

# 2

## Strategic HRM, Data-Driven Decision Making, and HR Analytics

### LEARNING OBJECTIVES

After reading and studying this chapter, you should be able to do the following:

- 2.1** Identify the steps for formulating and implementing a strategy.
- 2.2** Explain the importance of strategic HRM for realizing employee, operational, stakeholder, and financial outcomes and for sustaining a competitive advantage.
- 2.3** Demonstrate the use of data-driven decisions in realizing organizational strategy and contrasting different HR analytics competencies and levels of HR analytics.
- 2.4** Summarize the arguments for a scientific, ethical, and legally compliant approach to HR decision making.
- 2.5** Manage the components of a successful HR analytics function.

### HR in Action: The Case of Procter & Gamble

Many human resource departments use strategy when implementing initiatives or plans to achieve organizational objectives. As a major strategic initiative, in 2005, Procter & Gamble (P&G) reached a deal to purchase the Gillette Company for approximately \$57 billion in stock, thereby strengthening P&G's reputation as a consumer products giant and surpassing Unilever as the world's biggest consumer products conglomerate. The merger brought together household brands like P&G's Crest and Tide and Gillette's Right Guard and Duracell under the umbrella of a single company. The move provided P&G with more pricing leverage for its products with large retailers like Walmart and with a stronger negotiating position when buying advertising from media companies.

Even though mergers and acquisitions present opportunities for achieving a competitive advantage,



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they can also be quite disruptive for the people who work for the companies involved. Careful attention must be paid to integrating distinct companies with sometimes different values, norms, policies, and systems. To ensure success, P&G took several steps to calm employee fears and to integrate Gillette employees into the P&G workforce and culture. For instance, P&G gradually introduced Gillette employees to the P&G performance management and reward systems so that they had time to learn P&G's business strategy and objectives. In addition, although P&G had a reputation for promoting from within, management decided to replace many lower-performing P&G employees with higher-performing Gillette employees. This, in turn, signaled to employees that P&G valued the quality of the people who came from Gillette. Finally, as evidence of P&G's merger success, P&G met financial targets in the year following the merger.<sup>1</sup>

### Case Discussion Questions

1. What might have been some arguments for and against changing P&G's usual promotion pattern to give Gillette employees an advantage?
2. If you were an HR manager in a large company that was acquiring a smaller one, how might you apply lessons from the P&G case?
3. How should a company go about communicating its strategy to new employees?

Simply put, people matter. Jim Goodnight, CEO of SAS Institute, Inc., is quoted as saying, "Ninety-five percent of my assets drive out the gate every evening. It's my job to maintain a work environment that keeps those people coming back every morning."<sup>2</sup> This chapter focuses on the role HR plays in managing people to achieve organizational success. **Strategic human resource management** is the process of aligning HR policies and practices with the objectives of the organization, including employee, operational, stakeholder, and financial outcomes. This chapter explains how strategy is combined with HRM to achieve organizational success and how organizations can make data-driven decisions that are accurate, fair, ethical, and legal—considerations that are becoming increasingly important as our society pushes forward into an era of big data.

#### Strategic human resource management

The process of aligning HR policies and practices with the objectives of the organization, including employee, operational, stakeholder, and financial outcomes

#### Strategy

A well-devised and thoughtful plan for achieving an objective

## Defining Strategy

**LO 2.1** Identify the steps for formulating and implementing a strategy.

Central to strategic human resource management—and to strategic management in general—is the concept of a strategy. What is a strategy? Think of a **strategy** as a well-devised and thoughtful plan for achieving an objective.<sup>3</sup> A strategy is inherently future oriented and is intended to provide a road map toward completion of an

objective. Strategy reflects the manner in which a unit, department, or organization coordinates activities to achieve planned objectives in both the short and long term.<sup>4</sup> Strategy can be paired with data analytics and scientific process to make data-informed decisions, which improve the likelihood of achieving strategic objectives and sustaining a competitive advantage.

Some firms keep their strategies relatively private, but others, like Tesla Motors, Inc., announce their strategy to the world. With a mission to “accelerate the world’s transition to sustainable energy,” Tesla’s strategy is multiphased and is referred to as the *Tesla Motors Master Plan* by provocative and often controversial company cofounder and CEO Elon Musk, who settled Securities and Exchange Commission fraud charges in 2018.<sup>5</sup> Musk unveiled Tesla’s strategy in 2006, describing the overall purpose of the company as expediting a shift from a hydrocarbon (fossil fuel) economy to a solar-electric (clean energy) economy. For the first phase, Musk outlined the company’s plan of initially producing a high-end electric car called the Tesla Roadster, which reached the market in 2006 and was rated the second-best invention by *Time* magazine in 2008. (The retail DNA test developed by 23andMe took top honors that year.)<sup>6</sup>

Using revenue and interest generated from the Tesla Roadster, the original plan was to develop increasingly more affordable cars and, ultimately, affordable family cars. So far, Tesla has followed through on the first-phase strategy. In 2012, a higher-end, yet more accessible, model called the Model S rolled out of production plants, and in 2017, the even more affordable Model 3 went into production, albeit with some initial newsworthy delays.<sup>7</sup> Based on these achievements, Tesla not only formulated a viable strategy but, to date, has largely followed through on the implementation of most aspects of its strategic plan. In 2016, Musk set the second phase of Tesla’s strategy into motion by announcing plans for Tesla to acquire SolarCity, a company that produces solar panels.<sup>8</sup> By combining Tesla and SolarCity, Musk intends to stay true to the overall purpose of his company: shifting the world to clean energy. That is, when Tesla electric cars are charged with solar electric energy, they become truly clean-energy vehicles, and in the process, Tesla follows through on its strategy and leaves its mark as an industry disrupter with its innovative approaches to car design and energy.<sup>9</sup>

### Developing and Refining a Strategy: Strategy Formulation

The Tesla example illustrates two important aspects of strategy: formulation and implementation. Strategy formulation involves planning what to do to achieve organizational objectives—or in other words, the development and/or refinement of a strategy. To achieve its overarching goal of shifting consumers toward clean-energy transportation and living solutions, Tesla formulated a rational and methodical strategy with multiple preplanned phases. Strategy formulation often follows the steps depicted in Figure 2.1, which ultimately set the stage for strategy implementation.

#### Create a Mission, Vision, and Set of Values

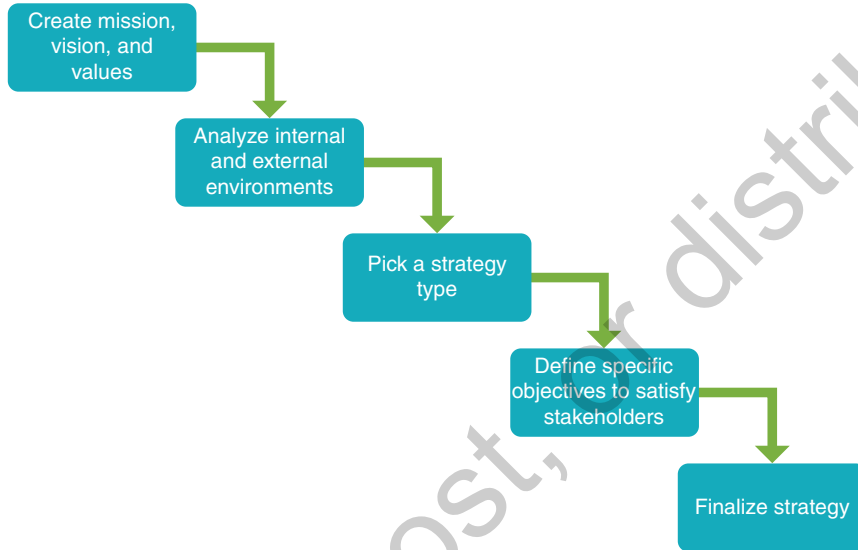
A **mission** describes a core need that an organization strives to fulfill and represents the organization’s overarching purpose. Recall that Tesla’s espoused mission is to “accelerate the

#### Mission

A core need that an organization strives to fulfill and represents the organization’s overarching purpose

### ■ FIGURE 2.1 Steps for Strategy Formulation

Formulating an organization strategy requires decision making regarding the mission, vision, values, and strategy type; analyzing the internal and external environments; and defining objectives designed to satisfy stakeholders.



world's transition to sustainable energy,” and as you have probably observed, many organizations feature their mission statements prominently on their websites. Tesla is no exception. In addition to having a mission, strategy formulation also involves stating a vision and values. An organization's **vision** is an extension of the mission and describes what the organization will look like or be at some point in the future. Creating a set of core **values** provides the organization with parameters and guidelines for decision making and bringing its vision to life.

**Vision** An extension of an organization's mission that describes what the organization will look like or be at some point in the future

**Values** Parameters and guidelines for decision making that help an organization realize its vision

#### Analyze Internal and External Environments

As the next step in strategy formulation, an organization must look both internally and externally to understand how to bring its mission, vision, and values to life. That is, an organization must analyze the internal *strengths* and *weaknesses* that are under its control and the external *threats* and *opportunities* that are beyond its direct control—a process commonly referred to as a SWOT analysis.<sup>10</sup> By analyzing the internal environment, an organization comes up with a plan for how to leverage its strengths and improve on its weaknesses. By analyzing the external environment, an organization identifies opportunities and threats with respect to the state of its industry and competitors, as well as other external factors like the labor market, unemployment rate, and the general state of the local, national, and/or global economies.

### Pick a Strategy Type

After analyzing internal and external environments, an organization is ready to select a strategy type. A strategy type provides a general approach for how an organization will bring its mission, vision, and values to life while at the same time leveraging its strengths and improving its weaknesses. Examples include the following:<sup>11</sup>

- **Differentiation:** The organization creates a product or service that is different from competitors' products or services and warrants a higher price or more attention from consumers.
- **Cost leadership:** The organization identifies ways to produce a product or provide a service at a lower cost compared with competitors. This can help the organization increase its margin or sell the product or service at a cheaper price than competitors.
- **Focus:** The organization uses differentiation or cost leadership but identifies a narrow consumer base to appeal to a specific product or service type that might not be produced or sold by competitors.

### Define Specific Objectives to Satisfy Stakeholders

Ultimately, an organization formulates a strategy to meet the needs of key stakeholders and—above all—to be competitive. That is, strategic objectives should be designed to satisfy different stakeholders. **Stakeholders** include a number of different groups that an organization must appeal to, such as

- customers,
- investors and shareholders,
- employees, and
- communities.

### Finalize Strategy

Once an organization defines its mission, vision, and values; analyzes the internal and external environments; chooses a general strategy type; and defines its strategic objectives, it is ready to finalize the strategy. That is, the organization must create a clear plan for the future before progressing to strategy implementation.

### Bringing a Strategy to Life: Strategy Implementation

During **strategy implementation**, an organization follows through on its plan. It is during this stage that an organization builds and leverages the capabilities of its human resources (which collectively are called **human capital**) to enact its strategy. The following section discusses how to align an organization's HR policies and practices with its strategy and how a well-designed system of HR policies and practices can improve human capital capabilities within an organization and, ultimately, performance.

#### Stakeholders

A number of different groups that an organization must appeal to, including customers and investors

#### Strategy implementation

The enactment of a strategic plan

#### Human capital

The knowledge, skills, and abilities that people embody across an organization



## Manager's Toolbox

### CONTRIBUTING TO YOUR ORGANIZATION'S STRATEGY

After the formulation stage, the strategy must be implemented, which requires the coordination and cooperation of employees and managers at all levels of the organization. As you might imagine, sometimes there are disconnects between an organization's official strategy and how managers interpret and implement that strategy. Here are some actions you can take as a manager to effectively bring your organization's strategy to life.<sup>12</sup>

1. *Know what your organization's strategy is.* In a survey of employees from 20 major Australian corporations, only 29% of respondents were able to identify their company's strategy from a list of six choices. Take the following steps to understand your organization's strategy:
  - Review your organization's mission statement, vision, and values.
  - Ask your manager to explain how you can contribute to strategic objectives.
2. *Align your own goals with your organization's strategic objectives.* As a manager, it is important to align your self-interests with the interests of the organization. Specifically, set goals that describe how you and your team can contribute to organizational objectives, such as decreasing turnover or increasing productivity.
3. *Communicate the strategy to your employees.* Explain the strategy to your employees, and engage them in activities that help them understand how they can contribute to the organization's strategic objectives. Remember, as a manager, you play an essential role in communicating company strategy to employees.

## Linking Strategy With HRM: Strategic HRM

**LO 2.2** Explain the importance of strategic HRM for realizing employee, operational, stakeholder, and financial outcomes and for sustaining a competitive advantage.

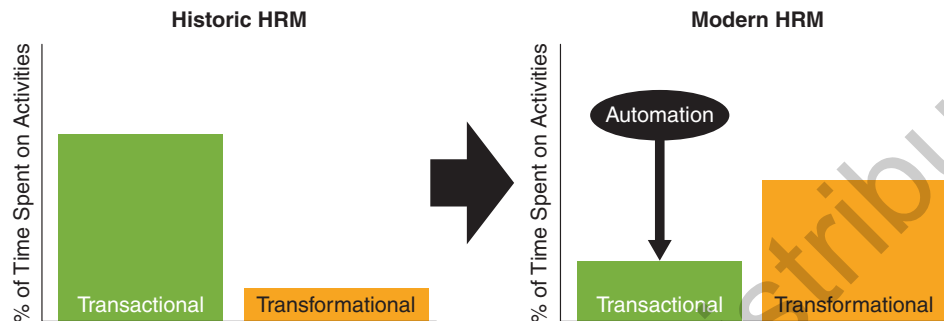
The beginning of this chapter defines *strategic HRM* as the process of aligning HR policies and practices with the strategic objectives of the organization, including achieving employee, operational, stakeholder, and financial outcomes to achieve and sustain a competitive advantage. An important implication of strategic HRM is that HR practices and employees are company assets that add value and not merely costs.<sup>13</sup>

### The Origins of Strategic HRM

HRM activities have changed over the years. A growing number of organizations now focus on *strategic HRM* and using HR data to make better organizational decisions. Traditionally, HRM focused mostly on transactional and administrative activities (e.g., recordkeeping)



■ **FIGURE 2.2** Evolution of HRM Activities



and employee relations activities. However, the amount of time spent on transactional activities has decreased over the past century as more HR functions become automated, freeing up more time for transformational activities that help the organization leverage its human resources to achieve strategic objectives (see Figure 2.2). This change has expanded our view of managing people from that of a cost to that of an asset and corresponds with advances in information systems.<sup>14</sup>

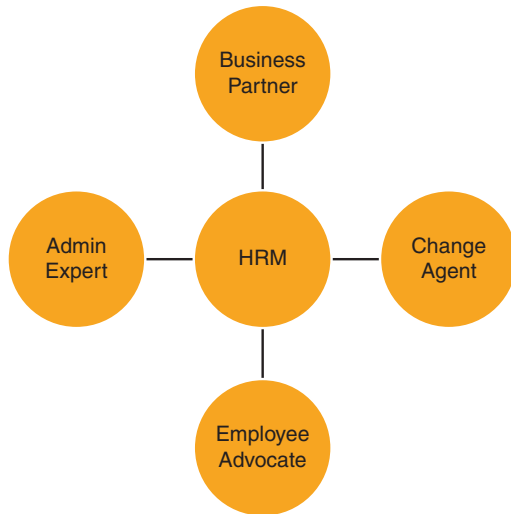
The focus on strategic HRM has also expanded the responsibilities of the HR function. According to Ulrich's model of strategic HRM, the HR function should play the roles of administrative expert, employee advocate, change agent, and business partner (see Figure 2.3). This approach to HRM has expanded the influence of the HR function, such that the deployment of HR practices and human resource capabilities can be used to realize strategic change initiatives, such as mergers, acquisitions, reorganizations, and restructurings, as well as gain a "seat at the table" during key business decisions. With greater influence comes greater responsibility, which means that the modern HR function now faces greater pressure to link HR activities and responsibilities to organizational performance.

### Organizational Performance and the Balanced Scorecard

Historically, organizational performance was defined in terms of financial indicators, such as return on assets, return on equity, and market return. While achieving financial outcomes is indeed a worthwhile and necessary objective, other indicators of firm performance must also be considered. The introduction of the balanced scorecard was a game-changer because it made the case for considering nonfinancial indicators when defining organizational success.<sup>15</sup> The balanced scorecard is used to evaluate organizational performance based on the extent to which the organization satisfies different stakeholder needs, such as the needs of customers, investors and shareholders, employees, and the broader community. For example, an employee survey can be administered to understand how well the organization is meeting the learning and development needs of its employee stakeholders.

### FIGURE 2.3 Ulrich's Model of Strategic HRM

Ulrich's model indicates that HRM should provide administrative expertise, serve as an employee advocate, be an agent of change, and serve as a strategic business partner.



Source: Adapted from Ulrich, D. *Human resource champions: The next agenda for adding value and delivering results*. Cambridge, MA: Harvard Business School Press.

### Identifying Best Practices

Some HR practices can be thought of as *universal best practices* because implementing them often leads to improved organizational performance, regardless of the organization. In HRM, evidence-based universal best practices include enhancing perceptions of job security among employees, promoting from within the organization, providing financial incentives linked to performance, offering training, and providing flexible work arrangements.<sup>16</sup> And such practices are often referred to as **high-performance work practices**.<sup>17</sup> Recent meta-analytic evidence indicates that certain well-designed individual HR practices generally have positive effects on organizational outcomes.<sup>18</sup> For examples of evidence-based high-performance work practices, refer to Figure 2.4.

### Systems Thinking: Considering the System and Context

In addition to identifying universal best practices, such as high-performance work practices, it is important to consider how

these practices and others fit into the broader HR system and organizational strategy. In other words, the effectiveness of some HR practices may be contingent on the context (e.g., industry, culture) and the configuration of other HR practices that are part of a larger system.<sup>19</sup> In addition to adopting universal best practices, we recommend taking a **systems perspective**, which means considering how all of the pieces of the HR puzzle fit together and how HR fits within the broader organization. Research has shown that integrated systems of high-performance work practices outperform well-designed individual HR practices. Further, an investment in an HR system can lead to valued organizational outcomes, such as lower turnover, higher productivity, and higher financial performance.<sup>20</sup>

Without taking a systems perspective, it is unlikely that a system of HR practices will reach its full potential. For instance, imagine a company in which teamwork is integral for achieving a strategic objective. Accordingly, this company devised a selection tool to identify job applicants who are likely to be team players and an onboarding program to train new employees to work effectively in teams. Now imagine that the same company introduces a new compensation program that rewards only individual performance and not the performance of teams. Rather than interacting synergistically

#### High-performance work practices

Bundles of HR universal best practices, such as promoting within the organization and offering training

#### Systems perspective

The view of how all pieces of a system and its subsystems fit together



### ■ FIGURE 2.4 Pfeffer's Seven Practices of Successful Organizations

Pfeffer's practices are examples of high-performance work practices that are instrumental for developing human capital capabilities across different contexts.

1. **Create employment security** policies to encourage employee involvement and commitment.
2. **Selectively hire new employees** to create a highly qualified workforce that are a good fit.
3. **Organize employees into self-managed teams** to achieve higher-performing teams.
4. **Compensate employees based on performance** to attract, motivate, and retain talented employees.
5. **Train employees** to enhance the knowledge and skills necessary for high performance.
6. **Reduce status differences between employees** to leverage ideas, skills, and effort at all levels.
7. **Share information on strategy and performance** to motivate employees to contribute to the organization.

Source: Pfeffer, J. (1998). Seven practices of successful organizations. *California Management Review*, 40, 96–124.

**TABLE 2.1** Factors Influencing the Effectiveness of HR Practices

FACTORS	DESCRIPTION
<b>Internal Environment</b>	
<i>Business Strategy</i>	Although research findings have been mixed, some evidence indicates differentiation strategies enhance the effectiveness of HR systems in relation to certain organizational outcomes, such as reducing turnover.
<i>Culture</i>	Most evidence to date indicates that a positive and supportive organizational culture enhances the effectiveness of HR systems in relation to organizational outcomes.
<i>Manager Characteristics</i>	Research has shown that having more senior managers and managers with stronger HR backgrounds enhances the effectiveness of HR systems.
<b>External Environment</b>	
<i>Industry Characteristics</i>	The type of industry an organization operates within can influence the effectiveness of HR systems. For example, the positive effects of HR systems on organizational outcomes tends to be stronger in manufacturing industries (as opposed to service industries).

Source: Adapted from Jackson, S. E., Schuler, R. S., & Jiang, K. (2014). An aspirational framework for strategic human resource management. *Academy of Management Annals*, 8, 1–56.

with the selection and training subsystems to improve team effectiveness, the compensation subsystem may thwart team effectiveness by focusing individuals' efforts toward their own individual achievement, as opposed to the achievement of their team. Table 2.1 provides examples of other factors that have been found to influence the effectiveness of HR practices.

## Strategic HRM, Data-Driven Decision Making, and HR Analytics

**LO 2.3** Demonstrate the use of data-driven decisions in realizing organizational strategy and contrasting different HR analytics competencies and levels of HR analytics.

Like the rest of the world, HR departments are faced with ever-increasing amounts of data and big decisions to make. This is due in part to technological advances that have made it easier to capture and store data via HR information systems and other platforms. Such data are only valuable to the extent HR departments actually use them, though. Moreover, HR departments must consider carefully which data to use and for what purposes. When decisions are informed by the analysis and interpretation of relevant, accurate, and timely data, we refer to these as **data-driven decisions**.

Above all, data-driven decisions should inform and support strategic HRM objectives. To that end, **human resource (HR) analytics** refers to the use of data to support and inform high-stakes decision making, to achieve strategic objectives, and to sustain a competitive advantage. In some organizations, HR analytics goes by other names, such as people analytics, human capital analytics, talent analytics, or workforce analytics. As a scientific process, HR analytics is a data-driven approach to designing and implementing HR systems, policies, and practices. That is, HR analytics requires organizational leaders and HR professionals to think like scientists—instead of relying solely on their gut instincts, or intuition. At the same time, they also need business acumen to make a strong case for using science-based HR practices to improve the organization.<sup>21</sup> An overarching goal of HR analytics should be to provide managers with actionable evidence-based practices that improve the management of people.

Earlier in the chapter, we described Tesla's mission and strategy. To realize its strategic objectives, Tesla has embraced HR analytics. Because Tesla requires a workforce filled with talented, motivated people to help the company realize its strategic objectives, its HR department uses data to acquire, manage, and retain talented people. For example, Tesla HR analysts mined data from the company's employee referral program and found that higher-performing employees referred higher-potential job candidates, midrange employees referred lower-performing job candidates, and lower-performing employees referred all levels of job candidates. Using these data-analytic findings, the team devised ways to improve its recruitment and selection practices to attract and attain high-potential people.<sup>22</sup>

### Data-driven decisions

Decisions that are made based on the analysis and interpretation of relevant, accurate, and timely data

### Human resource (HR) analytics

The process of collecting, analyzing, interpreting, and reporting people-related data for the purpose of improving decision making, achieving strategic objectives, and sustaining a competitive advantage

## How Does a System of HR Practices Influence Organizational Outcomes?

### Performance = Ability × Motivation × Opportunity

The *ability-motivation-opportunity model* proposes that a system of HR practices influences employee outcomes and, ultimately, operational and financial outcomes to the extent that the practices target three different elements: ability to perform, motivation to perform, and opportunity to perform. The first element—*ability* to perform—encapsulates employees' knowledge, skills, and abilities. In a sense, ability to perform can be thought of as what an employee *can do* on the job. The second element—*motivation* to perform—refers to the work-related effort that employees exert toward goal completion and captures what employees *will do* on the job. That is,

just because employees have the ability to do the work does not necessarily mean they have the motivation to do the work and vice versa. The third element—*opportunities* to perform—entails whether employees have the chance to perform on the job. Taken together, we can conceptualize employee performance as a function of their ability, motivation, and opportunity to perform. According to this model, if ability, motivation, or opportunity falls to zero, performance will be zero. We recommend using this conceptual formula to help you wrap your mind around how employees achieve high levels of performance in the workplace, as well as how different HR practices can be designed to target each of these three elements.<sup>23</sup>



## Spotlight on Data and Analytics

### ALIGNING ANALYTICS WITH STRATEGY

Business analytics, in general, has received a great deal of media attention, as evidenced by *New York Times* and *Wall Street Journal* headlines such as “Data-crunching is coming to help your boss manage your time”; “Big data, trying to build better workers”; and “The algorithm that tells the boss who might quit.” Despite the media and organizational attention paid to analytics and big data, some argue that analytics is overhyped, misunderstood, or misused. In a recent article

by Ransbotham, Kiron, and Prentice (in collaboration with SAS Institute, Inc.) for the *MIT Sloan Management Review*, the authors concluded that the *idea* of analytics is now mainstream, but analytics is still not widely practiced. Further, based on the results of a survey of over 2,000 managers, the authors found that organizations with innovative analytics programs were much more likely to have an official strategy for analytics. Although awareness of analytics has increased

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substantially in recent years, translating analytics into practice has remained an elusive goal in many organizations. As you will learn later in the chapter, most companies rely on a basic level of analytics called descriptive analytics. Essentially, this means that these companies have the capability to report what *has* happened in the past based on data but not to predict what *will* happen in the future. Although it is important to build analytics capabilities, particularly in the area of HR

analytics, companies also need to develop strategies for using analytics. That is, using analytics to achieve a competitive advantage depends on the development of a clear plan for integrating analytics into organizational decision making and for aligning analytics strategy with organizational strategy. In fact, some have even argued that a lack of alignment between HR analytics and strategy could have damaging effects on the organization and its employees.<sup>24</sup>

The Washington Post/Contributor



D. J. Patil, who has worked for eBay and LinkedIn, helped coin the term *data scientist*. He became the first chief data scientist in the U.S. Office of Science and Technology Policy.

### The Value of HR Analytics

Given its large focus on data and scientific decision making, HR analytics has been referred to jokingly as “HR’s nerdy best friend.”<sup>25</sup> And many would argue that HR analytics has the potential to be HR’s nerdy *and valuable* best friend. In general, HR analytics can provide evidence supporting the links among HR systems, policies, and practices and employee, operational, stakeholder, and financial outcomes. Advanced HR analytics can even provide prescriptive recommendations for the future.

The growth in HR analytics interest signals that more and more organizations are beginning to understand the importance of making data-driven decisions to achieve a competitive advantage. To that end, after reviewing survey responses and panel discussions, the Society for Human Resource Management (SHRM) Foundation concluded in a report that leveraging HR analytics to achieve a competitive advantage is an important area of growth for HRM.<sup>26</sup> The report concluded that talent shortages are on the rise and that HR must provide HR analytics to aid in strategic business decision making.

A number of organizations, including Chevron, T-Mobile, and Facebook, have expanded their internal HRM function by adding an HR analytics team. Further, companies like ADP, Inc. and SAP SuccessFactors now provide products and services for analyzing people data in addition to those related to data collection and storage. These changes reflect the findings of a 2015 Deloitte survey, which showed that, on average, executives rated HR analytics as important for their business but, at the same time, reported feeling only somewhat ready to respond to the need.<sup>27</sup> Further, only 4% of executives reported that their company was excellent at leveraging people data to predict performance and improvement. Many organizations and HR departments are in need of individuals who possess knowledge and skills related to HR analytics.

### HR Analytics Competency Identification

Integrating HR analytics into the HRM function requires certain competencies that do not necessarily need to be held by a single individual. Ideally, HR analytics should be a

team endeavor. Working as a team with diverse backgrounds and perspectives can facilitate sound judgments and good decision making, particularly when it comes to ethically or legally gray areas. While some HR analysts may have degrees in business or HRM, others may have backgrounds in industrial and organizational psychology, law, statistics, mathematics, data science, computer science, or information systems. Aside from educational differences among HR analysts, what matters most is that an HR analytics *team*, as a whole, is competent in the following seven areas: theory, business, data management, measurement, data analysis, employment law, and ethics (see Table 2.2).

A common complaint from data analysts is that managers do not understand or recognize the value of data analysis and data-driven findings, leading to frustration. Conversely, a common complaint among managers is that data analysts fail to provide *understandable* answers to the questions that managers *actually* need answered, also leading to frustration. In recognition of this communication issue, Tom Davenport, who is an independent senior advisor to Deloitte Analytics, wrote a blog post praising what he refers to as *light quants* or *analytical translators*.<sup>28</sup> Whereas a *heavy quant* would include the likes of a statistician, mathematician, or data scientist, a *light quant* is someone who knows enough about

**TABLE 2.2** The Seven Competencies of Effective HR Analytics Teams

COMPETENCY	DESCRIPTION
<i>Theory</i>	Knowledge of psychological and social scientific theory is critical because findings from people data should be interpreted through the lens of human behavior, cognition, and emotion.
<i>Business</i>	Business knowledge and skills ensure that the activities of an HR analytics team are in the service of HR and organizational strategies and help the organization gain a competitive advantage.
<i>Data Management</i>	Data management knowledge and skills ensure that data are acquired, cleaned, manipulated, and stored in a way that facilitates subsequent analysis while maintaining data privacy and security.
<i>Measurement</i>	Measurement knowledge and skills provide a basis for developing sound HR metrics and measures that demonstrate sufficient reliability and validity.
<i>Data Analysis</i>	Knowledge and skills related to mathematics, statistics, and data analysis are critical, especially when it comes to identifying an appropriate analysis technique to address a given hypothesis or question.
<i>Employment Law</i>	Knowledge of employment law and HR legal issues separates an HR analytics team from a general business analytics team; teams lacking such knowledge might inadvertently violate laws when collecting data, analyze data that should not be analyzed, or use data in ways that may result in adverse consequences for protected groups.
<i>Ethics</i>	Knowledge of ethics helps the team navigate legally gray areas while also answering the question: “Just because we can, should we?”

mathematics, statistics, and data analysis to communicate with a heavy quant and who knows enough about the business to communicate with a manager. Davenport contends that many organizations with an analytics function would benefit from hiring or training individuals who qualify as light quants, as such individuals can help managers pose better questions for heavy quants to answer and, in turn, translate the findings of heavy quants into words and ideas that are understood by managers.

### Understanding the Levels of HR Analytics

There are three levels of HR analytics: descriptive, predictive, and prescriptive. **Descriptive analytics** focuses on understanding what has happened, which implies a focus on the past. Typically, descriptive analytics includes summary statistics, such as sums, averages, and percentages, as well as commonly reported HR metrics, such as absence rate, turnover rate, cost per hire, and training return on investment. Descriptive analytics does not have to be complicated, and most involve simple arithmetic.

A more advanced form of analytics is **predictive analytics**, which focuses on what is likely to happen in the future based on available data and is more forward looking. Examples of predictive analytics include various statistical and computational models. A common type of statistical model is a regression model. Using regression, we can evaluate the extent to which scores on one or more predictor variables are associated with scores on a particular outcome variable. For instance, in the context of selection, we might test whether applicants' level of extraversion predicts their future level of sales performance. Note that we do not expect 100% accuracy in our predictive models, as human behavior is influenced by many factors that may not be captured in the regression model. However, we strive to forecast future events and outcomes with as much accuracy as we can. As described by a SHRM Foundation report, very few companies have reached the level of predictive analytics, as the vast majority relies on descriptive analytics and basic reporting for HRM.<sup>29</sup>

Finally, the most advanced form of analytics is prescriptive analytics, and at this point, relatively few companies effectively apply prescriptive analytics to HR decision making. **Prescriptive analytics** focuses on what actions should be taken based on what is likely to happen in the future. By definition, prescriptive analytics is forward-looking, just like predictive analytics, but prescriptive analytics builds on predictive analytics by taking predictions and translating them into prescriptive action.

## HR Analytics and the Scientific Process

**LO 2.4** Summarize the arguments for a scientific, ethical, and legally compliant approach to HR decision making.

Regardless of whether a company uses descriptive, predictive, or prescriptive analytics, we recommend that you envision HR analytics—and data-driven decision making, in general—as a scientific process. The **scientific process** offers a rigorous framework for guiding the way in which HR departments collect, analyze, and interpret data in service of HR and organizational strategies. In essence, the scientific process can be thought of as a rigorous and rational approach to problem solving and decision making. The scientific process consists of the six steps shown in Figure 2.5.

#### Descriptive analytics

Focuses on understanding what has already happened, which implies a focus on the past

#### Predictive analytics

Focuses on what is likely to happen in the future based on available data

#### Prescriptive analytics

Focuses on what actions should be taken based on what is likely to happen in the future

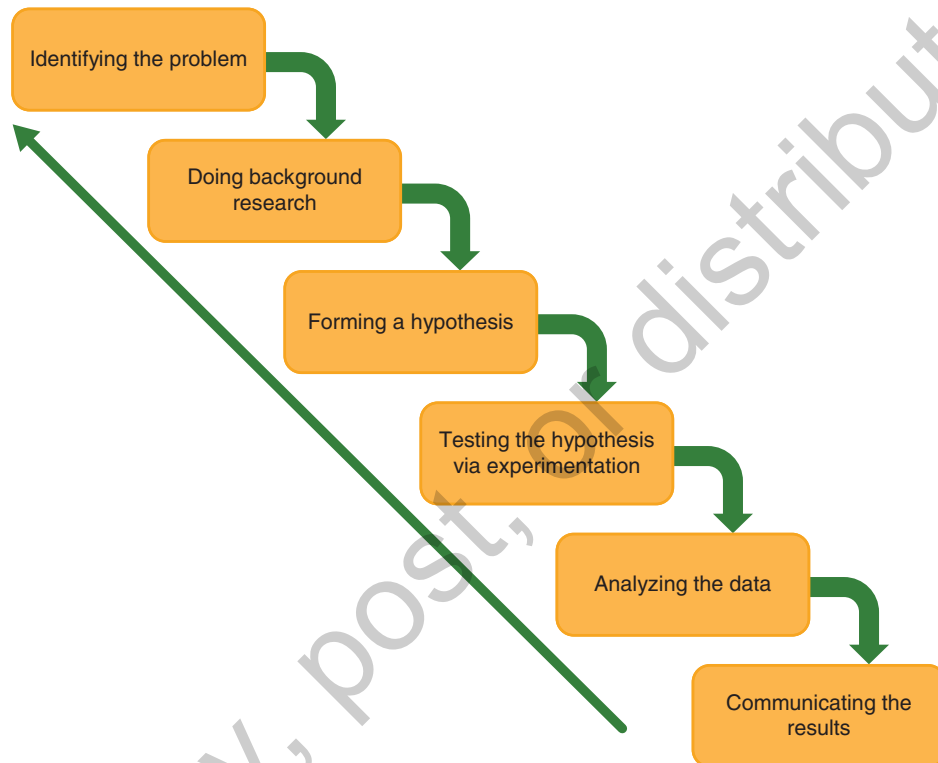
#### Scientific process

A method used for systematic and rigorous problem solving that is predicated on the assumption that knowledge requires evidence



### ■ FIGURE 2.5 Steps in the Scientific Process

The scientific process can be thought of as a rigorous approach to problem solving and decision making.



#### Step 1: Identifying the Problem

Like any problem-solving approach, the first step of the scientific process is to identify and define the problem. That is, what specifically will you try to describe, predict, explain, or understand using data? Imagine your organization has been facing a retention issue, in which employees are voluntarily leaving the organization at a concerning rate. In general, turnover is a major cost for organizations,<sup>30</sup> with some estimates suggesting that selecting and training a replacement employee can cost organizations between 50% and 200% of the first-year salary for each person who leaves the organization.<sup>31</sup> Given the cost of voluntary turnover and your organization's latest turnover rates (which represent a type of a descriptive analytics), you might define voluntary turnover as a problem for which you wish to find a solution.

#### Step 2: Doing Background Research

It is unlikely that the problem you identified is entirely unique to your organization. For example, others who came before you have investigated the problem of voluntary

turnover. Universities and other academic institutions employ organizational scholars and researchers who have investigated countless organizational problems. As such, before starting from scratch, look to prior theory and research to help you understand the phenomenon you wish to investigate using the scientific process. If you were to look through scholarly journal articles on the topic of voluntary turnover, you would find thousands of articles on the topic. From a practical standpoint, doing background research can save your HR department money, as you will spend less time and energy on trying to solve a problem for which others have already found a viable solution.

### Step 3: Forming a Hypothesis

A hypothesis is simply a statement of what you believe or predict to be true. In other words, it is an educated guess based on the background research you performed. We recommend stating the hypothesis as an if/then statement. For example, based on your identification of the problem and background research, you might hypothesize, “If new employees perceive a low degree of job satisfaction after 3 months on the job, then they will be more likely to quit by the end of their first year.” Your hypothesis serves as a compass to guide you through the scientific process. For instance, a hypothesis informs what data you need to collect. In the turnover example, we would need to measure new sales employees’ job satisfaction at 3 months and pull organizational turnover records for these same employees at 1-year post-hire.

### Step 4: Testing the Hypothesis via Experimentation

A true experiment is one of the most rigorous research designs you can use to test a hypothesis. For a true experiment, employees must be randomly assigned to either a treatment or control group. For instance, imagine a scenario in which you developed a new training module aimed at increasing new sales employees’ job satisfaction. Using a true experimental design, you could randomly assign half of new employees to a treatment group that receives the training and the other half to a control group that doesn’t receive the training. At the end of the first year, you could evaluate whether fewer individuals quit when they received the job satisfaction training.

Under some circumstances, however, it may be impractical or inappropriate to conduct a true experiment. Instead, you might opt for an observational design in which you survey employees or record their behavior directly through observation or archival organizational records. For example, to test our turnover hypothesis, we might administer a survey in which employees respond to a job satisfaction measure and then gather their organizational turnover records 1-year post-hire. Regardless of how a hypothesis is tested, it is important to consider the types of data that will be collected, as the type of data informs the type of analysis.

**Qualitative data** Nonnumeric information that includes text or narrative data, such as interview transcripts

### Qualitative Versus Quantitative Data

In general, there are two types of data: qualitative and quantitative (see Table 2.3). On one hand, **qualitative data** are nonnumeric and include text or narrative data, such as interview transcripts or responses to open-ended survey questions. Additional examples of qualitative data include videos and photos. Qualitative data can be quite rich, providing

**TABLE 2.3** Example of Qualitative Versus Quantitative Data

This data table provides an example of a qualitative variable and quantitative variable. The performance description variable is qualitative because the associated data are nonnumeric and text. The performance rating variable is quantitative because the data are numeric.

EMPLOYEE ID	PERFORMANCE RATING	PERFORMANCE DESCRIPTION
9082625	2.65	Peter performed satisfactorily. He still struggles with his TPS reports and arrives late to work at least once a week. Nonetheless, he showed glimpses of potential from time to time.
9077854	4.99	Lisa's performance was exceptional this quarter. She went above and beyond on her grant proposals and showed great teamwork when she helped get a team member back up to speed who had been on maternity leave.

important information about context and processes. Qualitative data, however, are analyzed differently than quantitative data. For instance, qualitative interview data could be thematically analyzed such that the transcripts are coded for recurring themes.

On the other hand, **quantitative data** are numeric and can be counted or measured in some way. Employee age is an example of a continuous quantitative variable, whereas employee voluntary turnover—when coded in binary as 0 = stayed and 1 = quit—is an example of a categorical variable. Statistical models are created using quantitative data.

### Big Data Versus Little Data

In addition to the qualitative versus quantitative distinction, we can distinguish between big data and little data. The term *big data* has received a lot of attention in the popular press in recent years, and companies like Amazon, Facebook, and Google have built enormous reputations and revenues from leveraging data to optimize business decision making. Amazon, for example, tracks huge volumes of consumer data and, using sophisticated algorithms, can predict what consumers will buy.

In the realm of HRM, HR analysts have begun to use big data to make better people decisions. Signaling the growth in big data in HRM, the Equal Employment Opportunity Commission met in 2016 to discuss big data and analytics from a legal perspective.<sup>32</sup> But exactly what are big data? **Big data** refer to large (or massive) amounts of unstructured, messy, and sometimes quickly streaming data—often from sources that we did not originally intend to leverage for analytical purposes (e.g., scraping or coding résumé data).

In contrast, **little data** are structured data that are gathered in smaller volumes, usually for a previously planned purpose. Consider an analogy involving a water fountain and a fire hydrant to illustrate the distinction between little data and big data. Working with little data is like drinking from a water fountain; the water flow is steady, clean, slow, predictable, and easy to manage. Alternatively, working with big data is like drinking from a fire hydrant spraying out untreated and unfiltered water; the water flow is voluminous, dirty,

**Quantitative data** Numeric data that can be counted or measured in some way

**Big data** Large amounts of unstructured, messy, and sometimes quickly streaming data, which can be described in terms of volume, variety, velocity, and veracity

**Little data** Structured data that are gathered in small volumes, usually for a previously planned purpose

fast, largely unpredictable, and difficult to manage. Working with big data requires a lot of upfront data management and restructuring, so much so that prepping big data for subsequent data analysis may require the expertise of a data scientist.

### Data Collection and Measurement

Regardless of how or where data are collected, sound measurement is key. Think carefully about what is being measured and how it is being measured, and distinguish between two terms: concept and measure. A concept is theoretical, and job performance is a prime example. Performance on a given job entails a number of different behaviors. For instance, a sales position requires the enactment of customer service behaviors. Different measures can be used to assess the concept of job performance for a sales position. For instance, an



## Spotlight on Legal Issues

### LEGAL IMPLICATIONS OF BIG DATA

Organizations can benefit from big data and analytics when it comes to key HRM functions, such as recruitment and selection. For example, algorithmic systems and analytic tools, such as those based on machine learning, can provide more accurate predictions of future performance given a number of candidate attributes (e.g., personality, experiences).

Using an algorithm or an analytic tool, however, will not necessarily result in recruitment processes and selection decisions that meet legal scrutiny. To that end, a White House report from May 2016 addressed the legal implications of big data and analytics in a variety of areas, including access to credit, higher education, criminal justice, and employment. With regard to employment, the report recognized that modern algorithmic and automated recruitment and selection systems do, in fact, have the potential to reduce bias, but the report cautions that algorithms are designed by humans. As a result, bias can inevitably find its way into algorithms and models. In fact, algorithms and models can even magnify biases in the data. Nonetheless, the report contends that the use of data-driven approaches in hiring can reduce bias if designed properly.

The major challenge to using data-driven approaches is improving decision making while also adhering to legal guidelines.

When building algorithms and models to predict employee behavior and outcomes, analysts must carefully consider whether it is appropriate to include variables that are directly or indirectly linked to the protected group status of individuals. This means that analysts should proceed with caution when including variables like age or race—or variables that are likely to be strongly correlated with such variables—in their algorithms and models, unless they have a clear and defensible rationale for doing so, such as identifying sources of bias or uncovering evidence of disparate impact. Further, it is important that analysts communicate data-analytic findings to managers in a manner that ensures appropriate and legally compliant actions are taken based on the findings.

As HRM continues to evolve, big data and analytics can provide a strategic advantage. However, without careful consideration, analytics can be susceptible to bias, potentially leading to poor decisions and legal issues.<sup>33</sup>

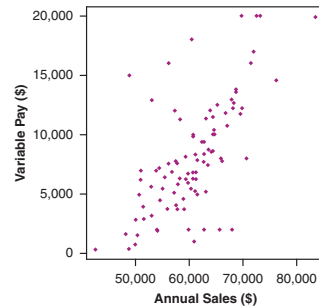
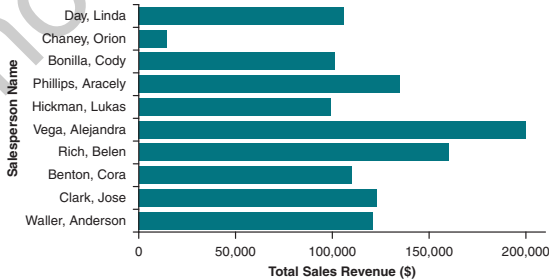
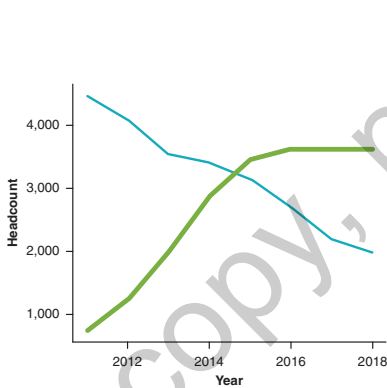
HR analyst might survey customers for feedback on their experiences working with specific salespeople. Or the analyst might observe and rate salespeople interacting with customers. Different measurement types and sources can be used to measure the same concept.

**FIGURE 2.6** Examples of Different Types of Data Visualizations

Data visualizations can take different forms, from simple text to bar graphs to geographic plots. Pick the visual that best represents the data and tells the most accurate story.

**76%** of the employees were **satisfied with their job** in March 2018, compared to 52% in 2017.

LOCATION	AVERAGE AGE	FEMALE
Redmond	33.4	42%
Portland	37.9	52%
Las Vegas	35.1	49%
San Jose	35.3	56%



### Step 5: Analyzing the Data

After testing your hypothesis through experimentation (or alternative research designs), you are ready to analyze the data to formally test your hypothesis. The way in which you analyze the data will differ based on whether you collected qualitative or quantitative data, and a full discussion of such distinctions is beyond the scope of this chapter. Once the data have been analyzed, the next step is to interpret the results. Remember, data do not “speak”; they are interpreted or evaluated. That is, the act of interpretation, like other aspects of the scientific process, requires sound judgment and decision making. This also means that interpretation is susceptible to bias and error, and steps should be taken to reduce bias and errors when measuring, analyzing, and interpreting data.

### Step 6: Communicating the Results

The manner in which you communicate the results of the scientific process depends largely on where you work and the company culture. In academia, this refers to presenting a formal research paper at a conference or publishing the results in a peer-reviewed journal. In other types of organizations, it is common to communicate findings in internal presentations, technical reports, or even white papers. Amazon, for example, is known for communicating findings in technical reports that are read silently during the first part of meetings. Many other companies rely on PowerPoint presentations in which written and oral descriptions of results are provided.

In recent years, more value has been placed on creating easy-to-understand data visualizations, which are pictorial and graphic representations of data. Regardless of how you communicate the results, it is important to focus on the story you are telling. When storytelling with data, try to keep the story simple, be clear and concise, use repetition, and do not overburden the reader or viewer with too much information.<sup>34</sup> See Figure 2.6 for examples of different data visualizations.

Finally, when deciding upon the specific results you wish to communicate, recognize the limitations of the data you collected and the study design you employed to test your hypothesis. Remember, no study is perfect, and there will always be some level of uncertainty about the results. As such, take care not to overstate or exaggerate your findings. At the same time, try not to understate your findings, either. In general, when communicating results, try to balance your enthusiasm with a healthy level of skepticism.

## HR Analytics Success

**LO 2.5** Manage the components of a successful HR analytics function.

A sustainable HR analytics function requires the consideration of a number of important issues.

- First, HR analytics should be integrated and embedded into HR and organizational strategies, and this requires taking a systems perspective of the organization and its various subsystems. HR analytics can become an integral part of the HR strategic business partnership by leveraging people data to inform and support



people decisions and strategy. In other words, the HR analytics function can provide data-driven recommendations regarding the design and implementation of HR practices to facilitate the organization's achievement of strategic objectives.

- Second, HR analytics should be integrated into the culture of HR and the organization. As we previously noted, many executives continue to make major decisions based on their gut instincts, or intuition. As such, developing an HR analytics function in some organizations may be difficult, especially if the culture does not value data and data-driven decisions. By gaining manager support and creating a culture that supports evidence-based practices, the HR analytics function will have a better chance of implementing changes.
- Third, and related to the second point, HR analytics must be paired with good change management, where change management refers to the “systematic process of applying knowledge, tools, and resources to transform organization from one state of affairs to another.”<sup>35</sup> People have a natural tendency to resist change, and, in addition to creating a culture supportive of data-driven decision making, a culture of continuous change should be cultivated as well.
- Fourth, an HR analytics team must comprise the right people with the right mix of competencies. We recommended the following seven competencies earlier in the chapter: theory, business, data management, measurement, data analysis, employment law, and ethics. Deficiencies in any one of these competencies within a team may result in failure to make a contribution or, worse, may use HR analytics in ways that are illegal or unethical.
- Finally, we cannot overstate the importance of ethics. Today, new information technologies make it easier than ever to collect, manage, and analyze potentially sensitive people and organizational data, and with these new technologies come new ethical responsibilities. For example, some platforms allow us to systematically scrape data about our employees from social media sites. Before doing so, however, we must pause and ask this question: “Just because we can, should we?” For example, just because we can “scrape” employees’ social media data from websites with ease and just because that data might be predictive of employee outcomes, should we do it? The same rigor that is applied to the scientific process should also be applied to decision making surrounding what data to use, how to use data, and whether to run certain analyses. A systems perspective reminds us that one decision—ethical or not—can result in a large ripple effect through the organization system and beyond.

## CHAPTER SUMMARY

HRM has evolved immensely over the past century, with the development of strategic HRM, data-driven decision making, and HR analytics. Leading organizations leverage their HR function to inform and support organizational strategy; to realize employee, operational, stakeholder, and financial outcomes; and to achieve a competitive advantage. Data-driven

decision making in the form of HR analytics plays an important role in strategy realization. An effective HR analytics function can be leveraged to improve the quality of decisions we make by informing the way an organization collects, manages, analyzes, and interprets its people data.

## KEY TERMS

strategic human resource management 26	human capital 29	predictive analytics 38
strategy 26	high-performance work practices 32	prescriptive analytics 38
mission 27	systems perspective 32	scientific process 38
vision 28	data-driven decisions 34	qualitative data 40
values 28	human resource (HR) analytics 34	quantitative data 41
stakeholders 29	descriptive analytics 38	big data 41
strategy implementation 29		little data 41



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## HR REASONING AND DECISION-MAKING EXERCISES

### EXERCISE 2.1: ORGANIZATIONAL CULTURE AND THE SUCCESS OF HR ANALYTICS

Chapter 1 discussed the importance of organizational culture in relation to HRM. Specifically, the chapter reviewed a popular organizational culture typology called the Competing Values Framework, which characterizes different culture types by their emphasis on collaboration, creating, controlling, or competing. The culture types are as follows: clan, adhocracy, market, and hierarchy. Given what you learned in this chapter about HR analytics and data-driven people decisions, consider how the different culture types might influence an organization's acceptance of HR analytics.

Now, you decide.

#### Questions

1. For which organization culture type do you think HR analytics will best integrate? Is there an ideal culture type to support HR analytics? Why?
2. Which organization culture type will be least likely to accept HR analytics as a viable part of the organization's strategy? Why?

### EXERCISE 2.2: BUILDING YOUR HR ANALYTICS TEAM

HR analytics is an interdisciplinary field, and as a result, HR analytics teams are often composed of individuals from different disciplines, specializations, and degree programs. Critical areas of expertise in any HR analytics team include the following: theory, business, data management, measurement, data analysis, employment law,

and ethics. For this exercise, work in a group to determine how you would recruit, select, and train members of an effective HR analytics team.

### Questions

1. As a group, create a series of jobs for which you will ultimately recruit and select new employees. A given job may cover more than one area of expertise, and multiple jobs may overlap in terms of some areas of expertise.
2. For each job created in Step 1, identify the competencies and educational/professional experiences that are necessary for success on each job.
3. Develop a brief recruitment and selection strategy for each job. In other words, where will you recruit individuals for these positions? Why? How and why will you select and hire individuals for these positions?

## ETHICAL MATTERS EXERCISE: THE CASE OF THE BODY SHOP

The Body Shop is a global manufacturer and retailer of ethically made beauty and cosmetic products. When she founded The Body Shop in 1979, Anita Roddick believed that companies have the potential to do good and just things for the world, as evidenced by the company's *mission* statement: "To dedicate our business to the pursuit of social and environmental change." In other words, Roddick was an early supporter of *corporate social responsibility*. Roddick passed away in 2007 at 64 years of age, but her legacy lives on in the form of The Body Shop's following core *values*:

- Against animal testing
- Support community fair trade
- Activate self-esteem
- Defend human rights
- Protect the planet

When the company was acquired by L'Oréal in 2006, the CEO of L'Oréal, Lindsay Owen-Jones, expressed his admiration for The Body Shop's mission, vision, and core values. He described how his company's expertise and knowledge of international markets could bring The Body Shop and its ethically made products to new customers.<sup>36</sup>

### Questions

1. How might The Body Shop's ethical values influence its HRM policies?
2. If you were a manager for a competitor of The Body Shop, how would you go about investigating the implications of corporate social responsibility for a company's success?



The Asahi Shimbun via Getty Images