# Chapter 6

# HR Metrics and Workforce Analytics

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## EDITORS' NOTE

The capacity to manage is limited by the accessible information in our possession. Research on goal setting confirms that being able to articulate the specific goal for a task and the level of the goal we want to achieve enhances performance of that task. Better information about the expectations of customers, the actions of competitors, and the state of the economy provides strong support for the strategic direction of organizations. Information about levels of output, for example, numbers of defects and efficiency of processes, positions line managers to produce high-quality products in the right amounts at the right time to meet customer needs. The same is true for the effective management of human capital in organizations. As discussed in this chapter, effective approaches to the measurement of human capital and the impact of people on organization processes, for example, HR programs such as recruiting, will enable both HRM professionals and line managers to utilize the human capital in organizations effectively. This measurement is accomplished by focusing on the development of systems of workforce analytics and supporting HR metrics that meet the needs of organization decision makers. This chapter offers a brief history of the efforts involved in the development of HR metrics and workforce analytics and of how these efforts have been enhanced by the advent of integrated human resource information systems.[1] From benchmarking to operational experiments, the HRIS field is rapidly evolving on many fronts. These advances are changing how HR metrics and analytics are used in organizations and their impact on organization effectiveness. The use of HR metrics and workforce analytics will help managers and organizations balance the costs and benefits consequences of decisions. These cost-benefit analyses are covered in Chapter 7.

## CHAPTER OBJECTIVES

After completing this chapter, you should be able to

- Discuss the factors that have led to increased organizational interest in HR metrics and workforce analytics
- Discuss why the information from numeric systems like HR metrics and workforce analytics[2] do not generate any return on investment (ROI) unless they lead to different and better decision making
- Discuss the difference between metrics and analytics
- Describe the limitations of the traditional HR metrics
- Discuss the historical role of benchmarking and its strengths and weakness today
- Discuss the roles that activities such as data mining, predictive analytics, and operational experiments play in increasing organizational effectiveness
- Discuss the differences between metrics and analytics for HR efficiency, operational effectiveness, and organizational realignment, and offer examples of each
- Describe which characteristics of HR metrics and workforce analytics are most likely to have an organizational impact

## HRIS IN ACTION

When Dan Hilbert arrived as Manager of Employment Services at Valero Energy in December 2002, he wasn't quite sure what he wanted or needed to do. Coming from a background in operations, he was used to having information about the effectiveness of all current operations; yet, as he quickly learned, these data were not available for HR operations and programs, nor were there systems in place to generate them. He recognized the potential value of having even simple descriptive statistics about the HR organization, its people, and its operations—to highlight potential opportunities and how changes in these values could signal potential problems. However, since these data were not currently available or easily developed, he created a small team, consisting of one HR staff member who could help get access to data from the organization's current systems and a graduate student with a statistical background, who was hired as a part-time employee. The team's assignment was to collect data about the human capital in the organization in an effort to learn more about the organization and its people, which Dan was now charged with supporting.

The team's analysis highlighted a unique characteristic of the Valero workforce—all of its refinery managers were all at least 55 years old. This meant that these managers, each with long tenure in one of the most critical positions for assuring operating success, would be eligible to retire in fewer than ten years. Further, given that these managers had all joined the company at roughly the same time and had held these refinery manager positions for many years, the promotion pipeline for succession to this position was

limited. In other words, promising managers who had joined the organization at lower managerial positions decided to leave the company when it was clear that upward opportunities were limited.

When Hilbert presented the results of this analysis and his conclusions to senior managers, they were shocked. No one had considered this issue of the aging of refinery managers, and, likely, management would not have become aware of the situation until the refinery managers began to retire. By then, it would have been too late to act to get immediate replacements. Interestingly, as Valero success increased and the stock price increased, the retirement age lowered, compounding the problem. The pipeline of trained managers capable of filling these positions internally would not have been sufficient to meet the demand created by the mass retirements, and the time to train them as refinery managers was lengthy. As a result, the computation of relatively simple metrics and analytics provided new insights on the current retirement status of employees. This data allowed management to engage in the training and development needed to build internal bench strength for this critical position prior to these managers retiring, likely saving the refiner millions in salary expense and reduced refinery performance.

## INTRODUCTION

**Human resources (HR) metrics** and **workforce analytics** have become a hot topic in organizations of all sizes. Interest is rising, and organizations are reaching out to learn more about metrics and analytics and how they can use them to improve organizational effectiveness. Although the use of HR metrics and workforce analytics is not new, various factors have driven increased interest during the previous decade. The most important driver has been the implementation of integrated HRIS in response to the "millennium problem" of Y2K (Year 2000). The adoption of these systems shifted what had been primarily paper and pencil processes to electronic processes and, as a result, greatly increased the capacity of organizations to access and examine transaction-level data.

These new HRIS featured faster and more capable computers, improved connectivity through organizational networks and the Internet, and the earliest versions of user-friendly analytics software. These changes fundamentally altered the dynamics of human capital assessment in organizations, driving the marginal cost of assessment lower while providing the potential for near real-time analysis and distribution of information.

In addition, the quality revolution that swept through U.S. manufacturing and service firms in the 1980s and 1990s, including Total Quality Management (TQM), Six Sigma, and lean manufacturing, increased managers' expectations

about the availability of organizational data and the capability of using this data to generate analytics that could support managerial decisions. These factors, combined with recent and growing interest in evidence-based management, have produced a rapidly growing interest in HR metrics and workforce analytics.

## A BRIEF HISTORY OF HR METRICS AND ANALYTICS

Interest in HR metrics and workforce analysis is not new. Systematic work on the development of measures to capture the effectiveness of an organization's employees can be traced as far back as the days of scientific management (Taylor, 1911) and industrial and organizational psychology (Munsterberg, 1913). Methods of quantitative analysis and its use in decision making were developed during the build-up of both men and materiel occasioned by World War II. Further study and development occurred during the great post-war industrial expansion in the United States that continued into the 1970s. In fact, many of the most common HR metrics in existence today were first considered and developed during this period (e.g., Hawk, 1967).

Many of the HR metrics most frequently used in organizations can be traced to the pioneering work of Dr. Jac Fitz-enz and the early benchmarking work he conducted through the Saratoga Institute. In 1984, Fitz-enz published *How to Measure Human Resources Management,* currently in its third edition (Fitz-enz & Davidson, 2002), which is still a highly valued overview of many HR metrics and the formulas used to calculate them. These metrics were developed through the joint efforts of the Saratoga Institute and the American Society for Personnel Administration (ASPA), the forerunner of the current Society for Human Resource Management (SHRM). This effort produced the set of 30 metrics listed in Table 6.1, which have formed the foundation for the HRM benchmarking program conducted by the Saratoga Institute.

Kaplan and Norton's (1996) introduction of the **balanced scorecard** (see Chapter 10) further refined managers' thinking about metrics. The balanced scorecard recognizes the limitations of organizations' heavy reliance on financial indicators of performance. Such measures focus on what has already happened rather than providing managers information about what *will* happen. Balanced scorecards focus on developing leading indicators of performance from several important perspectives, including customer satisfaction, process effectiveness, and employee development, as well as financial performance.

**Table 6.1** Measures in the Saratoga Institute/SHRM Human Resources Effectiveness Report

| |
|---|
| Revenue per Employee |
| Expense per Employee |
| Compensation as a Percentage of Revenue |
| Compensation as a Percentage of Expense |
| Benefit Cost as a Percentage of Revenue |
| Benefit Cost as a Percentage of Expense |
| Benefit Cost as a Percentage of Compensation |
| Retiree Benefit Cost per Retiree |
| Retiree Benefit Cost as a Percentage of Expense |
| Hires as a Percentage of Total Employees |
| Cost of Hire |
| Time to Fill Jobs |
| Time to Start Jobs |
| HR Department Expense as a Percentage of Company Expense |
| HR Headcount Ratio—HR Employees: Company Employees |
| HR Department Expense per Company Employee |
| Supervisory Compensation Percentage |
| Workers' Compensation Cost as a Percentage of Expense |
| Workers' Compensation Cost per Employee |
| Workers' Compensation Cost per Claim |
| Absence Rate |
| Involuntary Separation |
| Voluntary Separation |
| Voluntary Separation by Length of Service |
| Ratio of Offers Made to Acceptances |

SOURCE: Adapted from Fitz-enz, J. (1995). *How to Measure Human Resources Management*, 2nd Edition. New York, NY: McGraw-Hill, Inc.

About the same time, Huselid's (1995) work on high performance work systems demonstrated that the systematic management of human resources was associated with significant differences in organizational effectiveness. This work provided evidence that human resource management did indeed have strategic potential. Becker, Huselid, and Ulrich (2001) helped bring these ideas together in the HR

scorecard, which highlights how the alignment of HR activities with both corporate strategy and activity improve organizational outcomes.

## CONTEMPORARY HR METRICS AND WORKFORCE ANALYTICS

The field of **HR metrics** and **workforce analytics** is currently in transition. During the previous 30 years, most medium to large organizations did engage in some HR assessment and analytics. But these efforts were not systematic. Due in part to the expense involved, they were conducted on only a sample of activities, and often for only a limited set of metrics. More recently, because of the development of strong computer-based communications infrastructures and greater access to data through the adoption of integrated human resource information systems, organizations are engaging in more consistent and systematic reporting of HR metrics.

Increased interest in human capital metrics and analytics work has resulted in more organizations reporting a larger number of metrics more consistently. It is important to recognize that many organizations use metrics to measure or audit their HR programs and activities. Historically, the use of such audit metrics to measure the effectiveness of HR was identified by Cascio (1987) and Fitz-enz and Davidson (2002). The Society for Human Resource Management has identified a number of metrics that organizations can use to measure their HR effectiveness (SHRM, 2010). For example, absence rate can be calculated as follows: [(# days absent in month) divided by (Avg. # of employees during mo.) × (# of workdays)] × 100 (Hollmann, 2002; Kuzmits, 1979). Another useful metric from SHRM (2011) is cost per hire, which can be calculated as Cost Per Hire (CPH) = the sum of external costs (recruiting) and internal costs (training new employees) divided by the total number of starts in a time period.

There are also more detailed approaches for the measuring and benchmarking of employees' behaviors, such as absenteeism (Hollmann, 2002) and turnover (Cascio, 2000), as well as for creating HR metrics for programs such as employee assistance and work-life programs (Cascio, 2000).

Unfortunately, while the infrastructure supporting HR metrics and analytics has undergone dramatic change in the last 20 years, the metrics themselves have not. Current computing operations are capable of capturing data on a wide range of electronically supported HR processes, extracting, analyzing, and then distributing that information in real time to managers throughout the organization. Current popular HR metrics, however, were not developed with our current computing

infrastructure in mind. The Saratoga Institute's early efforts in benchmarking were primarily conducted using paper-and-pencil processes. As a consequence, recognizing what data most organizations could easily and inexpensively gather played an important role in identifying which metrics could reasonably be included in benchmark studies. The emphasis on available data can be seen in the original **Saratoga metrics** listed in Table 6.1. They focus on readily available data, most of which came from accounting systems.

Consequently, these metrics emphasize costs or easily calculated counts (e.g., head count, turnover) that often serve as proxies for costs. Every managerial decision has **cost and benefit consequences**, whether we recognize them or not. As a result, if our information systems only provide information about costs, they are of limited value to managers. Managers will try to use the information they are provided; if we offer them only cost information but little information on benefits, costs are likely to become the primary driver of managerial decisions.

Further, it is also common for metrics to be aggregated to the level of the organization. As such, they offer limited information that could be used to identify and diagnose within-organization differences. Organizational turnover rates will be heavily influenced by the turnover rate in the organization's dominant job category, masking any differences in turnover rates for jobs with fewer incumbents. Because the turnover data were extracted from the end of a specific time period, the reports provide feedback about previous activity. They only offer insights after the fact. This situation results in extended periods of time between potential problems and the opportunity for remedial responses by the organization. Change in both the analyses conducted and the metrics utilized allow organizations to take advantage of today's more capable infrastructure.

## THE MAIN OBJECTIVE OF HR METRICS AND WORKFORCE ANALYTICS

Despite reporting more metrics with greater frequency to a wider group of managers, many HR professionals tasked with this reporting question whether these efforts have had a significant impact on organization effectiveness. Often, these individuals report frustration with their inability to get managers to (a) tell them what information they need, (b) use the HR metrics information included in existing reports, or (c) even acknowledge receipt of the reports. These perceptions represent a fundamental problem in the approach organizations take toward the utilization of metrics and analytics.

Many managers perceive the increased interest in metrics and analytics as simply a mandate to compute and report more metrics. The assumption behind

assessing and reporting HR metrics is that it results in better organizational performance. But it is not clear that generating and reporting more HR metrics will necessarily result in better individual, unit, or organizational performance.

HR metrics and analytics comprise an information system, and information systems can only have an impact on organizations if, as a result of the information they receive, managers make different and better decisions than they would have without that information. No information system, including HR metrics and analytics, generates any return on the investment unless managers change their decision behavior for the better. If managers do not make different and better decisions as a result of the information reported to them, the time and effort expended in conducting and reporting HR metrics and analytics is wasted.

The emphasis on improving managerial decisions changes the dynamics driving metrics and analytics assessment efforts; that is, it raises the bar. It is not simply good enough to "do" metrics and analytics. These activities need to be approached in a way that increases the possibility that access to the information from these efforts will change managerial decisions, making them more effective. A fundamental problem is that many of the currently popular HR metrics do not provide a clear impact on important managerial decisions. The challenge, therefore, is to identify metrics and analytics that provide managers with the information they need to make better decisions regarding the acquisition and deployment of an organization's human capital.

## USING HR METRICS AND WORKFORCE ANALYTICS

Human capital metrics has become an umbrella term that encompasses a wide range of activities and processes. There is a fundamental distinction between HR metrics and workforce analytics. Metrics are data (numbers) that reflect some descriptive detail about given processes or outcomes, for example, success in recruiting new employees. In the domain of human capital, these reflect characteristics of the organization's HR programs and activities. Analytics refer to strategies for combining data elements into metrics and for examining relationships or changes in metrics. Understanding these combinations is done to inform managers about the current or changing state of human capital in an organization in a way that can impact managerial decision making. The importance of this view is that the analytics an organization needs depend on the problems and opportunities that currently face its managers. This path leads to the metrics that the organization needs in order to compute these analyses. A number of important HR activities fall within HR metrics and workforce analytics. Several of the most common are described briefly below.

## Reporting

A substantial amount of effort in the study and practice of metrics and analytics has focused on reporting. **Reporting** incorporates decisions about (a) what metrics will be reported; (b) how these metrics will be packaged; and (c) how, (d) when, and (e) to whom they should be reported. Effort has focused on attempting to identify what metrics an organization should use. However, trying to identifying what metrics should be reported without considering an organization's problems and opportunities misses the reasons for the metrics. How metrics should be reported focuses on depicting metrics for decision makers so that the "message" relevant to them has a greater probability of being understood. *How* questions deal with choosing between distributing metrics to decision makers using e-mail or creating opportunities for decision makers to extract metrics as needed. This latter approach can be done by posting the metrics on company Web sites.

*When* questions deal with the timing and frequency of metrics reports. In some cases, reporting is currently done annually, quarterly, or monthly. Some organizations are also considering the possibility of real-time updating for some metrics. *To whom* questions address who receives metrics data. To date, it is most common for metrics and analytics to be reported first to senior executives. However, there is a growing recognition that managers at lower levels of the organization may be able to make more immediate use of the information contained in these data in order to assist in tactical, operational decisions.

## Dashboards

Dashboards are an enriched component of reporting. **Dashboards** reflect efforts to align real-time analysis of organizational and HR processes as well as an increased capacity to aggregate organizational data. Dashboards also contain business unit analyses to permit managers to drill down to examine metrics on several levels within the organization. The dashboard allows users to maintain a current snapshot of key HR metrics.

## Benchmarking

The Saratoga Institute's **benchmarking** efforts were the first to develop information on standard HR metrics regarding the use and management of human capital. Benchmarking data is useful in that it provides insights into what is possible. However, a challenge in using HR metrics as benchmark data is that an organization's human resource practices and the use of its HR staff reflect current challenges facing that organization. As a result, most organizations have an HR department, but the specific functions performed by these departments vary

widely across organizations. Consequently, direct comparisons of HR benchmarking data from one's own organization to data from other organizations may not provide realistic guidelines for either goal setting or forecasting the potential effectiveness of remedial actions an organization might undertake.

## Data Mining

Interest in data mining human capital information has been on the rise since the implementation of integrated HRIS and digitized HRM processes. **Data mining** refers to efforts to identify patterns that exist within data and that may identify unrecognized causal mechanisms that can be used to enhance decision making. To identify these causal mechanisms, data mining uses correlation and multiple regression methods to identify patterns of relationships in extremely large datasets. An example would be the identification of a correlation between employee job satisfaction and employee turnover. Data mining has a number of important applications, but the caveat with its use is that it can also uncover spurious and nonsensical relationships (e.g., taller employees make better leaders; older employees have longer tenures).

## Predictive Analyses

Predictive analysis is the goal of many metrics and analytics efforts. **Predictive analysis** involves attempts to develop models of organizational systems that can be used to predict future outcomes and understand the consequences of hypothetical changes in organizations, for example, a change in existing organizational systems. To continue the simple example above, if the organization discovered a correlation between employee job satisfaction and turnover, HR could use this data to suggest modifications to the employees' work situation or their benefits. Efforts to develop balanced scorecards are examples of elementary predictive systems. They involve identifying leading indicators of important organizational outcomes and the nature of the relationships expected to lead to them. Engaging in efforts to test the assumptions in these models over time can lead to enhancements in the quality of the models' underlying predictive analyses, either by identifying additional leading indicators or better specifying the nature of the relationships between predictors and outcomes.

## Operational Experiments

The evidence-based management movement argues that managers should base their decisions on data drawn from the organization and evidence about the actual functioning of its systems rather than using personal philosophies or untested

personal models or assumptions about "how things work." One of the most effective methods for developing the evidence on which to base decisions is through **operational experiments** conducted within the organization. Ayres (2007) describes how Google uses operational experiments to test the effectiveness of the ad words used on its Web site. Rather than simply relying on intuition or "expert judgment" about which ad wording is more effective, it creates an experiment. It configures its site to alternate the presentation of competing ad text to visitors to its site and then tracks the number of click-throughs on the ad for a period of time. Given the large number of daily hits, Google can get objective data on the effectiveness of the various ads in a relatively short time and then adopt the ad wording demonstrated to be most effective.

### Workforce Modeling

**Workforce modeling** attempts to understand how an organization's human capital needs would change as a function of some expected change in the organization's environment. This change may be a shift in the demand for the organization's product, entry into a new market, divestiture of one of the organization's businesses, or a pending acquisition of or merger with another organization. This process involves establishing a human resources planning (HRP) program, which is covered in more detail in Chapter 11.

## BETTER PROBLEM SOLVING AND DECISION MAKING

In organizations, decisions result in tactical choices. These choices may be among alternative tactics to achieve specific outcomes or in response to specific problems. The choices could also involve a specific tactic to adopt a standard response, as compared trying something new, or to take no action at all. Making these decisions requires three things: (1) understanding the outcomes that one is attempting to achieve, (2) understanding the factors that influence those outcomes and their current states, and (3) knowing available tactical options and their costs. For any information system, including an HRIS that can produce metrics and analytics, improving decision making requires that these sources of information influence decision makers to choose to make different and better decisions.

### A Common and Troublesome View

A common perspective adopted in many organizations is that data elements lead to metrics. These metrics can then be combined in various analyses that can then be

reported to managers who use the information in these analyses to drive decision making. This view was dominant in the development of many metrics and analytics over the last decade. However, the problem with this approach is that it is not clear which data elements are relevant, and there is no basis for guiding how they should be combined into metrics, or how those metrics should contribute to analytics. These types of approaches to metrics have two common and predictable outcomes. First, individuals tasked with developing and reporting HR metrics in organizations struggle to determine what metrics to report and how those metrics should be calculated. Second, as a result of the first outcome, these organizations subsequently report large numbers of metrics, which ultimately have little or no impact on decision making and, therefore, offer no return to the organization.

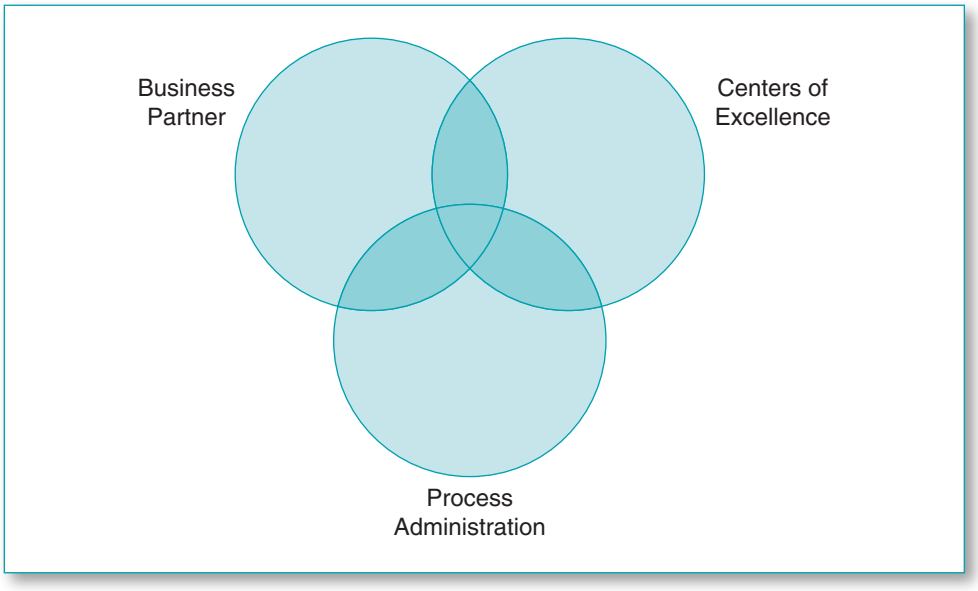
A more effective approach is to start with the problems or opportunities faced by the organization and develop an understanding of what information is likely to be useful to managerial decisions. An understanding of these problems permits organizations to determine effectively the analytics that are most likely to be useful in improving organizational effectiveness. These analytics then determine which metrics are relevant to the analysis and which data elements need to be incorporated into the analysis. The difference in these two approaches is dramatic. The latter one is targeted at specific managerial decision situations while the first one does not have this focus.

## Opportunity Domains of HR Expertise

Excellence in human resources functioning requires three sets of expertise. These are depicted in Figure 6.1. *First*, an organization must have access to the knowledge in "**centers of excellence**" to potentially change the activities of HRM. This access to knowledge does not refer to information systems, but rather to the "know-how" required to deploy available human resource programs and tactics in recruitment, selection, job design, development, motivation, compensation, performance management, retention, safety, benefits, and regulatory compliance to accomplish the objectives of the organization and to improve organizational effectiveness. This knowledge exists in HR experts who understand new advancements in these programs and activities, as well as how and when they might be employed to improve effectiveness. This HR expertise might exist within an organization's full-time staff, or it might be found in consultants hired on a contract basis to assist the organization or in third party vendors who take on responsibility for improving outsourced organization processes.

A *second* set of expertise exists in HR's business partners. Whereas the "centers of excellence" represent the technical expertise of internal HRM professionals, these external **business partners** can work with managers from other

**Figure 6.1** Components of HR Functionality




functional departments (e.g., production, marketing) to examine the organization's business and processes to understand how HR programs can support these processes. This understanding allows them to identify opportunities to change HR programs and processes in ways that overcome problems affecting the operational functioning of their departments or that capture new opportunities. HR business partners can translate the activities of HRM to their situations in order to meet the specific needs of the organization. They work to identify when and how changes to HRM programs and processes can enhance organizational effectiveness.

The *third* set of expertise is **administrative process efficiency**. This sort of **HR efficiency** refers to the capacity to conduct existing HRM processes accurately and on time while minimizing costs. Centralizing certain HRM processes, for example, recruiting new employees, offers process efficiency benefits. Only a limited number of individuals need to be trained on how to complete complex or detailed processes. This centralization is particularly valuable when a process is subject to dynamic legislative or administrative guidelines determined outside the organization. Centralizing processes can result in greater emphasis on continuous quality process improvement. The increased repetition of specific processes also fosters learning that can result in faster and more error-free execution.

## HR PROCESS EFFICIENCY

Each of these three areas of expertise represents a separate domain in which organizations can conduct both metrics and analytics work. Currently, most metrics focus on the third set of expertise—administrative process efficiency. These metrics focus on how well the HR department accomplishes its critical processes to support organizational effectiveness. Metrics in this area might include cost per hire, days to fill positions, percentage of performance reviews completed on time, and HR department costs as a percentage of total costs or sales. However, process administration is only desired when the organizational processes are those that best support the company's operating departments in pursuit of their goals.

### Organizational Effectiveness

HR metrics and workforce analytics focused on organizational process improvement are primarily focused outside the HR department. Here, the objective is to utilize the technical competence of the HR professionals in HRM regarding their understanding of how best to recruit, select, deploy, train, design jobs for, motivate, develop, evaluate, and retain employees in order to help organizational units more effectively accomplish their objectives. The outcomes are the business units' operational metrics, that is, percentage of on-time deliveries, operational downtime, lost time accidents, units sold, or cost per unit. Analyses will attempt to identify what changes in HRM practices can help organizations or specific business units improve their **operational effectiveness**. HR managers need to first identify what processes most effectively accomplish organizational objectives at multiple unit levels and then find ways to maximize the efficiency and effectiveness of the implementation of those processes in the organization. This task requires close coordination with the HR business partners in the company.

### Strategic Realignment

**Strategic realignment** involves the set of activities most commonly known today as human resources planning (HRP; for more detail, see Chapter 11). These planning efforts focus on both long-term plans to assure replacement of the labor power needed to operate as an organization as well as planning for needed strategic changes in the organization. Boeing, for example, engages in a number of efforts to assure that it will have sufficient numbers of engineers available to staff operations in future years, as the company faces the approaching retirement of a

large portion of its engineering workforce. Strategic realignment also extends the use of HRM analytics to planning for new situations and circumstances. New situations and circumstances occur when an organization undergoes a strategic change in direction, such as through merger, acquisition, divestiture, or entry into new geographic or product markets. The ability of the HR department to estimate the future demand and supply of needed human capital is largely driven by changes in organizational strategy, and this ability to forecast these future needs is crucial to the survival of the organization.

In sum, all three areas of expertise are important. HR managers must to be able to demonstrate their capacity to use metrics and analytics to manage their own operations well, and then others will be more likely to listen to their recommendations. HR managers and professionals must also work closely with their business partners in operational departments to help improve their capability to achieve their desired outcomes. Finally, using HR metrics and workforce analytics to improve decision making related to organizational effectiveness and strategic realignment can affect the organization's bottom line.

## MEASUREMENT, METRICS, AND ANALYTICS BASICS

### Getting Started

When undertaking a metrics and analytics effort, the first question the organization needs to answer is, What problems in the organization are worth solving or what opportunities for enhancing organizational effectiveness exist? Organizations are awash in opportunities for increased effectiveness. Due to current improvements in computing and communications infrastructures, the effort and costs required to develop metrics for different opportunities may not differ dramatically. Thus, choosing to spend your time on projects with a greater potential return for the company makes good business sense. Given that most organizations' capabilities in HR metrics and analytics may not be well developed at this point, focusing on a limited number of potentially high-payback opportunities may be the best strategy associated with developing any new capability.

Once a problem and an opportunity are identified, the first step is to determine the organizational outcome that is associated with the problem. For instance, if the organization is struggling with getting orders shipped to its customers on time, an appropriate outcome metric will measure the extent to which the organization ships its orders on time. If an organization is concerned with the amount of time positions remain vacant before a new employee is hired, a measure of the amount of time positions remain vacant or the total time required to fill positions may be the appropriate outcome measure.

Outcome measures capture the extent to which a problem exists and should provide an indication of the extent to which actions taken by the organization are successful. Organizations are also interested in factors that cause these outcomes, and we will turn our attention to these shortly. Our first focus, though, is identifying the outcomes that matter.

## The Role of "Why?"

Management scholars have theories of how organizations work. Most organizational members have their own personal theories regarding how their companies work. These theories provide a framework for identifying potentially important information, focusing attention on environmental stimuli, and strengthening the capacity to identify the tactics that can be used to solve problems. A common problem in identifying outcomes is that choices for outcome measures are often based on personal theories about how things work in the organization, theories that may not reflect reality. For example, company employees often identify intermediate outcomes, such as implementation of flexible work hours (flextime) or changes in supervisors, as outcomes of interest. Intermediate outcomes are those that are more immediate indicators of things that employees believe lead to more important outcomes, for example, changes in the two previous intermediate outcomes leading to a "much happier" workplace. However, in some cases, the intermediate outcomes may not be the best ones on which to focus. This situation occurs when changes in decisions impact intermediate outcomes but do not have the expected impact on the ultimate or distal outcomes.

An important test of the appropriateness of outcome metrics is the "why" test. When one considers a potential outcome variable, it is useful to ask why the organization is interested in that particular outcome. If the answer is because it impacts some other variable that influences an important outcome, for example, profitability, then care must be taken to assure that changing the intermediate (or proximal) outcome also impacts the distal outcome. Organizational factors such as pay and working conditions that have influence through their effects on intermediate variables are reasonable targets for assessment, particularly if we understand the subsequent impact these factors have on ultimate, distal, and more important outcomes. Often, changing factors such as pay and working conditions will impact intermediate outcomes but may not produce any effect on the ultimate outcome of company profitability.

Employee turnover of valued employees, for example, is often identified as an important organizational outcome due to the costs associated with it (Cascio, 2000). It is among the most frequently assessed and reported HR metrics in organizations. Most managers agree that excessive turnover is a significant problem. High levels of turnover are disruptive to operations and can cause organizations

to lose the critical expertise and capabilities of employees that leave. The answer to "why" turnover is important is that it disrupts operations and leads to potential loss of knowledge and important skill sets. But, in many cases, it is not clear whether the departure of specific employees actually results in decreasing profits. In some cases, a departing employee is replaced by a stronger performer, which will enhance profits. At a minimum, asking "why" helps highlight the potential causal sequence through which these intermediate variable effects are expected to have their influence. These analyses can highlight which metrics are likely to be more critical and provide a framework for understanding how change in these metrics should be interpreted.

## Putting HR Metrics and Analytics Data in Context

Reporting HR metrics data alone is ineffective in leading to improvement in managerial decision making. Data points representing important organizational outcomes become useful when the decision maker can attach some meaning to them. Often data will need to be placed in context. For example, that an organization's turnover level for newly hired management trainees is 13% is more meaningful when it can be placed in the context of the organization's previous turnover history for this position. Is turnover rising or falling for this position, and, if so, how quickly? Reporting trend information for metrics is one way to provide the context that gives meaning to the data, thus creating useful information.

Benchmarking is a second method for adding context to an organization's metrics. Data on metrics from other organizations in the same industry can provide information that offers insight into an organization's performance relative to its peers. However, not all companies are organized in the same way. As a result, and particularly for HR metrics, how the HRM function is structured in an organization can have a significant impact on the value of HR efficiency metrics. A department with a more centralized structure of HR functions typically has lower efficiency metrics than HR departments structured such that more of the responsibility for HR processes and activities exists in operating units. As a result, HR benchmarking data need to be considered in the context of how the organization has structured the HR function. Senior management needs to ensure that the HRM function is supporting organizational effectiveness. Then, the HR organization can be structured in order to maximize HRM effectiveness in supporting organizational objectives. HR effectiveness measures can then be maximized within the context of that structure.

For these reasons, internal rather than external benchmarking will often provide more appropriate data for establishing operational objectives for the HR efficiency benchmarks. Although external data is useful, care needs to be taken

to understand how HR functions and activities are structured in the organizations providing this data.

## Reporting What We Find

In discussions with individuals who construct metrics and analytics reports, we hear a common concern: These individuals wonder *whether anyone pays any attention* to the reports they produce. Often, they send reports to managers and professionals and receive no feedback. Among those who do get positive feedback from the benchmark information are HR professionals who embed this data in an interpretation of what they mean for the organization. Reporting data in context is a key component of their success stories.

For individuals conducting metrics and analytics work, paying attention to the capabilities and needs of the targeted audience is critically important. The information reported must be relevant to the issues facing the managers who receive it. Further, simply providing numbers to managers is unlikely to be of much use to them until they can understand the meaning of the information for their decision situations. Consequently, the HR analyst must report the numbers but also provide an interpretation of what the data means for the manager's decision situation. Some HR analysts argue that the interpretation of metrics results is the central message that speaks to managers, which, in turn, is then supported by the numbers. When packaging a metrics analysis, then, we must understand the needs of the recipients and fit the data to the information needs of the decision maker.

HR metrics and analytics information can be reported in a number of ways. Generally, a combination of "push" and "pull" means of communication will work for most organizations. Push communications channels, such as e-mail, actively push information and analyses to the attention of managers. These channels are used for information that is time critical or that the manager is unaware of. **Push systems** are excellent for getting information to decision makers. However, sending irrelevant or poorly timed information through push systems can contribute to information overload and reduce managers' sensitivity to messages. As a result, they may only skim the information sent through push systems or, even worse, not attend to it at all.

**Pull systems** are ways of making information available to managers so that they can access any of it at a point in time when it will be most useful for their decision making. Examples include (1) posting HR metrics and analytics analyses and reports on internal company Web sites, (2) offering access to searchable information repositories, or (3) providing access to analytics tools as examples. These "pull" methods avoid the e-mail clutter associated with push systems, but pull systems can be ineffective because managers may not know what information is available or when or where to look for the information.

How frequently data are analyzed and reported is also an important consideration. The existence of an integrated HRIS, faster computing capabilities, more effective software, and advanced internal communication systems creates the capability to analyze and report information in real time for managers. How frequently data are reported and how narrowly data are packaged are also critical to supporting effective decision making. Creating reporting cycles that are too long risks losing opportunities to make changes in operations on the basis of the reported information. Aggregating too much data from subunits to higher-level units can result in the problem of causing differences between operating units, departments, or functions to be buried in the aggregated averages for the higher unit. This information for managers' work units must be available to support decision making.

## USEFUL THINGS TO REMEMBER ABOUT HR METRICS AND ANALYTICS

### Don't "Do Metrics"

The *primary objective* of developing capabilities in HR metrics and workforce analytics is *to increase organizational effectiveness.* It is not simply to generate a static menu of HR metrics reports. Simply conducting the analysis and developing reports are activities, and activities raise costs. Developing HR metrics and workforce analytics to be used by managers and professionals must involve a return on the organization's investment. The real test of the value of HR metrics and workforce analytics is whether managers who have access to the information provided by these analyses make different and better decisions.

### Bigger Is Not Always Better

The success of any metrics and analytics project is not measured by how many people are involved, how many metrics the project tracks, or how many people receive reports. It is gauged by the impact that the project's results have on managerial decisions. Many successful efforts have been focused on small, narrowly targeted metrics and analyses that have addressed organizationally important questions.

Small metrics and analytics projects have several advantages over the multimillion-dollar implementation projects that include integrated prepackaged analytics systems. First, they cost less and require fewer resources in terms of time and materials. Second, they are less visible during the initial start-up while the project team is learning through trial and error. These two aspects provide the project team with opportunities to focus on critical HR metrics while giving them the flexibility to work through the necessary trials and errors.

## HR Metrics and Analytics Is a Journey—Not a Destination

Because the focus is on identifying and responding to opportunities and problems, useful and effective HR metrics and workforce analytics projects change over time. Markets for both products and labor will change, as will organizational processes. These changes will require adjustments in the ideal size, skill requirements, and deployment of an organization's human capital. If organizations are successful in solving operational problems or capturing opportunities, the focus for managers naturally shifts to other problems or new opportunities. These problems are unlikely to require the same analytics and therefore may depend on identifying new metrics.

## Be Willing to Learn

Organizations that have an HR metrics and analytics function will develop a bias for experimentation to try out new HR activities, programs, or processes. One consequence of organizational life is the ongoing opportunity to recognize that there may be a better way to do things than your current approach. This point is true not only for the organization's operational processes but also for its metrics and analytics efforts. The organization should develop a metrics and analytics "laboratory" where the HRM professionals can experiment with new analyses and test existing assumptions about the requirements of the organization's current systems. This examination can foster new approaches and allow new metrics and analytics to be created.

## Avoid the Temptation to Measure Everything Aggressively

Not every HR function, process, or metric that can be analyzed should be. Successful efforts will focus on those things, at a given point in time, that are most likely to have the greatest impact on managerial decision making. The intensity of an assessment project should be matched to how much opportunity it offers for improvements, and the project itself should be focused on factors, processes, and functions related to those things that are likely to have the greatest impact on organization effectiveness.

## HR Metrics and the Future

The development of useful and effective HR metrics and workforce analytics is likely to be viewed in the future as a very significant source of competitive advantage. We now have the tools and the computing infrastructure to handle these

projects that can help us understand organizations and support effective organizational functioning. By using HR metrics and workforce analytics, decision makers will acquire the ability to more effectively manage and improve HR programs and processes as well as to improve the effectiveness of HRIS use. Using this acquired ability, managerial decision makers may be able to modify entire employment systems to manage the company's human capital more effectively.

As a result, organizations that make investments in internal human capital assessment resulting in useful HR metrics and workforce analytics will become less willing to share their knowledge with other organizations in their industry. Benchmarking, which has been a staple of HR metrics and workforce analytics for almost three decades, will become more difficult to access and develop as organizations recognize the competitive value of these capabilities.

## SUMMARY

The central focus of this chapter was to define the domain of HR metrics and workforce analytics and discuss how they can contribute to improving organizational effectiveness. HR metrics are data elements that contribute to analyses that provide information to help decision makers in organizations make better decisions. HR metrics and analytics activities provide no return on the organization's investment unless managers make different and more effective decisions as a result of the information provided by metrics and analytics reports. Therefore, focusing the development of HR metrics and workforce analytics around organizationally important problems and opportunities is likely to increase the possibility of significant returns for the organization.

This chapter also highlights the wide range of activities that fall within the domain of HR metrics and workforce analytics. Although classic metrics offered some value in the past, new **computing infrastructures** offer tremendous opportunities to change both the metrics and types of analyses organizations undertake. We can expect the types of metrics organizations use in the future to change as the needs of decision makers change, and as these analyses continue to work toward effectively balancing the cost and benefit consequences of decisions (see Chapter 7). Components of this continued evolution of metrics and analytics capabilities are driven by increased use of both push and pull reporting systems, more extensive use of predictive analytics and operational experiments, and the development of organizational expertise in metrics and analytics capabilities. As these skills mature, organizations will be able to move beyond simple analyses of HR efficiency metrics to a greater emphasis on operational effectiveness and organizational realignment analyses, which will further enhance the value of HR metrics and workforce analysis systems.

## KEY TERMS

administrative process efficiency
balanced scorecard
benchmarking
computing infrastructures
cost and benefit consequences
dashboards
data mining
HR business partners
HR centers of excellence
HR efficiency
HR metrics
operational effectiveness
operational experiments
predictive analysis
pull systems
push systems
reporting
Saratoga metrics
strategic realignment
workforce analytics
workforce modeling

## DISCUSSION QUESTIONS

1. What factors have led to increased organizational interest in HR metrics and workforce analytics?
2. When might the information from numeric information systems such as HR metrics and workforce analytics *not* generate any return on investment (ROI)?
3. What relationships should exist between the metrics an organization chooses to calculate and report and the types of analyses it conducts?
4. What are some of the limitations of the traditional HR metrics?
5. Discuss the historical role of HR benchmarking and its strengths and weaknesses as part of a metrics and analytics program in organizations today.
6. What roles might more recent analysis activities, such as data mining, predictive statistical analyses, and operational experiments, play in increasing organizational effectiveness?
7. What differences exist between metrics and analytics that focus on HR efficiency, operational effectiveness, and organizational realignment? Offer examples of each.
8. Describe which characteristics of HR metrics and workforce analytics are likely to result in greater organizational impact.

## CASE STUDY

Regional Hospital is a 500-bed hospital and several associated clinics in a major East Coast metropolitan area. It has been an aggressive adopter of computing technologies in efforts to decrease costs and improve operational efficiencies. A critical challenge facing the hospital is meeting its ongoing challenges to staff the hospital and allied clinics effectively, given the ongoing shortage of nurses; uncertainty in health care legislation; emphasis on shortening hospital stays to reduce costs, which causes the daily census (numbers of patients in various departments) to vary dramatically from day to day and shift to shift; the continued aging of the population in its primary care area; and the unending competition for employees with key skill sets. Employee expenses represent more than 80% of the overall costs of operation for the hospital, so identifying ways to match optimal skills and numbers of employees to the appropriate shifts is critical to achieving consistent success. However, individual shift managers struggle to make effective staffing decisions, resulting in consistent overstaffing or understaffing of shifts and departments. These staffing problems potentially increase the high costs of varied levels of patient care and satisfaction and potentially increase the risk that staff turnover may escalate because of dissatisfaction with the continuing inability of managers to match staffing needs to demand.

Company managers recognize the potential that HR metrics and analytics might have for their organization, and they have come to you for help. They are hearing from their peers in other hospitals that metrics can help in this area but are not quite sure where to start. They are looking for you to offer guidance on how to do HR metrics and workforce analytics.

### Case Study Questions

1. Do you believe that a program of HR metrics and workforce analytics might be useful in Regional Hospital? If so, why?
2. What opportunities do you see regarding “where” and “how” metrics and analytics might be applied in this organization?
3. Identify three analyses and associated metrics you think might be useful for Regional Hospital to consider.
4. How might Regional Hospital utilize benchmarking as a part of its metrics and analytics effort, if at all?
5. What advice would you offer to the managers at Regional Hospital about developing a program of HR metrics and workforce analytics?

6. What potential problems might occur in the establishment of an HR metrics and workforce analytics program for Regional Hospital managers about which you would want to alert them prior to beginning this project?

## NOTES

1. The content of this chapter was based in part on two articles published in the *IHRIM Journal* (Carlson, 2004a, 2004b).
2. Throughout this chapter we will often refer to HR metrics and workforce analytics in a shorter form, as metrics and analytics. The meaning is the same.

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