Quality and Performance Excellence 8th edition Evans Solutions Manual

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INSTRUCTOR'S NOTES TO ACCOMPANY

QUALITY AND PERFORMANCE EXCELLENCE: MANAGEMENT, ORGANIZATIONAND STRATEGY, Eighth Edition

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These notes are intended to provide guidance for discussion of the questions and cases at the end of the chapters. Most questions have been purposely designed to be open-ended, so there is no one correct answer. Rather, their purpose is to stimulate discussion and make the concepts of total quality more personal to the student. Other questions are designed to ensure that students have grasped the basic concepts in the chapter and are basically review in nature.

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Chapter 1: Introduction

Discussion Questions and Experiential Exercises

1. **Describe how the specific practices of PVHS in the opening Performance Excellence Profile support the principles of TQ.**

Students should link their answers to Table 1.1.

Customer Focus: diversified services; listening to customers to improve ER layout and patient rooms; Getwell Network
Leadership: high-performance culture; communication mechanisms
Involvement of People: interdisciplinary teams; open door policy
Process Approach: innovative systems and technologies
System Approach to Management: mission – to remain independent while providing innovative, comprehensive care of the highest quality, and exceeding customer expectations; vision – to provide world-class health care
Continual Improvement: performance improvement system called Global Path to Success; action plans to address performance issues; innovation strategies
Factual Approach to Decision Making: Balanced Scorecard system; Meditech Information System
Mutually Beneficial Supplier Relationships: partnering relationships

2. **Explain why quality became the most important issue facing American business in the 1980s. In addition to economic competition from Japan, what other factors may have contributed to the importance that quality has assumed?**

Quality became an important business issue because of the fall of American competitiveness in world markets, and particularly, the economic competition from Japan and other Asian countries. During the preceding decades, American manufacturers focused more on quantity of output rather than quality. As the rate of quality improvement in Japan was faster than that in America, the overall quality of goods produced in Japan exceeded those produced in the U.S. sometime during the 1970s. Other factors include increasingly quality-conscious consumers, rapid advances in technology that required better attention to quality, and growing realization that managers were focused on the wrong goals and objectives.

3. **Examine the annual reports of one company over a period of years. Summarize how quality is discussed or implied in the company's statements and philosophy. Are any changes in the perspectives of quality evident over time?**

Most annual reports will make reference to customers, improvement initiatives, and so on, particularly in their mission statements. Many address quality issues directly. Of course, this was more prevalent in the 1990s and early 2000s; however, many aspects of quality, particularly those in Table 1.1 are often evident. Here is one summary of John Deere & Co. Instructors might use this for discussion prior to assigning this question and provide it as a template for students to follow.

- In 1999, the themes of continuous improvement, profitable growth, and business innovation continued to be dominant. The continuous improvement area featured six sigma quality goals for performance and customer satisfaction. It was mentioned that during the year some 900 projects involving several thousand employees had been carried out. These six sigma projects had the objectives of streamlining business processes, focusing on customers, and structuring around core processes.

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- In 2005, Deere employees were aligned with business objectives and evaluated and compensated accordingly. Most salaried employees worldwide followed detailed, tailored performance plans that spelled out how each individual's efforts contribute to meeting unit and company goals. Also stewardship of the environment was emphasized, pointing to how the company developed product solutions that were less disruptive to the surrounding environment, such as the John Deere 2500 E greens mower that uses hybrid technology, resulting in lower noise, better fuel efficiency, and plenty of power (18-hp); the Tier 3-compliant PowerTech Plus engines using the latest technology to deliver better fuel economy and more power while meeting stringent emissions regulations; and becoming the first equipment manufacturer to use biodiesel as a factory fill at its U.S. manufacturing locations.

- In 2008, Deere emphasized four key approaches: rigorous processes, the Deere Product Quality System, corporate responsibility, and an emphasis on a performance-based work culture. Following rigorous processes everywhere helped Deere address the growing scope and scale of operations and achieve increased levels of consistency, simplicity, efficiency and quality. Many of their approaches were unique to Deere and hard to copy. Concurrently, the company implemented the Deere Product Quality System (DPQS), a set of world-class manufacturing practices designed to meet rising customer expectations for increased product reliability. Product lines responsible for most of the company's sales received advanced quality certification through 2008. Deere affirmed that it takes its responsibilities seriously. This included continuing to set employee safety as one of John Deere's top priorities, and endeavoring to treat the environment with increasing care, by making sustainability an integral part of its operations. Their biomass energy system went into operation during the year at their German combine factory. Further in 2008, Deere announced plans to reduce greenhouse gas emissions from its global operations as part of participation in the U.S. Environmental Protection Agency's Climate Leaders program. Finally, John Deere established a performance-based culture that features a employee teaming and collaboration, promotes a global and inclusive work environment, and helps the company strengthen its competitive advantage through the attraction and retention of highly talented employees from all backgrounds.

- In 2010, Deere took a more strategic business focus. Their strategy concentrated on two growth areas – agricultural and construction equipment solutions. Other operations – turf, forestry, parts, engines, intelligent solutions, and financial services – were said to have vital roles supporting or complementing the growth operations. Deere's lineup of tightly knit operations were designed to leverage strengths, optimize investments, efficiently target leadership and employee resources, and extend its ability to compete in the global marketplace. The company set goals that would result in a near-doubling of sales, a healthy increase in profitability, and an almost three-fold increase in economic profit, or SVA, by 2018. The strategic plan targets roughly half of the company's sales coming from outside the U.S. and Canada by 2018, versus about one-third in 2010. Financial performance measures were implemented to ensure that results would be sustainable as growth was being accelerated. Business "health" metrics were developed, pertaining to product quality, market share and employee engagement, among other areas.

- In 2012, Deere continued their strategic business focus theme.

These summaries definitely show an increasing commitment to TQ concepts. The early use of TQ concepts was actually started when Deere began to focus on TQ concept in the 1990's. Management has continually emphasized productivity and cost reduction as the key to excellence. In the mature and very competitive heavy equipment industry, the changing focus on human resource practices and stewardship of the environment in 2008, 2010, and 2012 signaled that cost reduction, quality improvement and "value to the customer" may be defined in a different way that will convey an updated image to the average buyer. Also, there seems to be increasing and sustained interest in promoting and supporting citizenship efforts, which is sometimes called corporate social responsibility. For the latest Deere annual report, go to: http://www.deere.com.

4. **Conduct some research on quality practices that is focused on a particular country or global region. Summarize your findings in a two- to three-page report.**

Quality has become central to many countries and regions around the world. For example, the European region has it's own version of the Baldrige Award, the European Foundation for Quality Management; European countries also use ISO 9000 extensively. Much can be found about China and other emerging and developing companies. What students should discover are the challenges or benefits that many countries face in regards to quality, and possibly some differences in culture that make their quality efforts different from those in the U.S.

5. **Cite several examples in your own experience in which your expectations were met, exceeded, or not met in purchasing goods or services. How did you regard the company after your experience?**

Everyone has had such experiences. Getting students to share these provides a better sense of how consumers define quality. This question can be used to develop and discuss alternative viewpoints and definitions of quality.

6. **How might the definition of quality apply to your college or university? Provide examples of who some customers are and how their expectations can be met or exceeded.**

Schools are ripe for quality improvement. Students and faculty have many examples. It is also important to note that viewpoints differ at different levels; for example, in the classroom, within a specific college, an in the university as a whole. Much controversy exists about who are the customers of a school. This discussion leads easily to conflicting needs and objectives and raises questions about how customers' needs can be satisfied. You might wish to investigate Baldrige education winners. Application summaries are generally available on Baldrige winners' web sites. Start at www.nist.gov/baldrige and click the link for Award Recipients.

7. **High quality is not necessarily related to price. Discuss this, drawing from your own knowledge and experience, and provide examples where this may and may not be true. High quality is not necessarily related to price. Discuss this, drawing from your own knowledge and experience, and provide examples where this may and may not be true.**

Most people, whether rich or poor, exhibit some sense of being value-conscious in defining quality. They look for bargains where they can get more, and/or spend less, than they had expected for a similar good or service. Thus they want to obtain the "biggest bang for their buck," whether buying a luxury SUV or an economy sub-compact car. Either or both of those can be bargains if they are designed and built with quality, have the features that the customers are looking for, are priced competitively, and are fit for intended use. Students can and should be able to cite situations in which they have found a quality product at a bargain price, and situations in which they did NOT receive a bargain, despite a very low or very high cost of the product. However, researchers have found that one cannot determine quality from price alone. One can find very good wines, for example, at a low price point. Other examples, are store-branded merchandise compared with national brands.

8. **Discuss how the frequency with which you anticipate using a product might impact the quality and price that you are willing to pay and how it relates to the value-based definition. Provide some examples to justify your reasoning.**

The more that one uses a product might influence one to pay higher prices for higher quality, thinking in terms of total cost of ownership and long term durability and reliability. Thus one might place higher value on a product that has more reliability. Similarly, one might not purchase the highest quality product that one might use infrequently. A simple example is a step ladder. A homeowner who might use one only a few times a year might not purchase a high price, high quality ladder, whereas a contractor that would use one on a daily basis

might. Students should be able to suggest some relevant examples.

9. What implications do you think the forces that will influence the future of quality (see the box "What Will Influence the Future of Quality" in the chapter) will have on management practice?

Students should try to develop ideas on how these trends will change management behavior; for example, how social media is changing the way that quality influences organizational management. As another example, global responsibility and environmental concerns are reflected by the current focus on sustainability and environmental protection; students can discuss issues of global warming as it relates to process design, recyclability as it relates to product design, and so on. A good exercise would be to ask students to create a matrix where the rows are the forces and columns are functional management decision areas such as OM (perhaps broken down by product/service design, supply chains, etc.), marketing, finance, and so on, and to identify management practices that might be changed as a result of these factors.

10. How has social media changed how both consumers and organizations deal with quality? How can organizations exploit social media in their quality approaches and decisions?

The ability to rapidly exchange and share opinions makes it easier for consumers to identify both good and poor goods and services (e.g. the United Breaks Guitars example). A quick search on a smart phone can change a potential purchase to a lost customer. Organizations can also "mine" an immense amount of data and learn about customer behaviors, likes, and dislikes quite easily.

11. Think of a product with which you are familiar. Describe the eight "multiple quality dimensions" (e.g, performance, features, and so on) for this product that are listed in this chapter.

This question is designed to get students to think about the different dimensions. The results can be used to prioritize needs (as a good lead-in to QFD or the development of customer survey questionnaires, for instance).

12. What might the eight "multiple quality dimensions" mean for a college or university? For a classroom?

This enables students to apply the concepts to something they all know about and in which they have a vested interest. A key issue is what are the "products" and services a school provides.

13. Explain the differences between manufacturing and service organizations and their implications for quality.

Most students would probably have seen this in an introductory operations management course. These differences include higher labor intensity, immediate consumption and lack of storage of the "product," generally a higher degree of customization, a large volume of transactions, time sensitivity, and an increased reliance on the human element. The quality dimensions important to customers are different; thus, quality efforts are also different. Key issues are described in the chapter in the Quality in Services section.

14. A car rental agency surveys its customers on the following characteristics:
- **Cleanliness of the rental facility**
- **Courtesy of staff**
- **Efficiency of vehicle pickup/return**
- **Cleanliness of vehicle**
- **Professionalism of staff in explaining the contract and options**

How would you classify each of these according to the five key service quality dimensions? What dimensions are missing?

- Cleanliness of the rental facility - tangibles

- Courtesy of staff - assurance
- Efficiency of vehicle pickup/return - reliability
- Cleanliness of vehicle - reliability
- Professionalism of staff in explaining the contract and options - assurance

None of these dimensions address empathy or responsiveness.

15. Describe the key principles of total quality.

Students should be able to list and explain the concepts in Table 1.1.

16. How might you apply the concepts of TQ to your personal life? Consider your relations with others and your daily activities such as being a student, belonging to a fraternity or professional organization, and so on.

Students should consider issues such as Who is my customer? How do I plan to be a "quality person"? What do I do to continuously improve? (Good examples include class preparation and interpersonal relations.) The instructor may wish to consult some of the writings of Harry Roberts, such as "Using Personal Quality Checklists" in *Quality Progress*, June 1993, p. 51, or Harry Forsha, *The Pursuit of Quality Through Personal Change*, Milwaukee: American Society for Quality Control, 1992. Many articles in *Quality Progress* over the last few years have dealt with these issues. ASQ has a nice search engine. Go to www.asq.org and select the Publications link.

17. Why is a customer focus a critical element of a high-performing organization?

Customers are the judges of quality. No customers, no sales, no jobs. Simple idea, but awfully difficult for many organizations to see and implement.

18. Make a list of your personal "customers." What steps might you take to understand their needs and build customer engagement?

This question is designed to make quality more personal -- parents, spouses, roommates, teachers, etc. The instructor might try to relate these personal issues to those of a company like Coca-Cola.

19. Cite an example in which you did not purchase a product or service because it lacked "dissatisfiers" as defined in the chapter. Cite another example in which you received some "exciters/delighters" that you did not expect.

This question is similar to #3, but focused on products. It will help elicit key dimensions that customers want and help students realize the necessity of both meeting customer expectations and trying to anticipate and exceed them. The instructor might comment that one of the goals of the course is to transform students into "customers from hell."

20. In what ways might the lack of top management leadership in a quality effort hinder or destroy it?

Top management has the ultimate responsibility for instilling quality among their employees. Role models are powerful influences. All talk and no action can easily kill a quality program. These issues are discussed in the Strategic Planning and Leadership subsection.

21. Explain the various areas within an organization in which continuous improvement and learning may take place.

Everywhere! Product design, manufacturing, engineering support, sales, etc. It is easy to establish the

importance of every activity in a company in meeting both internal and external customer needs. No activity is immune to continuous improvement, and the students should be encouraged to provide many examples.

22. Why is measurement important in an organization pursuing performance excellence?

Problem solving should be based on objective data and facts. Measures are needed to understand the problems and opportunities for improvement and for monitoring progress. Many executives have stated that "you can't manage what you can't measure," although Deming rejects this statement, stating that "the most important figures are unknown or unknowable." These two points of view can be made as a basis for class discussion and debate.

23. Examine some process with which you are familiar. Make a list of ways that the process can be measured and improved. What difficulties might you face in implementing these ideas?

Students should be encouraged to select simple processes with which they are very familiar and understand well. This question can lead to how to describe a process (see Chapter 3 on tools). Key issues that should be addressed are what measurements to take. Many organizations fail in this regard, taking unnecessary measurements that are useless for decision making, or failing to take critical measurements that address customer needs. One way of approaching this is by a QFD-type matrix, listing customer needs on the rows and measurements on the columns. An assessment of how well the measures address customer needs will allow you to choose the right ones or determine if any important ones are missing.

24. Describe the three ways of viewing teamwork.

Vertical, horizontal, and inter-organizational. See discussion in the Empowerment and Teamwork subsection.

25. Describe some possible ways in which vertical, horizontal, and inter-organizational teamwork can be applied at a college or university.

This will help students better understand the differences among the three types. How much teamwork in a university involves its customers and suppliers, or cuts across colleges and departments, or engages two-year as well as four-year programs? If your school is typical, the answer is probably obvious. It is easy to brainstorm many opportunities.

26. What is employee engagement? How does it differ from empowerment? How might an employee really know that he or she is truly empowered? How might an organization know that employees are truly engaged?

Employee engagement simply means that workers have a strong emotional bond to their organization, are actively involved in and committed to their work, feel that their jobs are important, know that their opinions and ideas have value, and often go beyond their immediate job responsibilities for the good of the organization. Empowerment is giving people the authority and responsibility to make decisions that affect the welfare of their customers. Indicators of empowerment include the freedom to take risks, lack of bureaucratic red tape, management actions and defense of employee decisions, management through leadership instead of control, financial support, etc. Engagement is manifest in doing things without being asked or directed, volunteering suggestions for improvement, willingly helping co-workers, and so on.

27. Have you ever felt restricted in your work because of a lack of empowerment? Can you cite any experiences in which you noticed a lack of empowerment in a person who was serving you? Why is this such a difficult concept to implement in organizations?

Most students have had this experience, particularly in part-time or summer jobs. How about as a student? How much empowerment do instructors typically give students? (How much do *you*?) Inhibitors include a

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lack of trust, fear of relinquishing control, and the reward system itself.

28. How does TQ differ from agency theory?

As discussed in the section in the chapter, agency theory takes a rather sterile approach to organizational theory and removes people from the system. Differences include how people are motivated, alignment of goals, sharing information, time perspective, risk taking, and role of leadership. We have never heard a top executive – especially from Baldrige winning organizations – state that people are *not* the key to their success. Indeed, what we have observed is simply that successful organizations go to great lengths to treat their employees as valued people.

29. Explain the mechanistic, organismic, and cultural models of organizations, and how TQ is similar to or different from them.

See Table 1.2 and its associated discussion for a summary of the differences and similarities.

30. Today, both manufacturing and service depend greatly on information technology and the Internet. What would be some ways of evaluating the quality of a Web site?

Content that is intuitive and understandable, accurate, and current. This means that the design of the site must meet the customers' requirements, not the company's. The web site must be easy to navigate and locate information (such as ways to contact the company!). If customers misinterpret information and make a wrong purchase, expect returned products and non-returning customers. Product offerings and price data change quickly, and need to be kept accurate and current. One of the author's unfortunate experiences involved purchasing an accessory listed as compatible with a PDA only to find out that it didn't work, leading to wasted time getting a return authorization, repackaging, and returning the product (the Web site was corrected a few weeks later). Technical issues might include the speed and reliability of the web site, as reflected by page loading rates, and the number of clicks required to navigate through the site, and server uptime/downtime.

CASES

The Reservation Nightmare

1. Summarize the service failures associated with this experience.

Basically, everything the company did was a service failure, from the complexity of the menu, excessive wait time, repeating the 19-digit customer service number, and transfer to another operator without response.

2. What might the travel agency have done to guarantee a better service experience for Mr. Harrington? How do your suggestions relate to the TQ principles?

Students usually identify numerous improvements including simplifying the messaging system, better staffing, cross-training operators, and so on. The company needs to better understand customer requirements (How long of a wait is acceptable? How complex system do customers tolerate?), improve its processes (eliminate redundancy, tie the 19-digit input to the operator's computer), use data better (determine how many customers use each feature, for example), and empower and train employees to be able to answer a wider variety of questions.

Nashville Custom Guitars

Based on this tour of NCG, can you identify how the operations and quality practices reflect the

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principles of TQ?

(1) customer and stakeholder focus – attention to detail and perfect tone; hand-making necks to customer specifications; adjustments to optimize feel and playability

(2) a process orientation supported by continuous improvement and learning – manufacturing layout and inspection activities; detailed process requirements (such as humidity control and use of CNC machining for critical dimensionality)

(3) employee engagement and teamwork – small staff of experienced and empowered luthiers who provide personal attention and hand-crafting of the guitars; recruiting luthiers who want to work in a team environment and have a passion for guitar making; encouraging workers to enhance their skills

(4) management by fact – luthiers recording what they did while building tops and using the records to duplicate outstanding results

(5) a strategic focus on quality as a source of competitive advantage – small scale operation with a focus on high quality; web page where owners can ask questions

(6) visionary leadership that views performance excellence as an integrated system – lack of a formal quality department so that quality is understood to be everyone's job; encouraging training and even encouraging workers to open their own businesses.

Bishop's Seafood (Note: this case also appears in Chapter 6; instructors may wish to use it in the context of this chapter instead.)

1. Why do you think the restaurant went to such lengths in response to Sandy's call?

The restaurant went to great lengths in response to Sandy's call because the last thing that a high quality restaurant wants is any hint of food contamination. This is the prime source of such a restaurant's reputation. Customer satisfaction, loyalty, and word-of-mouth advertising depend on the quality of their food.

2. How does this experience illustrate the five customer service dimensions: tangibles, reliability, responsiveness, assurance, and empathy?

This experience illustrates the five customer service dimensions: tangibles, reliability, responsiveness, assurance, and empathy? Tangibles were shown in where the hostess seated the family. Reliability was shown in taking care to refill water glasses, bringing the dishes for the meal out at one time, and later follow-up from the corporate office representative. Responsiveness and empathy seemed to go hand-in-hand as the needs of the children were met in the ordering part of the process, and when the meal was taken back for warming on behalf of the friend who was arriving late. Assurance was shown by the fact that management sent a food inspector to ensure that there was no health problem present at the restaurant. The unexpected sending of the $200 gift certificate seemed to illustrate all of the customer service dimensions in one.

Patterson Auto Sales and Service

Drawing upon the principles of TQ and the unique nature of services, describe some of the issues that Bill must consider in achieving his vision. Develop a list of action plans that he might consider.

Bill should examine each of the quality management principles in Table 1.1 and consider their implications in the business. He must also consider the differences between service and manufacturing:

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- Customer needs and performance standards are often difficult to identify and measure in services, primarily because the customers define what they are and each customer is different.
- The production of services usually requires a higher degree of customization, so employees must tailor their services to individual customers
- The output of many service systems is intangible, so service quality can only be assessed against customers' subjective, nebulous expectations and past experiences. (What is a "good" sales experience?)
- Services are produced and consumed simultaneously, and many services must be performed at the convenience of the customer. Attention must be paid to training and building quality into the service as a means of quality assurance.
- Customers often are involved in the service process and are present while it is being performed, or at least, in specifying their problems and needs prior to work being done on their car.
- Services are generally labor intensive, and the quality of human interaction is a vital factor for services that involve human contact. Thus, the behavior and morale of service employees is critical in delivering a quality service experience.
- Many service organizations must handle large numbers of customer transactions. Such large volumes increase the opportunity for error.

Action plans that Bill might consider developing must tailor the systems to the needs of various types of customers. He must ensure that he develops appropriate infrastructure, practices and tools to support his vision. For example, car buyers have different needs from those who are coming in for shop service to their cars. For car buyers to be able to obtain a wide range of vehicles and options to evaluate, have access to available salespeople, enjoy a prompt greeting, and feel comfortable and un-pressured in reaching a buying decision, Bill must plan on exercising leadership and strategic planning to develop the required infrastructure. Because customers expect salespeople to be courteous, to be knowledgeable about the cars, to respect their time, and to honor verbal promises, courteous salespeople must be hired and trained to support customer relationship management, develop good processes, and work to improve systems through information and knowledge management.

For repair and maintenance service, customers want to have the work explained appropriately, to be fully informed of any additional necessary work, and to have all work reviewed on completion. They want good time estimates and communications with the service department. Thus repair service people must not only be technically proficient, but also be customer focused, and understand and support the need for continuous improvement through information and knowledge management.

He should use the "effective practices" that are described for each principle in this chapter and apply them to his business.

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Chapter 2: Frameworks for Quality and Performance Excellence

Discussion Questions and Experiential Exercises

1. **Design a questionnaire or survey instrument to determine the degree to which an organization is "Demingized." Explain how you developed the questions.**

Students might develop questions or a list of survey attributes that reflect the 14 Points and Profound Knowledge. How his philosophy is reflected in the questions or survey attributes should be the focus of their explanations.

2. **Explain the 14 Points in the context of the four categories of Profound Knowledge.**

Many relationships exist. A suggested approach is to use a relationship matrix in which the rows correspond to the 14 Points and the columns correspond to the four elements of Profound Knowledge. Entries in the matrix can reflect whether or not the point relates to the element, or perhaps the strength of association (strong, weak, none). For example, Point 4, relates strongly to understanding the system and variation; point 3 to theory of knowledge; and point 12 to psychology. A good in-class exercise for discussion and debate.

3. **Why doesn't the Deming Chain Reaction terminate with "Increased Profits"? Would this contradict the basis of Deming's philosophy?**

Deming believes that profits should not be the ultimate goal of business. Business should help its employees sustain a productive and happy life. If this is done, and customer needs are met, profits should follow. The Federal Express motto is "People, Service, Profits" -- in that order -- indicating that employees come first, customers next, and profits third in evaluating any business decision. It *can* be done!

4. **Provide an example of a system with which you are familiar and define its purpose. Examine the interactions within the system and whether the system is managed for optimization.**

It is not always easy to define the purpose of an organization. Many companies do, and those that have seem to be able to achieve success in TQ. These examples should focus on the students ability to see the interrelationships within the system and whether actions taken are for the good of the system as a whole or suboptimal. Both the instructor and students are encouraged to read Peter Senge, *The Fifth Discipline*, New York: Doubleday/Currency, 1990. This book tells much about systems and their interactions, how they self-destruct, and how they improve.

5. **Describe a process with which you are familiar. List some factors that contribute to common cause variation. Cite some examples of special causes of variation in this process.**

Many examples exist, both in students general experience with business as customers and in daily life. Make sure that students understand what a process means. Some ideas include the process of preparing for class, preparing for a test, preparing for a job interview, eating breakfast, coordinating a fraternity meeting, etc.

6. **How does the theory of knowledge apply to education? What might this mean for improving the quality of education?**

Should schools copy the best? Should a public, urban university try to emulate Stanford or Harvard? Students might draw upon some contemporary issues about public education that dominate the news. Another issue is how to teach. The instructor might discuss Bloom's taxonomy of learning and focus on its implications for quality education.

7. **Explain the implications of not understanding the components of Profound Knowledge as suggested by Peter Scholtes**.

Basically, Scholtes' insightful comments define the mistakes and misunderstandings that managers routinely make when making decisions by gut and instinct rather than with facts, data, and a clear understanding of context. With systems, for instance, lack of understanding leads to suboptimization and misalignment of the parts of the organization with respect to strategic objectives. With variation, it leads to knee-jerk reactions rather than rational thought. With psychology, it can create mistrust among the workforce and lack of enthusiasm and loyalty to the organization. And, with theory of knowledge, it can lead to stagnation and ultimate business failure.

8. **Extract three or four key themes in Deming's 14 Points. How might the 14 Points be grouped in a logical fashion?**

Some major themes are manager-worker relations, cooperation, joy in work and self-esteem, elimination of seat-of-the-pants decisions, quantitative management, revolution of management philosophy, and organizational purpose. There are many ways the 14 Points can be assessed against these and other themes. A matrix relationship would be a good exercise to facilitate discussion.

9. **What implications might the 14 Points have for college education? What specific proposals might you suggest as a means of implementing the 14 Points at your school?**

What is the purpose of the university (college, school)? Most faculty and administrators cannot agree on this. Is it managed as a system? Is there continuous improvement? Are faculty trained to teach? What constitutes fear in the university (among faculty, staff, and students)? How are teams used? What about numerical quotas (promotion and tenure models) and MBO? What processes rob faculty and students of joy in work? Who is responsible among all the constituencies? This question alone can constitute a term project.

10. **Discuss the interrelationships among Deming's 14 Points. How do they support each other? Why must they be viewed as a whole rather than separately?**

Deming always insisted that these were all or nothing; you can't just pick and choose which points to implements. The focus here is on systems thinking. For example, Point 7 is related to Points 1, 2, 5, 8, 9, 10, 11, 12, 13, and 14, as leadership is necessary for these to occur. A relationship matrix among these would be rather dense, so discussion might focus on one or two points.

11. **A team of quality professionals has suggested a revised version of Deming's 14 Points "for the 21st century," as given in Table 2.3. Contrast these with Deming's version in Table 2.1. What do you think of the revision? Can organizations today use them effectively to improve quality?**

<u>21st Century Version</u>

1. Increase value through products and services that delight customers.
2. Connect customer requirements to key process variables.
3. Prevent, where possible; inspect where necessary; implement process management.
4. Pick the vital few suppliers based on total cost and fit with the organization.
5. Improve processes now; find those that will need it later; sustain gains over time.
6. Build training into jobs so employees can improve their performance.
7. Know employees, listen to them and give them what they need to excel.
8. Set clear expectations for reasonable standards, and hold all accountable.
9. Build cooperation from the top down by reducing barriers between departments.
10. Connect targets and metrics to customer needs; train employees to understand them.
11. Avoid arbitrary goals; prefer ones in which metrics encourage "right the first time."

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12. Measure employees against their personal best; use metrics they can track.
13. Help leaders model the right behaviors, and support the firm's goals for training.
14. Align employees with jobs, suppliers with the firm and the firm with the future.

The team of quality professionals who suggested the revised version of Deming's 14 Points "for the 21st century," as given in Table 2.3 seemed to take a more process view, while attempting to retain some of the concepts of Deming's systems perspective. It is not easy to compare these points with Deming's version in Table 2.1, because they do not match point for point. Deming constantly questioned the mind-set of managers, and challenged them to "adopt a new philosophy." Deming was not afraid to suggest that management actions or inactions were at the heart of quality problems, and that behavioral goals needed to be set. The new 21st century version of the 14 Points seem to recognize that there are process problems that management can correct, but the critical tone that Deming took, and the management behaviors that he advocated, are avoided by the 21st century version.

Opinions of students about the 21st century revision will vary. Some may think that the revised version is more practical than Deming's version, which generally reflected the status quo a half-century ago (although still reflects many of today's realities). However, the new version does reflect many of the contemporary concepts of quality: customers, process improvement, optimizing supply chains, employee engagement, measurement, leadership and a systems perspective.

12. Summarize Juran's philosophy. How is it similar to and different from Deming's?

Many themes of Juran's philosophy are the same as Deming's. The major differences are that Juran works within traditional management cultures as opposed to a radical transformation and has a focused approach for achieving the goals; that is, he is more pragmatic and less philosophical.

13. What is Juran's Quality Trilogy? Is it any different from management approaches in other functional areas of business, such as finance?

Quality planning, quality control, and quality improvement. The trilogy was proposed by Juran because of the financial analogy, making it easier for managers to accept.

14. What implications might Juran's Quality Trilogy have for colleges and universities? Would most faculty and administrators agree that the emphasis has been on quality control rather than planning and improvement?

In most any organization, the major emphasis is on control, with less on improvement and even less on planning. Discussion might focus on what planning, control, and improvement actually mean for a college or university.

15. How could you apply Juran's Quality Trilogy to improve your personal approach to study and learning?

Start with your process - plan it out. Develop adequate controls to check and monitor performance. Systematically seek ways to improve both performance and the process. Very few students have ever thought about this.

16. Summarize the Crosby philosophy. How does it differ from Deming and Juran?

See the section in the chapter.

17. Which quality philosophy—Deming, Juran, or Crosby—do you personally feel more comfortable with? Why?

While this author leans toward Juran, many students initially choose Deming. It might be interesting to study the responses to this question in terms of Myers-Briggs typology. You might even get a publishable paper. (Just give proper credit!)

18. Summarize the framework of the Baldrige Award. What are its key philosophical underpinnings?

See the framework in the text. The instructor should have the current year's criteria for discussion. The emphasis should be on the systems aspect and linkages among the criteria categories. Underpinnings are explained in the guidelines through the "core values." These are discussed in the context of organizational culture in Chapter 11.

19. Describe the key issues addressed in each of the seven categories of the Criteria for Performance Excellence.

This can be extracted directly from the Criteria. Note that the Criteria need to be purchased and are no longer free as had been in the past.

20. Study the questions asked in the Baldrige Criteria. Select what you believe are the "top 10" most difficult questions for an organization to answer and justify your reasoning.

This creates some interesting discussion. It is designed to first get students to actually *read* the Criteria questions (!) and second, to think of Baldrige as a "stretch" standard. Some questions are quite easy to answer (e.g. from the 2011-2012 Criteria: How do you listen to customers to obtain actionable information?) Others are quite difficult for organizations to address (How do senior leaders create a sustainable organization? How do you use performance review findings and key comparative and competitive data to project future performance?)

21. What might be some "best practices" evident in the Performance Excellence Profile of K&N Management? How do these practices align with the first six categories of the Baldrige Award Criteria for Performance Excellence?

Leadership category: governance process; culture of quality and excellence
Customer focus category: vision " to become world famous by delighting one guest at a time;" focus on " guest delight;" EyeClick system
Strategic planning category: key guest requirements (KGRs) that are aligned with key business drivers. Performance gaps and opportunities are funneled into appropriate planning approaches.
Workforce focus category: comprehensive set of above-market benefits to team members; workforce performance management system
Measurement, analysis and knowledge management category: All leaders carry a personal digital assistant (PDA) that alerts them of guest comments and complaints and daily performance results
Operations focus category: relying on innovation and technology to create product offerings that meet or exceed guest requirements; " group meal" service pick-up pavilions; " Jacuzzi" hand-wash machines

22. Refer to the example of how K&N Management addressed some of the questions in the Senior Leadership category of the Baldrige Criteria in this chapter. Explain what practices address each of the specific questions:

a. How do senior leaders set your organization's vision and values?

The mission, vision, and KBDs [key business drivers] were originally set by a group of senior leaders and managers as a result of a benchmarking visit to Sudden Service in 2002. Our vision reflects the passion for guest delight while our mission defines the role of each team member in achieving that vision. If team

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members guarantee each guest is delighted, we will be recognized world-wide as being excellent in hospitality, processes, and performance. The core values were set by senior leaders with input from team members about what they felt was most fundamentally important about our culture. Our passion for guest delight is integrated into our values, which are thoroughly deployed throughout the organization.

b. How do senior leaders deploy your organization' s vision and values through your leadership system, to the workforce, key suppliers and partners, and to customers and other stakeholders, as appropriate?

Senior leaders refer to the mission, vision, values, and KBDs throughout key leadership process deployment, measurement, data analysis, evaluation, and performance improvement. The mission, vision, values, and KBDs are reviewed annually by the SLT during the strategic planning workshop to decide if any changes should be made. Our commitment to excellence is evident in our people selection and development processes, concept design, and operational management. The mission, vision, values, and KBDs are first deployed through the Foundations session, then reinforced through training, shift meeting communication, and performance appraisals. The first flashcards in every set of training modules communicate the key elements of our culture to TMs [team members]. During Foundations, TMs receive
a culture card that contains the mission, vision, values, KBDs, and the Building Blocks of FISH [a team member morale and motivation philosophy]. Our mission, vision, and values are deployed to key suppliers and guests in a variety of ways. The mission and vision are printed on all business cards. Our guests can easily view our mission, vision, values, and KBDs posted on the walls of our restaurants, the Mighty Fine website, and demonstrated through the attitudes of our team members.

c. How do senior leaders' actions reflect a commitment to the organization' s values?

Our values are communicated to our key suppliers through a key vendor scorecard conducted annually by the executive director. The criteria of the scorecard essentially holds suppliers accountable to our product and delivery standards. We require our suppliers to provide us with product that meets our quality specifications at the scheduled delivery time in order for us to maintain our KBDs. Suppliers who do not meet the standards of the vendor scorecard are replaced.

23. As we noted in the chapter, process items in the Baldrige Criteria are assessed on four dimensions: approach, deployment, learning, and integration. The following are opportunities for improvement that an examiner team identified in the Leadership Category for a Baldrige applicant. Discuss which of the four dimensions are implied in these comments (some may address more than one dimension).

a. The applicant presents limited evidence of systematic evaluation and refinement of several key leadership approaches that may support operational excellence and enhance sustainability. These include approaches for innovation, performance leadership, creation of a workforce culture that delivers a consistently positive customer experience, and enhancement of leadership skills. Other examples are the Leadership Development Series, legal and ethical approaches, methods used to create a focus on action, and Legendary Service standards.

Learning

b. A systematic process is not evident to create and balance value for the applicant' s customers and stakeholders (regulators, shareholders, and the community). For example, the applicant does not describe the activities, people, and steps involved in the Leadership System and in aligning associates to customers through the Performance Management and Development Process.

Approach and deployment

c. Several key leadership approaches do not appear to be fully deployed. For example, it is unclear how

the Mission/Vision/Values (MVV) are deployed to key suppliers and partners; how development opportunities are deployed to all workforce members; and whether the MVV, service standard training, and legal and ethical requirements are deployed to support center employees (nearly 20 percent of the workforce).

Deployment; integration

d. It is not evident that the applicant deploys its approaches to ethical behavior to interactions with customers, partners, suppliers, and other stakeholders. For example, the applicant describes only one approach focused on non-workforce stakeholders, and no enabling/monitoring processes appear to include them. This gap may be significant in light of the applicant' s numerous supplier and partner relationships.

Deployment; integration

24. How do the Baldrige criteria support Deming's 14 Points?

See the section in the chapter on The Baldrige Criteria and the Deming Philosophy. Students might also be asked to point to specific questions in the criteria for more clarification on the ideas suggested in this section.

25. Prepare a list of specific actions that a high-scoring company in the Baldrige Award process might take in each of the seven categories. How difficult do you think it is for a company to score well in all the categories?

One approach to doing this is to study the practices of past winners. Application summaries are available through the corporate relations offices of all the companies (some may charge a nominal fee) or their web sites. Contact addresses may be obtained through the Baldrige office at the Department of Commerce or its web site www.quality.nist.gov. Several books discuss this in detail, particularly Mark Graham Brown (*Baldrige Award Winning Quality*, Milwaukee: ASQC Quality Press, 1991 and subsequent revisions). This book is usually updated each year to reflect changes in the criteria. As just one example, in the Senior Executive Leadership item, key indicators might include:

- senior leaders participate in quality improvement teams
- senior leaders have face-to-face interaction with customers and suppliers
- they budget adequate resources to quality initiatives
- they make presentations on quality to professional groups and publish articles
- they communicate the firm's mission and quality policy through various media and so forth.

Most companies are strong in the leadership, HRM and technical issues. Many are weak in information and analysis and strategic planning. In teaching executive courses, one of the authors has consistently found (as has Juran) that most managers feel their companies are weakest in the planning functions. The Baldrige criteria are stringent. The difficulty of scoring well in each category is reflected in the fact that winners typically score only in the 700s overall.

26. Create a matrix diagram in which each row is a category of the Baldrige Award criteria organizational maturity with respect to quality:
• traditional management practices;
• growing awareness of the importance of quality;
• development of a solid quality management system; and
• outstanding, world-class management practice.
In each cell of the matrix, list two to five characteristics that you would expect to see for a company in each of the four situations above for that criteria category. How might this matrix be used as a self-assessment tool to provide directions for improvement?

This is a great exercise for students to examine the Criteria questions for increasing levels of maturity. It provides a structure for organizations to develop and refine their practices and processes. For example, it makes little sense to measure customer satisfaction if a company doesn't first understand customer groups, needs, and requirements. Thus, on the maturity scale, this would be one of the first things to do. Traditional management practices might not actively seek this information or use manager opinions as to what customers want. The scoring guidelines provide one approach for helping to answer this question. Use the descriptors as follows: 0% traditional, 10-30% growing awareness, 40-60% solid system; 70% and higher world class. These roughly correspond to scores achieved by Baldrige and state award applicants.

27. Interview a quality professional at a local company about their quality management system. Consider questions such as: Do they have a quality manual? Is their QMS integrated with other enterprise business systems?

This project allows students to see what a QMS might look like in a real organization and the challenges that a company might have in creating and using it. Students might discover, for example, that a QMS is based on ISO 9000.

28. Examine the following requirements from ISO 9000. Which directly help control or improve quality, and which do not? For those that do not, why do you think that they are part of the standard?
a. " The organization shall determine requirements specified by the customer."
b. " Records from management reviews shall be maintained."
c. "… documentation shall include … documents needed … to ensure the effective planning, operation and control of its processes … "
d. "… shall determine the monitoring and measurement to be undertaken … to provide evidence of conformity of product to determined requirements."
e. " The quality management system … shall include a quality manual."
f. "… establish and implement the inspection or other activities necessary for ensuring that purchased product meets specified requirements."

Much of ISO 9000 is procedural and focused on documentation and processes. It has been criticized for this in the past. Clearly statements a, c, d, and f are directly focused on controlling and improving quality. Statements b and e are focused on documentation, while helpful from an organizational standpoint, are not directly focused on quality processes.

29. Search the Web for detailed information about ISO 9000 requirements. Although the language of the standard appears to be primarily for manufacturing, try to rewrite some of the requirements in language that would provide a framework for a typical public school system to use the standard.

While the Baldrige has criteria versions for different sectors, ISO is written in sterile manufacturing language which can be a challenge for education, health, and other service organizations. Nevertheless, a wide variety of organizations have received ISO certification. Trying to rewrite the requirements would help students to really understand what they are about.

30. Interview some managers at a local company that is pursuing or has pursued ISO 9000 registration. Report on the reasons for achieving registration, the perceived benefits, and the problems the company encountered during the process.

This exercise is designed to expose students to the use of ISO 9000:2000 (or its newest successor, ISO 9000-2015) in organizations. Students may find that managers perceive that ISO 9000 is going to be more costly and difficult to attain and keep, based on the need for a more comprehensively deployed system required by the new standards.

31. Describe the evolution of Six Sigma. What impact has it had on General Electric? What differences must be addressed in applying Six Sigma in service organizations?

See the text for details. Students might be challenged to find out where Six Sigma is going today and whether it indeed will be sustainable.

32. What are the similarities and differences among Six Sigma, ISO 9000, and the Baldrige approaches?

See the last section of the chapter.

33. What philosophical changes might be required to implement a Six Sigma process in a hospital, government agency, or not-for-profit organization? Are they likely to be easy or difficult?

Applying Six Sigma requires a process-oriented, information-intensive focus, which many of these organizations typically lack, except perhaps, for hospitals. Thus, implementing Six Sigma should be relatively easy for hospitals, and many examples exist. However, most government and non-profit agencies lack good systems for measurement and processes which will most likely make Six Sigma much more challenging. Training employees in the tools will also be more challenging.

34. How might the principles of Six Sigma be used to improve a quality process in a school or university? What elements of the Six Sigma philosophy might be difficult to obtain support for in the educational environment? Why?

There is not clear answer to these questions, as every school will be different. Educational institutions will most likely find it more difficult to implement good measurement systems and get professional employees to buy in to the process and undergo training.

35. Find a company that has implemented a Six Sigma process. What changes have they made in the organization in order to develop their Six Sigma approach?

This is a good project to emphasize implementation issues. Many of these tie into subsequent chapters. Some very good papers can be found in ASQ's *Six Sigma Forum* magazine, *Quality Progress*, and its annual Quality Congress Proceeedings.

CASES

The Technical Support Clerk

1. **What is Melissa's job as opposed to her job description? What might Deming say about this situation?**

Many students will describes Melissa's job description as given in the case. Her "job" is really to satisfy customers. Note the difference between one's job and a job description. Deming would have said that the numerical quota is contrary to the requirements that her supervisor states. This situation also goes against Deming's point on "pride of workmanship" because she has inadequate technology to do her job.

2. **Drawing upon Deming's principles, outline a plan to improve this situation**.

Certainly the quota system must go, and Melissa might need improved training and technology to balance efficiency with the need to meet customers' needs. The company might also begin to conduct some customer surveys to understand needs and measure satisfaction as well as to measure Melissa's performance relative to these needs. The company needs to examine its staffing policies and scheduling procedures to ensure adequate

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coverage so that customers will not have to wait and clerks are not rushed.

Nashville Custom Guitars Revisited

Read the Nashville Custom Guitars Case in Chapter 1. Explain how Deming's 14 Points are reflected in its management practices and procedures.

1. *Create a Statement of Purpose*. Passion for guitar making.
2. *Learn the New Philosophy*.
3. *Understand Inspection*. Inspection used judiciously to ensure quality, not indiscriminately.
4. *End Price Tag Decisions*. Selecting highest grades of wood. Using hand processes when needed to ensure quality.
5. *Improve Constantly*. Use written records to try to duplicate outstanding sound results.
6. *Institute Training*. Encourage skill building through external courses or building instruments for personal use.
7. *Teach and Institute Leadership*. Encouraging workers to go out on their own.
8. *Drive Out Fear and Innovate*.
9. *Optimize the Efforts of Teams and Staff*. Not having a formal quality department. Recruiting workers who thrive in a team environment.
10. *Eliminate Exhortations*.
11. *Eliminate Quotas and MBO; Institute Improvement; and Understand Processes*. Not passing work on to the next department until quality is assured.
12. *Remove Barriers*. Skill building helps workers become familiar with the entire process.
13. *Encourage Education*.
14. *Take Action*.

While all points are not explicitly observed, many are clearly there.

Power Products, Inc.

1. Which of Deming's 14 Points are violated at Power Products?

The most obvious ones are
Point 3: Understand the purpose of inspection, for improvement of processes and reduction of cost.
Point 4: End the practice of awarding business on the basis of price tag alone.
Point 5: Improve constantly and forever the system of production and service.
Point 11(a): Eliminate numerical quotas for production. Instead, learn and institute methods for improvement.

Students might also point to the leadership and "take action" points.

2. How can Deming's Profound Knowledge philosophy explain the issues that Power Products has experienced and provide a framework for improving the situation?

Lack of a systems perspective was probably the most important factor. These comments were provided in the source article:

Competition and a misguided focus on one set of cost-saving variables nearly sank the product line. The notion of indulging one part of a system to the disadvantage of another did not change until declining sales and a reputation for poor quality led the operations director to resign.

Failure to appreciate the organization as a system containing codependent processes became costly for the parent organization. Travel would have been reduced if manufacturing engineering and the quality department were allowed to manage process variability and establish a preferred supplier list based on performance,

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scrap loss, rework, downtime and problem solving.

Similarly, recent recalls issued by some automotive companies are another case in point when maximizing some processes for individual reward and self-preservation at the expense of the whole system led to product failures, costly outcomes and unexpected losses.

TecSmart Electronics

1. **Discuss how the practices that TecSmart identified support Deming's 14 Points.**

   It is easy to relate these to Deming's 14 Points:

   1. *Create a Statement of Purpose*. Leaders set company objectives which are cascaded down the organization.
   2. *Learn the New Philosophy*. Executives are involved in teaching key courses related to improvement.
   3. *Understand Inspection*. Inspection is not explicitly addresses, but employees are trained in problem solving, which suggests a more proactive approach to improvement rather than reliance on after-the-fact inspection.
   4. *End Price Tag Decisions*. Suppliers are involved in early stages of a product development program, suggesting a close working relationship where cost is not king.
   5. *Improve Constantly*. A process is in place to train employees in a 5-step problem solving process, and new processes are documented and variation in ongoing processes is monitored for corrective action.
   6. *Institute Training*. TecSmart University, customer relationship training, and training for sales, engineers, office staff, and managers all support this Point.
   7. *Teach and Institute Leadership*. Leadership is evident in objective-setting, communication and teaching, planning, complaint resolution, and middle management coaching.
   8. *Drive Out Fear and Innovate*. Routine communication sessions with top management, employee empowermet through self-managed teams, and the annual employee surveys would tend to support this Point.
   9. *Optimize the Efforts of Teams and Staff*. Teams and staff have been organized and are prevalent throughout.
   10. *Eliminate Exhortations*. Specific goals and measurement processes are used extensively.
   11. *Eliminate Quotas and MBO; Institute Improvement; and Understand Processes*. Not explicitly mentioned, but all evidence seems to support this.
   12. *Remove Barriers*. Hourly workers can make process changes with the agreement of only one person, and sales people are authorized to travel wherever they feel it necessary for customer service.
   13. *Encourage Education*. Education appears to be a core process in this company.
   14. *Take Action*. All the points mentioned clearly show this.

2. **How do these practices support the Baldrige criteria? Specifically, identify which of the questions in the criteria each of these practices address.**

   TecSmart Electronics' strengths can also be classified as follows.

   1. *Leadership*. Bullets 1, 2, 3, and 7.
   2. *Strategy*. Bullets 1 and 7.
   3. *Customers*. Bullets 8, 9, 10, 11, 15, and 17.
   4. *Measurement, Analysis, and Knowledge Management*. Bullets 4, 5, 7, 8, 11, 16, and 17.
   5. *Workforce*. Bullets 1, 6, 9, 12, and 14.
   6. *Operations*. Bullets 4, 8, 16, and 18.

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7. *Results*. Bullets 2, 3, 4, 7 and 17.

3. What are some of the obvious opportunities for improvement relative to the Baldrige criteria? What actions would you recommend that Tec-Smart do to improve its pursuit of performance excellence using the Baldrige criteria?

One way to approach this is to compare the strengths to the criteria questions and identify key gaps in what they do. For example, in strategic planning, no mention is made of how goals are set, benchmarks are chosen, or cycles of improvement in the planning process take place. Also, other than managers who are involved in professional and community organizations, no mention is made of how the company addresses social responsibility obligations.

Can Six Sigma Work in Health Care?

1. What would be your agenda for this meeting?

Chapter 11 addresses Six Sigma implementation and provides some guidelines for getting started. Students should come up with many of these concepts as the basis for an agenda. However, probably the first thing needed would be to address the questions in #2 below to get a basic understanding of the organization before dealing with awareness, training, coaching, and other change management issues.

2. What questions would you need answered before proposing a Six Sigma implementation plan?

The questions might include:

- Why do this? Understand the mission, vision, and values of SLRMC
- Willingness to commit time and money to a Six Sigma process?
- Where do they stand now? Do they have metrics and benchmarks for comparison?
- What "champions" might they identify within the physician and staff communities?
- Why the project areas identified? Are these the "low-hanging fruit" to help motivate the process?

3. How would you design an infrastructure to support Six Sigma at SLRMC?

You might design an infrastructure around the key characteristics of Six Sigma as outlined in the chapter, and develop project goals and activities to address each one:

1. Thinking in terms of key business processes and customer requirements with a clear focus on overall strategic objectives.
2. Focusing on corporate sponsors responsible for championing projects, supporting team activities, helping to overcome resistance to change, and obtaining resources.
3. Emphasizing such quantifiable measures as defects per million opportunities (dpmo) that can be applied to all parts of an organization: patient services, quality assessment, financial management, human resources, and so on.
4. Ensuring that appropriate metrics are identified early in the process and that they focus on health care results, thereby providing incentives and accountability.
5. Providing extensive training followed by project team deployment to improve profitability, reduce non-value-added activities, and achieve cycle time reduction.
6. Creating highly qualified process improvement experts ("green belts," "black belts," and "master black belts") who can apply improvement tools and lead teams.
7. Setting stretch objectives for improvement.

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Chapter 2

Frameworks for Quality and Performance Excellence



Outline

- Describe the philosophies of Deming, Juran, and Crosby
- Provide an overview of the Malcolm Baldrige National Quality Award and other related award programs, ISO 9000, and Six Sigma
- Understand the differences in scope, purpose, and philosophy of these frameworks

Deming Philosophy

- The Deming philosophy focuses on continual improvements in product and service quality by reducing uncertainty and variability in design, manufacturing, and service processes, driven by the leadership of top management.

Deming Chain Reaction



Deming's System of Profound Knowledge

- Appreciation for a system
- Understanding variation
- Theory of knowledge
- Psychology

Systems

- Most organizational processes are cross-functional
- Parts of a system must work together
- Every system must have a purpose
- Management must optimize the system as a whole

Variation

- Many sources of uncontrollable variation exist in any process
- Excessive variation results in product failures, unhappy customers, and unnecessary costs
- Statistical methods can be used to identify and quantify variation to help understand it and lead to improvements

Theory of Knowledge

- Knowledge is not possible without theory
- Experience alone does not establish a theory, it only *describes*
- Theory shows cause-and-effect relationships that can be used for prediction

Psychology

- People are motivated intrinsically and extrinsically; intrinsic motivation is the most powerful
- Fear is demotivating
- Managers should develop pride and joy in work

Deming's 14 Points (Abridged) *(1 of 2)*

1. Create and publish a company mission statement and commit to it.
2. Learn the new philosophy.
3. Understand the purpose of inspection.
4. End business practices driven by price alone.
5. Constantly improve system of production and service.
6. Institute training.
7. Teach and institute leadership.
8. Drive out fear and create trust.

Deming's 14 Points *(2 of 2)*

9. Optimize team and individual efforts.
10. Eliminate exhortations for work force.
11. Eliminate numerical quotas and M.B.O. Focus on improvement.
12. Remove barriers that rob people of pride of workmanship.
13. Encourage education and self-improvement.
14. Take action to accomplish the transformation.

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Juran Philosophy

- Juran proposed a simple definition of quality: "fitness for use." This definition of quality suggests that it should be viewed from both external and internal perspectives; that is, quality is related to "(1) product performance that results in customer satisfaction; (2) freedom from product deficiencies, which avoids customer dissatisfaction."

Juran's Quality Trilogy

- Quality planning
- Quality control
- Quality improvement



www.juran.com

Crosby Philosophy

Quality is free . . .

"Quality is free. It's not a gift, but it is free. What costs money are the unquality things -- all the actions that involve not doing jobs right the first time."

Crosby's Absolutes of Quality Management

- Quality means conformance to requirements
- Problems are functional in nature
- There is no optimum level of defects
- Cost of quality is the only useful measurement
- Zero defects is the only performance standard

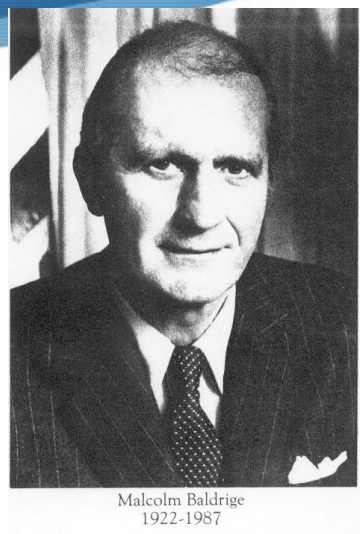


www.philipcrosby.com

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Malcolm Baldrige National Quality Award

- Help improve quality in U.S. companies
- Recognize achievements of excellent firms and provide examples to others
- Establish criteria for evaluating quality efforts
- Provide guidance for other American companies



Malcolm Baldrige, former U.S. Secretary of Commerce

Recent Developments

- From 1987 until 2012, the Baldrige program was administered through the National Institute of Standards and Technology, a division of the U.S. Department of Commerce.
- In 2012, the House Appropriations Committee of the U.S. Congress eliminated funding for the Baldrige program
- The Baldrige program reacted quickly and began a transition to a sustainable, nongovernment-supported business model. In April 2012, the Baldrige Foundation committed funds to sustain the program through the fiscal year 2015.

Criteria for Performance Excellence

- Leadership
- Strategy
- Customers
- Measurement, Analysis, and Knowledge Management
- Workforce
- Operations
- Results

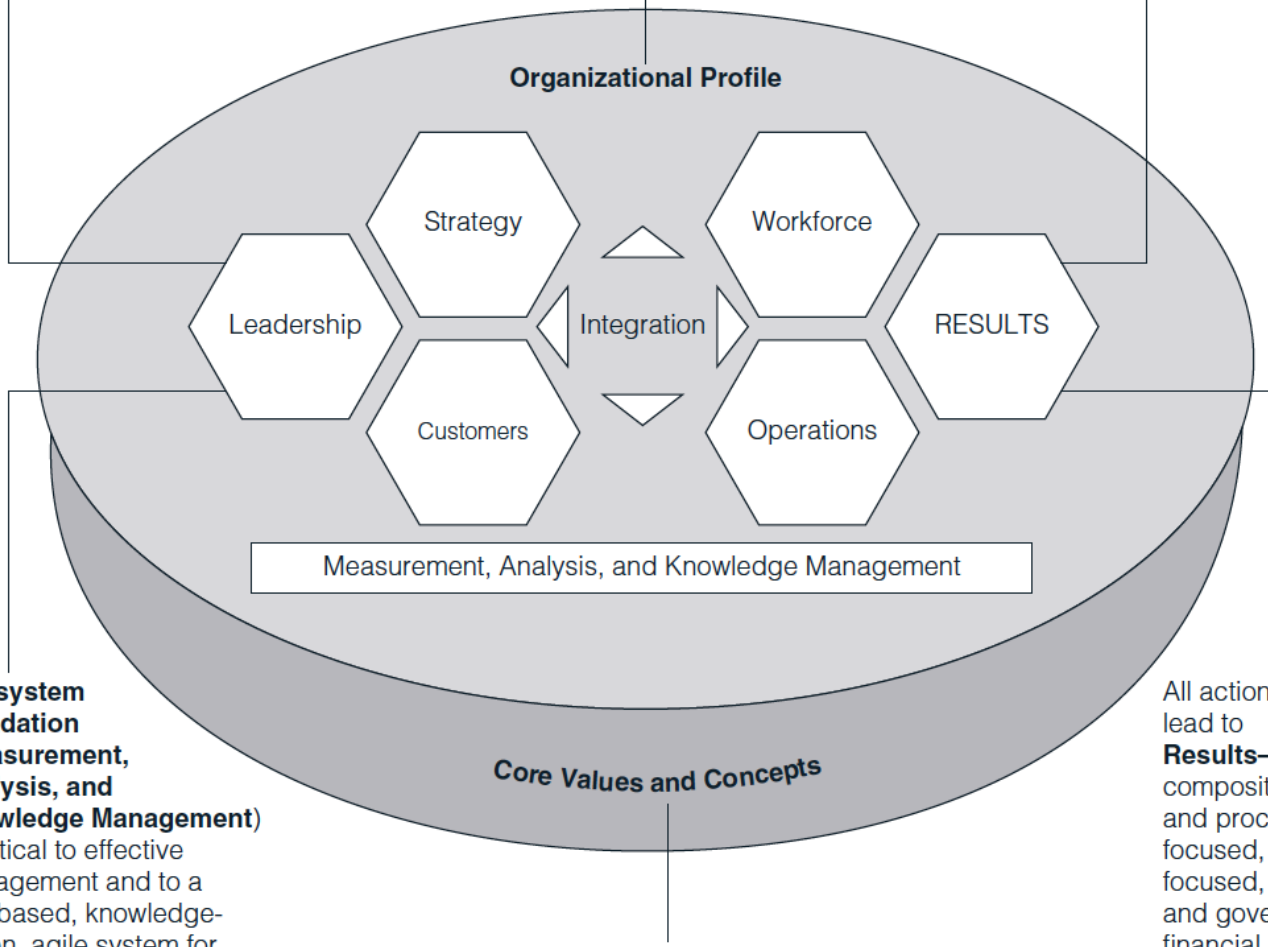


Baldrige Award trophy

The **leadership** triad (**Leadership, Strategy, and Customers**) emphasizes the importance of a leadership focus on strategy and customers.

The **Organizational Profile** sets the context for your organization. It serves as the background for all you do.

The **results** triad (**Workforce, Operations, and Results**) includes your workforce-focused processes, your key operational processes, and the performance results they yield.



The **system foundation** (**Measurement, Analysis, and Knowledge Management**) is critical to effective management and to a fact-based, knowledge-driven, agile system for improving performance and competitiveness.

All actions lead to **Results**—a composite of product and process, customer-focused, workforce-focused, leadership and governance, and financial and market results.

The basis of the Criteria is a set of **Core Values and Concepts** that are embedded in high-performing organizations

FIGURE 2.3 A SYSTEMS PERSPECTIVE OF THE BALDRIGE PERFORMANCE EXCELLENCE FRAMEWORK

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Criteria Structure

- Each category consists of several *items* (numbered 1.1, 1.2, 2.1, etc.) or major requirements on which businesses should focus.
- Each item, in turn, consists of a small number of *areas to address* (e.g., 6.1a, 6.1b) that seek specific information on approaches used to ensure and improve competitive performance, the deployment of these approaches, or results obtained from such deployment.

Core Values and Concepts

- Systems Perspective
- Visionary Leadership
- Customer-Focused Excellence
- Valuing People
- Organizational Learning and Agility
- Focus on Success
- Managing for Innovation
- Management by Fact
- Societal Responsibility
- Ethics and Transparency
- Delivering Value and Results

Baldrige Award Evaluation Process

- Examiner review of application to identify strengths and opportunities for improvement and preliminary scores
- Consensus review by examiner teams to reach agreement on comments and scores
- Judges' selection of site-visited organizations
- Judges' recommendation of recipients
- Feedback reports finalized for all applicants

Scoring and Evaluation

- Approach - the methods the company uses to achieve the requirements addressed in each category
- Deployment - the extent to which the approaches are applied to all requirements of the item
- Results - the outcomes and effects in achieving the purposes given in the item

Approach

- Appropriateness of methods
- Effectiveness of use of the methods. Degree to which the approach is
  - Repeatable, integrated, and consistently applied
  - Embodies evaluation/improvement/learning cycles
  - Based on reliable information and data
- Alignment with organizational needs
- Evidence of innovation

Deployment

- Use of the approach in addressing item requirements relevant to the organization;
- Use of the approach by all appropriate work units

Results

- Current performance
- Performance relative to appropriate comparisons and benchmarks
- Rate, breadth, and importance of performance improvements
- Linkage of results measures to key customer, market, process, and action plan performance requirements

Impacts of the Baldrige Program

- Benefit/cost ratio on investment of 820:1
- Changed the way organizations around the world manage themselves
- Use of self-assessment
- State, local, and national awards around the world
- Author Jim Collins: "*I see the Baldrige process as a powerful set of mechanisms for disciplined people engaged in disciplined thought and taking disciplined action to create great organizations that produce exceptional results*."

International Quality Award Programs

- Deming Prize
- European Quality Award
- Canadian Awards for Business Excellence
- Australian Business Excellence Award
- Chinese National Quality Award
- Many others!

Global Performance Excellence Programs

Country	Organization
Australia	SAI-Global
Brazil	National Quality Award Foundation
Canada	National Quality Institute of Canada
Europe	European Foundation for Quality Management (EFQM)
India	Confederation of Indian Industry
Ireland	Excellence Ireland Quality Association
Japan	Japan Productivity Center for Socio-Economic Development
Mexico	Premio Nacional de Calidad, México
New Zealand	New Zealand Business Excellence Foundation
United Kingdom	British Quality Foundation

Source: Robin Mann and Nigel Grigg, "A Study of National Strategies for Business Excellence," Chapter 3, in *Quality Management and Organisation Excellence: Oxymorons, Empty Boxes, or Important Contributions to Management Thought and Practice*. Eds. K. Foley, D. A. Hensler, and J. Jonker. Sydney, Australia: Standards Australia International (SAI) Global, 2007.

Deming Prize



- Instituted 1951 by Union of Japanese Scientists and Engineers (JUSE)
- Several categories including prizes for individuals, factories, small companies, and Deming application prize
- American company winners include Florida Power & Light and AT&T Power Systems Division

Quality Management Systems

- A quality management system (QMS) can be considered a mechanism for managing and continuously improving core processes to "achieve maximum customer the lowest overall cost to the organization."
- A quality manual serves as a permanent reference for implementing and maintaining the system.

ISO 9000:2000

- Quality system standards adopted by the International Organization for Standardization in 1987; revised in 1994 and 2000 with minor updates in other years.
- Technical specifications and criteria to be used as rules, guidelines, or definitions of characteristics to ensure that materials, products, processes, and services are fit for their purpose.

Rationale for ISO 9000

- ISO 9000 defines quality system standards, based on the premise that certain generic characteristics of management practices can be standardized, and that a well-designed, well-implemented, and carefully managed quality system provides confidence that the out-puts will meet customer expectations and requirements.

Objectives of ISO Standards *(1 of 2)*

- Achieve, maintain, and continuously improve product quality
- Improve quality of operations to continually meet customers' and stakeholders' needs
- Provide confidence to internal management and other employees that quality requirements are being fulfilled

Objectives of ISO Standards *(2 of 2)*

- Provide confidence to customers and other stakeholders that quality requirements are being achieved
- Provide confidence that quality system requirements are fulfilled

Structure of ISO 9000 Standards

- The standards consist of three documents
  - ISO 9000:2005— Fundamentals and vocabulary
  - ISO 9001:2008— Requirements
  - ISO 9004:2009— Guidance for performance improvement

Benefits of ISO 9000

1. It provides discipline. The ISO 9001 requirement for audits forces an organization to review its quality system on a routine basis. If it fails to

2. It contains the basics of a good quality system, such as understanding customer requirements, ensuring the ability to meet them, ensuring people resources capable of doing the work that affects quality, ensuring physical resources and support services needed to meet product requirements, and ensuring that problems are identified and corrected.

3. It offers a marketing program. ISO certified organizations can use their status to differentiate themselves in the eyes of customers.

Six Sigma

- Six Sigma – a business improvement approach that seeks to find and eliminate causes of defects and errors in manufacturing and service processes by focusing on outputs that are critical to customers and a clear financial return for the organization.
- Based on a statistical measure that equates to 3.4 or fewer errors or defects per million opportunities
- Pioneered by Motorola in the mid-1980s and popularized by the success of General Electric

Key Concepts of Six Sigma

(1 of 2)

- Think in terms of key business processes, customer requirements, and overall strategic objectives.
- Focus on corporate sponsors responsible for championing projects, support team activities, help to overcome resistance to change, and obtaining resources.
- Emphasize such quantifiable measures as defects per million opportunities (dpmo) that can be applied to all parts of an organization

Key Concepts of Six Sigma
(2 of 2)

- Ensure that appropriate metrics are identified early and focus on business results, thereby providing incentives and accountability.
- Provide extensive training followed by project team deployment
- Create highly qualified process improvement experts ("green belts," "black belts," and "master black belts") who can apply improvement tools and lead teams.
- Set stretch objectives for improvement.

Six Sigma as a Quality Framework (1 of 2)

- TQ is based largely on worker empowerment and teams; Six Sigma is owned by business leader champions.
- TQ activities generally occur within a function, process, or individual workplace; Six Sigma projects are truly cross-functional.

Six Sigma as a Quality Framework (2 of 2)

- TQ training is generally limited to simple improvement tools and concepts; Six Sigma focuses on a more rigorous and advanced set of statistical methods and a structured problem-solving methodology DMAIC—define, measure, analyze, improve, and control.
- TQ is focused on improvement with little financial accountability; Six Sigma requires a verifiable return on investment and focus on the bottom line.

Six Sigma in Services

- The culture of services is usually less scientific and service employees typically do not think in terms of processes, measurements, and data. The processes are often invisible, complex, and not well defined or well documented.
- The work typically requires considerable human intervention, such as customer interaction, underwriting or approval decisions, or manual report generation.
- Service measures differ from manufacturing: accuracy, cycle time, cost, customer satisfaction

Comparing Baldrige, ISO 9000, and Six Sigma

- Baldrige focuses on performance excellence for the entire organization in an overall management framework, identifying and tracking important organizational results
- ISO focuses on product and service conformity for guaranteeing equity in the marketplace and concentrates on fixing quality system problems and product and service nonconformities
- Six Sigma concentrates on measuring product quality and driving process improvement and cost savings throughout the organization.