CHAPTER

13 Decision-Making Processes

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Learning Objectives

After reading this chapter you should be able to:

1. Explain the differences between programmed and nonprogrammed decisions.
2. Describe the ideal, rational approach to decision making comparing it with the bounded rationality approach to decision making.
3. Describe how cognitive biases can cause decision errors.
4. Explain the management science approach to decision making.
5. Describe the Carnegie and incremental decision models.
6. Identify the components of the garbage can model of decision making.
7. Explain how to determine the best decision-making approach by using the contingency decision-making framework.
8. Describe how high-velocity environments and decision mistakes influence decision making for today's managers.

Chapter Outline

Before reading this chapter, please check whether you agree or disagree with each of the following statements:

MANAGING BY DESIGN QUESTIONS

1 **Managers should use the most objective, rational process possible when making a decision.**

I AGREE _____ I DISAGREE _____

2 **When a manager knows the best solution to a serious organizational problem and has the necessary authority, it is best to simply make the decision and implement it rather than involve other managers in the decision process.**

I AGREE _____ I DISAGREE _____

3 **Making a poor decision can help a manager and organization learn and get stronger.**

I AGREE _____ I DISAGREE _____

What is one activity every manager—no matter what level of the hierarchy, what industry, or what size or type of organization—engages in every day? Decision making. Managers are often referred to as *decision makers*, and every organization grows, prospers, or fails as a result of the choices managers make. However, many decisions can be risky and uncertain, without any guarantee of success. Ron Johnson, who was the brain behind Apple's retail stores and formerly a successful executive at Target, thought he had the winning formula to bring department store chain J.C. Penney back from the brink. Johnson decided to remake Penney into a more upscale, youth-oriented retailer, but the decision failed. Johnson was ousted after only 16 months, and Penney lost $1 billion during his one full year as CEO.[1] Or consider the damage done to the reputation of General Motors (GM) when investigations into quality and safety problems revealed that managers had delayed decisions that might have saved lives. Top executives at GM admitted that some managers knew about faulty ignition switches for more than a decade before crashes and deaths linked to the problem caused them to issue a recall of 2.6 million vehicles.[2] In hindsight, the decision to issue a recall seems like a no-brainer, but the situation wasn't so clear-cut at the time. Decision making is done amid constantly changing factors, unclear information, and conflicting points of view, and even the best managers in the most successful companies sometimes make big blunders.

Yet managers also make many successful decisions every day. Apple has topped *Fortune* magazine's list of the world's most admired companies for 12 straight years, but the company was all but dead in the mid-1990s. If the board had not decided to bring back co-founder Steve Jobs as CEO (he had been fired from his own company years earlier), Apple might not even exist today. In 1996, Apple lost $816 million on sales of $9.8 billion. Yet, thanks to decisions made by Jobs (who led the company from 1997 until he died in 2011) and other top managers, Apple is soaring today. Over a span of about two decades, Apple went from near bankruptcy to achieve a (temporary) market valuation of more than $1 trillion in late 2018. The decision to bring Jobs back has been called one of the greatest business decisions of all time. Apple managers have continued to make good decisions that led to the company being ranked at the top of *Fortune*'s 2019 list in numerous areas, including

people management, innovation, and quality of products and services.[3] There are also examples from industries very different from the one Apple operates in. Decisions made by the leadership team of Delta Airlines helped Delta achieve a record high in profitability for the airline industry. Delta was also ranked in early 2019 at the top of the 29th annual Airline Quality Rating, which ranks the nine largest airlines in the United States based on factors such as on-time performance, mishandled baggage, and customer complaints. Among the four largest U.S. carriers, Delta was the only airline not flying any of the Boeing 737 Max jets that were grounded after two fatal crashes. So, while United, American, and Southwest were having to cancel thousands of flights, Delta kept flying and raking in money.[4]

Purpose of This Chapter

At any time, an organization may be identifying problems and implementing alternatives for hundreds of decisions. Managers and organizations somehow muddle through these processes.[5] The purpose here is to analyze these processes to learn what decision making is actually like in organizational settings. Decision-making processes can be thought of as the brain and nervous system of an organization. Decision making is the end use of the information and control systems described in Chapters 9 and 11.

First, the chapter defines decision making and the different types of decisions managers make. The next section describes an ideal model of decision making and then examines how individual managers actually make decisions, including the role of intuition and how cognitive biases may influence decision making. The chapter also explores several models of organizational decision making, each of which is appropriate in a different organizational situation. The next section combines the models into a single framework that describes when and how the various approaches should be used. Finally, the chapter discusses special issues related to decision making, such as high-velocity environments and learning from decision mistakes.

BRIEFCASE

As an organization manager, keep these guidelines in mind:

Adapt decision processes to fit the organizational situation. Understand how processes differ for programmed and nonprogrammed decisions.

13.1 Types of Decisions

Organizational decision making is formally defined as the process of identifying and solving problems. The process has two major stages. In the **problem identification** stage, information about environmental and organizational conditions is monitored to determine if performance is satisfactory and to diagnose the cause of shortcomings. The **problem solution** stage is when alternative courses of action are considered and one alternative is selected and implemented.

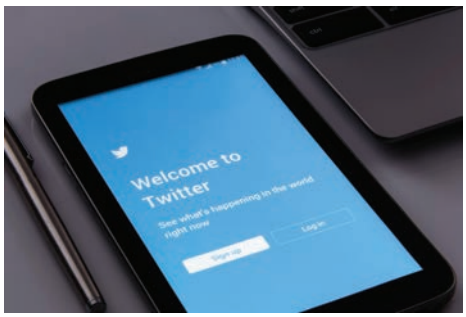
Organizational decisions vary in complexity and can be categorized as programmed or nonprogrammed.[6] **Programmed decisions** are repetitive and well defined, and procedures exist for resolving the problem. They are well structured because criteria of performance are normally clear, good information is available about current performance, alternatives are easily specified, and there is relative certainty that the chosen alternative will be successful. Examples of programmed decisions include decision rules, such as when to replace an office copy machine, when to reimburse managers for travel expenses, or whether an applicant has

sufficient qualifications for an assembly-line job. Many companies adopt rules based on experience with programmed decisions. For example, a rule for hotel managers assigning staff for banquets is to allow one server per 30 guests for a sit-down function and one server per 40 guests for a buffet.[7] Today these kinds of routine, programmed decisions are often handled by artificial intelligence (AI), as described in Chapter 9. For example, Royal Dutch Shell has begun using AI algorithms in some areas of its business to assign employees with the right skills and expertise to work on various projects. An algorithm can schedule work more efficiently, freeing managers' time for more complex, nonprogrammed decisions.[8]

Nonprogrammed decisions are novel and poorly defined, and no procedure exists for solving the problem. They are used when an organization has not seen a problem before and may not know how to respond. Clear-cut decision criteria do not exist. Alternatives are fuzzy. There is uncertainty about whether a proposed solution will solve the problem. Typically, few alternatives can be developed for a nonprogrammed decision, so a single solution is custom-tailored to the problem. Many nonprogrammed decisions involve strategic planning where uncertainty is great and decisions are complex.

Like managers at most companies, managers at fast-food chain McDonald's face both programmed and nonprogrammed decisions. When executives face the decision about opening a new restaurant in the United States, they can analyze local demographics, traffic patterns, prices and availability of real estate, and where competitors are in the area. Combining these data with restaurant revenue and cost models, managers can make a reasonably good choice for a new location. This represents a *programmed decision*. However, the decision to open a restaurant for the first time in a less-developed country is not so easy. Managers have much less information and less understanding of the local market. The company's products are new to the region; the store will be facing unfamiliar competitors; it has less experience with suppliers; and hiring and training practices must be built from the ground up. This is a truly *nonprogrammed decision* and could even turn into a "wicked" decision if some managers disagree over where and how to enter the new market.[9]

Particularly complex nonprogrammed decisions are often referred to as wicked decisions because simply defining the problem can turn into a major task. Consider the following example from Twitter.



PhotoMIX-Company/Pixabay

IN PRACTICE
Twitter

"Please bear with me," one team member said. "This is incredibly complex." Twitter CEO Jack Dorsey had gathered a team of 18 colleagues for a policy meeting to talk about ways to make the social media service safer for users. The hottest topic under discussion was how to get rid of "dehumanizing speech" even if it doesn't violate Twitter's rules. The service has clear rules forbidding direct threats of violence and some forms of hate speech, but there are no rules prohibiting deception or misinformation.

For days prior to the meeting, Twitter managers and employees had been fervently debating how to adapt and explain the company's policies for what can and cannot be posted on the service. Twitter had been heavily criticized by users and the press for allowing posts

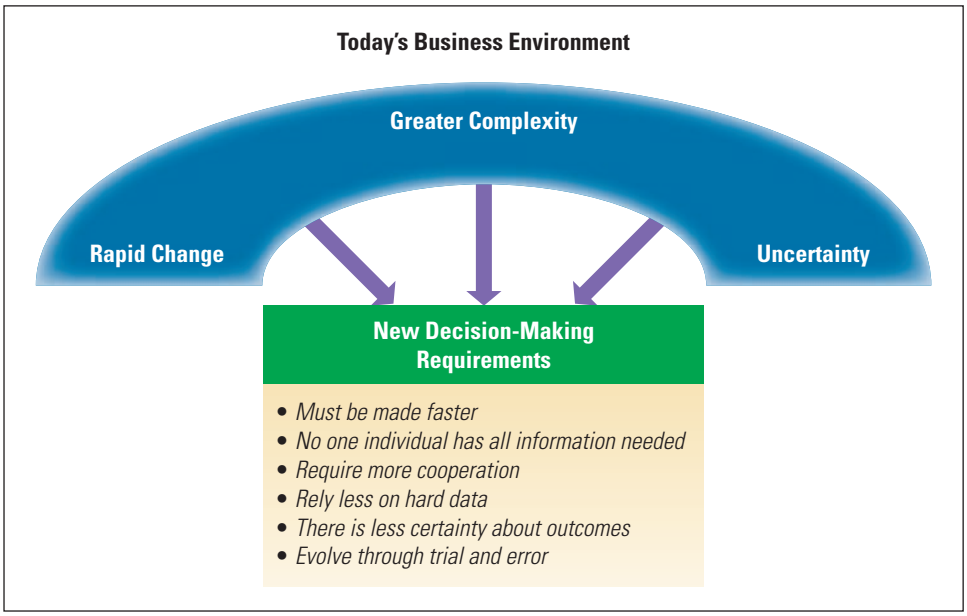
(*continued*)

from the far-right conspiracy site Infowars and its creator, Alex Jones, including a post that the Sandy Hook shooting was a hoax. Facebook, Apple, and YouTube pulled videos and podcasts from Infowars and Jones, but Twitter had decided to let the content remain on its site because it did not violate Twitter's rules.

The policy meeting went on for more than an hour, with participants struggling to simply come up with a definition of what constitutes "dehumanizing speech." At one point, Dorsey asked if there might be a technology solution, but there was no agreement on an answer. The team decided to draft a policy about dehumanizing speech and open it to the public for comments and debate. Dealing with the issue of free speech on social media is challenging. Karen Kornbluh, a senior fellow of digital policy at the Council of Foreign Relations, captured Twitter's wicked decision problem when she said, "There is no due process, no transparency, no case law, and no expertise on these very complicated legal and social questions behind these decisions."[10]

Twitter's struggle over what to ban from its site illustrates a wicked problem. Wicked problems are associated with manager conflicts over decision objectives as well as over viable alternatives, rapidly changing circumstances, and unclear linkages among decision elements. Managers dealing with a wicked decision may hit on a solution that merely proves they failed to correctly define the problem to begin with.[11] Organizational scholar Russell Ackoff once said, "Managers don't solve simple, isolated problems. They manage messes." *Messes*, Ackoff explained, involve highly interconnected problems and constantly changing, interdependent circumstances.[12] In other words, a mess is a wicked problem. Under conditions of such extreme uncertainty, even a good choice can produce a bad outcome.[13]

EXHIBIT 13.1
Decision Making in Today's Environment



Source: Based on John P. Kotter, *Leading Change* (Boston, MA: Harvard Business School Press, 1996), 56.

Managers and organizations are dealing with a higher percentage of nonprogrammed and wicked decisions because of the complex and rapidly changing environment. As outlined in Exhibit 13.1, the rapid pace, complexity, and uncertainty of today's environment creates new demands on decision makers. For one thing, decisions must be made faster than when the environment was more stable. No individual manager has the information needed to make all major decisions, which means good decision making depends on cooperation and information sharing. Decisions rely less on hard data, and there is less certainty about the outcomes. Many decisions evolve through trial and error. For example, Walmart managers eliminated nearly 10 percent of merchandise in an effort to simplify and smarten up cluttered stores and increase sales of higher-value items, but the decision hurt sales. Walmart lost market share for the first time in a decade. Managers then announced a campaign called "It's Back" to showcase the return of about 8,500 items to store shelves and adopted a new motto—"Low prices. Every day. On everything."[14]

REMEMBER THIS

- Managers make decisions every day. Decision making involves the stages of problem identification and problem solution.
- Decisions vary in complexity. Programmed decisions are repetitive and well defined, and procedures exist for solving the problem. Nonprogrammed decisions are unique and poorly defined, and no clear procedure exists for solving the problem.
- Extremely complex nonprogrammed decisions are sometimes called wicked decisions. Wicked decisions are associated with manager conflicts over decision objectives and viable alternatives, rapidly changing circumstances, and unclear linkages among decision elements.

13.2 Individual Decision Making

Individual decision making by managers can be described in two ways. First is the **rational approach**, which suggests an ideal method for how managers should try to make decisions. Second is the **bounded rationality perspective**, which describes how decisions actually have to be made under severe time and resource constraints. The rational approach is an ideal that managers may work toward but rarely reach.

13.2a Rational Approach

The rational approach to individual decision making stresses the need for systematic analysis of a problem followed by choice and implementation in a logical, step-by-step sequence. When eighteenth-century politician and diplomat Benjamin Franklin was faced with a difficult problem, for example, he would divide a sheet of paper into two columns labeled "Pro" and "Con" and write down various reasons for or

against a particular decision. Over several days Franklin would narrow down the list based on a system of weighting the value of each *pro* or *con* until he reached a determination of the best decision.[15] Charles Darwin tried to use the same process to decide whether he should get married. Under "not marry," he noted benefits of bachelorhood such as enjoying "conversation of clever men at clubs." Under "marry," he included "children (if it please God)" and "charms of music and female chitchat."[16] Perhaps Darwin felt, as Ben Franklin did, that by using this rational approach, he was "less liable to make a rash step."[17] For managers, too, the rational approach was developed to guide individual decision making because many managers were observed to be unsystematic and arbitrary in their approach to organizational decisions.

Although the rational model is an ideal not fully achievable in a manager's real world of uncertainty, complexity, and rapid change, as highlighted in Exhibit 13.1, the model does help managers think about decisions more clearly and rationally. Managers should use systematic procedures to make decisions whenever possible. When managers have a deep understanding of the rational decision-making process, it can help them make better decisions even when there is a lack of clear information. The authors of a popular book on decision making use the example of the U.S. Marines, who have a reputation for handling complex problems quickly and decisively. The Marines are trained to quickly go through a series of mental routines that help them analyze the situation and take action.[18]

According to the rational approach, decision making can be broken down into eight steps, as illustrated in Exhibit 13.2 and demonstrated by department store manager Linda Koslow in the following discussion.[19] Koslow was general manager of the Marshall Field's Oakbrook, Illinois, store before the chain was purchased by Macy's.[20]

1. *Monitor the decision environment.* In the first step, a manager monitors internal and external information that will indicate deviations from planned or acceptable behavior. He or she talks to colleagues and reviews financial statements, performance evaluations, industry indices, competitors' activities, and so forth. For example, during the pressure-packed five-week Christmas season, Linda Koslow checks out competitors, eyeing whether they are marking down merchandise. She also scans printouts of her store's previous day's sales to learn what is or is not moving.
2. *Define the decision problem.* The manager responds to deviations by identifying essential details of the problem: where, when, who was involved, who was affected, and how current activities are influenced. For Koslow, this means defining whether store profits are low because overall sales are less than expected or because certain lines of merchandise are not moving as expected.
3. *Specify decision objectives.* The manager determines what performance outcomes should be achieved by a decision.
4. *Diagnose the problem.* In this step, the manager digs below the surface to analyze the cause of the problem. He or she might gather additional data to facilitate this diagnosis. Understanding the cause enables appropriate treatment. For Koslow at Marshall Field's, the cause of slow sales might be competitors' marking down of merchandise or Marshall Field's failure to display hot-selling items in a visible location.

EXHIBIT 13.2
Steps in the Rational Approach to Decision Making

5. *Develop alternative solutions.* Before a manager can move ahead with a decisive action plan, he or she must have a clear understanding of the various options available to achieve desired objectives. Scholar and researcher Paul Nutt has studied decisions extensively, and one important insight that emerged from his research is the importance of generating multiple alternatives to attain a successful decision outcome.[21] Deciding with just one available alternative is easy, but more often ineffective. The manager may seek ideas and suggestions from other people. Koslow's alternatives for increasing profits could include buying fresh merchandise, running a sale, or reducing the number of employees.
6. *Evaluate alternatives.* This step may involve the use of statistical techniques or personal experience to gauge the probability of success. The manager assesses the merits of each alternative, as well as the probability that it will achieve the desired objectives.
7. *Choose the best alternative.* This step is when the manager uses his or her analysis of the problem, objectives, and alternatives to select a single alternative that has the best chance for success. At Marshall Field's, Koslow may choose to reduce the number of staff as a way to meet the profit goals rather than increase advertising or markdowns.

8. *Implement the chosen alternative*. Finally, the manager uses managerial, administrative, and persuasive abilities and gives directions to ensure that the decision is carried out, sometimes called execution of the decision. This might be considered the core of the decision process because any decision that isn't successfully implemented is a failed decision, no matter how good the chosen alternative might be.[22] Managers have to mobilize the people and resources to put the decision into action. Execution may be the hardest step of decision making. The monitoring activity (step 1) begins again as soon as the solution is implemented. For many managers, the decision cycle is a continuous process, with new decisions made daily based on monitoring the environment for problems and opportunities.

The first four steps in this sequence are the problem identification stage, and the next four steps are the problem solution stage of decision making, as indicated in Exhibit 13.2. A manager normally goes through all eight steps in making a decision, although each step may not be a distinct element. Managers may know from experience exactly what to do in a situation, so one or more steps will be minimized. The following example illustrates how the rational approach is used to make a decision about a personnel problem.

IN PRACTICE
Veracruz Consulting

1. *Monitor the decision environment*. It is Monday morning, and Joe Martinez, Veracruz Consulting's accounts receivable supervisor, is absent again.
2. *Define the decision problem*. This is the fourth consecutive Monday Martinez has been absent. Company policy forbids unexcused absenteeism, and Martinez has been warned about his excessive absenteeism on the last two occasions. A final warning is in order but can be delayed, if warranted.
3. *Specify decision objectives*. Martinez should attend work regularly and establish the invoice collection levels of which he is capable. The time period for solving the problem is two weeks.
4. *Diagnose the problem*. Discreet discussions with Martinez's coworkers and information gleaned from Martinez indicate that Martinez has a drinking problem. He apparently uses Mondays to dry out from weekend benders. Discussion with other company sources confirms that Martinez is a problem drinker.
5. *Develop alternative solutions*. (1) Fire Martinez. (2) Issue a final warning without comment. (3) Issue a warning and accuse Martinez of being an alcoholic to let him know you are aware of his problem. (4) Talk with Martinez to see if he will discuss his drinking. If he admits he has a drinking problem, delay the final warning and suggest that he enroll in the company's employee assistance program that offers help with personal problems, including alcoholism. (5) Talk with Martinez to see if he will discuss his drinking. If he does not admit he has a drinking problem, let him know that the next absence will cost him his job.
6. *Evaluate alternatives*. The cost of training a replacement is the same for each alternative. Alternative 1 ignores cost and other criteria. Alternatives 2 and 3 do not adhere to company policy, which advocates counseling where appropriate. Alternative 4 is designed for the benefit of both Martinez and the company. It might save a good employee if Martinez is willing to seek assistance. Alternative 5 is primarily for the benefit of the company. A final warning might provide some incentive for Martinez to admit he has a drinking problem. If so, dismissal might be avoided, but further absences will no longer be tolerated.
7. *Choose the best alternative*. Martinez does not admit that he has a drinking problem. Choose alternative 5.
8. *Implement the chosen alternative*. Write up the case and issue the final warning.[23]

In the preceding example, issuing the final warning to Joe Martinez was a programmed decision. The standard of expected behavior was clearly defined, information on the frequency and cause of Martinez's absence was readily available, and acceptable alternatives and procedures were described. The rational procedure works best in such cases, when the decision maker has sufficient time for an orderly, thoughtful process. Moreover, Veracruz Consulting had mechanisms in place to successfully implement the decision once it was made.

When decisions are nonprogrammed, ill-defined, and piling on top of one another, the individual manager should still try to use the steps in the rational approach, but he or she often will have to take shortcuts by relying on intuition and experience. Deviations from the rational approach are explained by the bounded rationality perspective.

BRIEFCASE

As an organization manager, keep these guidelines in mind:

Use rational decision processes when possible, but recognize that many constraints may impinge on decision makers and prevent a perfectly rational decision. Apply the bounded rationality perspective and use intuition and experience when confronting ill-defined, nonprogrammed decisions.

13.2b Bounded Rationality Perspective

The point of the rational approach is that managers should try to use systematic procedures to arrive at good decisions. When managers are dealing with well-understood issues, they generally use rational procedures to make decisions.[24] Yet research into managerial decision making shows that managers often are unable to follow an ideal procedure. Many decisions must be made very quickly. Time pressure, a large number of internal and external factors affecting a decision, and the ill-defined nature of many problems make systematic analysis virtually impossible. Managers have only so much time and mental capacity and, hence, cannot evaluate every goal, problem, and alternative. The attempt to be rational is bounded (limited) by the enormous complexity of many problems. There is a limit to how much information or knowledge managers can process and how rational they can be.

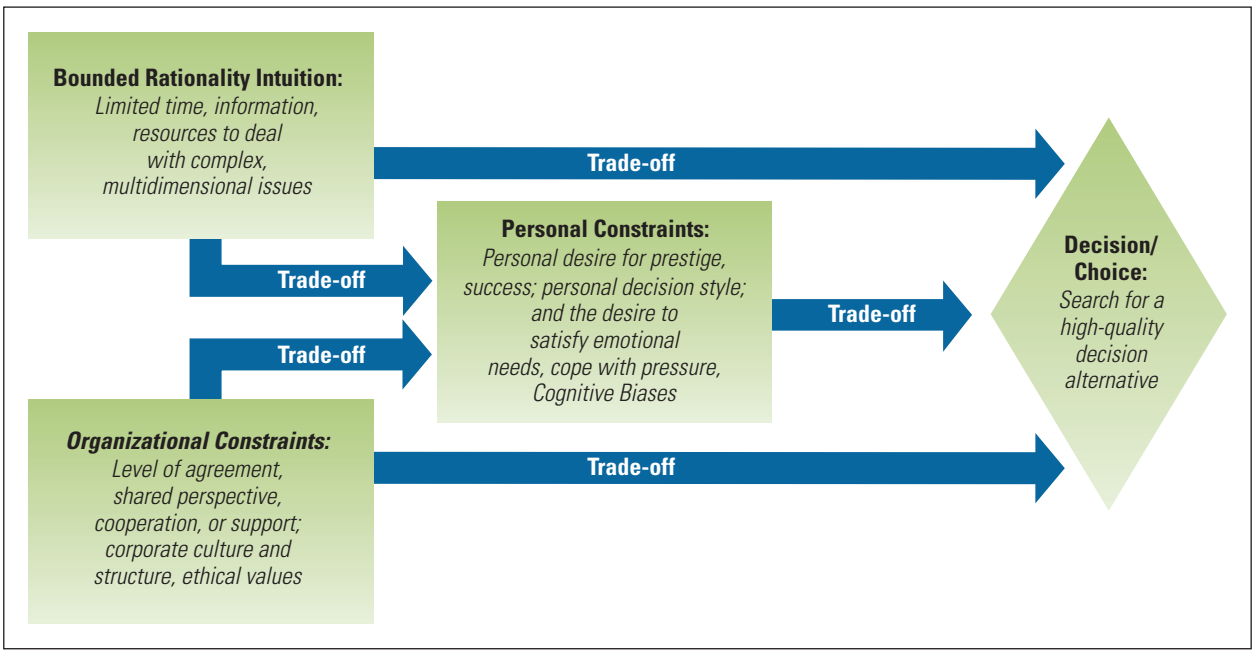
Bounded rationality should not always be used, but it is useful for certain decisions. *Bounded rationality* is the term coined by organizational scholar Herbert Simon. Simon believed that a perfect solution might exist for a problem, but because of the bounded mind, people are not able to conduct the necessary cognitive steps to reach it.[25] To understand the bounded rationality approach, think about how most new managers select a job upon graduation from college. Even this seemingly simple decision can quickly become so complex that a bounded rationality approach is used. Graduating students typically search for a job until they have two or three acceptable job offers, at which point their search activity rapidly diminishes. Hundreds of firms may be available for interviews, and two or three job offers are far short of the maximum number that would be possible if students made the decision based on perfect rationality.

Constraints and Trade-offs. Not only are large organizational decisions too complex to fully comprehend, but several constraints impinge on the decision maker, as illustrated in Exhibit 13.3. For many decisions, the organizational circumstances are ambiguous, requiring social support, a shared perspective on what happens, and acceptance and agreement. Other organizational constraints on decision making outlined in Exhibit 13.3 include corporate culture and ethical values, as discussed in Chapters 7 and 11, and the organization's structure and design. For example, the corporate culture of BP acted as a constraint on decisions managers made that contributed to the disastrous Deepwater Horizon explosion and oil spill in the Gulf of Mexico. Taking risky shortcuts was deeply ingrained into the culture of

the company. BP was drilling one of the deepest oil wells in history, for example, but managers decided to use only one strand of steel casing instead of the recommended two or more. Rather than using the recommended 21 centralizers, which ensure that the well doesn't veer off course as it drills deeper, BP managers decided to use only six. They also skipped a crucial test to verify the sturdiness of the cement holding the well at the bottom of the sea, deciding instead to depend solely on the blowout preventer as a safeguard. Most oil companies typically build in additional safeguards so problems can be fixed before the blowout preventer is needed, but BP's aggressive, risk-taking culture constrained managers from taking the more cautious and time-consuming approach.[26]

Constraints also exist at the personal level. Personal constraints—such as decision style, work pressure, desire for prestige, or simple feelings of insecurity—may constrain either the search for alternatives or the acceptability of an alternative. All of these factors constrain a perfectly rational approach that should lead to an obviously ideal choice.[27] For example, Art Peck, CEO of Gap Inc., reportedly has an analytical decision style and favors data and analysis over creative decision making. Some people think his decision to give more power to operational executives instead of creative executives has hampered Gap's ability to adapt to changes in the fashion retail industry, but Peck says, "There is now science and art, and they can come together."[28] Some managers make many of their decisions within a mindset of trying to please upper managers, people who are perceived to have power within the organization, or others they respect and want to emulate.[29] Other managers are constrained by a less adaptive decision style.

EXHIBIT 13.3
Constraints and Trade-offs During Nonprogrammed Decision Making



Source: Adapted from Irving L. Janis, *Crucial Decisions* (New York: Free Press, 1989); and Alexander L. George, *Presidential Decision Making in Foreign Policy: The Effective Use of Information and Advice* (Boulder, CO: Westview Press, 1980).

In addition, many managers have biases that cloud their judgment and act as constraints when making decisions. The next section will discuss cognitive biases in detail.

The Role of Intuition. The bounded rationality perspective is often associated with intuitive decision processes. In **intuitive decision making**, experience and judgment rather than sequential logic or explicit reasoning are used to make decisions.[30] Most researchers have found that effective managers use a combination of rational analysis and intuition in making complex decisions under time pressure.[31] Go to the "How Do You Fit the Design?" box for some insight into your use of rationality versus intuition in making decisions.

HOW DO YOU FIT THE DESIGN?

MAKING IMPORTANT DECISIONS

How do you make important decisions? To find out, think about a time when you made an important career decision or made a major purchase or investment. To what extent does each of the following words describe how you reached the final decision? Please check five words that best describe how you made your final choice.

1. Logic _____
2. Inner knowing _____
3. Data _____
4. Felt sense _____
5. Facts _____
6. Instincts _____
7. Concepts _____
8. Hunch _____
9. Reason _____
10. Feelings _____

Scoring: Give yourself one point for each odd-numbered item you checked, and subtract one point for each even-numbered item you checked. The highest possible score is +5 and the lowest possible score is –5.

Interpretation: The odd-numbered items pertain to a linear decision style and the even-numbered items pertain to a nonlinear decision approach. Linear means using logical *rationality* to make decisions, which would be similar to the decision process in Exhibit 13.2. Nonlinear means using primarily *intuition* to make decisions, as described in the text. If you scored from +3 to –5, then intuition and a satisficing model is your dominant approach to major decisions. If you scored from +3 to +5, then the rational model of decision making as described in the text is your dominant approach. The rational approach is taught in business schools, but many managers use intuition based on experience, especially at senior management levels when there is little tangible data to evaluate.

Source: Adapted from Charles M. Vance, Kevin S. Groves, Yongsun Paik, and Herb Kindler, "Understanding and Measuring Linear–Nonlinear Thinking Style for Enhanced Management Education and Professional Practice," *Academy of Management Learning & Education* 6, no. 2 (2007), 167–185.

Intuition has been defined as "our mind's ability to understand something without the need for conscious reasoning."[32] Intuition is not arbitrary or irrational because it is based on years of practice and hands-on experience, often stored in the subconscious. When managers use their intuition based on long experience with organizational issues, they more rapidly perceive and understand problems, and they develop a gut feeling or hunch about which alternative will solve a problem,

speeding the decision-making process.[33] The value of intuition for effective decision making is supported by a growing body of research from psychology, organizational science, and other disciplines.[34]

When someone has a depth of experience and knowledge in a particular area, the right decision often comes quickly and effortlessly because the individual recognizes patterns based on information that has been largely forgotten by the conscious mind. This ability could be seen among soldiers in Iraq who were responsible for stopping many roadside bomb attacks by recognizing patterns. High-tech gear designed to detect improvised explosive devices, or IEDs, was merely a supplement rather than a replacement to the ability of the human brain to sense danger and act on it. Soldiers with experience in Iraq unconsciously knew when something didn't look or feel right. It might be a rock that wasn't there yesterday, a piece of concrete that looked too symmetrical, odd patterns of behavior, or just a different feeling of tension in the air.[35] Similarly, in the business world, managers continuously perceive and process information that they may not consciously be aware of, and their base of knowledge and experience helps them make decisions that may be characterized by uncertainty and ambiguity.

Managers use previous experience and judgment to incorporate intangible elements at both the problem identification and problem solution stages.[36] A study of manager problem finding showed that 30 of 33 problems were ambiguous and ill-defined.[37] Bits and scraps of unrelated information from informal sources resulted in a pattern in the manager's mind. The manager could not prove a problem existed but knew intuitively that a certain area needed attention. A too-simple view of a complex problem is often associated with decision failure,[38] so managers learn to listen to their intuition rather than accepting that things are going okay.

Intuitive processes are also used in the problem solution stage. Executives frequently make decisions without explicit reference to the impact on profits or to other measurable outcomes.[39] As we saw in Exhibit 13.3, many intangible factors—such as a person's concern about the support of other executives, fear of failure, and social attitudes—influence selection of the best alternative. These factors cannot be quantified in a systematic way, so intuition guides the choice of a solution. Managers may make a decision based on what they sense to be right rather than on what they can document with hard data.

ASSESS YOUR ANSWER

1 Managers should use the most objective, rational process possible when making a decision.

ANSWER: *Disagree.* Striving for perfect rationality in decision making is ideal but not realistic. Many complex decisions do not lend themselves to a step-by-step analytical process. There are also numerous constraints on decision makers. When making nonprogrammed decisions, managers may try to follow the steps in the rational decision-making process, but they also rely on experience and intuition.

This chapter's BookMark discusses how managers can give their intuition a better chance of leading to successful decisions. Remember that the bounded rationality perspective and the use of intuition apply mostly to nonprogrammed decisions. The novel, unclear, complex aspects of nonprogrammed decisions

mean hard data and logical procedures are not available. Studies of executive decision making find that managers simply cannot use the rational approach for nonprogrammed strategic decisions, such as whether to market a controversial new prescription drug, whether to invest in a complex new project, or whether a city has a need for and can reasonably adopt an enterprise resource planning system.[40] For decisions such as these, managers have limited time and resources, and some factors simply cannot be measured and analyzed. Trying to quantify such information could cause mistakes because it may oversimplify decision criteria. Intuition can balance and supplement rational analysis to help managers make better decisions. A new trend in decision making is referred to as **quasirationality**, which basically means combining intuitive and analytical thought.[41] There are many situations in which neither analysis nor intuition is sufficient for making a good decision, so managers use a combination of processes.

BOOKMARK 13.0 HAVE YOU READ THIS BOOK?

Blink: The Power of Thinking Without Thinking

By Malcolm Gladwell

Snap decisions can be just as good as—and sometimes better than—decisions that are made cautiously and deliberately. Yet they can also be seriously flawed or even dangerously wrong. That's the premise of Malcolm Gladwell's *Blink: The Power of Thinking Without Thinking*. Gladwell explores how our *adaptive unconscious* arrives at complex, important decisions in an instant—and how we can train it to make those decisions good ones.

SHARPENING YOUR INTUITION

Even when we think our decision making is the result of careful analysis and rational consideration, Gladwell says, most of it actually happens subconsciously in a split second. This process, which he refers to as *rapid cognition*, provides room for both amazing insight and grave error. Here are some tips for improving rapid cognition:

- *Remember that more is not better.* Gladwell argues that giving people too much data and information hampers their ability to make good decisions. He cites a study showing that emergency room doctors who are best at diagnosing heart attacks gather less information from their patients than other doctors do. Rather than overloading on information, search out the most meaningful parts.
- *Practice thin-slicing.* The process Gladwell refers to as *thin-slicing* is what harnesses the power of the adaptive unconscious and enables us to make smart decisions with minimal time and information. Thin-slicing means focusing on a thin slice of pertinent data or information and allowing your intuition to do the work for you. Gladwell cites the example of a Pentagon war game, in which an enemy team of commodities traders defeated a U.S. Army that had "an unprecedented amount of information and intelligence" and "did a thoroughly rational and rigorous analysis that covered every conceivable contingency." The commodities traders were used to making thousands of instant decisions an hour based on limited information. Managers can practice spontaneous decision making until it becomes second nature.
- *Know your limits.* Not every decision should be based on intuition. When you have a depth of knowledge and experience in an area, you can put more trust in your gut feelings. Gladwell also cautions to beware of biases that interfere with good decision making. *Blink* suggests that we can teach ourselves to sort through first impressions and figure out which are important and which are based on subconscious biases such as stereotypes or emotional baggage.

PUT IT TO WORK

Blink is filled with lively and interesting anecdotes, such as how experienced firefighters can "slow down a moment" and create an environment where spontaneous decision making can take place. Gladwell asserts that a better understanding of the process of split-second decision making can help people make better decisions in all areas of their lives, as well as help them anticipate and avoid miscalculations.

Blink: The Power of Thinking Without Thinking, by Malcolm Gladwell, is published by Little Brown.

REMEMBER THIS

- The rational approach describes an ideal method for how managers should try to make decisions. Steps in the rational approach include monitoring the decision environment, defining the problem, specifying decision objectives, diagnosing the problem, developing alternatives, evaluating alternatives, choosing the best alternative, and implementing the chosen solution.
- Most organizational decisions are not made in a logical, rational manner. Most decisions do not begin with the careful analysis of a problem, followed by systematic analysis of alternatives, and finally implementation of a solution. On the contrary, decision processes are characterized by conflict, coalition building, trial and error, speed, and mistakes.
- Managers also operate under many constraints that limit rationality; hence, they use satisficing and intuition as well as rational analysis in their decision making.

13.3 Cognitive Biases

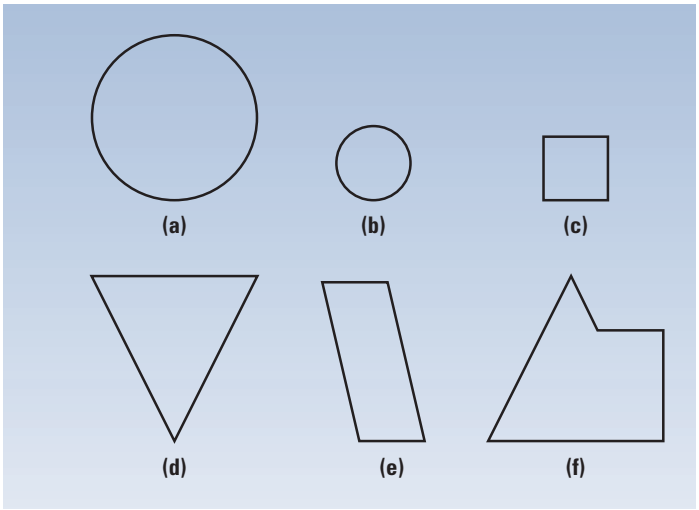
A customer of a global financial services firm accidentally submitted the same application to two offices. The employees in each office had the same corporate-issued guidelines they were supposed to follow, so they should have arrived at similar results. But that isn't what happened. Employees at the different offices returned very different quotes, even though they were using the same data and guidelines. Managers at the customer's firm were so irked by receiving two radically different quotes that they gave their business to a competitor.[42] Decisions are made by human beings, and the human factor can strongly affect how a problem is defined and how it is solved.

There are numerous factors that can influence how someone considers and solves a problem. Cognitive biases are one significant factor that managers should be aware of. Everyone has biases, but most of us have a hard time seeing our own. Before reading the rest of this chapter, answer the questions in Exhibit 13.4 to see if you let biases affect your decisions.

EXHIBIT 13.4
Do Biases Influence Your Decision Making?

Answer the questions below before reading the rest of the chapter:

1. A piece of paper is folded in half, in half again, and so forth. After 100 folds, how thick will it be? Take your best guess: _____. I am 90 percent sure that the correct answer lies between _____ and _____.
2. A compulsive smoker wakes up at 2:00 AM and out of cigarettes. No stores are open. He searches through the waste paper baskets and ashtrays for butts, knowing that with five butts he can roll a new cigarette. He finds 25 butts, enough to last him as he smokes one cigarette every hour. How long does his supply last? The number of hours is _____.
3. Which figure below is most different from the others?



4. As owner and CEO of your company, you decided to invest $100 million to build pilotless drones that cannot be detected by enemy radar. When the project is 90 percent complete, a competing firm begins marketing a completed drone that cannot be detected by radar. In addition, their drone is much faster, smaller, cheaper, and more sophisticated than the drone your company is developing. The question is: Should you invest the last 10 percent of the research funds to finish your drone? Check one answer below.

   _____ No—There is no reason to continue spending money on the project.

   _____ Yes—After investing $90 million, we might as well finish the project.

5. Give a quick (five-second) estimate of the following product without actually calculating:

   8 x 7 x 6 x 5 x 4 x 3 x 2 x 1 = _____.

6. How many times does the letter "f" appear in the following sentence?

   These finished files have been developed after years of scientific investigation of administrative phenomena, combined with the fruit of long experience on the part of the two investigators who have come forward with them for our meeting today.
   The letter "f" appears _____ times.

7. Robert is envious, stubborn, critical, impulsive, industrious, and intelligent. In general, how emotional do you think Robert is? (Circle one number.)

   Not emotional at all 1 2 3 4 5 6 7 8 9 Extremely emotional

8. Which would you choose between the two alternatives below?

   _____ Alternative A: A 50 percent chance of gaining $1,000.00
   _____ Alternative B: A sure gain of $500.00

   Which would you choose between the two alternatives below?

   _____ Alternative C: A 50 percent chance of losing $1000.00
   _____ Alternative D: A sure loss of $500.00

After you have specified an answer to each problem, you will find the answers and a description of the potential related bias at the end of this chapter.

Sources: Questions 1 and 4–8 are from research studies reviewed in Scott Plous, *The Psychology of Judgment and Decision Making* (Philadelphia: Temple University Press, 1993). Question 2 is adapted from Eugene Raudsepp with George P. Hough, Jr, *Creative Growth Games* (New York: Perigee Books, 1977). Question 3 is based on an item in the Creativity in Action Newsletter as reported in Arthur B. VanGundy, *Idea Power: Techniques & Resources to Unleash the Creativity in Your Organization* (New York: Amacon, 1992).

13.3a Specific Biases That May Influence Decision Making

Cognitive biases are severe errors in judgment that all humans are prone to and that typically lead to bad choices.[43] Awareness of the following biases can help you make better decisions as a manager as well as in your personal life.[44]

1. *Being influenced by initial impressions.* When considering decisions, the mind often gives disproportionate weight to the first information it receives. This is called the anchoring effect. These initial impressions, statistics, or estimates act as an anchor to our subsequent thoughts and judgments. Anchors can be as simple as a random comment by a colleague or a statistic read on a website. Past events and trends also act as anchors. For example, in business organizations, managers frequently look at the previous year's sales when estimating sales for the coming year. Giving too much weight to the past can lead to poor forecasts and misguided decisions.
2. *Seeing what you want to see.* People frequently look for information that supports their existing instinct or point of view and avoid information that contradicts it. This bias affects where managers look for information, as well as how they interpret the information they find. People tend to give too much weight to supporting information and too little to information that conflicts with their established viewpoints.
3. *Being influenced by emotions.* If you've ever made a decision when you were angry, upset, unhappy, or even very happy, you might already know the danger of being influenced by emotions. A study of traders in London investment banks found that effective regulation of emotions was a characteristic of higher-performing traders. Lower-performing traders were less effective in managing and modulating their emotional responses.[45] Another finding is that doctors make less effective decisions when they feel emotions of like or dislike for a patient. If they like a patient, they are less likely to prescribe a painful procedure. If they feel dislike, they may blame the patient for the condition and provide less treatment.[46] To keep emotion from clouding their judgment regarding patient care, doctors in the Partners Health Care System incorporated the use of clinical decision support systems based on reams of data about what works and what doesn't.[47] Organization managers make better decisions when—to the extent possible—they take emotions out of the decision-making process.
4. *Being overconfident.* Most people overestimate their ability to predict uncertain outcomes. A manager at a fast-food chain was sure that low employee turnover was a key driver of customer satisfaction and store profitability, so he decided to invest in programs to keep employees happy. However, when managers analyzed store data, they found that some locations with high turnover were highly profitable, while some with low turnover were struggling.[48] Overconfidence can be particularly dangerous when making risky decisions.
5. *Escalating commitment.* One well-known cognitive bias is referred to as **escalating commitment**. Research suggests that organizations often continue to invest time and money in a solution despite strong evidence that it is not working.[49] Many times managers simply keep hoping they can recoup their losses. For example, after the Fukushima Daiichi nuclear power plant was damaged by an earthquake in Japan, managers at Tokyo Electric Power Company delayed using seawater to cool the damaged nuclear reactors because they wanted to protect their investment and knew that using seawater could

render the reactors permanently inoperable.[50] Another explanation is that consistency and persistence are valued in contemporary society. Consistent managers are considered better leaders than those who switch around from one course of action to another, so managers have a hard time pulling the plug despite evidence that a decision was wrong.

6. *Fearing failure or loss*. Typically, people hate losing more than they enjoy winning, which is referred to as *loss aversion*. Because of this, the fear of failure is more powerful than the opportunity for success when making a decision.[51] The pain one feels from losing a 20-dollar bill is typically much more powerful than the happiness one gets from finding one. **Prospect theory**, developed by psychologists Daniel Kahneman and Amos Tversky, suggests that the threat of a loss has a greater impact on a decision than the possibility of an equivalent gain.[52] Therefore, most managers have a tendency to analyze problems in terms of what they fear losing rather than what they might gain. When faced with a specific decision, they overweight the value of potential losses and underweight the value of potential gains. In addition, research indicates that the regret associated with a decision that results in a loss is stronger than the regret of a missed opportunity. Thus, managers might avoid potentially wonderful opportunities that also have potentially negative outcomes. This tendency can create a pattern of overly-cautious decisions that leads to chronic underperformance in the organization.[53] Prospect theory also helps explain the phenomenon of escalating commitment, discussed above. Managers don't want to lose or be associated with a failing project, so they keep throwing good money after bad.
7. *Being influenced by the group*. Many decisions in organizations are made by groups, and the desire to go along with the group can bias decisions. Subtle pressures for conformity exist in almost any group, and particularly when people like one another, they tend to avoid anything that might create disharmony. **Groupthink** refers to the tendency of people in groups to suppress contrary opinions.[54] When people slip into groupthink, the desire for harmony outweighs concerns over decision quality. Group members emphasize maintaining unity rather than realistically challenging problems and alternatives. People censor their personal opinions and are reluctant to criticize the opinions of others.

BRIEFCASE

As an organization manager, keep this guideline in mind:

Don't let cognitive biases cloud your decision making. To avoid problems such as groupthink, overconfidence, being influenced by emotions, escalating commitment, and being influenced by loss aversion, apply evidence-based management and use techniques to encourage diversity and dissent.

13.3b Overcoming Cognitive Biases

How can managers avoid cognitive biases? Several ideas have been proposed that help managers be more realistic and objective when making decisions. Two of the most effective are to use evidence-based management and to encourage dissent and diversity.

Evidence-Based Management. **Evidence-based management** means a commitment to make more informed and objective decisions based on the best available facts and evidence.[55] It means being aware of one's biases, seeking and examining evidence with rigor. Managers practice evidence-based decision making by being careful and thoughtful rather than carelessly relying on assumptions, past experience, rules of thumb, or intuition when objective data can be found. For example, Dawn Zier was hired as CEO of Nutrisystem to turn things around, but when she would ask people questions, she says "they would answer a little too quickly, without even having time to think about it." When Zier dug deeper, she usually found that "the facts weren't always the facts being presented." Zier embarked on a culture change

initiative to build a culture where people focus on hard evidence rather than "fantasy or wishing that something happened." The company's motto is now, "Just the Facts," where the word *Facts* stands not only for evidence but also for the values of focus, accountability, customer-centric, team, and success.[56]

A global survey by McKinsey & Company found that when managers incorporate thoughtful analysis into decision making, they get better results. Studying the responses of more than 2,000 executives regarding how their companies made a specific decision, McKinsey concluded that techniques such as detailed analysis, risk assessment, financial models, and considering comparable situations typically contribute to better financial and operational outcomes.[57] However, a recent review of the decisions of 39 senior general managers found that they frequently used only limited sources of evidence in making most of their decisions. Managers can enhance the effectiveness of decisions by using more sources of evidence.[58] Evidence-based management can be particularly useful for overcoming the bias of loss aversion and the problem of escalating commitment. Many manager problems are uncertain, and hard facts and data aren't available, but by always seeking evidence, managers can avoid relying on faulty assumptions. Decision makers can also do a post-mortem of decisions to evaluate what worked, what didn't, and how to do things better. The best decision makers have a healthy appreciation for what they don't know. They are always questioning and encouraging others to question their knowledge and assumptions. They foster a culture of inquiry, observation, and experimentation.

Encourage Dissent and Diversity. A primary way to keep people from allowing cognitive biases to influence decisions is to create an organizational environment in which people feel free to speak up, disagree with others, and challenge ideas and decisions.[59] Dissent and diversity can be particularly useful in complex circumstances because they open the decision process to a wide variety of ideas and opinions rather than being constrained by personal biases or groupthink.[60] One way to encourage dissent is to ensure that the group is diverse in terms of age and gender, race and ethnicity, functional area of expertise, hierarchical level, and experience with the business. A social psychologist conducted a series of mock trials in which a jury debated and evaluated evidence from a criminal case and found that racially diverse juries almost always performed better in terms of considering more interpretations of the evidence, remembering details of the case more accurately, and engaging in more rigorous discussion and deliberation.[61] Some groups assign a **devil's advocate**, who has the role of challenging the assumptions and assertions made by the group.[62] The devil's advocate may force the group to rethink its approach to the problem and avoid reaching premature decisions. Consider the situation of soldiers involved in volatile military operations, where faulty decisions could be deadly. At Fort Leavenworth's University of Foreign Military and Cultural Studies, the U.S. Army trained a group of soldiers to act as devil's advocates. Members of the "Red Team," as graduates were called, were deployed to various brigades to question prevailing assumptions and make sure decisions were considered from alternate points of view. Greg Fontenot, the program director, said the goal is to avoid "getting sucked into that groupthink."[63]

Another approach, referred to as *ritual dissent*, puts parallel teams to work on the same problem in a large group meeting. Each team appoints a spokesperson who presents the team's findings and ideas to another team, which is required to listen quietly. Then, the spokesperson turns to face away from the team, which rips into the presentation no-holds-barred while the spokesperson is required to listen

quietly. Each team's spokesperson does this with every other team in turn, so that by the end of the session all ideas have been well-dissected and discussed.[64] Whatever techniques they use, good managers find ways to get a diversity of ideas and opinions on the table when making complex decisions.

REMEMBER THIS

- Allowing cognitive biases to cloud decision making can have serious negative consequences for an organization.
- Some of the most common biases to guard against are being influenced by initial impressions, being overconfident, being influenced by emotions, seeing what you want to see, escalating commitment, groupthink, and loss aversion.
- Managers can avoid or overcome cognitive biases by using evidence-based management and by encouraging diversity and dissent in the decision-making process.

13.4 Organizational Decision Making

Organizations are composed of managers who make decisions using both rational and intuitive processes, but organization-level decisions are not usually made by a single manager. Many organizational decisions involve several managers. Problem identification and problem solution involve many departments, multiple viewpoints, and even other organizations, which are beyond the scope of an individual manager.

The processes by which decisions are made in organizations are influenced by a number of factors, particularly the organization's own internal structures and the degree of stability or instability of the external environment.[65] Research into organization-level decision making has identified four primary types of organizational decision-making processes: the management science approach, the Carnegie model, the incremental decision model, and the garbage can model.

13.4a Management Science Approach

The **management science approach** to organizational decision making is the analogue to the rational approach by individual managers. Management science came into being during World War II.[66] At that time, mathematical and statistical techniques were applied to urgent, large-scale military problems that were beyond the ability of individual decision makers.

Mathematicians, physicists, and operations researchers used systems analysis to develop artillery trajectories, antisubmarine strategies, and bombing strategies such as salvoing (discharging multiple shells simultaneously). Consider the problem of a battleship trying to sink an enemy ship several miles away. The calculation for aiming the battleship's guns should consider distance, wind speed, shell size, speed and direction of both ships, pitch and roll of the firing ship, and curvature of the earth. Methods for performing such calculations using trial and error and intuition are not accurate, take far too long, and may never achieve success.

BRIEFCASE

As an organization manager, keep this guideline in mind:

Use a rational decision approach—computation and management science—when a problem situation is well understood and can be broken down into variables that can be measured and analyzed.