PART I

Introduction to Human Resource Management and Human Resource Information Systems

Evolution of Human Resource Management and Human Resource Information Systems

The Role of Information Technology

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EDITORS' NOTE

The purpose of this chapter is to provide an introduction to the fields of **human resource management (HRM)** and information technology (IT), and the combination of these two fields into **human resource information systems (HRIS)**. The first chapter will lay the groundwork for the remainder of this book,

and as such, it is important to thoroughly understand the concepts and ideas in this chapter. This chapter contains definitions for a number of terms in common use in the HRM, IT, and HRIS fields and will emphasize the major underlying themes of this book. Finally, an overview of the entire book will be covered, showing how each chapter is an integral part of the entire field of HRIS.

CHAPTER OBJECTIVES

After completing this chapter, you should be able to

- ♦ Describe the historical evolution of HRM, including the changing role of the human resources (HR) professional
- ♦ Discuss the impact of computer technology on the evolution of HRM
- ♦ Describe the three types of HR activities
- ♦ Explain the relationship between strategic HRM and HRIS
- ♦ Explain the purpose and nature of HRIS as well as the differences between the types of HRIS
- ♦ Discuss the use of information from an HRIS in decision making
- ♦ Describe the central themes of the book and how they relate to managerial decision making
- ♦ Understand how HRM and HRIS fit into a comprehensive model of organizational functioning

VIGNETTE

There are numerous federal and state laws and regulations regarding the treatment of employees, as will be discussed throughout this book. For example, some of these laws regulate the number of working hours in a week and overtime requirements, union-management relations, and unfair discrimination in the personnel practices of a firm. One such law, Title VII of the Civil Rights Law of 1964 as amended by the Equal Opportunity Act of 1972, protects individuals against unfair discrimination based on race, national origin, and gender in any personnel decision—for example, hiring. This law protecting the rights of individuals is generally referred to as **Equal Employment Opportunity (EEO)** legislation. To determine if organizations are complying with this law, all U.S. companies must complete an annual report for the federal government, called the EEO-1 report. This report describes the composition of the work force by job in terms of gender, race, and national origin (see Chapter 9). This report is often referred to as an EEO or Affirmative Action Audit. The important point is that the employees must be categorized into jobs, and then

the number and percentage distributions of racial, gender, and national origin of employees must be determined.

A regional distributor and service center for a national appliance company with 300 employees had to complete all annual government reports on employees for the previous year by January 31. All the employee records were in paper files. The Director of Human Resources indicated that the compliance with the EEO laws in terms of completing the EEO-1 report took one full-time HR employee working for 1 month to complete the report. The lengthy time taken to complete the report was due to the fact that the employee records had to be searched each year since there were new hiring, promotions, terminations, and other turnover during the year. After this company acquired HRIS software for all government reports, it only took about 4 hours to complete the EEO-1 report.

This company example illustrates one important advantage of conversion to an HRIS from a paper-based system—reduction of staff time on reports. It should be noted, however, that accuracy of reports is still a concern, and accuracy of employee records is determined mainly from the correct inputting of employee data for the software programs. It is also important to note that the cost savings of reducing staff time to generate the report is not the only benefit from adoption of computer-based HR software. As will be discussed later in this chapter, the time saving means that the HR professional can be assigned to other, more important tasks for the company. These characteristics of an HRIS—speed and accuracy—will be emphasized throughout this book as the major advantage of an HRIS.

Introduction

Leading management thinkers suggest that "it is not technology, but the art of human- and humane-management" that is the continuing challenge for executives in the 21st century (Drucker, Dyson, Handy, Saffo, & Senge, 1997). Similarly, Smith and Kelly (1997) believe that "future economic and strategic advantage will rest with the organizations that can most effectively attract, develop and retain a diverse group of the best and the brightest human talent in the market place" (p. 200).

In general, to maintain a competitive advantage in the marketplace, firms need to balance the resources available to the firm to achieve the desired results of profitability and survival. The resources that are available to the firm fall into three general categories: physical, organizational, and human. In discussing how to gain a competitive advantage in the global market, Porter (1990) noted that management of the human resources is the most critical of the three. The idea of treating human resources as a means of gaining a competitive advantage in both the domestic and the global marketplace has been echoed by other authors. As Greer (1995) states,

> In a growing number of organizations human resources are now viewed as a source of competitive advantage. There is greater recognition that distinctive competencies are obtained through highly developed employee skills, distinctive organizational cultures,

management processes, and systems. This is in contrast to the traditional emphasis on transferable resources such as equipment. . . . Increasingly, it is being recognized that competitive advantage can be obtained with a high quality work force that enables organizations to compete on the basis of market responsiveness, product and service quality, differentiated products, and technological innovation. (p. 105)

The effective management of human resources in a firm to gain a competitive advantage in the marketplace requires timely and accurate **information** on current employees and potential employees in the labor market. With the evolution of computer technology, meeting this information requirement has been greatly enhanced through the creation of HRIS. A basic assumption behind this book is that the management of employee information will be the critical process that helps a firm maximize the use of its human resources and maintain competitiveness in its market.

The first purpose of this book is to provide information on the development, implementation, and **maintenance** of an HRIS. The second purpose is to demonstrate how an HRIS can be used in HRM programs, such as selecting and training employees, to make them more efficient and effective. The final purpose is to provide an opportunity for you to apply your knowledge through the analysis of the cases at the end of each chapter.

Historical Evolution of HRM and HRIS

One can analyze the historical trends of the HR function from different viewpoints: the evolution of HRM as a professional and scientific discipline, as an aid to management, as a political and economic conflict between management and employees, and as a growing movement of employee involvement influenced by developments in industrial/organizational and social psychology. This historical analysis will demonstrate the growing importance of employees from being just one of the means of production in the 20th-century industrial economy to being a key source of sustainable competitive advantage in the 21st-century knowledge economy.

Since this is a book on HRIS, we will examine the development of the fields of both HR and IT in terms of their evolution since the early 20th century. This means examining the evolution of HRM intertwined with developments in IT and describing how IT has played an increasing role in the HRM function. In addition, this historical analysis will show how the role of HRM in the firm has changed over time from primarily being concerned with routine **transactional HR** activities to dealing with complex transformational ones. Transactional activities are the routine bookkeeping tasks—for example, changing an employee's home address or health care provider—whereas transformational activities are those actions of an organization that "add value" to the consumption of the firm's product or service. An example of a **transformational HR** activity would be a training program for retail clerks to improve customer service behavior. Thus, transformational activities increase the strategic importance and visibility of the HR function in the firm. This general change over time is illustrated in Figure 1.1 and will become evident as we trace the historical evolution of HRM in terms of five broad phases of the historical development of industry in the United States. For more information on this historical development, you should consult Kavanagh, Gueutal, and Tannenbaum (1990) or Walker (1982).

❖ **Figure 1.1** Historical Evolution of HRM

Role of HRM	
Early 20th Century	*21st Century*
Caretaker	Strategic partner
⟶	
Employee focus Records	Cost effectiveness Employee development

Pre–World War II

In the early 20th century and prior to World War II, the personnel function (the precursor of the term *human resource management*) was primarily involved in record keeping of employee information; in other words, it fulfilled a "caretaker" function. During this period of time, the prevailing management philosophy was called "scientific management." The central thrust of scientific management was to maximize employee productivity. It was thought that there was one best way to do any work, and this best way was determined through time and motion studies that determined the most efficient use of human capabilities in the production process. Then, the work could be divided into pieces, and the number of tasks to be completed by a worker during an average workday could be computed. These findings formed the basis of piece-rate pay systems, which were seen as the most efficient way to motivate employees.

At this point in history, there were very few government influences in employment relations, and thus, employment terms, practices, and conditions were left to the owners of the firm. As a result, employee abuses such as child labor and unsafe working conditions were common. Some employers set up labor welfare and administration departments to look after the interests of workers by maintaining records on health and safety as well as recording hours worked and payroll. It is interesting to note that record keeping is one of the major functions built into the design of an HRIS today; however, there was simply no computer technology to automate the records at this time in history. Of course, paper records were kept, and we can still see paper record HR systems in many smaller firms today.

Post–World War II (1945–1960)

The mobilization and utilization of labor during the War had a great impact on the development of the personnel function. Managers realized that employee productivity and motivation had a significant impact on the profitability of the firm. The human relations movement after the War emphasized that employees were motivated not just by money but also by social and psychological factors, such as recognition of work achievements and work norms.

Due to the need for classification of large numbers of individuals in military service during the war, systematic efforts began to classify workers around occupational categories in order to improve recruitment and selection procedures. The central aspect of these classification systems was the **job description**, which listed the tasks, duties, and responsibilities of any individual who held the job in question. These job description classification systems could also be used to design appropriate compensation programs, evaluate individual employee performance, and provide a basis for termination.

Because of the abusive worker practices prior to the War, employees started forming trade unions, which played an important role in bargaining for better employment terms and conditions. There were a significant number of employment laws enacted that allowed the establishment of labor unions and defined their scope in relationship with management. Thus, personnel departments had to assume considerably more record keeping and reporting to governmental agencies. Because of these trends, the personnel department had to establish specialist divisions, such as recruitment, labor relations, training and benefits, and government relations.

With its changing and expanding role, personnel departments started keeping increasing numbers and types of employee records, and computer technology began to emerge as a possible way to store and retrieve employee information. In some cases in the defense industry, **job analysis** and classification data were inputted into computers to better understand, plan, and use employee skills against needs. For example, the U.S. Air Force conducted a thorough and systematic job analysis and classification through its Air Force Human Resources Laboratory (AFHRL), which resulted in a comprehensive occupational structure. The AFHRL collected data from thousands of airmen in jobs within the Air Force, and through the use of a computer software program called the Comprehensive Occupational Data Analysis Program (CODAP), it was able to more accurately establish a job description classification system for Air Force jobs.

Personnel departments outside the defense industry were not using computers at this time. Computers were being used for billing and inventory control, and there was very little use in the personnel function except for payroll. The payroll function was the first to be automated. Large firms began harvesting the benefits of new computer technology to keep track of employee compensation, but this function was usually outsourced to vendors since it was still extremely expensive for a firm to acquire or develop the software for payroll. It is important to realize that computer technology was just beginning to be used at this time, and it was complex and costly. With increasing legislation on employment relations and employee unionization, industrial relations became one of the main foci of the department. Union-management bargaining over employment contracts dominated the activity of the personnel department, and these negotiations were not computer based. Record keeping was still done manually despite the growing use of computerized data processing in other departments, such as accounts and materials management. What resulted was an initial reluctance among personnel departments to acquire and use computer technology for their programs. This had a long-term effect in many firms when it came to adopting advancements in computer technology even though it got cheaper and easier to use.

Social Issues Era (1963–1980)

This period witnessed an unprecedented increase in the amount of labor legislation that governed various parts of the employment relationship, such as prohibition of

discriminatory practices, occupational health and safety, retirement benefits, and tax regulation. As a result, the personnel department was burdened with the additional responsibility of legislative compliance that required collection, analysis, and reporting of voluminous data to statutory authorities. For example, to demonstrate that there was no unfair discrimination in employment practices, data pertaining to *all* employment functions, such as recruitment, training, compensation, and benefits, had to be diligently collected, analyzed, and stored. To avoid the threat of punitive damages for noncompliance, it was necessary to ensure that the data were comprehensive, accurate, and up-to-date, which made it essential to automate the data collection, analysis, and report generation process. As you go through the chapters of this book, these varying laws and government guidelines will be covered within the specific HR topics.

It was about this time that personnel departments were beginning to be called Human Resources Departments and the field of human resource management was born. The increasing need to be in compliance with numerous employee protection legislations or suffer significant monetary penalties made senior managers aware of the importance of the HRM function. In other words, effective and correct practices in HRM were starting to affect the "bottom line" of the firms, so there was a significant growth of HR departments, and computer technology had advanced to the point where it was beginning to be used. As a result, there was an increasing demand for HR departments to adopt computer technology to process employee information more effectively and efficiently. This trend resulted in an explosion in the number of vendors who could assist HR departments in automating their programs in terms of both hardware and software.

Simultaneously, computer technology was evolving, and delivering better productivity at lower costs. These technology developments and increased vendor activity led to the development of a comprehensive management information system (MIS) for HRM. The decreasing costs of computer technology versus the increasing costs of employee compensation and benefits made acquisition of computer-based HR systems (HRIS) a necessary business decision. However, the personnel departments were still slow in adopting computer technology, even though it was inexpensive relative to the power it could deliver for the storage and retrieval of employee information in MIS reports. So, the major issue at this time in the historical development of HRIS was not the need or capabilities of technology but how to best implement it.

Another factor was the booming economy in most industrialized countries. As a result, employee trade unions successfully bargained for better employment terms, such as health care and retirement benefits. As a result, labor costs increased, which put pressure on personnel managers to justify cost increases against productivity improvements. With the increased emphasis on employee participation and empowerment, the personnel function transformed into a "protector" rather than a "caretaker" function, shifting the focus away from maintenance to development of employees. Thus, the breadth and depth of HRM functions expanded, necessitating the need for strategic thinking and better delivery of HR services.

Cost-Effectiveness Era (1980 to the Early 1990s)

With increasing competition from emerging European and Asian economies, U.S. and other multinational firms increased their focus on cost reduction through automation and other productivity improvement measures. As regards HRM, the increased

administrative burden intensified the need to fulfill a growing number of legislative requirements, while the overall functional focus shifted from employee administration to employee development and involvement. To improve effectiveness and efficiency in service delivery, through cost reduction and value-added services, the HR departments came under pressure to harness technology that was becoming cheaper and more powerful.

In addition, there was a growing realization within management that people costs were a very significant part of their budgets. Some companies estimated that personnel costs were as high as 80% of their operating costs. As a result, there was a growing demand on the HRM function to cost justify their employee programs and services. In one of the first books to address this growing need to cost justify the HRM function, Cascio (1984) indicated that the language of business is dollars and cents and HR managers need to realize this fact. In a later edition of his book, Cascio (1991) quotes Jacques Fitz-Enz (1980), who more accurately states the need for HRM to cost justify their function:

> Few human resources managers—even the most energetic—take the time to analyse the return on the corporation's personnel dollar. We feel we aren't valued in our own organizations, that we can't get the resources we need. We complain that management won't buy our proposals and wonder why our advice is so often ignored until the crisis stage. But the human resources manager seldom stands back to look at the total business and ask: Why am I at the bottom looking up? The answer is painfully apparent. We don't act like business managers—like entrepreneurs whose business happens to be people. (p. 41)

Even small and medium firms could afford computer-based HR systems that were run by increasingly user friendly microcomputers, and could be shown to be cost-effective. The prevailing management thinking regarding the use of computers in HR was not a reduction in the number of employees needed in HR departments but that their activities and time could be shifted from the transactional record keeping to more transformational activities that would add value to the organization. This change in the function of HRM could then be clearly measured in terms of cost-benefit ratios to the "bottom line" of the company.

Technological Advancement Era and Emergence of Strategic HRM (1990 to Present)

The economic landscape underwent radical changes throughout the 1990s with increasing globalization, technological breakthroughs (particularly Internet-enabled Web services), and hypercompetition. Business process reengineering exercises became more common and frequent, with several initiatives, such as right sizing of employee numbers, reducing the layers of management, reducing the bureaucracy of organizational structures, autonomous work teams, and **outsourcing**.

Firms today realize that innovative and creative employees who hold the key to organizational knowledge provide a sustainable competitive advantage because unlike other resources, intellectual capital is difficult to imitate by competitors. Accordingly, the people management function has become strategic in its importance and outlook and is geared to attract, retain, and engage talent. These developments have led to the

creation of the HR or workforce scorecard (Becker, Huselid, & Ulrich, 2001; Huselid, Becker, & Beatty, 2005) as well as added emphasis on the return on investment (ROI) of the HR function and its programs (Cascio, 2000; Fitz-Enz, 2000, 2002).

The increased use of technology and the changed focus of the HRM function as adding value to the organization's product or service led to the emergence of the HR department as a strategic partner. With the growing importance and recognition of people and people management in contemporary organizations, **strategic HRM (SHRM)** has become critically important in management thinking and practice. SHRM derives its theoretical significance from the resource-based view of the firm that treats **human capital** as a strategic asset and a competitive advantage in improving organizational performance (Becker & Huselid, 2006).

Reflecting the systems view, Becker and Huselid (2006, p. 899) stress the importance of HR structure—that is, the "systems, practices, competencies, and employee performance behaviors that reflect the development and management of the firm's strategic human capital"—for organizational performance. Context is a crucial element in SHRM, and therefore, researchers increasingly emphasize the "best-fit" approach to SHRM as opposed to the "best-practice" approach. The success of SHRM is contingent on several factors, such as national and organizational culture, size, industry type, occupational category, and business strategy. Accordingly, Becker and Huselid (2006) argued that "it is the fit between the HR architecture and the strategic capabilities and business processes that implement strategy that is the basis of HR's contribution to competitive advantage" (p. 899).

A good example of the importance of HR and the information provided by an HRIS can be found in the human resources planning (HRP) function. HRP is primarily concerned with forecasting the need for additional employees in the future and the availability of those employees either inside or external to the company. A good example is when a company is considering a strategic decision to expand by establishing a production facility in a new location. Using the information recorded and analyzed in the HRIS, HRP can provide estimates of whether or not there are enough people available in the external labor market of the new location to staff the new facility. Thus, the availability of potential employees in the labor market may be critical to the strategic decision to build the new facility, and this, of course, could involve millions or billons of dollars.

Therefore, in determining the strategic fit between technology and HR, it is not the strategy per se that leads to competitive advantage but rather how well it is "implemented," taking into account the environmental realities that can be unique to each organization and, indeed, between units and functions of the organization.

HR Activities

Typical HR programs involve things such as record keeping, recruiting, selection, training, employee relations, and compensation. However, all these programs involve multiple activities, and these HR activities can be classified into three broad categories: transactional, traditional, and transformational (Wright, McMahan, Snell, & Gerhart, 1998). Transactional activities involve day-to-day transactions that have to deal mostly with record keeping—for example, entering payroll information, employee status changes,

and the administration of employee benefits. Traditional activities involve HR programs such as planning, recruiting, selection, training, compensation, and performance management. These activities can have strategic value for the organization if their results or outcomes are consistent with the strategic goals of the organization. Transformational activities are those activities that add value to the organization—for example, cultural or organizational change, structural realignment, strategic redirection, and increasing innovation.

Wright et al. (1998) estimate that most HR departments spend approximately 65% to 75% on transactional activities, 15% to 30% on traditional activities, and 5% to 15% on transformational activities. One of the major advantages of the design, development, and implementation of an HRIS is to reduce the amount of time the HR staff have to spend on transactional activities, allowing the staff to spend more time on traditional and transformational activities. This notion of using technology to process transactional activities more efficiently is the central theme of this book and provides one of the primary justifications for a computer-based system. In later chapters that discuss various HR programs such as selection and training, we will see how a computer-based system can aid in both traditional and transformational activities to make them consistent with the strategic goals of the organization.

Interface Between HR and Technology

The IT-driven automation and redesign of work processes certainly help reduce costs and cycle times as well as improve quality. **Management information systems (MIS)** can further help decision makers to make and implement strategic decisions. However, IT is only a tool and can only complement, not substitute, the people who drive it. Often, organizations mistake IT as a message and not the messenger and divert time, effort, and money away from long-term investment in people to developing and deploying information technologies (Thite, 2004). In fact, the critical success factors in information systems project implementation are nontechnical and are due more to social and managerial issues (Martinsons & Chong, 1999).

With the increasing use of information technologies in HR planning and delivery, the way people in organizations look at the nature and role of HR itself may change (Roehling et al., 2005). With HR data and reports now being readily available on their desktop, would managers interact less with the HR department and see it as being less important? If that is so, how would it affect the attitude of HR professionals toward their jobs and profession? Would they resist adoption of technology if they perceive that technology lessens their status?

In traditional organizations with silo mentalities, turf wars between departments and functions acting as independent entities are common. Therefore, top management needs to be mindful of organizational politics in managing change. Through most of its evolution, HRM has had an administrative and caretaker focus in its delivery. With technology significantly decreasing the time required for administrative tasks, many HR professionals may find it difficult to redefine their jobs and may thus resist the change to an HRIS. This calls for redefining and transforming the role of HRM through value-added, strategic initiatives and interventions. This also involves learning new

skills for HR professionals and rethinking the way the HR department is organized and delivers its services. With the improved job skills of HR professionals, technology will be seen as HR's "partner in progress." While having an advanced, full-fledged system will not automatically make HR a strategic business partner, it acts as a building block and an effective aid in the process (Lawler & Mohrman, 2003).

A Primer on HRIS

What Is an HRIS?

After reviewing the many definitions of an HRIS, Kavanagh et al. (1990) defined it as a

> system used to acquire, store, manipulate, analyze, retrieve, and distribute information regarding an organization's human resources. An HRIS is not simply computer hardware and associated HR-related software. Although an HRIS includes hardware and software, it also includes people, forms, policies and procedures, and data. (p. 29)

It is important to note that a company that does not have a computerized system still has an HRM system; that is, the paper systems that most companies used before the development of computer technology were still comparable with an HRIS, but the management of employee information was not done as quickly as in a computerized system. If a company did not have a paper system, the development and implementation of a computerized system would be extremely difficult. For the purpose of this book, however, we will use the term *HRIS* to refer to a computerized system designed to manage the company's HR.

The purpose of the HRIS is to provide service, in the form of accurate and timely information, to the "clients" of the system. As there are a variety of potential users of HR information, it may be used for strategic, tactical, and operational decision making (e.g., to plan for needed employees in a merger); to avoid litigation (e.g., to identify discrimination problems in hiring); to evaluate programs, policies, or practices (e.g., to evaluate the effectiveness of a training program); and/or to support daily operations (e.g., to help managers monitor time and attendance of their employees). All these uses mean that there is a mandatory requirement that data and reports be accurate and timely and that the "client" can understand how to use the information.

Because of the complexity and data intensiveness of the HRM function, it is one of the last management functions to be targeted for automation (Bussler & Davis, 2001/2002). This fact does not mean that an HRIS is not important; it just indicates the difficulty of developing and implementing it compared with other business functions—for example, billing and accounting systems. Powered by information systems and the Internet, today almost every process in every function of HRM is being computerized.

The systems and process focus helps organizations keep the customer perspective in mind, since quality is primarily defined and operationalized in terms of total customer satisfaction (Evans, 2005). Today's competitive environment requires organizations to integrate the activities of each functional department while keeping the customer in mind. An effective HRIS helps by providing the technology to generate accurate and timely employee information to fulfill this objective.

Why Do We Need HRIS?

There are several advantages to firms in using HRIS (Beckers & Bsat, 2002). They include the following:

- Providing a comprehensive information picture as a single, comprehensive database; this enables organizations to provide structural connectivity across units and activities and increase the speed of information transactions (Lengnick-Hall & Lengnick-Hall, 2006)
- Increasing competitiveness by improving HR operations and improving management processes
- Collecting appropriate data and converting them to information and knowledge for improved timeliness and quality of decision making
- Producing a greater number and variety of accurate and real-time HR-related reports
- Streamlining and enhancing the efficiency and effectiveness of HR administrative functions
- Shifting the focus of HR from the processing of transactions to strategic HRM
- Reengineering HR processes and functions
- Improving employee satisfaction by delivering HR services more quickly and accurately to them

The ability of firms to harness the potential of HRIS depends on a variety of factors, such as

- the size of the organization, with large firms generally reaping greater benefits;
- the amount of top management support and commitment;
- the availability of resources (time, money, and personnel);
- the HR philosophy of the company as well as its vision, organizational culture, structure, and systems;
- managerial competence in cross-functional decision making, employee involvement, and coaching; and
- the ability and motivation of employees in adopting change, such as increased automation across and between functions (Ngai & Wat, 2004).

In assessing the benefits and impact of an HRIS to an organization, typical accounting methods do not work with the HRM function (Becker et al., 2001; Cascio, 2000; Fitz-Enz, 2000, 2002; Huselid et al., 2005; Thite, 2004; Ulrich & Smallwood, 2005). While there are several tangible benefits in implementing an HRIS, such as payroll efficiencies and reduction in labor costs due to automation, there are several intangible or hidden benefits as well (Roberts, 1999). They include employee satisfaction with streamlined and efficient HR processes and freeing up HR from routine, administrative matters to focus on strategic goals.

Furthermore, HR practices can help organizations untangle the rigidity and inertia associated with the mechanistic, routine nature of **enterprise resource planning (ERP)**. ERP software applications are a set of integrated database applications or modules that carry out the most common business functions, including HR, general ledger, accounts payable, accounts receivable, order management, inventory control, and customer relationship management. Obviously, HRM's emphasis on knowledge management, human capital stewardship, and relationship building can provide considerable assistance in the

implementation and use of ERPs (Lengnick-Hall & Lengnick-Hall, 2006). Therefore, active engagement of HR professionals in the introduction and ongoing functioning of an ERP is important so that organizations can realize the strategic benefits associated with these systems (Dery & Wailes, 2005).

Different Types of HRIS

There are multiple typologies for the classification of computer-based systems; however, we are going to define the most basic types of systems and then apply them to their development and use within an HRIS. One of the earliest books in the field of computer-based systems (Sprague & Carlson, 1982) placed systems under three basic categories: **Electronic Data Processing (EDP)**, Management Information Systems (MIS), and Decision Support Systems (DSS). EDP is primarily electronic storage of information and was first applied to automate paperwork. As Sprague and Carlson (1982) note,

> Its basic characteristics include:
>
> - A focus on data, storage, processing, and flows at the operational level
> - Efficient transaction processing
> - Scheduled and optimised computer runs
> - Integrated files for related jobs
> - Summary reports for management (p. 6)

As discussed earlier in this chapter, this category of HRIS was the earliest form introduced in the HR field and fits in with the transactional level of HR activities.

In the MIS category, Sprague and Carlson (1982) state that

> the characteristics of MIS include:
>
> - An information focus, aimed at middle managers
> - Structured information flows
> - Integration of EDP jobs by business function (production MIS, marketing MIS . . .)
> - Inquiry and report generation (usually with a data base) (p. 7)

This type of HRIS emerged as technology improved over time, and it fits the traditional level of HR activities, such as recruitment, selection, and compensation.

Sprague and Carlson (1982) note that

> DSS are focused still higher in the organization, with an emphasis on the following characteristics:
>
> - Decision focused, aimed at top managers and executive decision makers
> - Emphasis on flexibility, adaptability, and quick response
> - User initiated and controlled
> - Support for the personal decision-making styles of individual managers (p. 7)

HRIS at this level began to emerge in the cost-effectiveness era of HRM development, and it fits the transformational level of HR activities—adding value to organizational processes.

There is another type of HRIS, identified by Kavanagh et al. (1990), which should be used in organizations to maximize the effect of computer-generated knowledge on managerial decision making. There are numerous reports generated on a regular basis from both the EDP and the MIS types of HRIS—for example, overtime and benefits usage. The critical question is, How many of these reports are used by either line managers or HR professionals in their daily work, *particularly in their decision-making capacity?* All HRIS software is designed to generate a standard set of reports, but surveys and reports from both managers and HR professionals indicate that many of these reports are typically discarded. Thus, it is apparent that another type of HRIS exists—the human resources management decision system (HRMDS). This type has the following characteristics:

- Report formation and generation based on identified managerial needs for decision making
- Categorization of reports by management level
- Timing of report generation based on frequency of managerial use: daily, weekly, monthly
- Historical information retained and reported in a timely manner so that managers and HR professionals can see the results of their use of the information in their previous decisions

This type of system could be described as the ideal system since it provides critical information for decisions involving the human resources of the company, and thus, should be used as a standard for the development and application of any HRIS.

System Development Process for an HRIS

From the engineering and information processing literature, the formal design of any information processing system is supposed to follow a set of steps labeled the System Development Life Cycle (SDLC). However, as Sprague and Carlson (1982) and other writers (Aktas, 1987; Davis, 1983) have noted, the traditional SDLC is somewhat difficult to use as originally specified. But there is agreement that the SDLC has five general phases: (1) planning, (2) analysis, (3) design, (4) implementation, and (5) maintenance. As will be seen, particularly in Parts I and II of this book, there are multiple references to the SDLC and its phases.

Kavanagh et al. (1990), applying the main concepts and phases of the traditional SDLC to the HRM function, recommended the following system development process for an HRIS: "The HRIS development process refers to the steps taken from the time a company considers computerizing its human resources functions through the analysis, design, development, implementation, maintenance, evaluations, and improvement of the system" (pp. 92–93). This system development process is quite similar to the one proposed by Walker (1982). He indicated that development of an effective HRIS should follow seven stages: "Proposal to Management, Needs Analysis, System Specifications, System Design, System Development, Installation and Conversion, and Evaluation" (p. 38).

Although this book will cover all the phases in the development and implementation of an HRIS, there are two *critical* points to be emphasized from these descriptions of the phases or stages of system development. One, the system development process

begins when the company first begins to consider computerizing its HR functions. It is important to *document* this beginning of the process so that it can be considered when the system is being evaluated and maintained. The second critical point is the *importance of the evaluation* and, as needed, improvements to the system. This evaluation must be continuous and occur not only after the system has been implemented but also at every stage of the development. The quality of these evaluations of the system will depend heavily on the documentation of the stages of the entire system development process. The documentation of the planning and development of a system is one of the most important determinants of successful system implementation, and continued improvement.

A Model of Organizational Functioning

Figure 1.2 depicts a model of an organizational system centered on HRIS. This model depicts the interrelatedness of the parts of an organization that can affect the functioning of the organization. It shows the interrelatedness between the strategic management system, the strategic HRM system, and the performance goals, business and HR, that are generated during the strategic planning process. Note particularly how the business goals directly affect the HR goals, and this relationship should be an ongoing process in an organization to make adjustments to either set of goals as needed. The HR goals drive the HR programs that provide management the tools for the efficient and effective use of employees. As will be emphasized throughout this book, the *alignment* between the strategic management system, the strategic HR management system, the business goals, the HR goals, and the HR programs is critical to the organization to maintain its competitiveness in its market (Evans & Davis, 2005; Huselid, Jackson, & Schuler, 1997).

There are several aspects of this model that are critical for its use in this book. First, this model is a framework to use in reading, organizing, and understanding the information given in this book. Second, this is a systems model; that is, it is organic and can change over time as represented by the feedback loops from goal achievement to other parts of the model. Third, the model is centered on the use of an HRIS as critical to the efficient operation of an organization. Note that if the HRIS were removed, it would still be a model of organizational functioning. However, it is our contention that it would run more slowly and less efficiently, and this could hurt the competitiveness of an organization in its marketplace. Fourth, the HRIS and the HR program evaluation results in terms of HR metrics, and cost-benefit results (value added and ROI) are in continual interaction. This emphasis is consistent with current thinking in the HRM field (Cascio, 2000; Fitz-Enz, 2000, 2002) and has generated the HR or workforce scorecard (Becker et al., 2001; Huselid et al., 2005). Finally, it is important to note that the *successful* design, development, and implementation of an HRIS *depend equally on IT and on HR knowledge,* which is the basic philosophy of this entire book.

There are other aspects of this model that are important. First, all the factors in the external environment will influence the internal functioning of the organization. The most important of these factors is national culture. National culture will affect all the factors in the external environment: government regulations, labor market, societal concerns, technology, HRM research, and competition. These factors in turn will have an impact on the
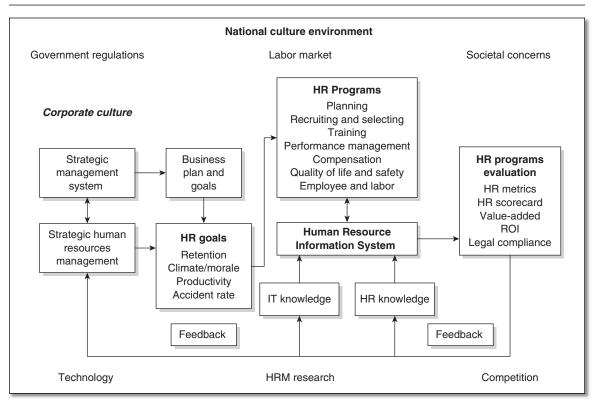
❖ **Figure 1.2**   Model of an Organizational System Centered on HRIS

organization. Simple comparisons across various countries—for example, the United States, Australia, Europe, and China—on most of these six factors would provide significant differences on each of these external factors. We feel that these differences are important and have devoted a chapter to them. Second, the two-way arrow between the strategic management system and strategic HR indicates our understanding that this interaction will improve the functioning of the organization. Finally, note that corporate culture influences the entire internal operation of the organization. In the next section, the major themes of this book that are central to the operation of this model are discussed.

Central Themes of the Book

There are some central themes that are emphasized in this book, which can also be seen in the model of organizational functioning. These are the major factors that influence the effective operation of the organization through their effects on managerial decisions. In addition, they directly affect the success of both the HRM programs and the use of the HRIS. These factors are as follows:

1. The effective alignment between the strategy of the firm, the HR strategy, and HR programs

2. The importance of legal considerations in all HR programs and functions

3. The need for a cooperative relationship between HR and IT professionals

4. The critical need for the creation and use of HR metrics to both guide decision making and evaluate the cost effectiveness of the HR strategy and programs

All the chapters of this book will contain some reference to some or all of these factors, and their effects will be discussed in detail in the chapters.

Overview and Structure of the Book

This book is divided into five main parts. Part I, "Introduction to Human Resource Management and Human Resource Information Systems," includes three chapters. In this first chapter, the evolution of HRM and its interface with IT was covered to show how the field of HRIS emerged. In addition, a general introduction to the types of activities in which HRM engages was provided, as well as a brief introduction to the current interface between HR and technology. Finally, a detailed description of an HRIS was provided, and the model of organizational functioning was discussed. At the beginning of each chapter, the place of the chapter topics in the model will be identified so that there is a unifying theme in the book.

The second chapter, "Database Concepts and Applications in HRIS" by Janet Marler and Barry Floyd, is focused on understanding databases and the applications of IT on the HRIS. This is an introductory chapter, which provides a solid basis for later chapters in the book. The third chapter, "Systems Considerations in the Design of an HRIS: Planning for Implementation," by Michael Bedell, Michael Canniff, and Cheryl Wyrick, is focused on foundation knowledge that is critical for the design and subsequent implementation of an HRIS. The different types of information about users/customers of the HRIS, categorization of HRIS data into categories of human capital, and the main concepts of hardware and database security are covered. This chapter is also a good lead-in for the next part of the book—"Determining HRIS Needs."

Chapter 4, "HRIS Needs Analysis" by Bradley Alge and Karen Upright, covers the first formal analysis of the need for an HRIS in an organization. It should be noted that a needs analysis can be done for an organization that only has a paper system or for an organization that is planning to improve or update its current HRIS. In this chapter, the steps in an HRIS needs assessment are covered—namely, who is involved in the assessment and the deliverables from a comprehensive needs assessment. In Chapter 5, "System Design and Acquisition" by Richard Johnson and Jim Dulebohn, the fundamentals of system design based on the needs assessment are covered. Chapter 5 also covers the process of acquiring a system once the design has been completed. It should be noted that the activities described in Chapters 4 and 5 always remain focused on implementation of the HRIS since this is an important element in the success of the HRIS. Chapter 6, "Cost Justifying HRIS Investments" by Kevin Carlson and Michael Kavanagh, describes one of the most important aspects of the needs analysis, design, and development of the HRIS—cost justification of the HRIS. Without a careful analysis of the costs and benefits of an HRIS, there should not be any attempt to

implement the system. There are numerous stories and examples of failed systems that were implemented without a comprehensive needs assessment. In addition, a comprehensive needs assessment will be very useful during the evaluation phase after the system has been fully implemented. The needs assessment will define many of the evaluative criteria by which to judge the success of the HRIS. Thus, this chapter is a convenient introduction to Part III of the book—"HRIS Implementation."

Chapter 7, "Project Management Development and HRIS Acceptance" by Sal Belardo, Peter Otto, and Michael Kavanagh, provides a comprehensive discussion of project management techniques and their importance to the implementation and acceptance of an HRIS. Project management provides excellent tools for ensuring that the implementation of the HRIS proceeds in an orderly fashion by establishing goals and timetables for the tasks and activities during implementation. Chapter 8, "Change Management: Implementation, Integration, and Maintenance of the HRIS" by Romuald Stone and Joyce Davis, emphasizes the people processes necessary for successful implementation of an HRIS—a major organizational change. Although there typically will be some technical difficulties during the HRIS implementation, the major issues will be with the lack of employee and user involvement in the implementation. Chapter 8 offers a variety of approaches to organizational change, both theoretical and practical, that can be used to focus on the behavioral aspects of the HRIS implementation.

Part IV of the book, "HRIS Applications," provides information and guidelines for the use of an HRIS in the programs involved in the operation of the HRM function. In Chapter 9, "HR Administration and HRIS," Linda Isenhour covers the administrative, transactional aspects of HRM. This chapter illustrates the fact that HRM is still a caretaker of employee records; however, the existence of an HRIS makes this information readily available and useful for managerial decision making. Most important, Linda discusses how the HRIS can cover legal compliance with government mandates much more easily than a paper system. In Chapter 10, "Job Analysis and HR Planning," Hazel Williams discusses the use of an HRIS in completing job analysis and job description in an orderly and accurate fashion. HRP is discussed in Chapter 10 with a focus on the speed of obtaining employee information when discussing potential strategic plans for the company. In Chapter 11, "Recruitment and Selection in an Internet Context," by Kimberly Lukaszewski, David Dickter, Brian Lyons, and Jerard Kehoe cover both HRIS and Internet applications within the context of a computer-based HRM function. Chapter 12, "Training and Development: Issues and HRIS Applications" by Ralf Burbach, provides information and ideas for how to use the power of an HRIS to address important issues in training and development programs. In Chapter 13, "Performance Management, Compensation, Benefits, Payroll, and the HRIS," Charles Fay and Ren Nardoni focus on one of the major motivational aspects of the HRM system and how the existence of an HRIS can improve the operation of many aspects of the management and motivation of employees. Finally, Chapter 14, "International Human Resource Management" by Michael Kavanagh and John Michel, covers the complexities that are created when a company enters the international marketplace.

The last part of this book, "Special Topics in HRIS," covers two additional topics of importance to the effective operation of an HRIS. In Chapter 15, "Information Security and Privacy in HRIS," Yuk Kuen Wong and Mohan Thite discuss the many legal, ethical, and moral issues that surround the use of an HRIS, with a focus on e-HR. In the

final chapter, "The Future of HRIS: Emerging Trends in HRM and IT," Michael Kavanagh and Mohan Thite take a look at what new developments to expect in the continuing use of an HRIS in the operation of the HRM function in an organization.

DISCUSSION QUESTIONS

1. What are the factors that changed the primary role of HRM from a caretaker of records to a strategic partner?

2. How does technology help deliver transactional, traditional, and transformational HR activities more efficiently and effectively?

3. Justify the need for an HRIS.

4. Explain how an organization that is yet to use technology to automate its HR function can graduate from EDP to MIS and finally to DSS.

5. Using the organizational model presented in this chapter, explain why and how national culture and organizational culture influence the nature and importance of the HRIS function.

CASE STUDY: POSITION DESCRIPTION AND SPECIFICATION FOR AN HRIS MANAGER

One great way to assess the nature and importance of a particular function or position is to examine the job description and job specification as they tell us what is involved in the job and what is required to perform the job. The following real job advertisement for an HRIS manager for a community college was placed in the Job Central section of the Internet site for **the International Association for Human Resource Information Management** (www.ihrim.org, accessed September 7, 2007).

Manager—HRIS

In this position the Manager will manage all operational aspects of the Human Resources information process, including the timely and accurate processing, reporting, analysis, and documentation of HR data, HRIM security and the implementation and coordination of associated processes, procedures and technologies.

Additional responsibilities are as follows:

- Supervises the Human Resources information management team
- Ensures data integrity in both personnel files and the online Human Resource Information System
- Organizes and manages personnel file audits to ensure compliance with all regulations, policies, procedures, and guidelines for records management
- Updates and administers enhancements to the Human Resource Information System
- Updates and maintains system tables
- Ensures security of the HRIS and time and attendance system
- Works in collaboration with Payroll and Finance to maintain the online interactive Position Control, Personnel, and Payroll database systems
- Works with end-users and business managers to understand business processes and determine how to use the system to meet those needs

- Partners with Technology Systems Resources to support upgrades, testing, and other technical projects
- Develops HR dashboards and develops and runs reports, both scheduled and ad-hoc
- Provides detail and aggregate information for salary surveys and regulatory reporting (i.e., CUPA, EEO, OSHA, IPEDS)
- Collaborates with the Human Resource Technical Consultant and other Human Resource staff on operational issues and special projects
- Maintains current knowledge of best practices, vendor offerings, and market trends
- Other related duties as assigned

Required qualifications:

- Bachelor's degree
- Minimum four years of Human Resources Information Systems (HRIS) experience
- Proven leadership and team building skills
- Working knowledge of ERP technology, with specific focus on HR modules
- Proficiency with Microsoft Office software applications, reporting writing tools, and SQL query language
- Strong written, verbal, and interpersonal communication skills
- Strong analytical thinking and decision making skills
- Excellent project management skills
- Demonstrated experience in maintaining confidentiality and data integrity
- Demonstrated ability to interact and collaborate with individuals at all levels

Case Study Questions

1. How does this position help the HR function become a strategic partner of the organization?

2. From the position description, identify the traditional, transactional, and transformational HR activities that this position is involved with.

3. Using the key responsibilities identified for this position, explain why and how the HRIS function plays a pivotal role in the organizational model as described in this chapter.

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