Chapter 2

Making Decisions

Learning Objectives

2.1 **Describe** the eight steps in the decision-making process.

2.2 **Explain** the five approaches managers can use when making decisions.

2.3 **Classify** decisions and decision-making styles.

2.4 **Describe** how biases affect decision making.

2.5 **Identify** cutting-edge approaches for improving decision making.

Be A Better Decision Maker

A key to success in management and in your career is knowing how to be an effective decision maker.

What is a Decision?

Decision—a choice among two or more alternatives

Exhibit 2.1 Decision-Making Process

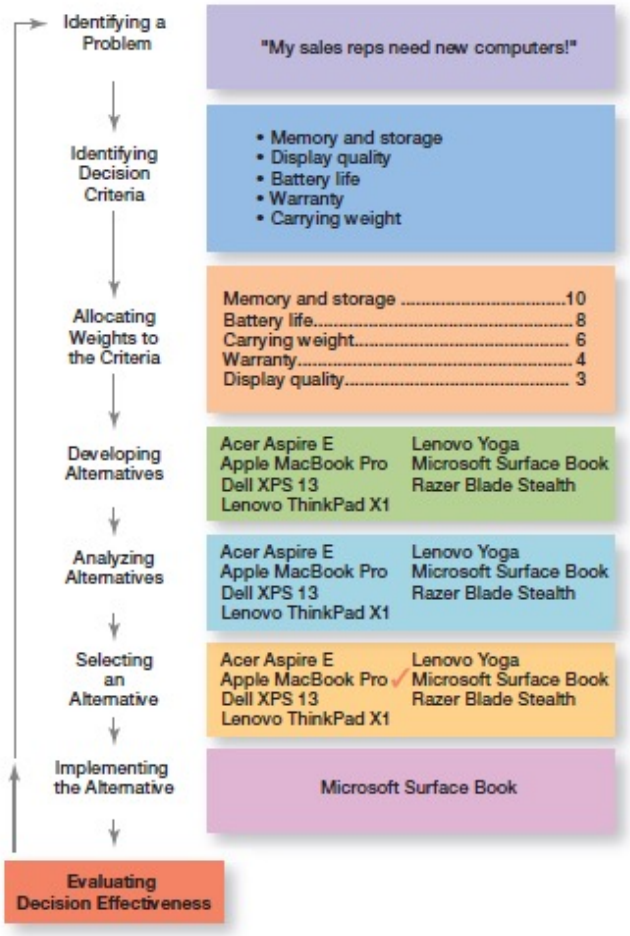

Exhibit 2.1 shows the eight steps in the decision-making process. This process is as relevant to personal decisions as it is to corporate decisions.

Decision-Making Process Step 1: Identify a Problem

- **Problem**: an obstacle that makes it difficult to achieve a desired goal or purpose.
- Every decision starts with a **problem**, a discrepancy between an existing and a desired condition.
- Three characteristics of problems:
- 1. You must be aware of the problem. Be sure to identify the actual problem rather than a symptom of the problem
- 2. You must be under pressure to act. A true problem puts pressure on the manager to take action; a problem without pressure to act is a problem that can be postponed.
- 3. You must have the authority or resources to act. When managers recognize a problem and are under pressure to take action but do not have the necessary resources, they usually feel that unrealistic demands are being put upon them.
- **Example: Amanda is a sales manager whose representatives need new laptops.**

Decision-Making Process Step 2: Identify the Decision Criteria

- Decision criteria are factors that are important to resolving the problem.
- Example: Amanda decides that memory and storage capabilities, display quality, battery life, warranty, and carrying weight are the relevant criteria in her decision

Decision-Making Process Step 3: Allocate Weights to the Criteria

- If the relevant criteria aren't equally important, the decision maker must weight the items in order to give them the correct priority in the decision.
- Example: The weighted criteria for Amanda's computer purchase are shown in Exhibit 2.2.

Exhibit 2.2 Important Decision Criteria

Criterion	Weight
Memory and storage	10
Battery life	8
Carrying weight	6
Warranty	4
Display quality	3

Decision-Making Process Step 4: Develop Alternatives

- List viable alternatives that could solve the problem.
- Example: Amanda identifies eight laptops as possible choices (shown in Exhibit 2.3).

Exhibit 2.3 Possible Alternatives

Laptop	Memory and Storage	Battery Life	Carrying Weight	Warranty	Display Quality
Acer Aspire E	10	3	10	8	5
Apple MacBook Pro	8	5	7	10	10
Dell XPS 13	8	7	7	8	7
Lenovo ThinkPad	7	8	7	8	7
Lenovo Yoga	8	3	6	10	8
Microsoft Surface Book	10	7	8	6	7
Razer Blade Stealth	4	10	4	8	10

Decision-Making Process Step 5: Analyze Alternatives Step 6: Select an Alternative

- STEP 5: Once you identify the alternatives you need to analyze them using the criteria established in Step 2.
- STEP 6: Choose the alternative that generates the highest total in Step 5.

Exhibit 2.4 Evaluation of Alternatives

Laptop	Memory and Storage	Battery Life	Carrying Weight	Warranty	Display Quality	Total
Acer Aspire E	100	24	60	32	15	231
Apple MacBook Pro	80	40	42	40	30	232
Dell XPS 13	80	56	42	32	21	231
Lenovo ThinkPad	70	64	42	32	21	229
Lenovo Yoga	80	24	36	40	24	204
Microsoft Surface Book	100	56	48	24	21	249
Razer Blade Stealth	40	80	24	32	30	206

Decision-Making Process Step 7: Implement the Alternative

- Put the chosen alternative into action.
- Convey the decision to those affected and get their commitment to it.

Decision-Making Process Step 8: Evaluate Decision Effectiveness

- Evaluate the result or outcome of the decision to see if the problem was resolved.
- If it wasn't resolved, what went wrong?

Exhibit 2.5 Decisions Managers May Make: Planning and Organizing

Planning

- What are the organization's long-term objectives?
- What strategies will best achieve those objectives?
- What should the organization's short-term objectives be?
- How difficult should individual goals be?

Organizing

- How many employees should I have report directly to me?
- How much centralization should there be in an organization?
- How should jobs be designed?
- When should the organization implement a different structure?

Exhibit 2.5 Decisions Managers May Make: Leading and Controlling

Leading

- How do I handle employees that appear to be unmotivated?
- What is the most effective leadership style in a given situation?
- How will a specific change affect worker productivity?
- When is the right time to stimulate conflict?

Controlling

- What activities in the organization need to be controlled?
- How should those activities be controlled?
- When is a performance deviation significant?
- What type of management information system should the organization have?

Rationality

- **Rational Decision Making**: choices that are logical and consistent and maximize value
- Assumptions of rationality:
  - Rational decision maker is logical and objective
  - Problem faced is clear and unambiguous
  - Decision maker would have clear, specific goal and be aware of all alternatives and consequences
  - The alternative that maximizes achieving this goal will be selected
  - Decisions are made in the best interest of the organization

Bounded (limited) Rationality

- **Bounded rationality**: decision making that's rational, but limited by an individual's ability to process information
- **Satisfice**: accepting solutions that are "good enough"
- Despite these limits to perfect rationality, managers are expected to be rational when making decisions. Because the *perfectly* rational model of decision-making isn't realistic, managers tend to operate under assumptions of bounded rationality, which is rational decision-making behavior, but limited (bounded) by an individual's ability to process information.
- 1. Under bounded rationality, managers make **satisficing** decisions in which they accept solutions that are "good enough."
- 2. We may satisfice due to time constraints that inhibit our ability to fully search out all possible alternatives.

Intuition

- **Intuitive Decision Making**: making decisions based on experience, feelings, and accumulated judgment
    - Making decisions based on gut feeling doesn't necessarily happen independently of rational analysis; the two complement each other.
    - 2. Although intuitive decision-making will not replace the rational decision-making process, it does play an important role in managerial decision-making.

Exhibit 2.6 What is Intuition?

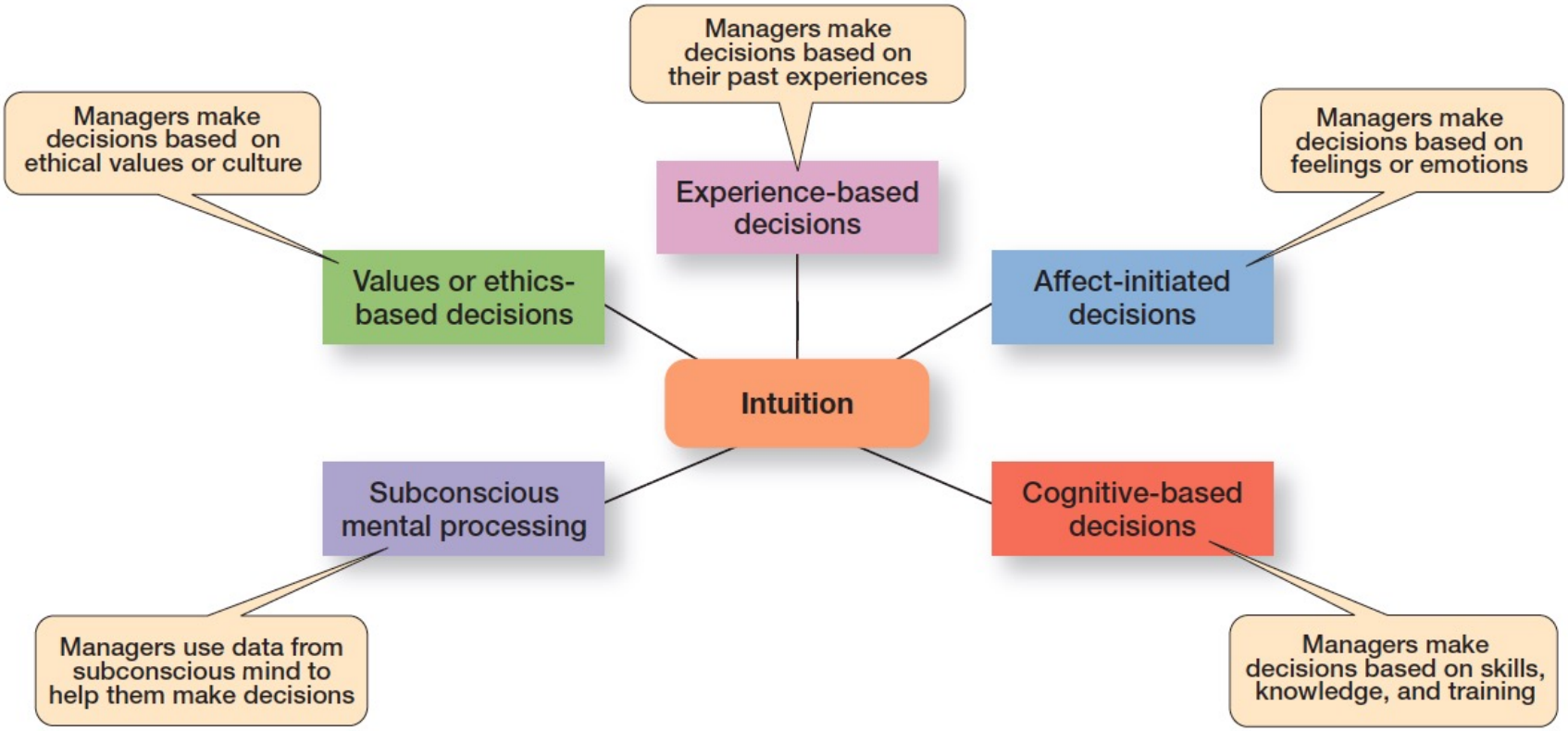

Exhibit 2.6 shows the five different aspects of intuition identified by researchers studying managers' use of intuitive decision making.

Evidence-Based Management

- **Evidence-based management (E B Mgt)**: the systematic use of the best available evidence to improve management practice.

1. The four essential elements of EBMgt are the decision maker's expertise and judgment; external evidence that's been evaluated by the decision maker; opinions, preferences, and values of those who have a stake in the decision; and relevant organizational (internal) factors such as context, circumstances, and organizational members.

2. The strength or influence of each of these elements on a decision will vary with each decision.

3. The key for managers is to recognize and understand the mindful, conscious choice as to which element(s) are most important and should be emphasized in making a decision.

Crowdsourcing

- **Crowdsourcing:** a decision-making approach where you solicit ideas and input from a network of people outside of the traditional set of decision makers. Managers solicit input and ideas via the Internet.

1. One example of crowdsourcing is Hershey's use of a competition to find a solution to keep their chocolates cool when shipping during the summer months.
2. Crowdsourcing can be used to solicit input from customers, suppliers, any stakeholder group, or other external parties.

- Managers can get a diverse set of opinions to help them make better-informed decisions

Types of Decisions: Structured Problems and Programmed Decisions

- **Structured problems:** straightforward, familiar, and easily defined problems
- **Programmed decisions:** repetitive decisions that can be handled by a routine approach
- In dealing with structured problems, a manager may use a programmed decision, which is a repetitive decision that can be handled by a routine approach. Managers rely on three types of programmed decisions:

Types of Programmed Decisions

1. **Procedure:** a series of sequential steps used to respond to a well-structured problem
2. **Rule:** an explicit statement that tells managers what can or cannot be done
3. **Policy:** a guideline for making decisions

Types of Decisions: Unstructured Problems and Nonprogrammed Decisions

- **Unstructured problems:** problems that are new or unusual and for which information is ambiguous or incomplete
- **Nonprogrammed decisions:** unique and nonrecurring and involve custom-made solutions

Exhibit 2.7 Programmed vs. Nonprogrammed Decisions

Characteristic	Programmed Decisions	Nonprogrammed Decisions
Type of problem	Structured	Unstructured
Managerial level	Lower levels	Upper levels
Frequency	Repetitive, routine	New, unusual
Information	Readily available	Ambiguous or incomplete
Goals	Clear, specific	Vague
Time frame for solution	Short	Relatively long
Solution relies on…	Procedures, rules, policies	Judgment and creativity

Decision-Making Styles

- Research has identified four different individual decision-making styles based on two dimensions:
  1. An individual's way of thinking
  2. An individual's tolerance for ambiguity
- The four styles are directive, analytic, conceptual and behavioral.

Four Decision-Making Styles

- **Directive style**: low tolerance for ambiguity and seeking rationality. Those managers are efficient and logical but may be prone to making decisions too fast with limited information.
- **Analytic style**: seek rationality but have a higher tolerance for ambiguity. Those managers are more willing to adapt to change or new situations.
- **Conceptual style**: intuitive decision makers with a high tolerance for ambiguity. Those managers are good at finding creative solutions to problems.
- **Behavioral style**: intuitive decision makers with a low tolerance for ambiguity. Those managers tend to avoid conflict and seek acceptance from others.

Exhibit 2.8 Decision-Style Model

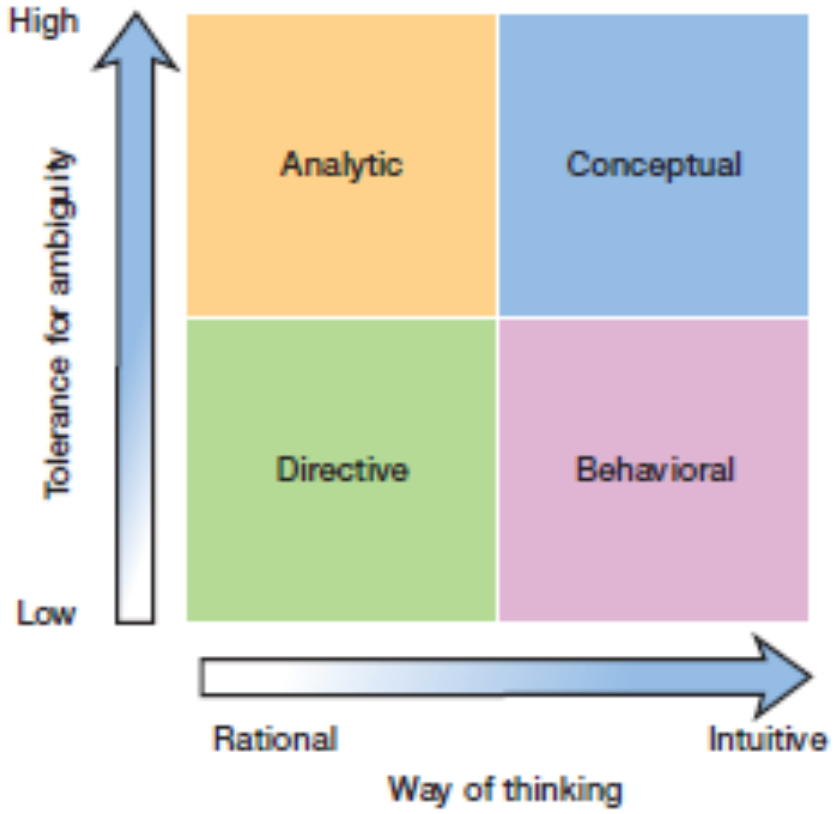

Exhibit 2.8 shows the decision-style model from A. J. Rowe and J. D. Boulgarides, *Managerial Decision Making* (Upper Saddler River, NJ: Prentice Hall, 1992), p. 29.

Heuristics

- **Heuristics** or “rules of thumb” (**general indication**) can help make sense of complex, uncertain, or ambiguous information.
- However, they can also lead to errors and biases (**prejudice/indication**) in processing and evaluating information.

Exhibit 2.9 Common Decision-Making Biases

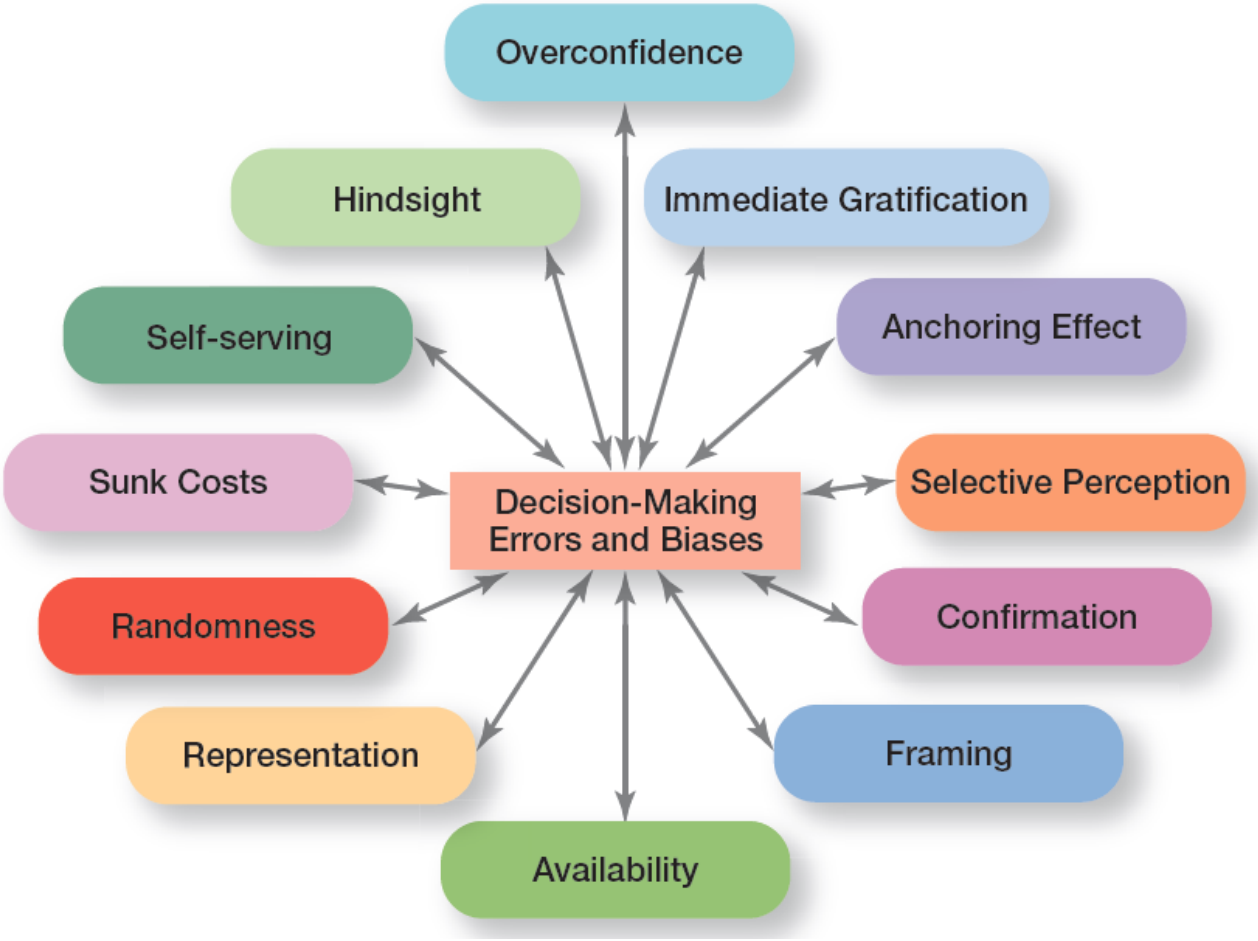

Exhibit 2.9 identifies 12 common decision errors of managers and biases they may have.

Decision-Making Biases and Errors (1 of 4)

- **Overconfidence Bias:** occurs when decision makers tend to think that they know more than they do or hold unrealistically positive views of themselves and their performance.
- **Immediate Gratification Bias:** choosing alternatives that offer immediate rewards and avoid immediate costs.
- **Anchoring Effect**: when decision makers fixate on initial information as a starting point and then, once set, fail to adequately adjust for subsequent information.

Decision-Making Biases and Errors (2 of 4)

- **Selective Perception Bias:** selecting, organizing and interpreting events based on the decision maker's biased perceptions
- **Confirmation Bias:** when decision makers seek out information that reaffirms their past choices and discount information that contradicts their past judgments.
- **Framing Bias**: selecting and highlighting certain aspects of a situation while ignoring other aspects

Decision-Making Biases and Errors (3 of 4)

- **Availability Bias:** losing decision-making objectivity by focusing on the most recent events
- **Representation Bias:** drawing analogies and seeing identical situations when none exist
- **Randomness Bias**: creating unfounded meaning out of random events

Decision-Making Biases and Errors (4 of 4)

- **Sunk(lost) Costs Errors:** when a decision maker forgets that current choices cannot correct the past. Instead of ignoring sunk costs, the decision maker cannot forget them. In assessing choices, the individual fixates on past expenditures rather than on future consequences.
- **Self-serving Bias:** taking quick credit for successes and blaming outside factors for failures
- **Hindsight Bias**: mistakenly believing that an event could have been predicted once the actual outcome is known (after the fact)

Cutting-Edge Decision Making

- Technology has changed the ability of managers to access information. Two technology-driven cutting-edge aides to decision-making are:
  - **Design thinking:** approaching management problems as designers approach design problems. It can be useful when identifying problems and when identifying and evaluating alternatives. Design thinking involves asking the "what if" questions and using observation and inquiry skills instead of relying solely on rational analysis.
  - **Big data and Artificial Intelligence**: big data refers to huge and complex data sets now available. Big data has opened the door to the widespread use of artificial intelligence (AI)

Big Data and Artificial Intelligence

- **Big data:** the vast amount of quantifiable data that can be analyzed by highly sophisticated data processing. One IT expert described big data with "3V's: high volume, high velocity, and/or high variety information assets." With this type of data at hand, decision makers have very powerful tools to help them make decisions. Big data has opened the door to the widespread use of artificial intelligence and other powerful decision-making tools.
- **Can be a powerful tool in decision making, but collecting and analyzing data for data's sake is wasted effort.**

Artificial Intelligence and Machine Learning Tools

- Artificial Intelligence (A I) – uses computing power to replicate the decision-making functions of humans. AI now has the ability to learn and solve complex problems such as the technology used in self-driving autos.
  - A I systems can learn and have facilitated the use of new tools such as:
    - Machine learning
    - Deep learning
    - Analytics

Machine Learning, Deep Learning, and Analytics

- **Machine Learning**: is a method of data analysis facilitated by AI. Machine learning involves pattern identification, learning from those patterns (models), and then using that information to make decisions with little or no human assistance.
- **Deep Learning**: is a subset of machine learning. Deep learning simulates the functions of the human brain by using algorithms to create a hierarchical level of artificial neural networks. This network of connected nodes processes information in a nonlinear fashion and has been used to improve the identification of skin cancers.
- **Analytics:** is the use of mathematics, statistics, predictive modeling, and machine learning to find meaningful patterns in data sets. Analytics are now being used in professional sports to help make decisions about whether to kick a field goal or go for it on fourth down. There are numerous other applications.

Review Learning Objective 2.1

- **Describe the eight steps in the decision-making process.**
  1. Identify problem
  2. Identify decision criteria
  3. Weight the criteria
  4. Develop alternatives
  5. Analyze alternatives
  6. Select alternative
  7. Implement alternative
  8. Evaluate decision effectiveness

Review Learning Objective 2.2 (1 of 2)

- **Explain the five approaches managers use when making decisions.**
  - Assumptions of rationality
    - The problem is clear and unambiguous
    - A single, well-defined goal is to be achieved
    - All alternatives and consequences are known
    - The final choice will maximize goal achievement

Review Learning Objective 2.2 (2 of 2)

- **Rationality**: making decisions when the goal is well-defined and everything is clear and unambiguous
- **Satisficing:** when decision makers accept solutions that are good enough
- **Intuitive decision making:** making decisions on the basis of experience, feelings, and accumulated judgment
- **Evidence-based management:** a manager makes decisions based on the best available evidence
- **Crowdsourcing**: a manager solicits ideas via the internet from people outside of the organization

Review Learning Objective 2.3 (1 of 2)

- **Classify decisions and decision-making styles.**
  - Programmed decisions are repetitive decisions that can be handled by a routine approach and are used when the problem being resolved is straightforward, familiar, and easily defined (structured).
  - Nonprogrammed decisions are unique decisions that require a custom-made solution and are used when the problems are new or unusual (unstructured) and for which information is ambiguous or incomplete.

Review Learning Objective 2.3 (2 of 2)

- **Classify decisions and decision-making styles.**
  - Individual decision-making styles differ on two dimensions; way of thinking and tolerance for ambiguity.
  - These dimensions result in four different decision-making styles which are:
    - Directive
    - Analytical
    - Conceptual
    - Behavioral

Review Learning Objective 2.4

- **Describe how biases affect decision making.**
  - The 12 common decision-making errors and biases:
    - Overconfidence
    - Immediate gratification
    - Anchoring effect
    - Selective perception
    - Confirmation
    - Framing
    - Availability
    - Representation
    - Randomness
    - Sunk costs
    - Self-serving
    - Hindsight

Review Learning Objective 2.5 (1 of 2)

- Identify cutting-edge approaches for improving decision making.
  - Design thinking, big data, artificial intelligence, machine learning, deep learning, and analytics are all relatively new tools that harness the power of technology to help managers make better decisions.

Review Learning Objective 2.5 (2 of 2)

- **Design thinking:** approaching management problems as designers approach design problems
- **Big Data:** when tempered with good judgment, it can be a powerful tool in decision making
- **Artificial Intelligence**: AI and the tools that use AI are now possible due to big data and computing power. Machine learning, deep learning, and analytics can all help managers make better decisions.