

CHAPTER 3

HUMAN RESOURCES MANAGEMENT AND TECHNOLOGY

by Julie Bulmash

LEARNING OUTCOMES

AFTER STUDYING THIS CHAPTER, YOU SHOULD BE ABLE TO

Describe how HR technology has evolved.

Explain what a human resources information system (HRIS) does, and **identify** its main components.

Describe the key functions of an HRIS system and the different types of HRIS systems.

Explain the process organizations use to choose an HRIS system.

Discuss the impact that HR technology has on the role of HR professionals, and **describe** the five core competencies that have emerged.

Discuss what is meant by e-HR and the benefits of Web-enabled service applications.

Identify key trends in technology.



REQUIRED PROFESSIONAL CAPABILITIES

- Ensures that the organization complies with legislated and contractual requirements for information management (e.g., record of hours worked, and records of exposure to hazardous substances)
- Assesses requests for HR information in light of corporate policy, freedom of information legislation, evidentiary privileges, and contractual or other releases
- Contributes to the development of information security measures

HUMAN RESOURCES MANAGEMENT AND TECHNOLOGY

Those of us who have been hired know that it is necessary to complete forms so that we can become an “official” employee. The type of information requested usually includes first name, last name, address, emergency contacts, banking information, beneficiaries for benefit plans, marital status, and of course Social Insurance Number.

There are data and the human resources (HR) department has always been the custodian of employee data. The type of data collected, where the data are stored, how the data are used, and the type of system used for these purposes has changed over time, but the need to collect information relating to hiring, promoting, and firing employees has not changed.

HR technology is increasingly being used by small, medium, and large employers to meet the needs of its stakeholders.¹ What sets high-performing organizations apart from others is how they use technology to deliver HR services.

This chapter is going to explore the relationship of information technology (IT) to HR and how HR leverages technology to manage a firm’s human capital. The chapter begins with a discussion of the evolution of HR technology, and then explores HRIS systems, the HR components that make up a system, and the process that organizations

Technology permeates business life today.

engage in to implement an appropriate system. Next we discuss electronic HR (e-HR) and how organizations are using Web-based technologies to enhance their delivery of service. Then we look at the core competencies required to manage in today’s technology-driven marketplace in order to meet the expectations of HR stakeholders. To conclude, we discuss some IT-HR trends and how these trends will impact human resources management (HRM).

EVOLUTION OF HUMAN RESOURCES TECHNOLOGY

HR technology Any technology that is used to attract, hire, retain, and maintain human resources, support HR administration, and optimize human resource management.

HR technology can be defined as any technology that is used to attract, hire, retain, and maintain human resources, support HR administration, and optimize HRM.² This technology can be used in different types of human resource information systems (HRIS) and by various stakeholders, such as managers, employees, and HR professionals. This technology can be accessed in different ways.

There is no doubt that technology has made it easier and faster to gather, collate, and deliver information and communicate with employees. More importantly, it has the potential to reduce the administrative burden on the HR department so it is better able to focus on more meaningful HR activities, such as providing managers with the expertise they need to make more effective HR-related decisions.³ Research has indicated that companies who effectively use technology to manage their HR functions will have a significant advantage over those that do not.⁴

However, not all companies have the latest and greatest technology, nor do all companies need the most advanced technology, but all companies do have HR-related information needs. Consider the information needs of a small company as opposed to a large organization of 3000 employees. A small company may use a simple Microsoft Word or Microsoft Excel file to keep basic employee

data, whereas a company with 3000 employees manages a greater volume of data. This activity can be daunting without a more sophisticated tool to store and retrieve data!

We can reflect on the various levels of sophistication by examining the evolutionary aspects of HR technology. These aspects can be characterized into four stages of development: (1) paper-based systems, (2) early personal computer (PC) technology, (3) electronic databases, and (4) Web-based technology.⁵ Figure 3.1 illustrates the evolution of HR technology.

Stages in the Evolution of HR Technology

Stage 1: Paper-Based Systems

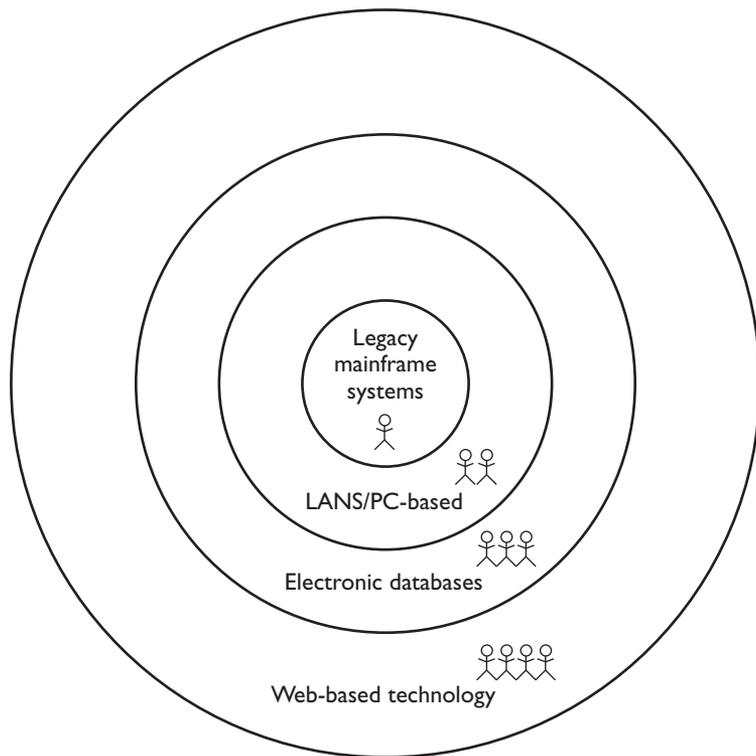
Initially HR systems were “paper-based.” These systems operated independently and did not integrate with any other business-related functions. Features were added as needed. Data were typically stored on mainframe computers, the reporting was very rudimentary, and HR was the sole custodian of the data. It was common for managers during this period to send employees to HR to get their all their “personnel” questions answered.

Stage 2: Early Personal Computer (PC) Technology

In the next stage, there was a migration of the information resident in these paper-based systems to PCs and local area network (LAN) systems. These HR databases were able to produce reports that simply listed “tombstone” data,

tombstone data List of basic employee information.

FIGURE 3.1 Evolution of HR Technology



Level of access increases from HR staff having access through to all managers and employees having access

Source: Julie Bulmash, 2006.

client server A network architecture in which each computer on the network is either a client or a server.

relational database Database in which data can be stored in more than one file, each one containing different types of data. The different files can be linked so that information from the separate files can be used together.

interactive voice response (IVR) A telephone technology in which a touch-tone phone is used to interact with a database to acquire information from it or enter data into it.

meaning basic employee information. Advances in database technology included payroll and some very basic versions of employee tracking.

The HR data were typically stored on a **client server**—a network architecture in which each computer on the network is either a client or a server. Servers are powerful computers dedicated to managing disk drives (file servers), printers (print servers), or network traffic (network servers). Clients are PCs or other workstations on which users, such as HR professionals, run software applications. Clients rely on servers for resources, such as files; devices, such as printers; and even processing power.⁶ For example, when sourcing information from Wikipedia, the user's computer and Web browser would be the *client*, and the computers, databases, and applications that compose Wikipedia would be the *server*. When the user's Web browser requests a particular article from Wikipedia, the Wikipedia server finds all of the information required to display the article in the Wikipedia database, assembles it into a Web page, and sends it back to the Web browser for the user to look at.⁷ HR continued to be the only group who had access to the system and continued to be the owner of the data.

Stage 3: Electronic Database Systems

The next stage began with the emergence of relational database technology. A **relational database** means that a piece of data can be stored in more than one file, each one containing different types of data. The different files can be linked so that information from the separate files can be used together. A relational database allows databases to be established in several different locations and the information linked. This technology provided organizations with the ability to develop more complex reports that integrated several data elements.⁸ For example a report could be generated from different databases that included name, address, and salary and benefit information.

With this move toward electronic databases, HR systems began to become integrated with other business-related systems. Leading HR organizations began to purchase enterprise-wide systems that included HR-related modules. An enterprise-wide system is defined as a system that supports enterprise-wide or cross-functional requirements, rather than a single department or group within the organization.⁹ A popular enterprise-wide system at the time was SAP.

At this time, use of the Internet was increasing, and managers began to consider what it could offer to HR technology. HR continued to own the HR data, but HR began to evolve into a more integral part of the business, as these databases became important in aiding HR with the generation of reports and empowering HR to provide managers with meaningful HR-related information. In addition, other functional areas could share information from these databases. For example, if the company decided it wanted to send out a mass mailing to employees to introduce a new product or organizational change, it would access the data from the HR system.

At this point, HR entered fully into the digital world of electronic HR and the term “e-HR” began to appear.

Stage 4: Web-Based Technology

At the present time, many companies have started to embrace HR technology. The benefits of automation are becoming widely known to HR and other areas of the business. The focus has shifted to automating as many transactions as possible to achieve effectiveness and efficiencies. Call centres and interactive voice response systems are widely used by organizations. An **interactive voice**

response (IVR) system is a telephone technology in which a touch-tone phone is used to interact with a database to acquire information from it or enter data into it.¹⁰ For example, employees can call in to report their attendance by entering a specific code.

Web-based applications

Applications that use a Web browser as a user interface (i.e., the “front-end”). Users can access the applications from any computer connected to the Internet via a secure, password-protected login page and from that point forward all the data are encrypted.

Web-based applications use a Web browser as a user interface (called the “front-end”). Users can access the applications from any computer connected to the Internet via a secure, password-protected login page and from that point forward all the data are encrypted.

For the most part, the HR department continues to be the owner and custodian of HR information but others have begun to recognize the value of this information to the business. The reports that HR is able to produce have become more sophisticated. At this point, the majority of systems are still not Web-based, but some leading-edge organizations have embraced this technology.

What’s Next?

The technology of the future will be about speedy access to accurate current information, and the ability to access this information via multiple systems will give organizations a strategic edge. HR is expected to relinquish its role as sole owner of HR information, so that managers and employees can use this information to solve their own problems using Web-based systems.¹¹ This new system will not necessarily mean a reduction in HR staff.¹² The new system will enable HR professionals to focus on transforming information into knowledge that can be used by the organization for decision making; it will be about HR and IT working together to leverage this technology.¹³ A recent study by the Hackett Group, a business process advisory firm, found that high-performing organizations spend 25 percent less than their peers on HR because they use technology effectively.¹⁴

Our discussion of HR technology will begin with an examination of HRIS systems, the structural components that make up an HRIS system, the types of data resident in these systems, and how HR uses these data to aid managers in decision making.

HUMAN RESOURCES INFORMATION SYSTEMS

human resources information system (HRIS)

Integrated systems used to gather, store, and analyze information regarding an organization’s human resources.

There are more than 140 human resources information systems being offered by more than 100 vendors in Canada and the United States.¹⁵ A recent survey indicated that overall costs of system implementation ranged from US\$1000 to US\$12 million.¹⁶ Also referred to as human resources management systems (HRMS), **human resources information systems (HRIS)** can be defined as integrated systems used to gather, store, and analyze information regarding an organization’s human resources.¹⁷ Using HRIS technology can help HR automate and simplify tasks, reduce administration and record keeping, and provide management with HR-related information when required.

These systems provide a repository for information/data to be stored and maintained, and they possess varying degrees of reporting capability. However, for the data to be useful, they need to be transformed into information that is meaningful to managers. This is the challenge facing HR departments today and what will ultimately determine whether HR is able to deliver strategic HR services.

The Relationship of HRM to HRIS

HRIS is the composite of databases, computer applications, and hardware and software necessary to collect, record, store, manage, deliver, manipulate, and present data for human resources.¹⁸ It is important to note that the term “systems” does not just refer to hardware and software. Systems also include the people, policies, procedures, and data required to manage the HR function. In reality, computer technology is not the key to being successful at managing human resource information, but what it does do well is provide a powerful tool for “operationalizing” the information—making it easier to obtain and disseminate and ensuring that it is specific to the organization’s HR policies and practices.¹⁹

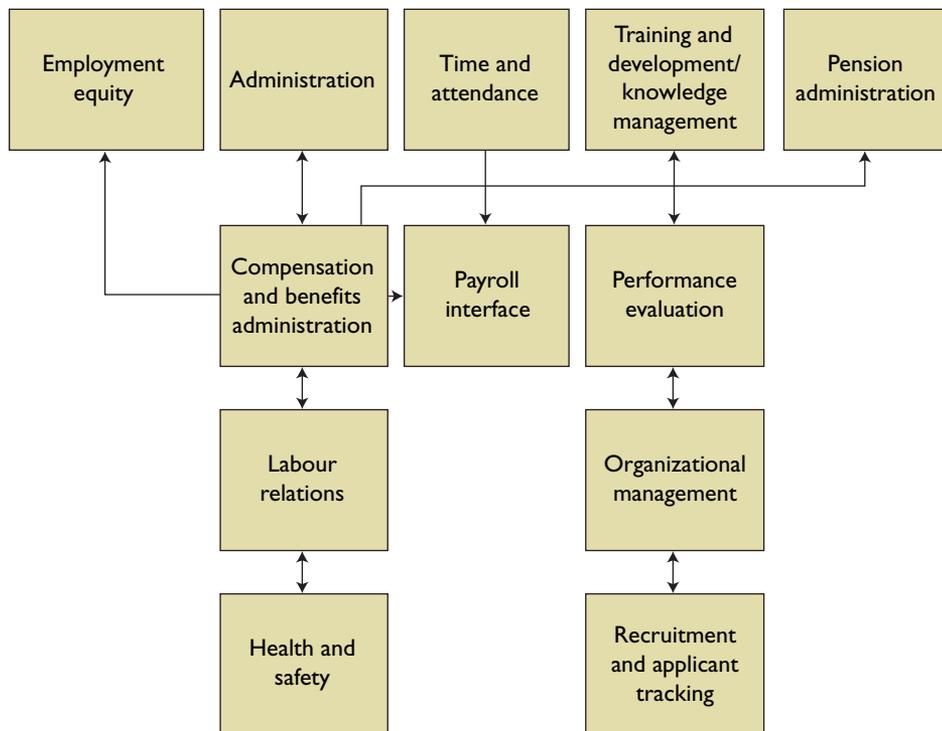
A sound HRIS must allow for the assimilation and integration of HR policies and procedures with an organization’s computer hardware and its software applications.²⁰ For example, a simple business rule (e.g., promotions are not to exceed 8 percent of salary) could easily be programmed into the system, and errors could be flagged when they occur.

Let’s now look at important HRIS subsystems and the types of data that can be resident in these systems.²¹

HRIS Subsystems

There are several different components, called subsystems, that compose an HRIS. They are employee administration, recruitment, time and attendance, training and development, pension administration, employment equity, performance evaluation, compensation and benefits administration, organizational management, health and safety, labour relations, and payroll interface, and as shown in **Figure 3.2**.

FIGURE 3.2 HRIS Subsystems



Source: Julie Bulmash, 2006.

Employee Administration

A basic component of an HRIS system is its administrative function. The typical information you would find in an HRIS system for each employee would include hire date, name, address, telephone, e-mail address, birth date, sex, salary, emergency contact information, department code, location, employment status (full-time, part-time, or contract), the start date of each position held, position titles, and benefit information.

Recruitment

This subsystem includes information on the position name and number, the department in which the position resides, whether the position has been approved, and whether the position is full-time or part-time. In some cases, online forms will be available so that applicants can be tracked and résumés can be scanned for key words to identify skills and experience.

Time and Attendance

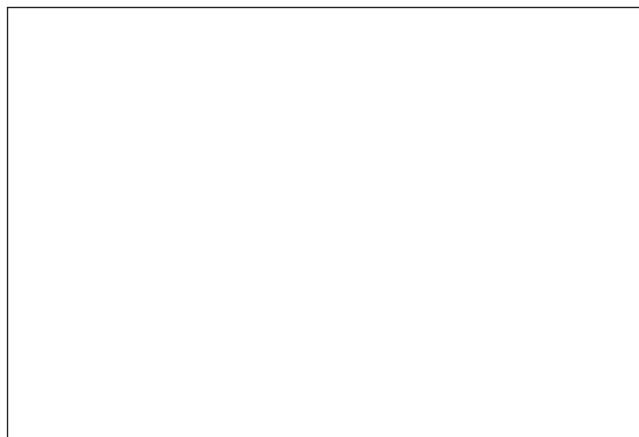
This subsystem includes the information necessary to calculate vacation time, such as hire date, any leaves of absences (paid or unpaid), termination date if applicable, and any other events that interrupted service. In addition, the company's policy details, such as "use it or lose it," might be programmed into the system. If there are any special rules, then this information is programmed into the system. For example, employees often continue to accumulate vacation on some type of leaves.

Other data in this subsystem often include the number of days an employee was absent, leaves of absence, whether these leaves were sabbatical leave, personal leave, or maternity/paternity/paternal/adoption leaves, and the dates the employee started and ended each leave. Policy details would also be programmed; for example, some companies have a policy that states if absenteeism exceeds a certain number of days, then pay will be decreased by a certain amount. **Figure 3.3** illustrates a screen from the PeopleSoft Enterprise Time and Labour system.

Training and Development

This subsystem includes data on an employee's skills and competencies, training courses taken, costs of courses, developmental activities, and career planning in terms of which positions might be most appropriate for an employee based on skills and competencies.

FIGURE 3.3 PeopleSoft Enterprise Time and Labour Screen



Pension Administration

Information as to the design of the plan is found in this subsystem. In addition, employee contributions and company contributions for each employee would be included.

Employment Equity

Organizations that are subject to employment equity legislation could include information on the number of employees in the four designated groups (women, Aboriginals, visible minorities, and people with disabilities), type of industry, and geographic region in this subsystem in order to provide the information required by the legislation.

Performance Evaluation

This subsystem includes information regarding performance ratings, the date these ratings were received, the type of appraisals that were used, comments about the appraisal, and performance objectives and goals. **Figure 3.4** provides an example of a screen from the PeopleSoft Enterprise ePerformance system.

Compensation and Benefits Administration

Information regarding the company's compensation and benefits plans and the policies relating to these plans are found in this subsystem. For example, policies on the type of increases allowable when an employee receives a promotion, data regarding pay grades and ranges for each position, positions that are entitled to a bonus, and bonus structure could be included. In addition, information regarding the type of benefit plans, whether there is a cost-sharing arrangement, and what that arrangement would be if an employee took an unpaid leave would also be available in this subsystem.

Organizational Management

This subsystem includes the organizational structure and job descriptions. It may have a field to enter the *National Occupational Classification (NOC) codes*; described in the next chapter). It may also link positions/jobs to specific workers.

Health and Safety

Accidents happen at work and organizations are responsible for reporting these accidents to the Workers' Compensation Board (or equivalent) in their jurisdiction. Data on the number of accidents, types of accidents, health and safety complaints, resolutions, Workers' Compensation claims, and related forms may be included in this subsystem.

FIGURE 3.4 PeopleSoft Enterprise ePerformance Screen



Labour Relations

Such information as seniority lists, union membership, grievances, and resolutions of grievances can be found in this subsystem.

Payroll Interface

This subsystem has information on salary, wages, and benefits to make it easier to interface with accounting (payroll). Most HRIS systems today have a payroll component, and the more sophisticated systems have an ability to directly interface with payroll providers, such as ADP and Ceridian.

Key Functions of an HRIS

The HRIS is made up of a number of subsystems, and data can be stored, maintained, and generated from the system. These data can be used to create information that will serve different purposes for many different stakeholders.²² The key functions of an HRIS are shown in **Figure 3.5**.

The HRIS can do the following:

1. create and maintain employee records
2. ensure legal compliance
3. enable managers to forecast and plan future HR requirements
4. provide information to managers and HR so they can manage knowledge and manage talent (career and succession planning)
5. provide information to enable HR plans and activities to align more effectively with the organization's strategic plan
6. assist managers with decision making by providing relevant data so they can make more effective and informed decisions

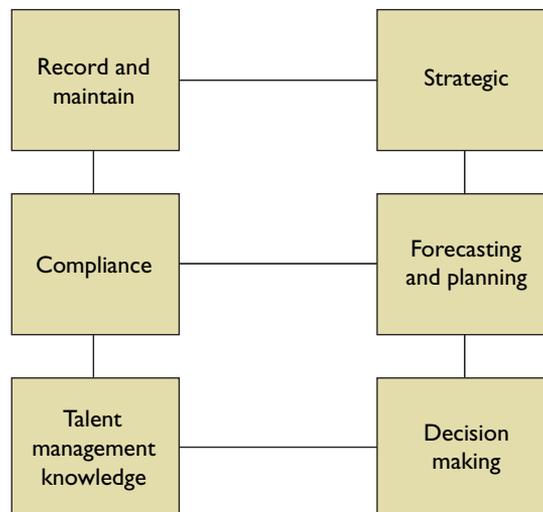
Create and Maintain Employee Records

The data being entered create an employee record and this record is maintained throughout employment. In most organizations the HRIS administrator is

REQUIRED PROFESSIONAL CAPABILITIES

Ensures that the organization complies with legislated and contractual requirements for information management (e.g., record of hours worked, and records of exposure to hazardous substances)

FIGURE 3.5 Key Functions of an HRIS



Source: Julie Bulmash, 2006.

responsible for creating (entering the information into the system) and maintaining these records. Accuracy and timeliness are critical. For example, if an employee recently received a promotion and salary increase, this information would need to be entered into the system. Over time, managers, employees, and human resource professionals will all need to access employee records.²³

Hints to Ensure Legal Compliance

Compliance

Data entered into the HRIS can be used to help the organization comply with government regulations in an accurate and timely fashion. Ensuring data integrity and accuracy is very important and a key responsibility of the HR professional. For example, organizations that are subject to employment equity legislation are required to file an annual report. If the data required to produce the necessary information have been recorded and maintained appropriately, these reports can be generated with ease. Some organizations have software that interfaces directly with the Employment Equity Computerized Reporting System (EECRS) software provided by the federal government,²⁴ resulting in the information from the HRIS being downloaded directly into the required reporting system. In addition to employment equity, payroll is another example of a function with a multitude of compliance responsibilities, such as the generation of an employee's T4 information.

HR Planning and Forecasting

Information from the recruitment, training and development, and administrative subsystems, such as number of open positions, types of positions, employee skills and competencies, job rates (salaries), retirement eligibility, and employee turnover rates, can be used to help managers develop long-range staffing plans and provide valuable information to HR professionals.

Talent Management/Knowledge Management

The data that are entered into the system, such as skills, competencies, jobs held, training, and employee development interests, can be used to help managers provide development opportunities for their employees, ensure that the appropriate employees are offered positions that will enhance their skills, provide the appropriate training for employees so they can advance in the organization, and highlight an employee's interests and development paths. This information will help HR professionals to provide more targeted advice and counsel to managers and help HR to work more effectively with employees and managers to create a development plan that meets organizational and employee needs.

Strategic Alignment

Information from the system can help organizations align HR activities more effectively with their strategic plan. For example, if the organization's plan was to enter into a new market and it required a certain number of certain types of employees (say, five accountants), the data from the system can tell management whether it has these employees, and if not, when they are expected to be hired.

Enhancing Decision Making

The ability to extract data from the HRIS and use these data not just to create information but also to improve the quality of management decisions has become increasingly important.²⁵ HRIS can access a **data warehouse**, or central repository for all the data collected by an organization's business systems.²⁶

data warehouse Primary data storage repository for all data collected by an organization's business systems.

For example, managers are often asked to recommend an appropriate budget for salary increases. In order to make a “quality” decision, managers might need to confirm the current salaries of their employees, look at the past history of salary increases, review the company policies, and review their employees’ performance history. To make a more informed decision, the information needs to be relevant, useful, timely, and accurate.

Tips for the Front Line

Some of the most commonly requested reports from the HRIS include

- basic information, such as name, address, phone number
- compensation reports, such as salary history
- performance evaluations
- leaves of absence, paid or unpaid
- number of jobs held and position titles
- number of vacation days taken and number outstanding
- types of training taken and skills acquired

In addition to these reports, managers utilize the system to perform HR calculations. The Saratoga Institute has identified a list of the most common calculations requested by managers: health-care cost per employee, pay and benefits as a percentage of operating expenses, cost per hire, return on training, volunteer turnover rate, turnover cost, time to fill jobs, and return on investment in human capital.²⁷

Another use of HRIS data is for making decisions regarding the effectiveness of the organization’s human resources. **Workforce analytics** refers to the use of HRIS data to assess the performance of an organization’s workforce by using statistics and research design techniques.²⁸ Workforce analytics attempts to analyze factors contributing to effective HR contribution to the achievement of strategic goals.

The ability for HR to use data analytically to aid managers in effective decision making has transformed HR into a “decision science” and enabled it to demonstrate that effective HR management can have a significant and measurable impact on a company’s bottom line.²⁹ **Figure 3.6** summarizes the main user groups for the HRIS and the key information provided to each group.

workforce analytics The use of HRIS data to assess the performance of an organization’s workforce using statistics and research design techniques.

Types of HRIS

What we have described are some common subsystems that compose an HRIS, who uses these systems, and the major functions of an HRIS. However, it is important to note that there are many different choices in the marketplace, many vendors of software, and different types of systems.

FIGURE 3.6 HRIS Users

	Employee	Manager	HR
Record and maintain		✓	✓
Compliance			✓
Forecasting and planning		✓	✓
Talent management	✓	✓	✓
Strategic		✓	✓
Decision making	✓	✓	✓

Source: Julie Bulmash, 2006.

For example, HRIS can be part of a larger enterprise-wide system. In an enterprise system there are typically “functional modules,” one of which can be HR/payroll. An example of an enterprise-wide system is SAP or PeopleSoft (now part of Oracle). In addition to enterprise systems, there are stand-alone systems, meaning they are self-contained and do not rely on other systems to operate. An example would be Halogen Software Inc. or stand-alone HRIS that have several HR-related functions, such as Sage Abra Inc.³⁰

These systems can vary with respect to cost, functionality, and level of sophistication. Depending on the organization’s requirements, some systems will be more appropriate than others.

Next, we’ll examine the process organizations go through to decide what type of system to purchase and the implementation process that they follow.

SELECTING AND IMPLEMENTING AN HRIS

It is clear how beneficial an HRIS can be, but what type of system should a company have? Is it necessary to spend \$12 million on a system for a small organization? This section will review how companies decide which system to purchase and the process they follow to implement the system.³¹

The choice of technology can be described in two ways: (1) how much customization does the organization want and (2) what type of system does the organization prefer and need? Organizations can decide if they want to purchase a system that brings “best practice” or, alternatively, they can purchase a system and customize the software to fit their existing processes.

Regarding the type of system, organizations may want a stand-alone system or an **enterprise-wide system** that stores all company data together on a single “platform.”³²

Companies are different in terms of their information needs, their existing technology, and their commitment to technology. They are also different in terms of their ability to afford technology, the value they place on HR information, the size and culture of the organization, and the human resources available to devote to a technology upgrade.³³ A company may need a very simple system that captures time-card and payroll information or it may need a very sophisticated system. But all companies can agree on the key reasons for adoption of HR technology: (1) cost savings, (2) faster processing of information, and (3) a system that will provide relevant information to help the organization achieve its goals.³⁴

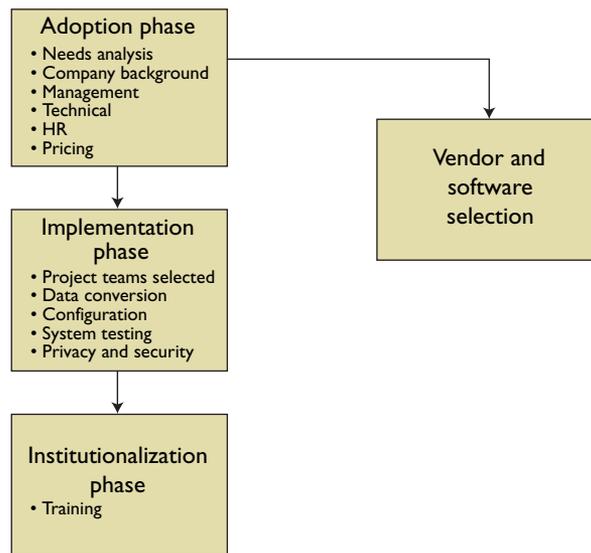
Typically, organizations follow a process to select an HRIS, as shown in **Figure 3.7**. The process can be divided into three steps: (1) adoption phase, (2) implementation phase, and (3) institutionalization phase.³⁵ The outcome of the process is that organizations choose a system that is either enterprise-wide (often called ERP systems) or stand-alone. But first they have to be informed consumers!

enterprise-wide system A system that supports enterprise-wide or cross-functional requirements, rather than a single department or group within the organization.

Tips for the Front Line

Adoption Phase

In this phase, organizations typically engage in a needs analysis to determine what type of system they will purchase. A needs analysis helps the organization decide on what the system should be capable of doing and what the technical specifications will be, and helps the organization develop an information policy about how the information should be managed with respect to storage and access. Additionally, a needs analysis will provide the organization with a framework to use to evaluate vendors of software.

FIGURE 3.7 Three-Step HRIS Implementation Process

Source: Julie Bulmash, 2006.

There are several main areas to be considered in the needs analysis: company background, management considerations, technical considerations, HR considerations, and pricing.³⁶

Company Background

The industry, the size of the company, and the projected growth are important elements to consider. For example, if the company is very small—say, with only four people—and expects to add an additional five people in the next two years, then the type of system that is needed could be something as simple as an Excel spreadsheet. Typically, organizations require HR software after they reach 100 employees.

Management Considerations

Typically, management would have some preconceived views regarding the type of software and what they will require the system to do. They may want a complex system that can assess the value added to the bottom line by HR activities or they may want a very user-friendly system for employees and managers to access regularly.

Technical Considerations

Such elements as hardware, operating systems, networking, databases, and telecommunications all need to be considered. It is very important to understand the kind of technology the company currently has because integrating software into some systems could be costly.

HR Considerations

The requirements of the HR function itself need to be assessed. What type of daily requests and which employee transactions would make the most sense to automate? What types of forms, reports, or listings are maintained? For example, is it necessary to pull together a list manually every time management wants to notify the entire organization about some key event? If so, this activity should be automated. The most critical area that is assessed is the reporting aspect of

HR. As discussed earlier, using reports to help managers make better decisions is an important activity where HR can add value to the organization. The needs assessment should identify the types of data required to produce reports, where these data can be found, and how reliable the data are. HR would look at the manual reports currently being maintained and decide how these can be automated.

Pricing

Organizations want to have the best possible system but might not be able to afford all the “bells and whistles.” Factored in to the price are considerations, such as whether additional hardware must be purchased, how much additional staff will be needed during the implementation phase, training costs, and any ongoing support requirements.

request for proposal (RFP)
Request to vendors to schedule demonstrations of the various systems and ultimately choose one that most closely aligns with their needs analysis, budgets, and management requirements.

Once the needs analysis is complete, companies then send out a **request for proposal (RFP)** to vendors, schedule demonstrations of the various systems, and ultimately choose one that most closely aligns with their needs analysis, budgets, and management requirements.

At this point, the adoption phase is complete, and the organization will move on to the implementation phase.

Implementation Phase

In this phase, the company selects a project team. This team typically comprises outside consultants who have the knowledge and expertise on the technical side and also expertise in change management to help the organization with the implementation. In addition to the outside consultants, there is typically a senior project manager who leads the team, subject matter experts from HR and payroll, as well as management from the various functional areas across the organization. After all, these managers will be using the system and it is important for them to ensure that the system is implemented effectively and that their requirements are clearly understood.

The activities involved in this phase focus on getting the system “up and running” within a controlled environment so that the system can be tested to ensure it is functioning as the organization requires. The existing data are “converted” into the new system, requiring the transformation of data from the old system to make them compatible with the new system. The software is tested and users are expected to provide feedback before the system goes “live.” Going live means disengaging any other systems and only providing users with access to the new system. In this phase, security profiles are established for the users.

Privacy and Security

Major privacy concerns focus on what type of information can be stored on the system. For example, should personal medical histories be stored, who should have access to the computer hardware and software, and who should have access to the databases and be authorized to modify them?³⁷

Establishing security profiles is a very important activity when implementing an HRIS system. The staff members who will be working with the HRIS are identified and security profiles are established. These profiles determine who has access to what screen, which data elements or fields each person can have access to, and who will be authorized to change information, enter information, or merely view the information. Security profiles typically are attached to a job description or to an employee number.

**Tips for the
Front Line**

An Ethical Dilemma

You are the HR administrator at a large firm. Your company has just completed its formal appraisal process and decided on the employee bonuses for the fiscal year. The employees will receive this communication by the end of the fiscal year in approximately three weeks. You are responsible for inputting the data into the HRIS system. A senior manager, who happens to be a very good friend of your parents, approaches you and asks if you could possibly tell him what his rating is and how much his bonus will be. It turns out that this person has some serious financial problems and may have to take out a loan today if his bonus is not high enough. What would you do?

REQUIRED PROFESSIONAL CAPABILITIES

Assesses requests for HR information in light of corporate policy, freedom of information legislation, evidentiary privileges, and contractual or other releases

Contributes to the development of information security measures

For example, what should the profile look like for an HR administrator whose job it is to enter employee information into the system and who is the point of contact for all changes that employees make to their tombstone data? This individual would be expected to view, enter, and change pertinent data. What about the line manager? What should his or her profile look like? Should the manager have access to an employee's SIN? Is that information necessary? What about the addresses, phone numbers, and performance records for their employees? Typically, managers are able to view information relating to data on their employees, but not confidential data that are irrelevant to the work situation. Additionally, managers can view but not change any records.

A final, critical piece of HRIS security is making sure that system users clearly understand and adhere to the company confidentiality and code of ethics policies. All users need to understand that they must not share passwords, post them in view of others, or compromise them in any way.

Institutionalization Phase

The final step in implementing an HRIS is to train the users on the system. The organization's goal is for the stakeholders to use the system and reap the benefits identified through the needs analysis. However, many difficulties can arise with the implementation of a new system. As with any change, people need to become comfortable. People typically have difficulties in transitioning to an HRIS and the organization can experience inertia.³⁸ Employees need to be trained but even after training they may not feel fully competent and might not use the system. With any new system, stakeholders typically underestimate the complexity of the system.

HR may have difficulty with the change as well. Very recently, a popular extension of HRIS technology has been self-service for employees and managers in order to automate workflow.³⁹ With these technological developments, the typical activities that HR used to carry out are no longer required and, as a result, HR staff may feel disenfranchised. A recent survey examined the impact of technology on the number of HR staff and found that the implementation of HR technology does not necessarily mean a reduction in HR staff and that, in fact, the number of HR staff increased or remained the same.⁴⁰

One technological development that has impacted HR and the delivery of service has been Web-based self-service applications. The next section will discuss these new self-service options and how organizations have benefited from these innovations.

ELECTRONIC HUMAN RESOURCES

electronic HR (e-HR) A form of technology that enables HR professionals to integrate an organization's HR strategies, processes, and human capital to improve overall HR service delivery.

intranet A network that is interconnected within one organization, using Web technologies for sharing information internally.

Electronic HR (e-HR) is a term that identifies a form of technology that enables HR professionals to integrate an organization's human resources strategies and processes in order to improve overall HR service delivery.⁴¹ Since the mid-1990s organizations have been embracing ways to incorporate electronic and computer functions into their HR strategies.⁴² Companies are always looking for better ways to manage costs, provide better service, and effectively manage human capital, and e-HR has become integral to helping organizations achieve these goals. One of the most successful innovations is the migration of HRIS applications onto an intranet.⁴³ An **intranet** is a network that is interconnected within one organization, using Web technologies for sharing information

internally.⁴⁴ The Internet has enabled organizations to harness Web-based technology and use Web-based applications to enhance HR services. More than 90 percent of companies are currently using the Web for HR purposes.⁴⁵

In this section we will discuss the more popular Web-based HR service delivery trends, such as manager and employee self-service applications, and briefly discuss how organizations are using the Web to optimize HRM through e-HR systems, such as e-recruiting.

Web-Based Self-Service Trends

The two most popular Web-based HR applications used today are self-service for employees and self-service for managers. These applications have enabled companies to shift responsibility for viewing and updating records onto individual employees and have fundamentally changed the manner in which employees acquire information and relate to their HR departments.

Employee Self-Service

Employee self-service (ESS) systems enable employees to access and manage their personal information directly, without having to go through their HR departments or their managers. ESS systems are set up so that employees can sign onto their company system via the Internet and be immediately authenticated and verified. Recently, HR organizations have utilized portals as a tool to make this access seamless. A **portal** is a single site that can be accessed within an existing Internet site.⁴⁶ With this technology, HR departments can set up employee access to HR services. Access can also be provided through IVR or physical kiosks. Employees who have access to these types of ESS systems are able to use this service on a 24/7 basis.

Some common self-service applications these systems feature include allowing employees to update their personal information, such as address, phone number, and emergency contact information; revising banking information; researching benefit options and enrolling in benefit programs; viewing payroll information, such as salary deductions; recording vacation time and sick days; recording travel expenses; accessing HR policies; participating in training delivered via the Web; and accessing company communications and newsletters issued by the HR department. As an example, an employee who recently split with a significant other can change his or her emergency contact name, beneficiary information, and benefit details by logging onto the company intranet site and clicking on the HR portal.

ESS systems have fundamentally changed the way employees relate to their HR departments. Employees are able to access information that is relevant only to them and they no longer need to speak with a HR representative directly for routine updates. These systems have also helped HR departments to reduce their operational costs. From the perspective of the HR professional, the burden of being responsible for basic administrative and transactional activities has been shifted onto the employee. This shift in responsibility allows HR professionals to focus on strategic issues. One study found that the workload of HR generalists was reduced by an average of 15 percent.⁴⁷

Two organizations that have benefited from upgrading their technology and adding employee self-service are the Toronto Police Services and Time Warner.

For the Toronto Police Services, one of the most time-consuming and onerous activities had been the scheduling and payment of both overtime and

portal A single site that can be accessed within an existing Internet site.

court time for officers. In 2002, the Police Services spent more than \$500 million of their operating budget on salaries, of which \$32 million went to paying overtime and court time costs to 7000 officers. With the implementation of an employee self-service system, officers were able to ask for time off online using the ESS system, which in turn reduced administrative costs.⁴⁸

Time Warner's challenge was to find a way to unify its 80 000 employees in geographically diverse regions and give them access to HR services. They created an employee portal, called "Employee Connection," that gives employees varying levels of access to benefits enrollment, compensation planning, merit reviews, stock option information, payroll information, administrative HR forms, expense reimbursement forms, and travel planning information.⁴⁹ Figure 3.8 provides a sample PeopleSoft Enterprise eProfile screen.

Management Self-Service

Management self-service (MSS) systems differ from ESS systems in that they allow managers to access a range of information not only about themselves but also about the employees who report to them. MSS systems also give managers the opportunity to process HR-related paperwork that pertains to their staff. Managers view résumés that are on file, view merit reviews, submit job requisitions, view employee salaries, and keep track of employee performance and training histories. Typically, this type of application system offers a broader range of services than that available to nonmanagerial staff. MSS is broader than just providing HR-related information. Often these systems provide managers with tools to help them with duties, such as budget reviews and report writing, and permit them to authorize expense reimbursements.

The benefits are that managers have ready access to information that is useful both to them and to their employees, and do not have to go through a third party. In this way, MSS systems reduce overall company workloads. In fact, research has indicated that when used properly, MSS systems reduce the workload of the HR generalists by more than 21 percent because they are not spending the same amount of time on planning annual compensation increases, viewing employee histories, initiating requests for positions, or posting jobs.⁵⁰

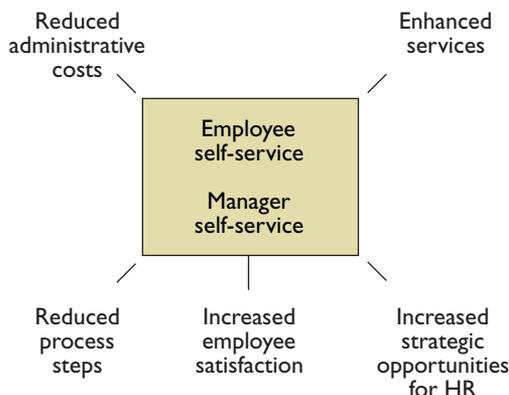
Managers are receptive to MSS systems because they contribute to data integrity and accuracy, the number of data validations decreases, and processing time improves.⁵¹ Imagistics International Inc. (formerly Pitney Bowes Office

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FIGURE 3.8 PeopleSoft Enterprise eProfile Screen

FIGURE 3.9 Web-Based Self-Service Applications and Benefits



Source: Julie Bulmash, 2006.

Systems) recently implemented an MSS system. Since the system has been in place, the company has reported a significant reduction in administrative costs and process steps, a reduction in entry errors, and an overall streamlining of its reporting process.⁵²

MSS can be a very valuable tool, but this technology is currently not as popular as ESS and is slower to gain acceptance. In 2002, 30 to 45 percent of larger organizations (companies with more than 1000 employees) had implemented some form of MSS.⁵³ **Figure 3.9** summarizes Web-based self-service applications and their benefits.

Web-Based Delivery Trends: Some Cautions

Recent surveys of ESS and MSS system users indicate that 80 percent of respondents agree that Web-based self-service systems can lower HR operation costs, but only 40 percent believe that their company is actually achieving this result. Two-thirds of those surveyed agree that Web-based self-service systems effectively support the transformation of the HR department into a more strategic partner by redirecting some of its responsibilities to employees, but only 37 percent actually feel there was a change.⁵⁴

This discrepancy may be due to employees and managers who view this new technology as the “work of HR” and therefore are resistant to using it, or perhaps the technology is not as user-friendly as it should be. The usefulness of this technology will depend on whether the content is considered beneficial and relevant, on how easy the system is to navigate, and on its cultural fit with the organization. Towers Perrin consultant Minaz Lalani points out that realizing the potential of any application means that processes associated with the technology must be changed. People need to use the system in the right way. Only then will it reap the expected benefits.⁵⁵

E-HR AND HUMAN CAPITAL MANAGEMENT

The management of human capital is critical and the ability to be able to attract, retain, and develop employees will continue to be a major challenge for HR professionals. The use of e-HR systems, including Web-based job sites, portals, and

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kiosks, to attract job applicants is becoming a necessity. Two technologies have made e-recruiting a reality—Internet job boards, such as Monster.ca, and the Internet applications that allow companies to screen candidates from those boards and facilitate the process.

Research has shown that companies can reduce hiring cycle times by as much as 25 percent when using online recruitment tools. The use of these tools has transitioned HR from hiring faster to hiring “better.”⁵⁶

The most common practices used for online recruiting are adding recruitment pages to the Web site of the organization, using specialty recruitment Web sites (job portals and online job boards), developing tools that are interactive so applications can be processed (auto-responding), and adopting online screening tools (e.g., personality assessments and interviews).⁵⁷

Some advantages of online recruiting are reduced time for management of the recruiting process, communication of the company brand, access to a larger number of qualified candidates, reduced recruitment costs from using a standard process, reduced hiring cycle times, and use of the system’s reporting functions to analyze the effectiveness of the recruitment strategy. Some disadvantages can be loss of face-to-face contact and discrimination against people who do not have access to the Internet or to information about privacy regarding personal information submitted over the Internet.

Some software vendors who offer e-recruiting tools, such as applicant tracking, are Brass Ring, Deploy, Icarian, Taleo (formally Recruit Soft), and Web Hire.⁵⁸ In the next section we will feature some additional software applications that enable organizations to manage HR processes more effectively.

The purchase of a system can reduce operating costs significantly. Hounton and Williams, a major law firm with more than 2000 employees globally, recently purchased an HRIS called UltiPro. According to the HRIS manager, the firm is “saving thousands of dollars each year by relying heavily on electronic transactions using UltiPro rather than paper-based processes.”⁵⁹

UltiPro is not particularly well known, but SAP, PeopleSoft, Oracle, and Genesys are more recognizable names of specific software vendors who provide “solutions” to help organizations effectively manage their human capital. This section will provide a brief overview of some specific HRIS software applications and some specialty software vendors. It is not exhaustive nor is it meant to be an endorsement of any particular vendor.

Enterprise-Wide Systems

An enterprise-wide system (called an enterprise resource planning or ERP system) is defined as a system that supports enterprise-wide or cross-functional requirements, rather than a single department or group within the organization. These ERP systems have their origin in software that integrates information from different applications (modules) into one universal database. This means that financial information can be linked to HR information through one database. The most popular high-end enterprise-wide systems are SAP, PeopleSoft, and Oracle.

SAP

SAP was founded as *Systemanalyse und Programmentwicklung* in 1972 by five former IBM employees in Mannheim, Germany. This acronym was changed to *Systeme, Anwendungen und Produkte in der Datenverarbeitung*, which means “systems, applications, and products in data processing,” and in 2005, the company name was officially changed to SAP AG.

SAP is the world's third-largest software company and its head office is in Walldorf, Germany. In terms of revenue, SAP is the largest business application and ERP solutions provider. The company's main product is SAP R/3, the "R" stands for real-time data processing and the number "3" relates to a three-tiered system—database, application server, and client.

SAP products are used by more than 12 million people in more than 120 countries, and its market has typically been Fortune 500 companies. Recently SAP has targeted small- to medium-sized organizations with some of its new products.

SAP is made up of individual, integrated software modules that perform various organizational system tasks such as finance/accounting, controlling, project system, funds management, materials management, and sales distribution. One of its major modules is Human Resource Management Systems (HRMS/HRIS). These systems are very sophisticated and SAP offers a full range of functionality, HR products, and Web-based offerings.⁶⁰ Companies using SAP include Allstream, Monsanto, Procter and Gamble, Coca-Cola, and Schlumberger.

PeopleSoft Inc.

PeopleSoft is software that provides HRMS, manufacturing, financial, enterprise performance management, and student administration software solutions to large corporations and governments. The company was founded in 1987 by David Duffied and Ken Morris. Its software is made up of modules, such as HRMS, which includes payroll, all human resources functions and benefits, financials, manufacturing, student administration, and customer relationship management. PeopleSoft is well known for its ability to be easily customized to fit the specific business needs of each client. PeopleSoft was acquired by Oracle in 2005.⁶¹

One organization using PeopleSoft is the Canadian Imperial Bank of Commerce (CIBC). HR processes at CIBC are streamlined and employees are provided with online access to HR services and information. The system enables employees to add dependants to health insurance, change payroll deductions, enroll in benefits programs, calculate pension benefits, and carry out retirement planning.⁶²

Stand-Alone HRIS

HRIS can also be stand-alone. Not all organizations require a sophisticated system and there are many different vendors in the marketplace who offer every size and type of product imaginable. Some considerations for organizations include cost, the number of employees, the degree of efficiency, and the company's existing hardware and software. An effective HRIS requires a balance between what it can do from a technical perspective and how it can meet the needs of that organization. These needs typically increase with the size of the organization.⁶³

Smaller firms might use very basic software applications, such as Microsoft Excel and Access. These firms might only require payroll and benefits administration, time and attendance, and employee scheduling functions. Midsize firms typically require compliance tracking and reporting, health claims administration, payroll, compensation, and benefit administration. Managers may require information on performance appraisal, time and attendance, succession planning, skills testing, and employee scheduling, and employees may use the system to aid in career development and self-serve applications. Midsize firms require

greater data integration and better backup and recovery capability. In addition, they have many users and require local area network and server-based operations. Typically in these midsize systems, all HRIS functions flow through the single system; therefore, data redundancies can be identified and eliminated.

Some popular HRIS for small to midsize organizations are sold by such vendors as Spectrum Human Resource Management Systems, Genesys Software Systems, Best Software Inc., Ultimate Software (UltiPro workforce management), People Track Inc., and Organization Plus.⁶⁴

Large organizations typically require greater functionality than midsize firms. In addition to those functions mentioned above, large firms will require employee screening, résumé processing and tracking, additional compliance and reporting (such as employment equity), and ESS and MSS for employees and managers. These firms also have a greater need to integrate the HRIS with enterprise-wide software applications. Larger organizations might purchase SAP, PeopleSoft, or Oracle ERP systems.⁶⁵

Specialty Software

With so many vendors in the marketplace, software can be purchased for virtually any HR-related function in any industry, including training and development, performance management, succession planning, and the creation of organization charts. The Entrepreneurs and HR box provides an example of one such company, Cronus Technologies, which is based in Saskatoon, Saskatchewan. Organizations can purchase these applications as stand-alone systems. Specialty software applications are available from Halogen, ExecuTRAK, Org Plus, and Ergowatch.

Entrepreneurs and HR

Cronus Technologies

Cary and Shaun Schuler were awarded the Young Entrepreneur Award by the Business Development Bank of Canada (BDC). Cary, Shawn, and older brother Rodney founded Cronus Technologies Inc., an IT company located in the heart of Saskatoon's high-tech businesses area. Cronus specializes in custom HRIS software development and project management and has won the prestigious HR Technology Excellence Award for its products. Currently Cronus exports to the United States but is also developing partnerships in Western Europe.

"The Schulers epitomize a new generation of young Canadian entrepreneurs who, in creating jobs for themselves and members of their communities, are giving a great deal back to the regions that host their businesses," says BDC President and CEO Michel Vennat. "I salute their drive and determination."

In 2003 Cronus employed approximately 25 employees, and today the company continues to grow as a leading developer of innovative HRIS software. The Schuler brothers are an example of good corporate citizens. They believe in giving back to the community and have sponsored and made donations to various organizations, such as the Arthritis Society, the Hope Cancer Centre, the United Way, and the Dragon Boat Races.



The founders of Cronus Technologies Inc.—Rodney, Cary, and Shaun Schuler.

Source: *Enterprising and Dynamic IT Experts Win BDC's Young Entrepreneur Award for Saskatchewan*, 2003 Business Development Bank of Canada. www.bdc.ca/en/about/mediaroom/news_releases/2003/2003102011.htm?iNoC=1 (June 29, 2006).

Halogen Software has a product called e-appraisal. It is a program that uses a Web-based system for employee performance appraisal that can create forms, electronically roll out appraisals, and facilitate 360-degree feedback information. Halogen focuses on the health-care field and is designed to support the accreditation process.⁶⁶

ExecuTRACK Software Group has developed software solutions that create succession-planning matrices, establish career paths, and create candidate placement scenarios, among other functions.⁶⁷

Org Plus is software that has existed since the mid-1970s. It has a sophisticated tool for graphically depicting organizational charts, which can be used as decision-making tools by providing a unified view of critical employee data and enabling the manager and HR to model business scenarios to plan for change.⁶⁸

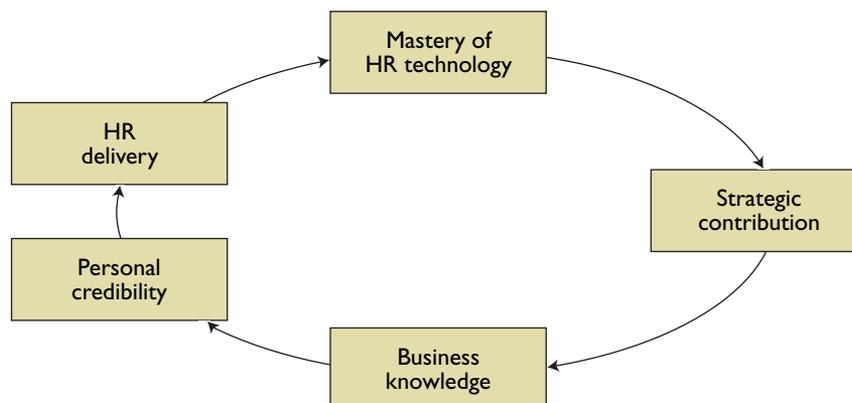
Ergowatch software was developed at the University of Waterloo, and was originally designed to assess and reduce the risk of back injuries in industrial settings. It is now being transformed into a broader tool that will also be able to evaluate the risk of repetitive stress injuries to workers' hands and arms. The software can assess the load or impact of a task—the combination of weight that is lifted and cumulative time spent in a position or posture, linking that with a worker's physical characteristics (size, age, sex) to predict potential pain and injury. Ergowatch can also conduct a physical demand analysis based on a checklist required by workers' compensation boards to determine what an injured employee can safely do when returning to work.⁶⁹

If this new technology is going to be useful to the organization, HR needs to understand its value. Next we will explore the evolving role of the HR professional in an IT-enabled world.

THE ROLE OF HR IN AN IT-ENABLED ORGANIZATION

The impact of technology has fundamentally changed the HR role. It has enabled HR to (1) decrease its involvement in transactional activities, (2) increase its focus on the customer, and (3) increase its delivery of strategic services. As a result, several core competencies have emerged that are critical to the development of the HR professional, as shown in **Figure 3.10**. Wayne Brockbank and David Ulrich of the University of Michigan Business School have identified five

FIGURE 3.10 Emerging Role of the HR Professional: Five Key Competencies



Source: Julie Bulmash, 2006.

key competencies for HR: mastery of HR technology, strategic contribution, personal credibility, HR delivery, and business knowledge.⁷⁰ We will briefly examine how these changes have impacted HR, highlighting the influence they have had on the role of the HR professional.

Decreased Transactional Activities

As discussed earlier, technology enables the reduction of the administrative burden, resulting in lowering basic transaction costs. A proactive HR professional needs to think about how best to leverage technology to improve the design and delivery of basic HR services by reacting efficiently to the day-to-day activities, and how best to ensure continuous improvement. To be effective, HR will be required to develop business knowledge with respect to the key drivers of organizational productivity, become cognizant of costs associated with enhancing the efficiency and effectiveness of the workforce, and be capable of selecting the appropriate technology to conduct HR administration.⁷¹ A recent survey published by the Society of Human Resource Management indicated that technical skills, such as software and Internet literacy, and database skills are considered most important for the HR specialist to develop.⁷² Proactive approaches using these competencies will result in line managers valuing the strategic contribution of HR.

Increased Client/Customer Focus

In organizations HR deals with internal customers including managers, employees, and all the other departments. These customers expect HR to understand and respond to their requests quickly, reduce “red tape,” and provide information that is meaningful, useful, and accurate. It is important for HR to take the time to understand the issues that are keeping managers “up at night.” To be effective, HR must understand how technology can best meet these needs regarding key business issues so that the information can be used as a decision support tool to help managers become more competent in their jobs.

When these stakeholders become more comfortable with the fact that HR is listening and cares about their needs, the customer will gain respect for HR and trust HR, sharing their concerns and trusting HR with their data needs.

One significant customer that HR works with is the IT department. Next we will discuss how HR can develop a good working relationship with this very critical group of service providers.

HR and IT: Developing Good Working Relationships

One of the key departments that HR works with is the IT department. If HR is going to gain credibility with IT staff and work effectively with them, it must demonstrate its knowledge of and respect for the IT discipline.

What can HR do to build this technological knowledge? There are numerous opportunities that can be viewed as a learning opportunities, such as attendance at trade shows, meeting with software vendors, formal courses in IT, and reading about technological trends and issues. Increasing their knowledge of IT will help HR professionals to “talk the language” of IT, and will also help them gain a greater understanding of the IT discipline and the challenges facing IT professionals.⁷³

There are a variety of sources for those interested in understanding more about the trends and issues in technology. They include highly respected research

Gartner Inc.

www.gartner.com

Forrester Research

www.forrester.com

International Data Corporation

www.idc.com

Technology Publications

www.bitpipe.com

Software and Information Industry

Associations

www.siiia.com

International Association for

Human Resource Information

Software

houses, such as Gartner Inc. and Forrester Research; publications, such as *Computing Canada*; and IT/HR associations, such as the International Association for Human Resource Information Management.

Increased Strategic Activities

HR technology is evolving rapidly. HR must use these technologies appropriately in order to help organizations capitalize on their human capital. HR professionals need to focus on the strategic issues identified by executives as critical for organizational sustainability in order to strategically manage human capital within the organization. They need to understand and implement the business strategy using the appropriate technological tools to effectively manage human capital to positively impact the bottom line. HR must be strategically proactive rather than reactive.⁷⁴

To conclude this chapter on HR and technology, some key trends that will have a significant impact on HR in the twenty-first century will be explored.

TRENDS IN HR AND TECHNOLOGY

Technology is moving at “warp speed” and HR must keep up! Technology will continue to be integral to all business functions, and HR must use technology to continually redefine their services toward driving productivity. Some of the emerging trends that will have a significant impact on HR and on its ability to deliver strategic HR services are emerging technologies, the influence of outsourcing, and the increased focus on determining HR’s effectiveness.

Technology Trends

Watson Wyatt consultants have identified several major technology trends that will influence HR management:⁷⁵

1. *The increased use of portals and intranets and a greater focus on the use of virtual tools.* HR will be required to ensure that the organization is aware of the advantages of these tools and provide training and education to ease the transition. These new tools will enable employees to access their own information as opposed to going to HR.⁷⁶ So a manager who has a problem first will try and solve it using the tools available on his or her desktop before calling HR.
2. *Greater access to technology.* This increase will require HR to ensure that the appropriate security measures are in place and to be highly diligent in terms of the types of access and who gets access.
3. *Continued optimization of current systems.* This will mean that HR must

Hints to Ensure Legal Compliance

7. *Contingency planning.* HR will be involved in ensuring that plans are in place to deal with disasters, including getting employees back to work and providing them with the appropriate emotional support.
8. *Heightened awareness of HR data privacy.* Government privacy legislation will continue to increase.⁷⁷ At present, Canada has two federal privacy acts—the Privacy Information Act and the Personal Information Protection and Electronic Documents Act. Ongoing legal changes will require HR to stay current with respect to legislation and utilize systems to ensure compliance.

outsourcing The subcontracting of work that is not considered part of a company's core business.

Outsourcing

Outsourcing is the subcontracting of work that is not considered part of a company's core business. The practice has grown exponentially over the past decade. The outsourcing of Unilever's administrative HR functions is highlighted in the Global HRM box. Outsourcing research firm Nelson Hall reported that the overall outsourcing market will grow at 21 percent annually, and that the HR outsourcing market will grow by 11 percent to US\$33 billion worldwide by 2008.⁷⁸ Another recent report indicates that since 2004, the growth in HR outsourcing has been in areas relating to basic HR transactions and those services that focus on managing the employee life cycle, such as recruiting. Studies have shown that 96 percent of companies with annual earnings of at least US\$50 million per year currently outsource some portion of their HR-related activities. The main benefits of HR outsourcing are cost reduction and increased ability for HR professionals to focus on core business objectives.⁷⁹

Determining HR's Effectiveness

With the ability to outsource administrative work and the significant developments in HR technology, HR will now be expected to focus on the strategic management of human capital and those activities that HR undertakes to add value to the organization.

Global HRM

Outsourcing HR Functions

Accenture, a global management consulting, technology, and outsourcing company, has recently entered into an agreement with Unilever Corporation. Unilever is a multinational marketing organization with familiar products such as Dove soap, Becel margarine, and Lipton soup, that employs 206 000 people in 100 countries worldwide. To optimize its HR services to its employees, Unilever has decided to outsource its administrative HR functions to Accenture. The agreement will cover three geographic regions—Europe, the Americas, and Asia—

and provide services to approximately 200 000 employees in more than 20 languages. Accenture will manage critical HR software applications. Some of the services it will provide are recruitment, payroll administration, total rewards administration, performance management workforce reporting, and core HR administration.

This arrangement will change the way Unilever manages and delivers its HR services across the company. Once these functions are outsourced, the remaining HR activities will be redesigned to focus more on the customer and establish a targeted service delivery model.

Source: J. Finlaw, "Accenture to Help Unilever Transform Human Resources Operations in 100 Countries With a Seven-Year Outsourcing Agreement," *Business Wire*, June 6, 2006, p. 1.

The HR function, with its newly developed strategic focus, is expected to demonstrate a measurable impact on business results. The expectation is that HR is transforming data into insights and the ability to provide “quality” data that will transcend the need for information and focus key decision makers on relevant information that is meaningful to the business.⁸⁰

Today’s HR professionals must be technically savvy and be able to speak the language of business. They must understand the business environment and the major drivers relating to workforce productivity as determined by management. Such techniques as benchmarking and the use of balanced scorecards will be increasingly important for HR. These tools will provide HR with feedback as to whether they are truly listening to the organization and providing customer-focused services.

Finally, how HR utilizes technology to evaluate its own effectiveness and how HR decides to leverage emerging technologies to drive productivity and the management of human capital will make the difference between a mediocre HR department and one that is truly a business partner.

Chapter Review

Summary

1. HR technology has evolved from paper and pencil to PCs to electronic databases to being integrated with company-wide enterprise systems. Web-based technology has been an important development in enabling HR to reduce transactional activities and increase customer and strategic services.
2. The main components of HRIS systems are employee administration, recruitment, time and attendance, training and development, pension administration, employment equity, performance evaluation, compensation and benefits administration, organizational management, health and safety, labour relations, and payroll interface.
3. The main functions of HRIS are creating and maintaining employee records, compliance reporting, HR planning and forecasting, talent management, strategic alignment, and enhancing decision making.
4. The role of the HR professional has changed fundamentally as a result of technology. The core competencies that have developed are mastery of HR technology, strategic contribution, personal credibility, HR delivery, and business knowledge.
5. To choose an HRIS, organizations engage in a three-step process. The first step is the adoption phase, whereby organizations carry out a needs analysis to determine requirements. The second step is the implementation phase, where project teams are created, the software is tested, and privacy and security concerns are addressed. The third step is the institutionalization phase, where training and change management activities are highlighted.
6. The more popular Web-based self-service applications are employee self-service (ESS) and manager self-service (MSS). Some benefits derived from these applications are a reduction in administrative costs, reduction in process steps, enhanced HR service delivery, and increased employee satisfaction.
7. Current technology trends that will impact HR are outsourcing, advances in technology, and a continued focus on measuring the value that HR brings to the organization.

Key Terms

- client server (p. 52)
- data warehouse (p. 58)
- electronic HR (e-HR) (p. 63)
- enterprise-wide system (p. 60)
- human resources information system (HRIS) (p. 53)

human resources (HR) technology (p. 50)
 interactive voice response (IVR) (p. 52)
 intranet (p. 63)
 outsourcing (p. 73)
 portal (p. 64)
 relational database (p. 52)
 request for proposal(RFP) (p. 62)
 tombstone data (p. 51)
 Web-based applications (p. 53)
 workforce analytics (p. 59)

Review and Discussion Questions

1. Explain the four stages in the evolution of HR technology.
2. Describe the stages that organizations engage in to decide on an HRIS.
3. Discuss the five key competencies of an HR professional in an IT-enabled world.
4. Identify two Web-based self-service delivery applications that are popular today.
5. What are some of the trends that HR has to pay attention to?
6. What are the 12 subsystems that reside in an HRIS?
7. Discuss the six key functions of an HRIS.

Critical Thinking Questions

1. Do you think that an HRIS is important for all types of organizations to have? Why or why not?
2. Compare and contrast the cost and benefits of being a member of an HRIS implementation team.
3. Do you think that maintaining security of an HRIS is a major concern for HR technology professionals? Explain what issues you think are most important today.

Application Exercises

Running Case: LearnInMotion.com

Does LearnInMotion Need an HRIS?

Jennifer was getting frustrated. With only a few employees, the company kept a paper-based file for each employee with personal information, benefits forms, and so on. She and Pierre had decided to outsource payroll, but she still had to spend several hours every two weeks gathering payroll information, such as regular hours, overtime hours, vacation time and sick time that had been taken, and so on, to send to the payroll company. The benefits information and calculations were supposed to be carried out by the payroll company, but there had been several instances where mistakes had been made.

Jennifer and Pierre discussed the issue and decided that as a high-tech company, they should investigate the possibility of computerizing their employee files and information. Even with a very small number of employees, they both thought it might be easier for them to use some sort of HRIS. They have asked you, their management consultants, to provide answers to the following questions.

Questions

1. What data should be stored for each employee? How would the company use these data?
2. Conduct an HRIS needs analysis for the company.
3. Would you recommend an HRIS to Jennifer and Pierre? If so, what kind of system?

Case Incident

Integration and Transfer of HR Functions Using HRIS

Jack Newman had recently been appointed regional director of Boomerang Water Corporation, a major service utility in Australia. Jack's previous appointment was with a large manufacturing company in the U.S., where he had made a reputation for himself as a visionary specializing in customer service and performance management. Jack was the youngest person and only non-Australian ever to be appointed as a director of Boomerang Water Corporation. This particular region of the utility employed approximately 2000 workers engaged in the customer service and maintenance provision side of the business. These employees operated in groups of about 30 workers. One supervisor managed each work group. These groups were located in five departments across the region, with each department specializing in a particular customer service or maintenance function. The region serviced about 500 000 customers.

A central division controlled the human resource management functions for the region. This division was located in the region's main town. Elaine Macvain headed the HR division. Elaine had been with the utility for nearly 25 years, and over these years had developed a reputation for running a strong controlled division that provided the customer service and maintenance department with a diversity of HR services. Elaine considered that the main focus of the division was to process day-to-day HR transactions and maintain employee records. Elaine managed a staff of 10 HR professionals. These 10 staff processed employee data that included workers' pay, leave entitlements and requests, and shift work entitlements. The HR department was responsible for recruitment and selection, the performance management system, occupational health and safety records, and career planning. Ron Locat, a member of Elaine's division, had developed a stand-alone HRIS to maintain the HR department's records. Ron had little formal IT training, but had undergone in-house training in the use of Microsoft Access, and had used Access to create the division's database system. Elaine and the other members of the HR division did not have a high level of IT literacy, but they could operate the Access system that Ron had developed. Elaine was indebted to Ron for the work he had put into the

database system, and felt indebted to him for the support that he gave to the HR staff.

A major focus of the utility was training the customer service and maintenance employees. The utility had a promotion system based on the employee's level of technical skills. Employees were promoted to high levels of competency and pay scales on completion of skills training. Peter Noall headed the training division. Peter had been with the utility for about four years. The training division had three staff in addition to Peter. One staff member was an ex-technical college teacher, and two were previously technical supervisors in the organization. Due to the small size of the training division, Peter was forced to outsource much of the organization's training needs. A major responsibility of Peter's was work safety, and he was very proud of the organization's safety record. Peter had contracted the purchase of an expensive dedicated training database system to support the organization's training function. The system provided the training division with a powerful tool with which to profile the total skills base of the organization, identify present and future training needs, track employees' competency levels, and evaluate training outcomes in relation to productivity gains. The training division was proud of its use of high-level technology to support strategic training initiatives.

On commencing his appointment, Jack Newman decided to immediately focus on improving the organization's customer service. He engaged the Fast Track-Immediate Success consultancy group to run a number of focus groups and conduct a strategic analysis related to the delivery of customer service. Eddie Wanton from Fast Track organized focus groups within the HR division, the training division, and ran three focus groups of 20 randomly selected supervisors. Eddie's report to Jack Newman included the following concerns and recommendations aimed to improve customer service.

Report from Fast Track

Concern 1: At present customer complaints are directed to work group supervisors.

Recommendation: Introduce a new division dedicated to customer service quality.

Concern 2: Customer service is not supported by an integration of customer feedback, work group practices, training, and HR strategies.

Recommendation: Link the new customer service quality division to HR, training and work group supervision.

Concern 3: At present, the HR division has sole responsibility for performance management, not the training division or work group supervisors.

Recommendation: Link performance management responsibilities to work group supervisors via training plans and HR recruitment strategies.

Concern 4: Communications among the HR division, training division, and work group supervisors are low-level and infrequent.

Recommendation: Introduce an organization structure that seamlessly integrates and promotes strategic communication between HR, training, and work group supervision.

Concern 5: The HR division and the training division have created tightly controlled centres of knowledge that do not directly inform work group supervisors.

Recommendation: Introduce the transfer of targeted HR and training responsibilities directly to work group supervisors.

Eddie Wanton's Recommended Strategy

Introduce a database information system that will seamlessly integrate HR functions, training functions, and customer service functions. Use the information system to develop strategic links between these functions. Use the new information system to break down information channel barriers between the HR and training divisions. Use the system to devolve appropriate HR and training operations to work group supervisors. Create a new customer service quality division and use the new IT system to integrate it with the other divisions and work group supervisors. In short, change the organization's communication and information architecture to promote the integration of cross-divisional information sharing, decision making, and control.

Jack Newman's Response

Jack Newman's response to Fast Track's recommendations was to target changes to the organization's structure and design necessary to promote the improvement of customer service. Jack immediately decided to act as champion of the cause, and constituted a taskforce with the responsibility of implementing Fast Track's recommendations. Jack appointed to the change taskforce Elaine, Peter, Bobby Bea (a work group supervisor who was a

union official and had been with the utility for nearly 30 years), and two consultants from IT Now, a company marketing an integrated HRIS. Jack decided to act as chairperson of the taskforce. The objectives of the taskforce were to assist the consultants in identifying the organization's needs, and to inform the consultants as to the type of configuration necessary for the off-the-shelf HRIS to meet those needs. Jack expected the consultants to have the new system up and running within six months.

At the very first meeting of the taskforce it was apparent that, while Peter shared Jack's vision for change, Elaine was very concerned about the implication of these proposed changes for her division. Jack told Elaine that the HR staff would have to significantly upgrade their IT skills, or the organization might have to offer HR division staff redeployment or redundancy packages. Peter quickly pointed out that greater integration between HR and training should place all occupational health and safety responsibilities within the training division. Peter also emphasized that the need to train employees in the new system would entail increasing the number of training division staff. Bobby Bea was concerned that any transfer of HR transactions, such as employees' leave applications, or performance management responsibilities, onto work group supervisors would cut down on their time to oversee service or maintenance operations. Bobby also pointed out that any changes to supervisors' job descriptions would need to be approved by the union and would involve pay raises. The consultant drew the taskforce's attention to the fact that if the organization required the new system to be functional within six months, they would most likely be forced to implement the off-the-shelf version with little specific tailoring to meet organizational needs. Both Elaine and Peter were concerned as to who would head the new customer service quality division, and the implications of the creation of this new division for their divisional budgets.

Questions

1. How can the assignment of a champion facilitate the introduction of the new HRIS? Is Jack Newman the best person to act as champion?
2. Why have the HR and training divisions built quite different database systems? What are the difficulties involved in integrating the functions of these divisions?

3. What are the advantages of integrating the functions of the HR division, training division, and those of the work group supervisors?
4. What are the advantages and disadvantages of the Boomerang Water Corporation buying an off-the-shelf integrated HR database system?
5. In what ways may the transfer of some HR functions to work group supervisors improve the efficiency of the HR division? In what ways may work group supervisors be advantaged or disadvantaged by the transfer of HR functions?

Source: G. Dessler, J. Griffiths, and B. Lloyd-Walker, *Human Resources Management*, 2nd ed. Frenchs Forest, New South Wales: Pearson Education Australia, 2004, pp. 97–99.

Experiential Exercises

1. Go to the federal government Web site for the Employment Equity Computerized Reporting System (EECRS; www.hrsc.gc.ca/asp/gateway.asp?hr=/en/lp/lo/lsw/we/ee_tools/software/eecrs/index-we.shtml&hs=wzp). Download the software and familiarize yourself with it. What information needs to be in an HRIS in order to provide complete reporting through the EECRS?
2. How could an HRIS be used to help manage a crisis, such as an avian flu epidemic or a terrorist attack?