

**SOLUTIONS MANUAL**



**MANAGEMENT**

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## CHAPTER 2

# Traditional and Contemporary Issues and Challenges

### CHAPTER SUMMARY

Chapter 2 summarizes the history of management and identifies the major challenges facing managers today. First, the historical context of business is discussed, then three traditional management perspectives—the classical, behavioral, and quantitative—are introduced. Contemporary perspectives, including the systems and contingency approaches, are described. The chapter concludes with a discussion of a variety of contemporary management issues and challenges.

### LEARNING OBJECTIVES

After covering this chapter, students should be able to:

1. Justify the importance of history and theory to management, and discuss precursors to modern management theory.
2. Summarize and evaluate the classical perspective on management, including scientific and administrative management, and note its relevance to contemporary managers.
3. Summarize and evaluate the behavioral perspective on management, including the Hawthorne studies, the human relations movement, and organizational behavior, and note its relevance to contemporary managers.
4. Summarize and evaluate the quantitative perspective on management, including management science and operations management, and note its relevance to contemporary managers.
5. Discuss the systems and contingency approaches to management, and explain their potential for integrating the other areas of management.
6. Identify and describe contemporary management issues and challenges.

The case describes the operations process at Steinway, the piano maker. It details the meticulous attention to craftsmanship – the company needs 12 months, 12,000 parts, 450 craftspeople, and countless hours of skilled labor to produce a grand piano – that makes Steinway’s products epitomes of quality.

**Discussion Starter:** To what extent should managers stick to what they and their firm does best, and to what extent should they be flexible and adaptive? Does the answer depend on environmental conditions? For a lively classroom discussion, ask students to address these questions. Encourage them to use the example of Steinway and other companies.

### LECTURE OUTLINE

- I. THE ROLE OF THEORY AND HISTORY IN MANAGEMENT
  - A. The Importance of Theory and History

## Chapter 2: Traditional and Contemporary Issues and Challenges

1. *Why theory?*—A theory is simply a conceptual framework for organizing knowledge and providing a blueprint for action.

**Teaching Tip:** Many students seem to react negatively to the concept of a “theory.” Ask for student opinions about the reasons for the popularity or lack of popularity for a particularly high-profile politician (such as the president) or other public figure (such as a sports figure or movie star). Then point out that their explanation is a theory. Go on to stress the point that theories are simply frameworks of thought and that most people hold a number of different theories.

**Management Update:** Andrew Grove, former CEO of Intel, continued to espouse his theory of organizations until his retirement in 1990. He gave the theory credit for Intel’s continued success in the semiconductor business. Grove’s theory is that technology companies face recurring “strategic inflection points” where radical changes force firms to completely transform themselves or die. He warned that “only the paranoid survive,” meaning that firms cannot sit on their success and must adapt continuously.

2. *Why history?*—Contributions from past industrialists have molded the American culture, and managers can benefit from an awareness of these contributions.

**Discussion Question:** Ask students if they have read any books about history that may help them be better managers.

### B. Precursors to Management Theory

1. *Management in antiquity*—Although the practice of management can be traced back to 3000 B.C., it was not given serious attention until the 1800s when large organizations emerged during the Industrial Revolution.

**Extra Example:** The construction of ancient wonders such as Stonehenge, the Egyptian pyramids and the Great Wall of China would not have been possible without effective management.

**Global Connection:** Use Figure 2.1 as a framework to underscore the fact that management history has its roots in many different cultures, countries, and eras.

**Global Connection:** Many Japanese executives today give some of the credit for their success to a book written in 1645. The book, entitled *A Book of Five Rings*, was written by a samurai warrior. The book describes numerous ideas and concepts for successful competition that can be generalized to management.

### 2. *Early management pioneers*

Robert Owen was one of the first managers to show respect and dignity to workers in his factory. He implemented better working conditions, raised the minimum age for child labor, reduced hours, and supplied meals.

Charles Babbage applied mathematical principles to find ways to make the most efficient use of facilities and materials. He also advocated profit-sharing plans.

**Global Connection:** Note that many of the early management pioneers were British. One reason is that the Industrial Revolution advanced in England more quickly than in most other parts of the world.

**Extra Example:** Note that the very first introductory management textbook (*Principles of Management*, by George Terry) was published in 1953, over 40 years ago.

**Extra Example:** Andrew Ure was one of the world's first professors to teach management principles at Anderson's College in Glasgow.

## II. THE CLASSICAL MANAGEMENT PERSPECTIVE

### A. Scientific Management

*Scientific management* focuses on ways to improve the performance of individual workers.

Frederick W. Taylor saw workers *soldiering*, or deliberately working beneath their potential. He designed a four-step method to overcome this problem—breaking the job into small tasks, selecting and training the best employees, monitoring to ensure compliance, then replace employees who do not show high achievement.

**Discussion Question:** Ask students if they have ever observed soldiering. Ask them if they have ever been “guilty” of such behavior themselves.

**Extra Example:** Frederick Taylor applied many of the concepts of scientific management to his favorite sports, lawn tennis and croquet.

**Discussion Question:** As noted in the text, Taylor apparently falsified some of his results. In what ways, if any, does this diminish his contributions to the field of management?

The Gilbreths, a husband and wife team, also helped find more efficient ways for workers to produce output. Frank Gilbreth made his most important contribution in the field of bricklaying. He changed an 18-step process into a 5-step process and increased productivity by about 200 percent.

**Extra Example:** Another area in which Frank and Lillian Gilbreth made substantial contributions was in assisting the handicapped. In particular, they helped develop vocational training methods for assisting disabled veterans. Interestingly, Steve Martin's movie *Cheaper by the Dozen* was based on the life of the Gilbreths.

Henry Gantt introduced the Gantt chart, which is a way to schedule work. This type of chart is still used today.

Harrington Emerson was an advocate of specialized management roles in organizations. He testified before the Interstate Commerce Commission that the railroad could save \$1 million a day by using scientific management.

**Extra Example:** Other businesses today that rely heavily on scientific management concepts include poultry processing plants and recycling centers that sort glasses, plastics, and papers into different categories.

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### B. Administrative Management

*Administrative management* focuses on managing the total organization.

Henri Fayol was the first to identify the four management functions—planning, organizing, leading, and controlling—and he developed guidelines for managers to follow. These guidelines form fourteen principles for effective management.

**Discussion Starter:** Ask students to discuss the relevance of each of Fayol’s principles to modern management.

**Cross-Reference:** In addition to Fayol, many other writers over the years have attempted to develop so-called principles, rules, or guidelines for management. However, these principles have never been widely applicable. The reasons for this are discussed later in the chapter.

Lyndall Urwick is best known for integrating scientific management with administrative management.

Max Weber outlined the concept of bureaucracy based on a rational set of guidelines for structuring organizations in the most efficient manner. His work is the foundation of contemporary organization theory.

**Global Connection:** Again, note the influence of foreign scholars. For example, Fayol was French, Urwick was British, and Weber was German.

**Cross-Reference:** Weber’s work is discussed in more detail in Chapter 12.

Chester Barnard wrote in a book called *The Functions of the Executive* about the acceptance of authority and how managers get employees to do what they ask.

### C. The Classical Management Perspective Today

**Teaching Tip:** Table 2.1 summarizes the contributions and limitations of the classical management perspective.

- |                |                                                                                                |
|----------------|------------------------------------------------------------------------------------------------|
| Contributions: | (1) Laid the foundation for management theory                                                  |
|                | (2) Identified key processes, functions, and skills of managers that are still important today |
|                | (3) Made management a valid subject of scientific inquiry                                      |
| Limitations:   | (1) Best used in simple, stable organizations                                                  |
|                | (2) Provided universal procedures that are not appropriate in all settings                     |
|                | (3) Most viewed employees as tools rather than as resources                                    |

## III. THE BEHAVIORAL MANAGEMENT PERSPECTIVE

Hugo Munsterberg applied psychological concepts to industrial settings, founding the field of industrial psychology around 1900.

**Global Connection:** Again, note the international influence on management as evidenced by Hugo Munsterberg, a German psychologist.

Another pioneer of behavioral management was Mary Parker Follett.

A. The Hawthorne Studies

The Hawthorne studies were held at Western Electric and sponsored by General Electric. Elton Mayo and his colleagues controlled the lighting in one room of workers but not in another. When the illumination was increased in the experimental group, productivity increased in *both* groups. The increase in productivity was attributed to the fact that the workers were having extra attention paid to them, maybe for the first time.

Other studies found that employees will not work as fast as they can when being paid piecework wages. Instead, they will perform to the level informally set by the group in order to be accepted by the group. These two studies, and others, led Mayo to the conclusion that individual and social processes play a major role in shaping employee attitudes and behavior at work.

**Discussion Starter:** Recent evidence suggests that important details about the Hawthorne studies were not reported properly. For example, all the workers in the illumination study were paid extra for participating. What, if any, implications might be drawn from this?

B. The Human Relations Movement

The *human relations movement*, which stemmed from the Hawthorne studies, is based on the idea that a manager's concern for workers will lead to their increased satisfaction and improved performance. The movement includes the need theories of motivation, such as Maslow's hierarchy of needs, and McGregor's *Theory X*, a negative view of workers based on scientific management and *Theory Y*, a positive view based on behavioral approaches.

**Teaching Tip:** Use Table 2.2 to summarize Theory X and Theory Y.

**Cross-Reference:** Maslow's theory is discussed in more detail in Chapter 16.

C. The Emergence of Organizational Behavior

The emergence of organizational behavior occurred because of the too-simplistic descriptions of work behavior by the human relationists. *Organizational behavior* takes a holistic view of behavior by addressing individual, group, and organizational processes.

**Extra Example:** Many business programs today have separate courses in organizational behavior. If your school has such a course, identify its number and title for your students and briefly review its topical coverage (i.e., its course description).

D. The Behavioral Management Perspective Today

**Teaching Tip:** Table 2.3 summarizes the contributions and limitations of the behavioral management perspective.

- |                |                                                                                                                                                                                                                                                                                                                  |
|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Contributions: | <ul style="list-style-type: none"> <li>(1) Gave insights into interpersonal processes such as motivation and group dynamics in organizations</li> <li>(2) Focused managerial attention on these processes</li> <li>(3) Challenged the view of employees as tools and not resources</li> </ul>                    |
| Limitations:   | <ul style="list-style-type: none"> <li>(1) Prediction was difficult due to the complexity of human behavior</li> <li>(2) Managers were reluctant to adopt some of the behavioral concepts</li> <li>(3) Contributions were often not communicated to the practicing managers in an understandable form</li> </ul> |

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### IV. THE QUANTITATIVE MANAGEMENT PERSPECTIVE

The quantitative management perspective focuses on decision making, economic effectiveness, mathematical models, and the use of computers. The two branches of the quantitative approach are management science and operations management.

#### A. Management Science

*Management science* focuses specifically on the development of mathematical models. These models help organizations try out various activities with the use of a computer. Modeling can help managers determine the best way to do things, saving money and time.

#### B. Operations Management

*Operations management* is an applied form of management science that helps organizations develop techniques to produce their products and services more efficiently.

**Extra Example:** Many business programs today have separate courses in management science and/or operations management. If your school has either or both courses, identify them by number and title for your students and briefly review their topical coverage (i.e., their course descriptions).

**Cross-Reference:** Operations management is discussed in more detail in Chapter 21.

#### C. The Quantitative Management Perspective Today

**Teaching Tip:** Table 2.4 summarizes the contributions and limitations of the quantitative management perspective.

- Contributions:
- (1) Developed sophisticated quantitative techniques to assist in decision making
  - (2) Increased awareness of complex processes and aided in planning and control
- Limitations:
- (1) Cannot fully explain or predict behavior of people
  - (2) Mathematical sophistication may come at the expense of other important skills
  - (3) Models may require unrealistic or unfounded assumptions

### V. INTEGRATING PERSPECTIVES FOR MANAGERS

Integrating perspectives, including the systems and contingency perspectives, bring together aspects of classical, behavioral, and quantitative approaches.

#### A. The Systems Perspective

A *system* is an interrelated set of elements functioning as a whole.

**Cross-Reference:** Remind your students that we introduced the concept of a system in Chapter 1 and used it as a framework for our definition of management.

An organization as an open system is composed of four elements: inputs (material or human resources), transformation processes (technological and managerial processes), outputs (products or services), and feedback (reactions from the environment).

**Group Exercise:** Break students up into small groups. Have them select an organization and diagram its inputs, transformation processes, outputs, and feedback mechanisms.

*Open systems* interact with their environment.

*Closed systems* do not interact with their environment.

*Subsystems* are systems within a broader system.

*Synergy* are units that are more successful working together than working alone.

*Entropy* is the process that leads to decline.

**Teaching Tip:** Note the subtle but important distinction between entropy and poor management.

B. The Contingency Perspective

Appropriate managerial behavior depends on the elements of the situation.

A *universal perspective* tries to identify the “one best way” to manage organizations.

A *contingency perspective* argues that universal theories cannot be applied to organizations because each is unique.

C. An Integrating Framework

Managers need to include the parts from each perspective that are relevant to their situation and apply them using both the systems and contingency approaches.

The basic premise of the integrative framework is that elements of the classical, behavioral, and quantitative perspectives may all be relevant. However, none is likely to provide a complete explanation.

Therefore, managers need to carefully assess situations and then select those elements from each perspective that can be applied.

**Group Exercise:** Form small groups of students. Have them identify a problem or opportunity facing a business or other organization. Then have them identify elements and ideas from the classical, behavioral, and quantitative perspectives that might be relevant. In addition, have them discuss how systems and contingency perspectives might affect the situation.

## VI. CONTEMPORARY MANAGEMENT ISSUES AND CHALLENGES

**Teaching Tip:** Figure 2.5 is a useful mechanism for illustrating the time frames across which different management perspectives have evolved.

A. Contemporary Applied Perspectives

The Theory Z model and the concern for excellence were important seminal work in the early 1980s. More recent advancements have been made by Peter Senge, Stephen Covey, Tom Peters, Michael Porter, John Kotter, and Gary Hamel.

**Discussion Starter:** Ask students if they have read—or even heard of—Theory Z. Since most will not, use this fact to discuss the faddish nature of many new approaches and ideas.

B. Contemporary Management Challenges

1. Sluggish economy
2. Diversity
3. Technology and the Internet
4. Globalization
5. Ethics, social responsibility, and corporate governance
6. Quality
7. Shift to service economy

**Cross-Reference:** Many of the contemporary management challenges are covered in detail in other parts of this book. For example, globalization is covered in detail in Chapter 5.



## END OF CHAPTER QUESTIONS

### Questions for Review

1. Briefly describe the principles of scientific management and administrative management. What assumptions are made about workers?

Scientific management uses techniques such as time-and-motion studies and piecework pay systems to increase the productivity of individual workers. Scientific management calls for observation, development of improved procedures, training, and motivating workers. Administrative management is also based on rational and scientific methods, but it focuses on the organization as a whole. Principles of administrative management include the specialization of managerial work, the development of bureaucracy, and theories about authority and control. Both scientific management and administrative management assume that workers are interchangeable and identical, that rational processes govern most behavior, and that money is the best motivator.

2. What are the differences between the contingency and the universal perspectives on management? How is the contingency perspective useful in the practice of management today?

Contingency perspectives prescribe different approaches for different situations, while universal perspectives focus on one “best” approach. For the most part, contingency perspectives are preferred by today’s managers, because they are often better able to accommodate changes in the people, the organization, and its environment. As the environment in which businesses operate becomes ever more complex, uncertain, and dynamic, contingency perspectives are likely to be employed more and more.

3. Describe the systems perspective. Why is a business organization considered an open system?

The systems perspective tells us that organizations are systems composed of various elements that interact in different ways. The system transforms inputs into outputs and receives feedback from its environment. Open systems interact with their environment, and therefore businesses are considered to be open systems because they interact with customers, the government, local communities, and other external elements.

4. For each of the contemporary management challenges, give at least one example other than the examples found in the text.

An acute labor shortage is manifested in the health care industry today, where nurse and technician shortages are driving up labor costs. How to handle an aging workforce is one issue in the management of diversity. The current generation of workers is showing an increased interest in religion, as compared to older generations. Change continues to accelerate as product innovations rise sharply. Instant messaging is a fairly new form of information technology, as are personal digital assistants (PDAs). New ways of organizing include increase reliance on teamwork and virtual workplaces. Globalization continues to impact businesses—one example is the expanding membership of the European Union and the subsequent changes in those markets. Corporation’s ethics are under increased scrutiny, following the scandals at Enron and other firms. Quality is an important challenge as businesses seek to attract a shrinking market of consumers. The U.S. and other developed countries are continuing their shift to a service economy.

## Questions for Analysis

5. Young, innovative, or high-tech firms often adopt the strategy of ignoring history or attempting to do something radically new. In what ways might this strategy help them? In what ways might this strategy hinder them?

This strategy can be useful because it completely jettisons older systems, eliminating some of the problems they had. For example, the virtual firm is a radically different way of organizing that allows the company to call upon the best talent anywhere in the world, eliminate the expenses of maintaining a headquarters facility, and give creative workers the freedom to work in whatever way, place, and time works best for them. However, the strategy also throws out what was best about the traditional ways of doing business, which can lead to problems. For example, many virtual firms are finding that employees prefer to spend at least some time in face-to-face interaction.

6. Can a manager use tools and techniques from several different perspectives at the same time? For example, can a manager use both classical and behavioral perspectives? Give an example of a time when a manager did this, and explain how it enabled him or her to be effective.

As noted in the text, any given management problem may be addressed by using elements and ideas from the three major perspectives on management. The answer to this question should be based on the logic and rationale used to link the perspectives in a coordinated fashion that seems to make sense for a given situation. For instance, an example might be a manager who is more effective because he uses operations management techniques to design an efficient production line, but he also uses techniques from the behavioral management perspective to motivate his workers.

7. Visit the website of Amazon.com. Select the tab that reads “See All 32 Product Categories,” and then choose the link for “Books.” Next select the link for “Bestsellers,” and click on “Business & Investing” from the categories listed down the left side of the screen. Look at Amazon’s list of best-selling business books. What ideas or themes do you see in the list? Which business leaders do you see?

A current bestseller at the time of publication of this Instructor’s Manual was *Good to Great* by Jim Collins. This book asserts that the main thing that distinguishes between a good company and a great one is a corporate culture that hired and rewarded workers who were disciplined to act in harmony with each other. Other themes include the value of good ethics, paying attention to details, and motivating workers. At this time, bestsellers are not written by CEOs of large corporations, as has been true in the past. The only famous business leader in the bestseller author list was Dale Carnegie, who wrote *How to Win Friends and Influence People* over 50 years ago. Other bestselling business books included *Outliers*, *The Tipping Point*, and *Blink*, all by Malcolm Gladwell.

## Questions for Application

8. Go to the library or go online and locate material about Confucius. Outline his major ideas. Which seem to be applicable to management in the United States today?

Students should emphasize the strong ethical base of Confucius’s teachings. Specific teachings include personal virtue, devotion to family, and the pursuit of justice. Some students may look at the use of individual motivators in organizations to ensure true work devotion for personal enhancement. Other students may use the Japanese management style, which fosters a family atmosphere in business with mutual dedication by workers and managers.

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9. Find a company that has laid off a significant number of workers in the last year. (*Hint:* Use the word *layoff* as a search term on the Internet.) Investigate that company. Why did the firm make the layoffs? In your opinion, is the company likely to accomplish its intended goal by laying off so many workers? Why or why not?

Many companies are currently in the process of laying off workers, so examples will be easy to find. For example, General Motors announced layoffs of 47,000 workers in 2009. The layoffs occurred because GM needed to cut costs in the wake of declining demand. The layoffs are likely to reduce costs because the cuts were in assembly line personnel that results from GM shutting down several unproductive plants.

10. Read about management pioneer Frederick Taylor at [www.cftech.com/BrainBank/TRIVIABITS/FredWTaylor.html](http://www.cftech.com/BrainBank/TRIVIABITS/FredWTaylor.html) or another source. Describe Taylor's background and experience. How does an understanding of Taylor's early career help you to better understand his ideas about scientific management?

Taylor was born into an affluent family, who didn't understand his interest in applying scientific principles to the study of manual labor. He worked as a factory worker, which was very unusual for a wealthy gentleman. His observations of workers, therefore, are probably quite accurate. Given the combination of wealth and education on one hand, and practical experience in factory work on the other hand, Taylor's interests and drives become more clear.

## END OF CHAPTER EXERCISES

### Building Effective Decision-Making Skills

- I. Purpose  
This exercise is designed to help students develop their decision-making skills, emphasizing the importance of system interdependencies in organizations.
- II. Format  
This exercise is designed so that it can be effective when done individually or in small groups. Answers could be written or presented to the class for evaluation. It should take less than a half hour.
- III. Follow-up
- A. Carefully examine each of your three options. In what ways might each option affect other parts of the organization?  
The option to buy lower-grade materials will require changes in purchasing, but it will also impact workers because they will have to work harder to make a good quality product from inferior materials. It may also have a major impact on sales, if the decline in quality is recognized by buyers. The lay-off option will create anxiety and resentment in those workers remaining in the firm, and it will probably raise overall wage expense, because the less-skilled workers will not work as efficiently as those who have better training. The option to purchase new equipment requires the most up-front investment, but it has the greatest potential for cost savings later.
- B. Which is the most costly option *in terms of impact on other parts of the organization, not in terms of absolute dollars*? Which is the least costly?  
Both lay-offs and inferior materials will be very costly for the organization. The use of inferior materials may be the "most costly" because it could cause customers to buy competitors' products and eventually lead to the failure of the firm. The least costly option is the purchase of new equipment. (See reasons under item 1, above).

- C. What are the primary obstacles that you might face in trying to implement each of your three options?  
The option to use inferior materials may cause dissatisfaction from the workers, and will certainly cause customers' dissatisfaction if it is detected. The lay-off option will encounter resistance from workers, and the best, most experienced workers may leave the company for other employment. The purchase of new equipment will likely encounter resistance from the CEO or other financial personnel, based on the increase in up-front costs.
- D. Can you think of other options for accomplishing your goal of reducing costs?  
Students may suggest cost-cutting ideas, such as better inventory control or improved use of information systems. They may also suggest a closer integration with suppliers or use of a less-expensive distribution channel. There are possibilities for cost savings in every functional area of the firm.

## Building Effective Interpersonal Skills

- I. Purpose  
This exercise asks you to examine your attitudes about how people regard work and how they should behave in the workplace.
- II. Format  
This in-class exercise involves looking at 8 items that consists of two related statements and responding to the statements in terms of how each statement reflects your attitude about how people regard work and behave in the workplace.
- Student responses vary depending on their attitude toward how people regard work.

## MANAGEMENT AT WORK

### HOW GE MANAGES TO DO IT

The case details the singular role played by General Electric (GE) in the development of modern management practices. Ideas developed at GE permeate the fields of operations management, human resource management, and strategic management. In strategy, GE's business screen method to portfolio management is a significant paradigm. The company's famed leadership development method has resulted in its alumni holding CEO posts at other companies. Currently, GE is focusing on innovations in environmental technology.

**Management Update:** When Jack Welch stepped down as CEO of GE, Jeffrey Immelt stepped into Welch's position. Bob Nardelli was one of the top executives at GE and when he was bypassed in favor of Immelt, Home Depot immediately snatched him up to be their CEO. In 2009, Nardelli stepped down as the CEO of Chrysler.

1. **Case Question 1:** Does the pattern of management developments at GE over the last century seem to reflect the pattern suggested by management theory? Explain your answer.

In some ways, GE's management contributions mirrored the development trends in management theory over time. Their "Blue Books" that governed managers' every move, for example, echoed the administrative management school founded by people such as Henri Fayol. Their focus on pension and profit sharing plans were in line with the trends developed by the human relations movement.

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2. **Case Question 2:** Which of GE's management innovations seem to draw on a classical-management perspective? Which seem to draw on a behavioral-management perspective? How does the contingency perspective explain the management changes that GE has made over the years? Explain each of your responses.

Administrative management is a subset of the classical management perspective. GE's "Blue Books" that detail managers' every move is an example of a management practice that would fall under this area. Administrative management focuses on managing the total organization. Thus, GE's contributions to strategic management (such as the business screen) can also be categorized in this area. GE's emphasis on leadership training is a great example of a practice that relates to the behavioral management perspective. GE emphasizes the importance of management development and recognition, both of which were covered by this perspective. In the beginning, GE focused on centralized decision making. It also developed the famed "Blue Books" that rigidly outlined every move managers make. The contingency perspective adopts the basic idea that one size does not fit all and that the situation or the context is important. Thus, as the business world changed over time, GE's management ideas focused on employee empowerment, autonomy, and flexibility – ideas that were at the other end of the pendulum compared to their earlier ideas.

3. **Case Question 3:** Why, in your opinion, has GE been so successful in integrating the management science approach with less quantitative approaches to management?

In 2008, GE Research was awarded the INFORMS prize, given annually to a firm that uses the quantitative techniques of management science to make better management decisions. A major reason why GE has been so successful integrating the quantitative and the qualitative approaches is its relentless focus on the customers. As its VP of Global Research points out, quantitative techniques are a means to the end, the end being to "create more customer value at lower risk."

4. **Case Question 4:** In what ways does the change in GE's approach to leadership reflect the same conditions as those that influence its current approach to management?

Customer focus is the key driving force at GE. Its new approach to leadership includes emphasis on "external focus" and "imagination and courage" – both of which are oriented toward becoming more innovative. The idea is that innovation is the foundation for growth.