rowing upstream while dragging an anchor. Actually, they drag three anchors. This was pointed out many years ago by W. Edwards Deming when he first set forth his Seven Deadly Diseases. His second, sixth, and seventh deadly diseases are as follows:[2]

- Emphasis on short-term profits fed by fear of unfriendly takeover attempts and pressure from lenders or shareholders
- Excessive medical costs
- Excessive costs of liability inflated by lawyers working on contingency fees

In addition to these big-picture inhibitors of competitiveness, there are a number of organization-level inhibitors, including the following:

- Poor organizational leadership
- Poor or insufficient planning (strategic and operational)
- Poor implementation of plans
- Lack of customer focus
- Insufficient use of metrics or use of poor metrics
- Poor work environment
- Poor work systems and processes
- Lack of innovation
- Poor quality
- Insufficient value added

Each of these diseases adds cost to a company's products without adding value. Nothing could be worse when viewed

- Many of the higher paying manufacturing jobs are being exported to foreign countries.
- The number of people having to work at more than one job to maintain their quality of life has increased continually since the 1960s.
- The most financially rewarding work years have historically been those between ages 40 and 50. In the 1950s, people in this age bracket experienced a 36% increase in real income. By 2008, their counterparts had experienced a decline in real income and the trend continues.
- The gap between the haves and have-nots is growing.

FIGURE 2.2 Quality of Life Issues in the United States.

from the perspective of competitiveness. A company might equal all competitors point for point on all quality and productivity criteria and still lose in the marketplace because it is a victim of deadly diseases that drive up the cost of its product.

Excessive medical costs and litigation, primarily related to workers' compensation, have also slanted the playing field in favor of foreign competitors. The annual cost of workers' compensation to U.S. businesses is almost $30 billion. This is a non-value-added cost that increases the price these businesses must charge for their products. Litigation and the associated legal costs have made tort reform an issue in the U.S. Congress and in the legislatures of most states. However, intense lobbying by trial lawyers has prevented any significant tort reform.

Overcoming these business-related inhibitors will require business and government to work together in a positive, constructive partnership to enact policies that will reduce these non-value-added costs to a minimum. To accomplish this goal, the United States will have to undertake major restructuring of its financial, legal, and medical systems.

Family-Related Factors

Human resources are a critical part of the competitiveness equation. Just as one of the most important factors in fielding a competitive athletic team is having the best possible players, one of the most important factors in fielding a competitive company is having the best possible employees. Consequently, the quality of the labor pool is important. The more knowledgeable, skilled, motivated, and able to learn members of the labor pool are, the better.

Well-educated, well-trained, motivated members of the labor pool quickly become productive employees when given jobs. Although providing ongoing training for employees is important in the age of global competitiveness, the type of training provided is important. Organizations that can offer training that has immediate and direct application spend less than those that have to begin by providing basic education for functionally illiterate employees. Since the 1970s, U.S. businesses have had to devote increasing amounts of money to basic education efforts, whereas foreign competitors have been able to provide advanced training that very quickly translates into better quality and productivity.

Many factors account for this difference. Some of these can be traced directly to the family. If the family unit, regardless of how it is constituted, is the nation's most important human resource development agency, the labor pool from which U.S. companies must draw their employees cannot match that in competing countries.

Single parents who must work full-time have little or no time to help their children excel in school. Children with parents who do not value education are unlikely to value it themselves. If the family has a strong influence—positive or negative, by design or by default—on the attitudes of children toward learning and work, the United States faces deep-seated problems that must be solved if its companies are going to compete in the global marketplace.

Education-Related Factors

The transition from classroom to workplace has never been easy, but in the age of global competition it has only become more difficult. The needs of employers have increased markedly. Unfortunately, the academic performance of students in the United States has not kept pace with changes in the global marketplace. High school graduation rates in the United States rank near the bottom when compared with those in other leading industrialized nations—nations that America must compete with. In addition, the performance of those students who do graduate from high school is markedly lower than that of their contemporaries in competing industrialized countries.

On international tests of academic performance in such key areas as reading, mathematics, science, and problem solving, American students lag well behind their contemporaries in other countries. This is bad news for employers in the United States that must compete in an increasingly global environment. Human performance is one of the key ingredients in quality, productivity, value, organizational excellence, and all of the other factors that affect global competitiveness. Students who enter the workplace unable to perform at competitive levels in reading, mathematics, science, and problem solving just handicap their employers.

Figure 2.3 compares annual expenditures per pupil for leading industrialized countries. Of the top seven, the United States spends the most, whereas Korea spends the least. Figure 2.4 compares the number of school days required of students annually in the leading industrialized countries. With this criterion, the order is reversed when comparing the United States and Japan.

Country	Annual Funding ($)
United States	**7,560**
Italy	6,783
Japan	5,771
Germany	4,237
France	4,777
United Kingdom	4,416
Korea	3,714

FIGURE 2.3 Comparison of Per-Pupil Funding in Selected Industrialized Countries. Source: www.ed.gov, 2018.

Country	Average School Days
Japan	240
Korea	222
Taiwan	222
Israel	215
Scotland	191
Canada	188
United States	**178**

FIGURE 2.4 Comparison of School Days per Year in Selected Industrialized Countries. Source: www.ed.gov, 2018.

Country	Math Literacy
Hong Kong	550
Finland	544
Korea	542
Netherlands	538
Liechtenstein	536
Japan	534
Canada	532
Belgium	529
Macao	527
Switzerland	527
Australia	524
New Zealand	523
Czech Republic	516
Iceland	515
Denmark	514
France	511
Sweden	509
Austria	506
Germany	503
Ireland	503
Slovak Republic	498
Norway	495
Luxembourg	493
Poland	490
Hungary	490
Spain	485
Latvia	483
United States	**483**

FIGURE 2.5 Mean Achievement Scores in Math Literacy. Source: www.ed.gov, 2018.

Country	Science Literacy
Finland	548
Japan	548
Hong Kong	539
Korea	538
Liechtenstein	525
Australia	525
Macao	525
Netherlands	524
Czech Republic	523
New Zealand	521
Canada	519
Switzerland	513
France	511
Belgium	509
Sweden	506
Ireland	505
Hungary	503
Germany	502
Poland	498
Slovak Republic	495
Iceland	495
United States	**491**

FIGURE 2.6 Mean Achievement Scores in Science Literacy. Source: www.ed.gov, 2018.

Figures 2.5, 2.6, 2.7, and 2.8 show the actual rankings of student performance on international tests of reading, mathematics, science, and problem solving as tracked by the Organization for Economic Cooperation and Development (OECD). Figure 2.5 shows the relative performance rankings of students in mathematics literacy. The average score of students from the United States is well below the international average (483 versus 498). Figure 2.6 shows similar results in science literacy. Figure 2.7 shows that students from the United States scored an average of 495 on reading while the average international score was 500. These scores do not bode well for the United States or for its employers who must compete in the global arena. In fact, what the scores mean is that if global competition were a footrace, the United States would be starting 100 yards behind in a 200-yard race.

U.S. Manufacturers and Global Competition

The most important sectors in determining the quality of life in a country are manufacturing and agriculture. The United States has led the world in agricultural production for many years and still does. The United States also led the world in manufacturing productivity for many years. Beginning with the 1960s, however, this lead began to slip. The decline continued and accelerated through the 1980s to the point that the U.S. manufacturing sector entered the 1990s struggling uphill to regain ground. In the mid-1990s, however, the United States began to reemerge as a world-class competitor. No longer is the United States, or any other country, the clear-cut leader in terms of manufacturing productivity. With the dawning of the new millennium, Japan, the United States, Germany, and Korea became increasingly competitive.

Figure 2.9 compares the productivity of automobile manufacturers in Japan, the United States, and Europe. In this chapter, the term *productivity* is used several times. In this context, the term should be viewed as "total factor productivity" (ratio of outputs to inputs from labor, capital, materials, and energy). The graph compares the average hours required by the most productive plants to produce one automobile. Japanese plants located in Japan are able to produce an automobile in an average of 15 hours. European manufacturers require more than twice that much time. Such U.S. manufacturers as General Motors, Ford, and Chrysler require an average of 20 hours per automobile. Japanese manufacturers with assembly plants in the United States using U.S. workers, such as Mazda, average 19 hours per automobile. Because hourly wages in Europe tend to be higher than those in Japan and the United States, European firms operate at a double competitive disadvantage. European and U.S. firms are nibbling away at these productivity differences to the point that the gap between the best and worst producers is slowly but steadily closing.

Country	Reading Literacy
Finland	543
Korea	534
Canada	528
Australia	525
Liechtenstein	525
New Zealand	522
Ireland	515
Sweden	514
Netherlands	513
Hong Kong	510
Belgium	507
Norway	500
Switzerland	499
Japan	498
Macao	498
Poland	497
France	496
United States	**495**

FIGURE 2.7 Mean Achievement Scores in Reading Literacy. Source: www.ed.gov, 2018.

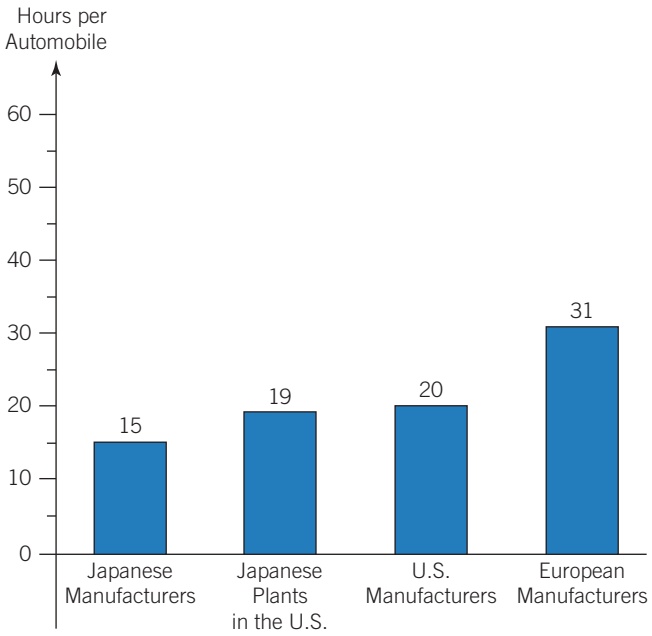

FIGURE 2.9 Comparative Productivity of Automobile Manufacturers (Most Productive Plants). Source: Congress of the United States, Office of Technology Assessment, 2018.

Advanced Problem-Solving Skills

- Korea..... 70% plus
- Japan..... 70% plus
- Finland..... 70% plus
- Germany..... 58%
- Czech Republic..... 58%

Average 52%

- Ireland..... 51%
- Russia.....43%
- United States.....42%

FIGURE 2.8 Percentage of Students with Advanced Problem-Solving Skills. Source: www.ed.gov, 2018.

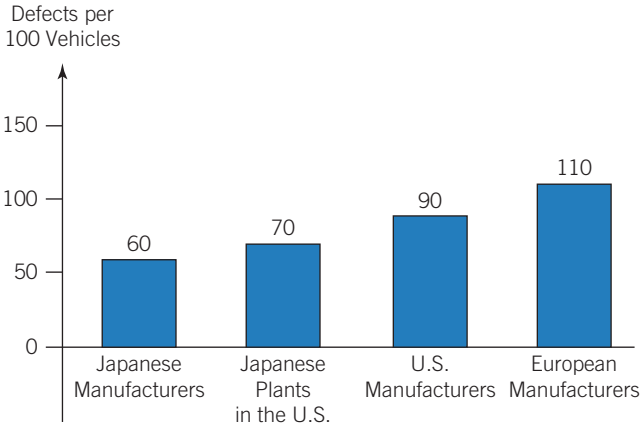

FIGURE 2.10 Comparative Defect Frequency Among Automobile Manufacturers. Source: Congress of the United States, Office of Technology Assessment, 2018.

Another area in which Japanese firms have gained a competitive advantage is product development. The *product development cycle*—the time it takes to turn an idea into a finished product—is typically shorter in Japan than in the United States and Europe. This allows Japanese firms to get new products to the market faster. Japanese automobile manufacturers take an average of two years to complete the product development cycle compared with more than three years for their competitors in the United States and Europe.

Another basis for comparison among automobile manufacturers is quality. Productivity gained at the expense of quality yields no competitive advantage. Figure 2.10 compares the major automobile-producing nations in terms of the average number of defects per 100 vehicles manufactured. The quality comparisons follow the same trends found in the earlier productivity comparisons. Japanese manufacturers average the fewest defects; European manufacturers average the most. American manufacturers find it difficult to compete in the global marketplace when their productivity and quality are not up to international standards—a situation that must be reversed if the United States is to regain the preeminent position it has historically enjoyed in the world community.

Even a cursory examination of key economic indicators raises concerns. The ability of a country to compete in the manufacturing arena is a direct determinant of its quality of

- Approximately 15% of the people in the United States currently live in poverty.
- More than 45 million people in the United States currently live in poverty.
- The poverty rate in the United States for children under the age of 18 is approximately 20%.
- The United States has the largest income distribution between its wealthiest and poorest citizens in the world.

FIGURE 2.11 Selected Economic Indicators.

life. Manufacturing created the great American middle class. If the manufacturing sector dwindles because it cannot compete globally, the middle class dwindles correspondingly. Figure 2.11 contains a number of facts that indicate what has happened to the U.S. economy during the years since World War II. These are the years in which U.S. manufacturers have steadily lost ground to foreign competition.

Do these comparisons mean that U.S. manufacturers cannot compete? The answer is no. American manufacturers were slow to respond to the international quality revolution. However, in the 1980s and into the new millennium, the realization that quality coupled with productivity was the key to winning global competition caused many U.S. firms to begin adopting the approach set forth in this book while simultaneously pushing for change in areas beyond their control (cost of capital, industrial policy, etc.). As the total quality approach continues to gain acceptance, companies in the United States are closing the competitiveness gap.

COMPARISONS OF INTERNATIONAL COMPETITORS

According to a report published by the World Economic Forum, the United States has reclaimed its place as the most competitive country in the world community.[3] This is good news, since the United States had slipped to fifth place during the 1990s. This means that in spite of the poor performance of students in the United States when compared with the performance of students in other industrialized nations, the United States has managed to improve in the areas of standard of living, manufacturing productivity, investment, and trade, which are critical indicators of national competitive status (Figure 2.12).

HUMAN RESOURCES AND COMPETITIVENESS

The point is made continually throughout this book that the most valuable resources for enhancing competitiveness are human resources. The truth of this point becomes apparent if one studies the approach taken by Germany and Japan to rebuild from the rubble of World War II. Both countries were devastated. Being left with only one real resource, the human resource, Germany and Japan were forced to adopt an approach that used this resource to the greatest possible advantage.

The German and Japanese systems are not perfect, nor are they infallible. They are examples of approaches that work as well as any other two systems can in a continually changing and unsure global marketplace. Further, they make wise and effective use of human resources.

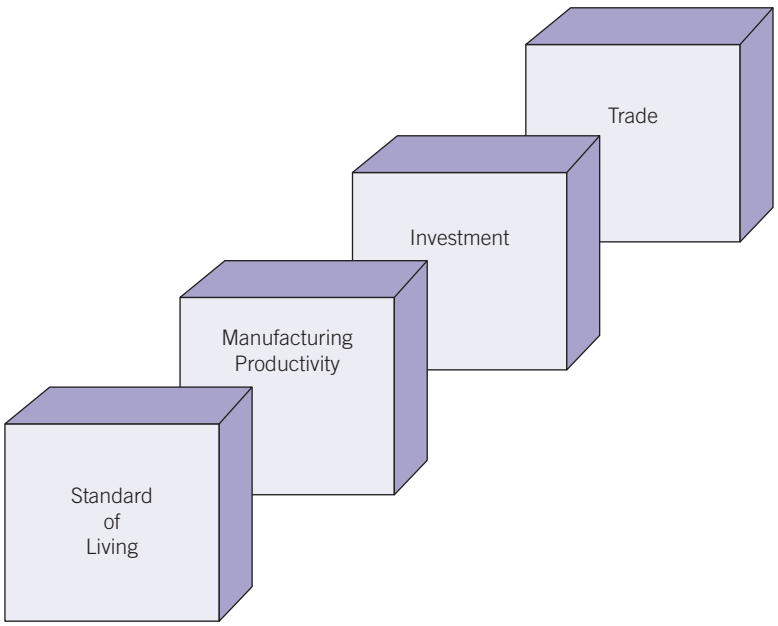

FIGURE 2.12 Critical Indicators of National Competitive Status.

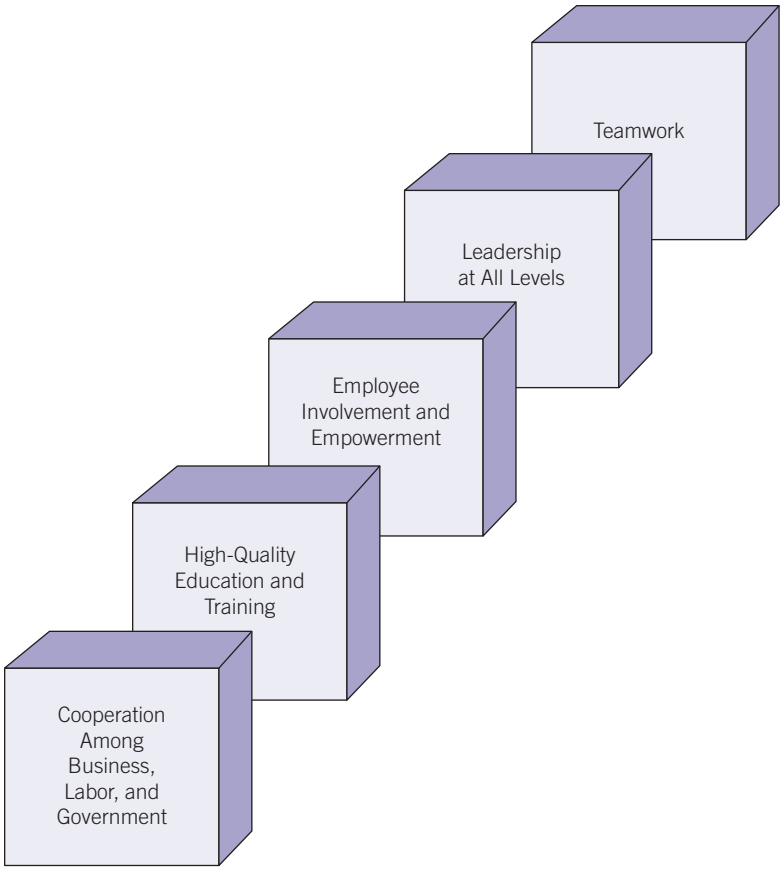

FIGURE 2.13 Strategies for Human Resource Competitiveness in Japan and Germany.

Business, government, and labor leaders in the United States could learn a great deal from Germany and Japan. People often respond to suggestions that such study might be helpful by claiming that the culture of the United States is so different that what works in these countries won't work in the United States. Such thinking misses the point entirely: few countries could be more different from one another than Japan and Germany, yet the approaches to competitiveness adopted by these countries are strikingly similar (see Figure 2.13).

CHARACTERISTICS OF WORLD-CLASS ORGANIZATIONS

It is often said that only "world-class" organizations can compete in the global marketplace. But what is a world-class organization? In an attempt to answer this question, the American Management Association (AMA) conducted a global survey.[4] According to this survey, the following are the top 15 areas in which organizations are concerned about doing well as they attempt to compete in the global marketplace:

1. Customer service
2. Quality control and assurance
3. Research and development/new product development
4. Acquiring new technologies
5. Innovation
6. Team-based approach (adopting and using effectively)
7. Best practices (study and use of)
8. Manpower planning
9. Environmentally sound practices
10. Business partnerships and alliances
11. Reengineering of processes
12. Mergers and acquisitions
13. Outsourcing and contracting
14. Reliance on consulting services
15. Political lobbying

Of the 15 areas listed in the survey, several are directly associated with the larger issue of quality. Customer service, quality control and assurance, innovation, team-based approach to work, partnerships and alliances, and reengineering of processes are all topics that figure prominently in any discussion of total quality.

In addition to these issues, the AMA survey found that respondents were concerned about a number of human resources topics. The 10 most important of these are as follows:

1. Worker productivity (improvement)
2. Employee training and development
3. Open communication between management and employees
4. Employee benefits and perquisites

5. Codes of workplace conduct
6. Conflict resolution
7. Employee satisfaction
8. Flextime arrangements
9. Management–employee–union relations
10. Child care

Once again, the AMA survey identified numerous quality-related concerns and functions that organizations must do well if they hope to compete globally. Worker productivity, employee training and development, codes of workplace conduct, conflict resolution, employee satisfaction, and management–employee–union relations are all total quality–related topics that are addressed at various points in this text.

World-Class Manufacturing: What It Takes

Organizations in business sectors ranging from banking to commercial transportation attempt to compete on a global scale. The most prominent of these come from the manufacturing sector. World-class manufacturers are those that consistently provide superior value (quality, cost, and service) for customers. The methods of world-class manufacturers are summarized in the following sections:

Competitive Analysis Strategies In the area of competitive analysis, world-class manufacturers use the following methods to compare themselves with the competition for the purpose of improving their own performance: cost efficiencies in operations, speed to market, research and development supremacy, rapid delivery from suppliers, first-class delivery logistics, zero defects, real-time order management, seamless integration with sales and marketing, close to zero inventory, and networked or collaborative operations. By applying these criteria to themselves and their competitors, world-class manufacturers determine where their performance is and where it needs to be in order to compete globally.

Production and Supply-Chain Strategies In the area of production and supply-chain strategies, world-class manufacturers use the following methods to stay ahead of the competition: collaborative planning, forecasting, and replenishment; collaborative manufacturing and product design; direct delivery of materials to point of use; supplier-managed inventory; and use of channel-assembly distributors. Other manufacturers also use these strategies to varying degrees. Ultimate manufacturers stay ahead of the competition by using them extensively.

Customization Strategies In the area of customization strategies, world-class manufacturers use the following methods: building to order, mass production that is configured for individual customers, configuring to order (linking sales operations to production schedules), one-to-one customization for customers in real time, and global sourcing and manufacturing. As with the other strategies, it is not just the fact that ultimate manufacturers use these customization methods that make them world class; it is the extent to which they use them.

Electronic Commerce Strategies In the area of electronic commerce strategies, world-class manufacturers use the following methods: supply management, buying, auctioning, Internet ordering, status and availability tracking by Internet, and accepting Internet orders from customers. World-class manufacturers use electronic commerce strategies almost twice as often as their competitors. In addition, these world-class organizations are on track to increase their use of electronic commerce over the next five years at a rate well beyond the projected rates of competitors.

Compensation Systems In the area of compensation systems, world-class manufacturers use the following methods as benchmarks for rewarding and recognizing managers and employees: product profitability, inventory levels, manufactured/delivered costs per unit, worker productivity, level of customer satisfaction, manufacturing cycle time, cost efficiencies in operations, employee retention rates, speed of response to market demands, percentage of revenues from new products, total delivered cost per unit, zero defects, percentage of costs saved from strategic outsourcing, integration of functions across the organization, economic value added, and percentage of products from strategic alliances. Figure 2.14 contains a brief checklist of minimum performance benchmarks that manufacturers must be able to meet in order to compete in the global marketplace.

QUALITY TIP

Lesson from Toyota's Quality Problems

Few companies are more closely associated with quality than Toyota. With the assistance of W. Edwards Deming, Toyota pioneered the quality revolution that helped transform Japan from a bombed-out shell of a country following World War II into an economic superpower. However, as events have proven, even a quality giant such as Toyota can stumble. Following a serious damage to its image and also to its profit/loss statement caused by a succession of product recalls, Toyota began to tackle the difficult task of winning back its lost credibility with customers and the general public. Along the way, Toyota's leadership learned a valuable lesson about how to recover from a quality crisis. That lesson was this: when fixing the problems, focus on the needs of your customers. Toyota knew that just recalling cars and fixing the problems would not be sufficient. Consequently, the car maker offered a variety of incentives to entice Toyota owners to bring their cars in for the necessary repairs. Then the company paid for all repairs and parts. It also provided discounts and extended warranties as options available to customers. This was a responsible way to get past the crisis. However, the real issue is whether Toyota will identify and correct the root cause of the recall problems. Doing so will be the key in determining if the Japanese auto giant can fully and permanently recover from its problems. This is the most important lesson to learn from Toyota's recall crisis.

- On-time delivery of products that meet specification (98% or better).
- Productivity improvements over the last three years (improvements in all applicable areas).
- Investment in capital equipment as a percentage of sales on a three-year average (10% minimum).
- Annual sales from products introduced in the last three years (50% minimum).
- Investment of new product development as a percent of sales (10% minimum).

FIGURE 2.14 To Compete in the Global Marketplace, Manufacturers Must Consistently Exceed These Benchmarks.

MANAGEMENT-BY-ACCOUNTING: ANTITHESIS OF TOTAL QUALITY

In too many businesses, accounting trumps quality. Often, managerial accounting becomes the tail that wags the dog—a questionable approach to doing business in a highly competitive environment. When managerial accounting becomes management-by-accounting, quality inevitably suffers. Management-by-accounting amounts to focusing solely on an organization's financial performance rather than managing the factors that most affect financial performance (e.g., people, process, and quality).

The most obvious problem with management-by-accounting is that it leads to short-term thinking and short-term decision making. According to this approach, one of the fastest ways to improve financial performance in the short run is to ignore investing in continual improvement that are necessary to remain competitive in the long run. The practices like (1) keeping people trained and well equipped, (2) employing best practices to keep processes operating at peak performance levels, and (3) maintaining world-class quality in all aspects of an organization's operations cost money in the short run but pay off in the long run. In other words, total quality is a long-term concept while management-by-accounting is a short-term concept.

One of the many reasons why companies fall into the management-by-accounting trap is that many CEOs come from a finance-related background, the most common college degree among the American CEOs being an MBA—a degree with a strong finance orientation. To avoid such ideological pitfalls, all business-related degrees need to include a more thorough study of quality. It is also why more quality professionals need to put themselves on the "CEO track" in their professions. Consider the following problems that result from the application of management-by-accounting:

- Management-by-accounting leads to decision making by analysis of financial spreadsheets rather than by consideration of the factors that lead to organizational excellence and world-class quality.
- Management-by-accounting encourages short-term cost cutting instead of long-term improvements to quality, value, and competitiveness.
- Management-by-accounting leads to narrowly focused leadership of companies based solely on short-term financial considerations rather than broader thinking that encompasses all factors that contribute to organizational excellence and make a company competitive.

The master's of business administration degree, or MBA, is an excellent credential. So are the various other undergraduate and graduate degrees available from colleges and universities in the United States. It is the concept of focusing excessively on the score rather than the game—management-by-accounting—that is being questioned by quality advocates, not any specific degree. Management-by-accounting is an approach to management, not an academic credential.

As anyone knows, both the game and the score are important. We advocate a blending of the principles of quality management with the curricula of business, engineering, technology, and management programs. Students pursuing a degree in any of these disciplines should learn the principles of quality management set forth in this book as well as their traditional curriculum content. This will ensure that they know how to continually improve both performance and the score.

U.S. COMPANIES: GLOBAL STRENGTHS AND WEAKNESSES

As business continues the current trend toward globalization, how are companies in the United States faring? A business trying to compete in the global marketplace is like an athlete trying to compete in the Olympics. Nowhere is the competition tougher. Correspondingly, no country in the world gives its businesses such a solid foundation from which to work. The following factors account for a country's ability to compete in the international marketplace:

1. An economy that is open to foreign investment and trade
2. A government that minimizes controls on business but does a good job of supervising financial institutions
3. A judicial system that works well and helps reduce corruption
4. Greater transparency and availability of economic information
5. High labor mobility
6. Ease of entry by new businesses

In varying degrees, the United States meets all of these criteria. Of course, how well these criteria are fulfilled is a matter of debate between and among various interest groups and stakeholders. Nonetheless, when compared with other countries competing in the global marketplace, the United States fares well in all of these key areas (Figure 2.15). This being the case, a key advantage of American firms trying to

FIGURE 2.15 Competition Is Global. Source: Rawpixel.com/Shutterstock.

compete in the global marketplace is these six factors working in their favor. Other advantages and disadvantages are summarized in the following sections.

Global Advantages of U.S. Companies

In the global marketplace, the United States is the world leader in the following industries: aerospace, airlines, beverages, chemicals, computer services, electrical products, entertainment, general merchandise, motor vehicles, office equipment, paper products, pharmaceuticals, photographic and scientific equipment, semiconductors, soap and cosmetics, and tobacco. Some of the reasons the United States is able to lead the world in these key industries include the following:

1. Strong entrepreneurial spirit
2. Presence of a "small capitalization" stock market for small and mid-sized companies
3. Rapidly advancing technologies
4. Comparatively low taxes
5. Low rate of unionization
6. World-class system of higher education (colleges and universities)

The United States leads the world in new business start-ups. This is because the entrepreneurial spirit is an integral part of the American persona. The presence of a small capitalization stock market allows small and mid-sized companies to start up and expand without having to use all of their own capital or to take out higher-interest loans from banks, as is often the case in other countries. The United States leads the world in the development, transfer, diffusion, and use of technology. This helps ensure a continual stream of new products on the one hand and improved productivity on the other. Americans complain constantly about taxes (as they are entitled to do in exercising their rights as free citizens). But when compared with other industrialized nations, the United States has a low tax burden. Tension between labor and management can harm productivity and, in turn, decrease a company's ability to compete in the global marketplace. The amount of tension that exists between labor and management can typically be demonstrated by the level of union activity: the more the tension, the more the union activity. Compared with other industrialized nations, union activity in the United States is low.

The United States also provides the world's best higher education system. The number of top-notch colleges and universities in the United States is so much greater than those in other countries that comparisons are irrelevant. The cost of higher education in America, although viewed as high by U.S. citizens, is inexpensive when compared with that of other industrialized nations. In addition, financial aid is so readily available that almost any person with the necessary academic ability can pursue a college education in the United States.

Global Disadvantages of U.S. Companies

In spite of the many strengths companies in the United States can bring to the global marketplace, and in spite of this country's world-leading position in several key industries, there are still some disadvantages with which companies have to deal. The primary global disadvantages of U.S. companies are these:

1. Expanding government regulation
2. A growing "underclass" of have-nots
3. A weak public school system (K–12)
4. A poorly skilled labor force and poor training opportunities
5. An increasing protectionist sentiment (to restrict imports)
6. Growing public alienation with large institutions (public and private)

Regardless of which major political party has controlled Congress over the past 40 years, the general trend has been toward increasing government regulation of business. Regulating business is a difficult balancing act. On the one hand, businesses cannot be allowed to simply pursue profits, disregarding the potential consequences to the environment and other national interests. On the other hand, too much regulation or unnecessary regulation can make it impossible to compete globally. The growing divide between haves and have-nots in the United States might lead to the establishment and perpetuation of a permanent economic and social underclass. This is precisely what happened in Russia when Czar Nicholas II was overthrown by the Communists in the early 1900s. People who lose hope might very well respond in ways that threaten the peace, stability, and social fabric of the United States. One of the key factors in the establishment of a social and economic underclass is the failure of America's public school system (K–12). Even with the best system of higher education in the world, America cannot overcome the shortcomings of its K–12 system. In fact, if drastic improvements are not made, over time those

shortcomings will begin to erode the quality of our higher education system.

The most fundamental problem with the public school system from the perspective of global competition is that most of the jobs in companies that need to compete globally require less than a college education. These jobs must be performed by high school graduates who, if they cannot read, write, speak, listen, think, and calculate better than their counterparts in other countries, will be outperformed. Poorly skilled workers are an outgrowth of the failure of the nation's public school system, in which the overwhelming majority of Americans are educated. Ideally, every high school graduate should be fully prepared to either go to work or go on to college. When this is not the case, as it certainly is not, American companies must try to compete with a less-skilled labor force. This is like a baseball coach trying to win with a team of players who cannot pitch, catch, run, or hit.

One of the factors that contributed to the Great Depression of the 1930s was global protectionism. Americans wanted their farmers and their manufacturers to be "protected" from their counterparts in other countries. Protectionism hurts everyone and never really protects anyone. But as other countries (principally Japan, Korea, and China) have entered U.S. markets, the jobs of American workers have been threatened. A natural but ill-informed response is to call for protectionist measures and to adopt slogans such as "Buy American." Economists are quick to point out, however, that the only valid reason to "buy American" is that American products are the best made. If they are not, buying them makes little sense and is nothing more than misguided patriotism. The better approach is to ask why the American products are not the best and then to do what is necessary to make them the best.

The final factor that gives U.S. companies a disadvantage is the growing tendency of the public to see big organizations as the "bad guys." This is displayed in many different ways. Disgruntled employees will sometimes pretend injuries and file fraudulent workers' compensation claims. Employees will cheat and steal from their employers. Of course, the most common way animosity toward big business is acted out by employees giving less than their best on the job. Another expression is when the public at large supports antibusiness legislation and unnecessary regulations.

QUALITY MANAGEMENT PRACTICES IN ASIAN COUNTRIES

Companies in the United States compete for market share every day with companies all over the world. Global competition has become a way of life for business and industry. Some of the most intense competition comes from Asia, where companies have effectively adopted many of the quality management practices set forth in this book. The most intense competition for companies in the United States now comes from Japan, South Korea, and China. Most students of quality are familiar with the strides Japanese companies have made since beginning to adopt quality management practices after World War II. But what is less known is that many other Asian companies are following Japan's lead as a way to compete effectively at the global level. These countries include Bangladesh, Brunei, India, Indonesia, Malaysia, the Philippines, Singapore, and Thailand.

Industrialization in these Asian countries began to gain a foothold in the 1960s and developed rapidly through the 1980s. In the 1980s, companies in these countries began to form quality control circles as a way to gain employee input for continually improving processes and products. By the 1990s, companies in these Asian countries were well along in the adoption and effective application of the principles of total quality management including ISO 9000 registration. By the late 1990s, many companies in these countries had refined their total quality techniques and had begun to emphasize on not just the product quality but the service quality, too.

The dawning of the new century saw Asian companies adopting ISO 14000 as a way to ensure effective environmental management. National quality awards similar to the Baldrige Award in the United States and the Deming Prize in Japan were adopted by several of these Asian countries. As of now, the leading companies throughout Asia are applying global best practices to maximize performance, value, and quality.

The globalization of the marketplace has transformed doing business into an enterprise similar to competing in the Olympics. In the global arena, only the best of the best survive and thrive, the intensity of the competition only increases, what was considered outstanding performance yesterday won't even make the grade tomorrow, and even the smallest countries can produce world-class performers.

Companies in the United States that used to compete only locally or regionally now find themselves battling daily against companies from not just Japan but also India, Brunei, Bangladesh, Thailand, South Korea, Singapore, Malaysia, Indonesia, and the Philippines. What's more, companies from these countries have learned the value of effectively adopting and applying the principles set forth in this book.

SUMMARY

1. The relationship between quality and competitiveness can be summarized as follows: In a modern global marketplace, quality is the key to competitiveness.
2. The costs of poor quality include the following: waste, rejects, testing, rework, customer returns, inspection, recalls, excessive overtime, pricing errors, billing errors, excessive turnover, premium freight costs, development cost of the failed product, field service costs, overdue receivables, handling complaints, expediting, system costs, planning delays, late paperwork, lack of follow-up, excess inventory, customer allowances, and unused capacity.
3. The United States came out of World War II as the only major industrialized nation with its manufacturing sector completely intact. Germany and Japan were devastated by damage during the war. They rebuilt their manufacturing bases on the assumption that to compete globally they would have to produce goods

of world-class quality. That strategy helped them recover and become world leaders in manufacturing.

4. Several factors can inhibit competitiveness, including those related to business and government, family, and education.
5. When making comparisons among internationally competing countries, the following indicators are used: standard of living, trade and export growth, investment, and manufacturing productivity.
6. The most important key in maximizing competitiveness is the human resource. Following World War II, this was the only resource that Germany and Japan had to draw on. Consequently, they built economic systems that encouraged private employers to make business decisions that emphasized improved productivity and quality rather than price.
7. World-class organizations perform well in the following areas: customer service, quality control and assurance, research and development/new product development, acquiring new technologies, innovation, team-based approach, study and use of best practices, manpower planning, environmentally sound practices, business partnerships and alliances, reengineering of processes, mergers and acquisitions, outsourcing and contracting, reliance of consulting services, political lobbying, worker productivity, employee training and development, open communication between management and employees, employee benefits and perquisites, codes of workplace conduct, conflict resolution, employee satisfaction, flextime arrangements, management–employee–union relations, and child care.
8. Management-by-accounting is a concept wherein the tail wags the dog. It amounts to making decisions on the basis of an organization's financial performance rather than managing the factors that produce good financial results (people, processes, and quality). Management-by-accounting leads to (a) decision making by analysis of financial spreadsheets rather by consideration of the factors that lead to organizational excellence and world-class quality; (b) short-term cost cutting instead of long-term improvements to quality, value, and competitiveness; and (c) narrowly focused leadership based solely on financial considerations rather than broader thinking that encompasses all factors that contribute to organizational excellence.
9. Organizations in the United States that must compete globally have both advantages and disadvantages. Advantages include a strong entrepreneurial spirit in the United States, presence of a small-capitalization stock market for small and mid-sized companies, rapidly advancing technologies, comparatively low taxes, low rate of unionization, and world-class system of higher education. Disadvantages include expanding government regulation, a growing underclass of have-nots, a weak public school system (K–12), poorly skilled labor force and poor training opportunities, an increasing protectionist sentiment, and a growing alienation of the public with large institutions (public and private).
10. Some of the most intense competition in the global marketplace comes from Asia where many companies have adopted the concepts presented in this book. The most intense competition comes from companies in Japan, South Korea, China, Bangladesh, Brunei, India, Indonesia, Malaysia, the Philippines, Singapore, and Thailand.

KEY TERMS AND CONCEPTS

Competitive analysis strategies
Competitiveness
Cost of poor quality
Customization strategies
Education-related factors
Export growth
Family-related factors
Investment
Manufacturing productivity
Product development cycle
Quality of life
Research and development

FACTUAL REVIEW QUESTIONS

1. Explain the relationship between quality and competitiveness.
2. Explain how the costs of poor quality can affect competitiveness.
3. Describe the evolution of the rebuilding effort undertaken by Japan and Germany following World War II.
4. Explain the actions of U.S. manufacturers during the period in which Japan and Germany were rebuilding following World War II.
5. How does a nation's ability to compete affect its quality of life?
6. Explain how education-related factors can inhibit competitiveness.
7. Compare investment and manufacturing productivity in the United States with investment and manufacturing productivity in Japan.
8. List and briefly explain the basic philosophical constructs underlying the human resource aspects of the competitiveness of Japan and Germany.

CRITICAL THINKING ACTIVITY

Two quality managers meet for lunch every Friday to discuss common problems, compare notes, and make suggestions to each other. Today their discussion has turned into a debate. The topic is the impact of competitiveness on the quality of life in America. "I think you are taking the issue of competitiveness too far. Sure it's important to my company and to yours, too. But I don't think it has that much of an effect on the overall quality of life in America," said the first quality manager. "I could not disagree with you more," responded his colleague. "The quality of life we enjoy in this country is tied directly to the ability of U.S. companies to compete in the global marketplace." Take one side or the other in this debate and complete one of the following activities:

1. Debate the issue in class with your fellow students.
2. Make a list of the ways competitiveness can affect the quality of life.
3. Write a position paper explaining your opinions in this debate.

DISCUSSION ASSIGNMENT 2.1

Technology Adoption by Small Manufacturers

"The Office of Technology Assessment (OTA) reports that only 11 to 15 percent of all machine tools in the U.S. are automated; the majority of those automated are found in large companies."

"A Census Bureau study found that half of the small manufacturers surveyed don't use any of 17 technologies cited by experts as critical to competitiveness and didn't plan to do so in the next five years. Among firms that used one of the technologies, 60 percent had no plans to adopt other technologies."

Discussion Questions

Discuss the following questions in class or outside of class with your fellow students:

1. Why don't more small companies in the United States adopt modern technologies?
2. How can modern technologies be justified from a cost perspective in a small company?

DISCUSSION ASSIGNMENT 2.2

Pennsylvania's Industrial Resource Centers

Pennsylvania's Department of Community and Economic Development maintains a network of industrial resource centers (IRCs) that are operated as nonprofit corporations managed by the private sector but with financial support from the state. These IRCs all have a similar mission: to help small and medium-sized manufacturers adopt world-class technologies and techniques—technologies and techniques that will lead to organizational excellence. The principles of total quality are the heart of the IRCs' purpose.

Typical of these IRCs is the Northwest Industrial Resource Center (NWIRC), which serves an area consisting of 13 primarily rural counties that encompass approximately 2,000 manufacturing enterprises. Services provided fall into two broad categories: (1) business growth services and (2) manufacturing excellence services. Business growth services include those that help small and medium-sized manufacturers grow their principal product line (e.g., strategic planning, sales and marketing, new product development, and succession planning). Manufacturing excellence services, such as lean manufacturing, value-stream mapping, ISO support, and continual quality improvement, include those that help improve quality and productivity.

Discussion Questions

Discuss the following questions in class or outside of class with your fellow students:

1. What kind of non-technology-oriented help might be needed by a small manufacturer?
2. How could the IRC model be applied to the service sector and other nonmanufacturing companies?

ENDNOTES

1. U.S. Bureau of Labor Statistics. Retrieved from www.bls.gov on January 6, 2019.
2. Retrieved from www.managementwisdom.com on January 6, 2019.
3. World Economic Forum. Retrieved from www.weforum.org on January 6, 2019.
4. American Management Association. Retrieved from www.amanet.org on January 6, 2019.

CHAPTER THREE

STRATEGIC MANAGEMENT: PLANNING AND EXECUTION FOR COMPETITIVE ADVANTAGE

LEARNING OBJECTIVES

After completing this chapter, you should be able to:

- Define the term *strategic management.*
- Define the concept of *competitive strategy.*
- Describe the relationship between core competencies and competitive advantage.
- Summarize the components of strategic management.
- Describe the strategic planning process including the SWOT analysis and how to develop the vision, mission, guiding principles, broad strategic objectives, and specific tactics (action plan).
- Summarize how to execute a strategic plan in general terms.
- Describe how to execute a strategic plan using a "real-world" example.

In today's global business arena, even small companies can find themselves being challenged by competitors from all over the world. Never has the world of business been so intensely competitive as it is now. Consequently, it is important for business leaders to think strategically, to plan for gaining and sustaining competitive advantage, and to effectively execute their plans. This chapter explains the concept of strategic management, explains why this concept is so important, and demonstrates how to plan and execute the strategy to gain and sustain competitive advantage.

WHAT IS STRATEGIC MANAGEMENT?

To understand strategic management, one must first understand the concept of organizational strategy. Strategies are defined as follows:

> *Organizational strategies are the approaches adopted by organizations to ensure successful performance in the marketplace. These approaches are typically set forth in a comprehensive document called the strategic plan.*

Strategic management is management that bases all actions, activities, and decisions on what is most likely—within an ethical framework—to ensure successful performance in the marketplace. From the strategic manager's perspective, resources are wasted unless they contribute to success in the marketplace, and the more direct the contribution, the better.

COMPETITIVE STRATEGY

To survive and thrive in a globally competitive marketplace, organizations must adopt a broad strategy that gives them a sustainable competitive advantage. All such strategies fall into one or more of the following categories:

- ***Cost leadership strategies.*** Strategies in this category seek to improve efficiency and control costs throughout an organization's activity-cost chain (supplier activity costs, in-house activity costs, and distribution activity costs).
- ***Differentiation strategies.*** Strategies in this category seek to add value, as defined by customers, to the organization's products or services. Such strategies typically involve gaining technological superiority over competitors, continually outperforming competitors in the area of quality, providing more and better support services to customers, and providing customers more value for their money.
- ***Market-niche strategies.*** Strategies in this category focus on a narrowly defined segment of the market (market niche) and attempt to make the organization in question the market leader in that niche. Leadership can be achieved by adopting cost leadership or differentiation strategies or both designed to appeal specifically to the target market.

Total quality relates to strategic management in that it enhances an organization's ability to gain a sustainable competitive advantage in the marketplace. Handled properly,

total quality can be the most effective cost leadership or differentiation strategy an organization can adopt. This is because the total quality approach is the best way to continually improve efficiency and cut costs throughout an organization's activity-cost chain while simultaneously improving the features of the product or service that differentiate it in the marketplace. Total quality can also improve an organization's chances of becoming a leader in a given market niche.

CORE COMPETENCIES AND COMPETITIVE ADVANTAGE

One task to be accomplished as part of the strategic planning process is identifying the organization's core competencies. This task is generally completed as part of the SWOT (strengths, weaknesses, opportunities, and threats) analysis, since an organization's core competencies should be part of its strengths. A core competency is something an organization does so well that it can be viewed as a competitive advantage. A competitive advantage is any aspect of the organization that (1) contributes directly and significantly to increasing customer demand by achieving superior value (i.e., superior quality, cost, and service) and (2) is difficult for competitors to replicate.

An organization's core competencies might be based on its ability to achieve economy of scale, proprietary access to a given technology, expertise in a given area that cannot be replicated, ability to maintain world-class performance from critical processes, market proximity, high-performance corporate culture, research and development expertise, or ability to respond rapidly to market research or in any other factors that contribute directly and significantly to the organization's ability to provide superior value consistently over time.

It is important that organizations understand their core competencies. Too many organizations give in to the temptation to pursue business that is outside the realm of their core competencies rather than finding new marketers for their core products and services. This approach typically leads to quality and productivity problems that invariably undermine the value of the organization's new products and services.

Perhaps the best way to understand what happens when companies decide to operate outside the realm of their core competencies is to consider a sports analogy. There have been several examples in which professional athletes whose core competencies were in one sport attempted to cross over and play another sport. Two that come immediately to mind are Michael Jordan, one of the greatest basketball players in the history of the National Basketball Association, and Dion Sanders, a Hall of Fame–caliber defensive back in football. Both of these gifted athletes left their core competencies relating to basketball and football behind and attempted to play professional baseball.

It was not that these two high-profile athletes were not good at baseball—they were; but they were just not good enough to compete with other professionals whose core competencies were in baseball. As a result, both had a measure of success playing baseball, but neither had a stellar career. They simply could not perform in this new "market" at the world-class level that they could in their core sports. This same type of thing often happens to companies that try to operate outside the realm of their core competencies.

COMPONENTS OF STRATEGIC MANAGEMENT

Strategic management consists of two interrelated activities: (a) strategic planning and (b) strategic execution. These two primary components of strategic management are described in the following sections.

Strategic Planning

Strategic planning is the process by which an organization answers such questions as the following: Who are we? Where are we going? How will we get there? What do we hope to accomplish? What are our strengths and weaknesses? What are the opportunities and threats in our business environment? Strategic planning involves developing a written plan that has the following components: an organizational vision; an organizational mission; guiding principles; broad strategic objectives; and specific tactics, projects, and activities for achieving the broad objectives. Specific tactics, projects, and activities are often referred to as the "action plan."

Strategic Execution

Strategic execution involves implementing strategies set forth in strategic planning, monitoring progress toward their achievement, and adjusting the plans and strategies as necessary. Strategic execution is implementation that achieves maximum efficiency and effectiveness.

Monitoring involves constantly checking actual performance against performance benchmarks. Strategic monitoring answers such questions as these: Are we achieving our objectives? This is the *effectiveness* question. Are we performing as well as we need to perform? This is the *efficiency* question. Adjusting as necessary involves making corrections when the specific strategies or tactics adopted are not producing the desired results. Such adjustments can involve a minor tweaking of plans, a search for ways to overcome unexpected barriers that are encountered, or even the adoption of a whole new set of specific strategies.

STRATEGIC PLANNING OVERVIEW

Strategic planning, as described previously, is the process whereby organizations develop a vision, a mission, guiding principles, broad objectives, and specific strategies for achieving the broad objectives. Before even beginning the planning process, an organization should conduct a SWOT analysis. SWOT is the acronym for *strengths*, *weaknesses*, *opportunities*, and *threats*. A SWOT analysis answers the following questions: What are this organization's strengths? What are this organization's weaknesses? What opportunities exist in this organization's business environment? What threats exist in this organization's business environment?

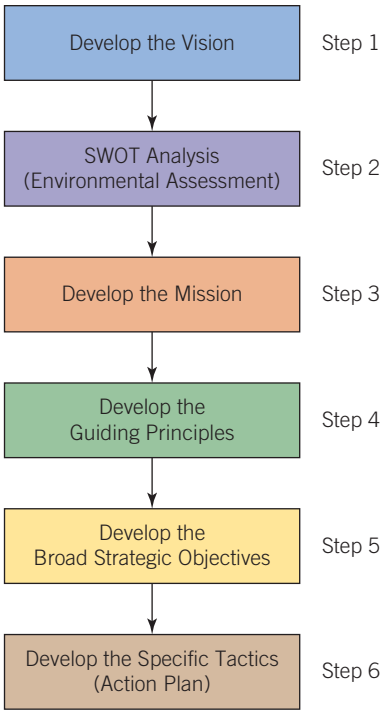

FIGURE 3.1 The Strategic Planning Process.

The steps in the strategic planning process (Figure 3.1) should be completed in this particular order because each successive step grows out of the preceding one. The SWOT analysis provides a body of knowledge that is needed to undertake strategic planning. The mission grows out of and supports the vision. The guiding principles, which represent the organization's value system, guide the organization's behavior as it pursues its mission. The broad objectives grow out of the mission and translate it into measurable terms. Specific strategies tie directly to the broad objectives. Typically, there will be two to five tactical goals for each objective, but this is a general guideline, not a hard and fast rule.

Creative Thinking in Strategic Planning

In the age of global competition, it is even more important than ever to think creatively when developing strategic plans. Should we attempt to find new markets that take advantage of our core competencies? Should we undertake an acquisition that will give our organization a new and additional core competency? Should we adopt a local, regional, or global strategy? Part of the purpose of strategic planning is to ferret out things that are done the same way year after year simply because that is always what the organization has done or how it has done it.

In a speech given in Sandestin, Florida, author and business consultant Robert Kriegel labeled as "sacred cows" these things that organizations keep doing simply because they have always done them.[1] This concept is the basis for his book *Sacred Cows Make the Best Burgers*. According to Kriegel, organizations should make a point of periodically identifying and eliminating costly sacred cows because they make it difficult to provide superior value. An excellent time to identify sacred cows, new approaches, and better ways to be more competitive is during the strategic planning process. But doing this requires creative thinking.

Following are some strategies for promoting creative thinking as part of the strategic planning process: (1) begin by telling a couple of stories about creative ideas that changed everything for a few selected organizations (e.g., Nokia's idea to produce digital cellular telephones when Motorola had a lock on the market for analog phones), (2) challenge participants to see who can suggest the most ridiculous idea and record all ideas (this will break the ice and remove inhibitions that might otherwise cause participants to think their ideas have no merit), (3) do not allow naysayers to put down or criticize the ideas of others or use the "that's already been tried" tactic, (4) challenge all existing approaches (they might be sacred cows), and (5) allow time for ideas to germinate—do not try to complete the planning process too quickly.

Developing the Vision

An organization's guiding force, the dream of what it wants to become, and its reason for being should be apparent in its vision. A vision is like a beacon in the distance toward which the organization is always moving. Everything about the organization—its structure, policies, procedures, and allocation of resources—should support the realization of the vision (see Figure 3.2).

In an organization with a clear vision, it is relatively easy to stay appropriately focused. If a policy does not support the vision, why have it? If a procedure does not support the vision, why adopt it? If an expenditure does not support the vision, why make it? If a position or even a department does not support the vision, why keep it? An organization's vision must be established and articulated by executive management and understood by all employees. The first step in articulating an organizational vision is writing it down. This is called the *vision statement*.

Writing the Vision Statement A well-written vision statement, regardless of the type of organization, has the following characteristics. It

- Is easily understood by all stakeholders
- Is briefly stated, yet clear and comprehensive in meaning
- Is challenging, yet attainable
- Is lofty, yet tangible
- Is capable of stirring excitement for all stakeholders
- Is capable of creating unity of purpose among all stakeholders
- Is not concerned with numbers
- Sets the tone for employees

From these characteristics, it can be seen that crafting a worthwhile vision statement is a challenging undertaking. Following are three vision statements—two for service providers and one for a manufacturer—that satisfy the criteria set forth earlier.

FIGURE 3.2 Vision Is Vital to Success. Source: Nasirkhan/Shutterstock.

- The Institute for Corporate Competitiveness (ICC) will be recognized by its customers as the provider of choice for organizational development products that are the best in the world.
- Business Express Airlines (BEA) will be recognized by customers as the premier air carrier in the United States for business travelers.
- Pendleton Manufacturing Company will be the leading producer in the United States of fireproof storage cabinets.

These vision statements illustrate the practical application of the criteria set forth earlier. Are these statements easily understood? Yes. Any stakeholder could read the vision statements and understand the dreams of the organizations they represent. Are they briefly stated, yet clear and comprehensive in meaning? Yes. Each of the statements consists of one sentence, but the sentence in each case clearly and comprehensively conveys the intended message. Are these vision statements challenging, yet attainable? Yes. Each vision presents its respective organization with the challenge of being the best in a clearly defined market and a clearly defined geographic area. Being the best in the United States or in the world is a difficult challenge in any field, but it is an attainable challenge. It can be done. Are these visions lofty, yet tangible? Yes. Trying to be the best is a lofty challenge, but still it is achievable and therefore tangible. Pick a field, and some organization is going to be the best in that field. It could be this organization. Are these visions capable of stirring excitement among stakeholders? Yes. Trying to be the best in any endeavor is an exciting undertaking, the kind in which people want to take part.

Are these visions capable of creating unity of purpose? Yes. All three give stakeholders a common rallying cry. This happens when a sports team sets its sights on the championship. The players, coaches, fans, and management all rally around the vision, pulling together as one in an attempt to achieve it. Do these statements concern themselves with numbers? No. Numbers are left for later in the strategic planning process. Do these visions set the tone for employees? Yes. Clearly, the organizations in question are going somewhere, and employees are expected to do their part to ensure that the organizations get there expeditiously.

Conducting the SWOT Analysis

The rationale for conducting a SWOT analysis before proceeding with the development of the strategic plan is that the organization's plan should produce a good fit between its internal situation and its external situation. An organization's internal situation is defined by its strengths and weaknesses. An organization's external situation is defined by the opportunities and threats that exist in its business environment. The strategic plan should be designed in such a way that it exploits an organization's strengths and opportunities while simultaneously overcoming, accommodating, or circumventing weaknesses and threats.

Identifying Organizational Strengths An organizational strength is any characteristic or capability that gives the organization a competitive advantage. The following are examples of common organizational strengths:

- Financial strength
- Good reputation in the marketplace
- Strategic focus
- High-quality products and services
- Proprietary products and services

- Cost leadership
- Strong management team
- Efficient technological processes
- Talented workforce
- Faster time to market

These are just some of the strengths an individual organization may have; many others are possible. The key is accurately defining an organization's strengths before beginning to develop its strategic plan.

Identifying Organizational Weaknesses An organizational weakness is any characteristic or capability that puts the organization at a competitive disadvantage. These are examples of common organizational weaknesses:

- Strategic confusion or lack of direction
- Obsolete facilities
- Obsolete processes
- Weak management team
- Insufficient skills or capabilities in the workforce
- Poorly defined operating procedures
- Too narrow a product line
- Products with decreasing demand
- Too diverse a product line
- Poor image in the marketplace
- Weak distribution system
- Weak financial position
- High unit costs compared with those of competitors
- Poor quality in products and services

These are just a few of many weaknesses an organization may have. The main thing is to identify an organization's weaknesses accurately before undertaking the strategic planning process.

Identifying External Opportunities External opportunities are opportunities in the organization's business environment that represent potential avenues to grow and gain a sustainable competitive advantage. The following are examples of external opportunities that organizations may have:

- Availability of new customers
- Expanding market for existing or potential or planned products
- Ability to diversify into related products and services
- Removal of barriers that inhibit growth
- Failures of competitors
- New online technologies that enhance productivity or quality

Of course, other external opportunities might be available to an organization besides these. You need to identify all such opportunities accurately before undertaking the strategic planning process.

Identifying External Threats An external threat is a phenomenon in an organization's business environment that has the potential to put the organization at a competitive disadvantage. Such external threats might include the following:

- Entry of lower-cost competitors
- Entry of higher-quality competitors
- Increased sales of substitute products and services
- Significant slowdown in market growth
- Introduction of costly new regulatory requirements
- Poor supplier relations
- Changing tastes and habits of consumers
- Potentially damaging demographic changes

Many other external threats might confront an organization. Accurately identifying every potential external threat before you begin the strategic planning process is a must.

Developing the Mission

We have just seen that the vision statement describes what an organization would like to be. It's a dream, but it's not "pie in the sky." The vision represents a dream that can come true. The mission takes the next step and describes *who* the organization is, *what* it does, and *where* it is going. Figure 3.3 contains the

- The Institute for Corporate Competitiveness (ICC) is a business-development company dedicated to helping organizations continually improve their ability to compete in the global marketplace. To this end, ICC provides high-quality, competitiveness-enhancing products and services to an ever-increasing number of organizations in the United States.
- Business Express Airlines (BEA) is a domestic air carrier dedicated to providing business travelers with air transportation that exceeds their expectations in terms of cost, convenience, service, and dependability. To this end, BEA provides air carrier service to and from a steadily increasing number of major hub airports in the United States.
- Pendleton Manufacturing Company is a hazardous materials storage company dedicated to making your work environment safe and healthy. To this end, Pendleton produces high-quality fireproof cabinets for safely storing toxic substances and hazardous materials for an ever-broadening market in the United States.

FIGURE 3.3 Sample Mission Statements.

mission statements for the three organizations introduced in the previous section.

Assess these mission statements using the three *W*'s—*who*, *what*, and *where*—as the criteria. In the first example, ICC describes *who* it is as follows: "a business-development company dedicated to helping organizations continually improve their ability to compete in the global marketplace." This description of who ICC is also describes who its customers are. Regardless of whether both "who's" can be explained in one sentence, both should be explained in the mission. *What* ICC does is described as follows: "provides high-quality, competitiveness-enhancing products and services." From this statement, an outsider with no knowledge of ICC could determine what the company does. *Where* ICC is going is described as reaching "an ever-increasing number of organizations in the United States." Clearly, ICC wants to grow as much as possible within the geographic boundaries of the United States.

In the second example, BEA describes *who* it is as a "domestic air carrier dedicated to providing business travelers with air transportation." This simple statement describes both who BEA is and who its customers are. BEA is a domestic air carrier, and its customers are business travelers. *What* BEA does is described as "providing business travelers with air transportation that exceeds their expectations." *Where* BEA is going can be seen in the following portion of the mission statement: "BEA provides air carrier service to and from a steadily increasing number of major hub airports in the United States." Like ICC, BEA wants to grow continually in the United States.

In the third example, Pendleton Manufacturing describes *who* it is as a "hazardous materials storage company dedicated to making your work environment safe and healthy." From this statement, one can easily discern who Pendleton Manufacturing and its customers are. Any company that either produces hazardous waste or uses toxic materials is a potential customer. *What* Pendleton Manufacturing does is described as follows: "produces high-quality fireproof cabinets for safely storing toxic substances and hazardous materials." *Where* Pendleton Manufacturing is going can be seen in that part of the final sentence of the mission statement that says it wants to serve "an ever-broadening market in the United States."

All three of the companies in these examples want to grow continually but only in domestic markets. No interest is expressed in international markets. This is a major strategic decision that will determine the types of actions taken to achieve their respective missions.

QUALITY TIP

Strategic Vision

Strategic leadership begins with a strategic vision. According to Burt Nanus, a strategic vision is a "realistic, credible, attractive future for an organization." Source: www.au.af.mil/au/awc/awcgate/ndu/strat-ldr-dm/pt4ch18.html. Retrieved on January 3, 2012.

In developing the mission statement for any organization, one should apply the following rules of thumb:

- Describe the *who*, *what*, and *where* of the organization, making sure the *who* component describes the organization and its customers.
- Be brief, yet comprehensive. Typically, one paragraph should be sufficient to describe an organization's mission.
- Choose wording that is simple, easy to understand, and descriptive.
- Avoid *how* statements. How the mission will be accomplished is described in the "Strategies" section of the strategic plan.

Developing the Guiding Principles

An organization's guiding principles establish the framework within which it will pursue its mission. Each guiding principle encompasses an important organizational value. Together, all of the guiding principles represent the organization's value system—the foundation of its corporate culture.

Freedom through control might be one such guiding principle. It is one of the cornerstones of total quality. It is a concept that applies at all levels, from line employees through executive managers. It means that once parameters have been established for a given job, level, or work unit, all employees to which the parameters apply are free to operate innovatively within them. In fact, they are encouraged to be innovative and creative within established parameters. This means that as long as they observe applicable controls, employees are free to apply their knowledge, experience, and judgment in finding ways to do the job better. Once a method is established that is better than the existing one, that new procedure should become the standard throughout the organization.

An organization's guiding principles establish the parameters within which it is free to pursue its mission. These principles might be written as follows:

- XYZ Company will uphold the highest ethical standards in all of its operations.
- At XYZ Company, customer satisfaction is the highest priority.
- XYZ Company will make every effort to deliver the highest quality products and services in the business.
- At XYZ Company, all stakeholders (customers, suppliers, and employees) will be treated as partners.
- At XYZ Company, employee input will be actively sought, carefully considered, and strategically used.
- At XYZ Company, continual improvement of products, processes, and people will be the norm.
- XYZ Company will provide employees with a safe and healthy work environment that is conducive to consistent peak performance.
- XYZ Company will be a good corporate neighbor in all communities where its facilities are located.
- XYZ Company will take all appropriate steps to protect the environment.

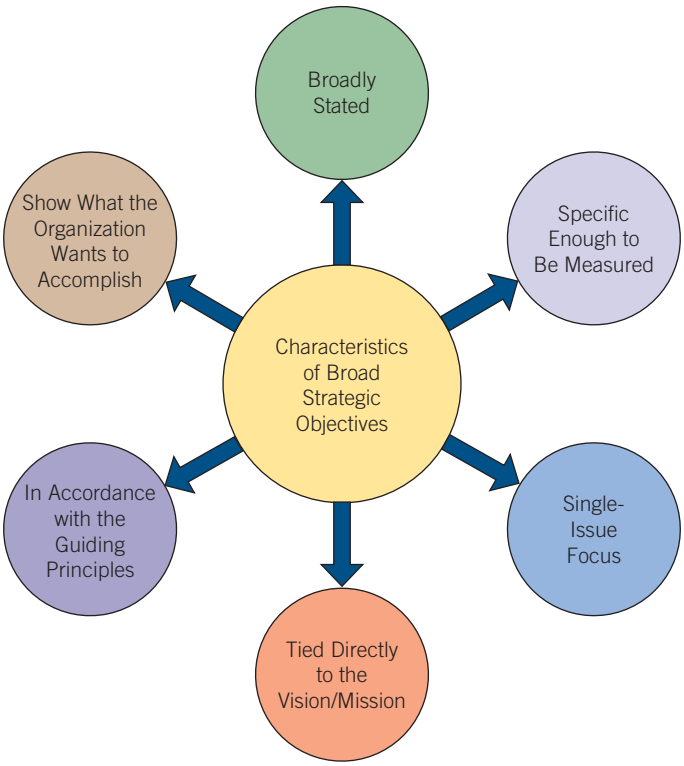

FIGURE 3.4 Characteristics of Well-Written Broad Strategic Objectives.

From this list of guiding principles, the corporate values of XYZ Company can be discerned. This company places a high priority on ethics, customer satisfaction, quality, stakeholder partnerships, employee input, continual improvement, a safe and healthy work environment, consistent peak performance, corporate citizenship, and environmental protection.

With these values clearly stated as the organization's guiding principles, employees know the parameters within which they must operate. When ethical dilemmas arise, as they inevitably will in business, employees know they are expected to do the right thing. If safety or health hazards are identified in the workplace, eliminating them will be a top priority. If employees spend their own time participating in community activities, they know it will reflect positively in their performance appraisals because XYZ Company values corporate citizenship.

Developing guiding principles is the responsibility of an organization's executive management team. However, the recommended approach in a total quality organization is for executive managers to solicit input from all levels before finalizing the guiding principles.

Developing Broad Strategic Objectives

Broad strategic objectives translate an organization's vision and mission into measurable terms. They represent actual targets the organization aims at and will expend energy and resources trying to achieve. Broad objectives are more specific than the mission, but they are still broad. They still fall into the realm of *what* rather than *how. What* must the organization do to achieve the vision? The *how* aspects of strategic planning come in the next step: developing specific tactics, projects, and activities for accomplishing broad objectives. As shown in Figure 3.4, well-written and broad organizational objectives

- Are stated broadly enough that they don't have to be continually rewritten
- Are stated specifically enough that they are measurable but not in terms of numbers
- Are each focused on a single issue or desired outcome
- Are tied directly to the organization's vision and mission
- Are all in accordance with the organization's guiding principles
- Clearly show what the organization wants to accomplish

In addition to having these characteristics, broad objectives apply to the overall organization, not to individual departments within the organization. In developing its broad objectives, an organization should begin with its vision and mission. A point to keep in mind is that broad strategic objectives should be written in such a way that their accomplishment will give the organization a sustainable competitive advantage in the marketplace. What follows is an organizational vision presented earlier as an example and its corresponding broad objectives:

> *The Institute for Corporate Competitiveness will be recognized by its customers as the provider of choice for organizational development products that are the best in the world.*