This chapter covers the information necessary to understand the system development process for HRIS. As mentioned in Chapter 1, the system development process involves multiple stages from initial design to implementation and evaluation. Failure to follow these steps or rushing through them will result in a poorly designed system that will ultimately fail when it is implemented. Thus, this chapter begins to identify some of the information that is critical for the eventual implementation of an HRIS. The authors start with a focus on the users of the system to help the system development process in its beginning steps. The types of information about users/customers of the HRIS, the sorting of HRIS data into categories of human capital, and the main concepts of hardware and database security are covered.
CHAPTER OBJECTIVES

After completing this chapter, you should be able to

♦ Understand the system design process and its importance to HRIS implementation
♦ Discover that there are multiple users/customers of the implemented HRIS and be able to identify that they each have very different data needs
♦ Be able to categorize HRIS data into appropriate categories related to human capital, the organization, or the interaction of human capital and the organization
♦ Be able to discuss the differences between the six general hardware architectures that are presented, from “dinosaur” to “best of breed”
♦ Be able to discuss, very generally, the main concepts of hardware and database security
♦ Develop an understanding of the general steps in a system implementation
♦ Understand the pros/cons of implementing a changeover from one software system to another

VIGNETTE

A billion dollar retailer with 4,000+ stores finds that it cannot move fast enough to beat out the competition. The organization’s senior management arrives at the conclusion that it would be easier to achieve the strategic goals enumerated by the board of directors if the various organizational functions would share information. Shared information would enable them to develop and deploy new actions and tactics more quickly. The CEO and President have therefore ordered the major functions to update their information systems immediately so that data sharing is possible. The senior vice presidents (SVPs) of Accounting and Human Resources immediately decide that the only solution is to jointly decide on an enterprise resource planning (ERP) product. ERP software applications are a set of integrated database applications, or modules, that carry out the most common business functions, including human resources, general ledger, accounts payable, accounts receivable, order management, inventory control, and customer relationship management (see www.erpsupersite.com). To speed the installation along, they will install it using a rapid-implementation methodology that a company down the street used. The goal is to have the new systems operational in 9 months.

Shortly after this decision has been made, the SVP of HR calls you into his office and tells you that you will be management sponsor for this project. You have to decide on everything. You sit back in your nice office and think,
What’s the problem with this scenario? It shouldn’t be difficult to select a vendor and then borrow the methodology from down the street. It worked for them, it should work for us! We’ll call a few vendors in the morning and find out about cost, time frame, and implementation methods. In the meantime, I should find out a little more about how to do this and who will be using it. I remember from my information systems class in college that this is a reasonable first step when it comes to buying software.

What do you think your response would be to this inquiry? As you go through this chapter’s material, keep this vignette in mind, and see if your answer changes.

Introduction

Successful implementation is the central goal of every HRIS project, and it begins with a comprehensive design for the system. As the steps in the system development process are covered in this chapter, the foundation knowledge that is critical to the implementation process will be emphasized. Only by understanding the users/customers of the HRIS, the technical possibilities, the software solution parameters, and the systems implementation process can we increase the probability that the completed software installation will adequately meet the needs of the HRM function and the organization. The chapter will begin by identifying the potential users and the kind of information that the (HRIS) will be managing/storing to facilitate decision making. The chapter will next discuss the technical infrastructure, how the technical infrastructure has evolved, and the many choices that the organization must make. After the technology is discussed, the systems implementation process will be presented.

Those who have participated in a system implementation will tell you that success is the result of careful planning, a dedicated team, top-management support, and an awareness of potential pitfalls. These same people will also tell you that the implementation process provides a host of opportunities to reengineer and systematically improve nonsoftware processes to reflect best practices in HRM. These opportunities should not be ignored, as they can benefit the organization as much as implementing the software will. Finally, the implementation team members will tell you that it was the most intense 6 months, year, or 2 years of their work life but that they learned a lot and every moment of the experience was worth the time.

There are four things that should be remembered throughout the chapter:

1. Who is the customer of the data, the process, and the decisions that will be made?
2. Everything about HRM is a process designed to support the achievement of strategic organizational goals. The HRIS in turn supports and helps manage these HR processes.
3. An HRIS implementation done poorly may result in an HRIS that fails to meet the needs of the organization or worse.
4. Successful implementation requires careful attention to every step in the system design process. However, done well, the implementation process is full of opportunities to improve the organization and processes. More consistent processes will contribute to enhanced organizational performance.
HRIS Customers/Users: Data Importance

Individuals who will be using the HRIS can be split into two general groups: employees and nonemployees. The employee category includes

- managers who rely on the HRIS and the data analyzed by the analyst/power user to make decisions;
- analyst/power users who use the HRIS to evaluate potential decision choices and opportunities;
- technical staff who are responsible for providing a system that is usable and up-to-date for each user and clerical employees who largely engage in data entry; and
- employees who use the HRIS on a self-service basis to obtain personal information, for example, to look up paycheck information, to make choices about benefits during open enrollment, or to see how much vacation time they have available.

The nonemployee group includes potential employees, suppliers, and partners. Potential employees are those who might log in via a Web portal to search for and apply for a position. Suppliers and partners are organizations that interface with the HR function for a variety of purposes, from recruiting to benefits administration and payroll.

Employees

Managers

The managers referred to within this section may have a variety of titles: manager, director, vice president, and even CEO. What they all have in common is that their primary HRIS need is to have real-time access to accurate data that facilitate decision making with regard to their people (Miller, 1998). The HRIS provides the manager with data for performance management, recruiting and retention, team management, project management, and employee development (Fein, 2001). The HRIS must also provide the information necessary to help the functional manager make decisions that will contribute to the achievement of the unit’s strategic goals and objectives (Hendrickson, 2003). Easy access to accurate employee data enables the manager for each employee to view and engage in employee life cycle changes such as salary decisions, job requisitions, hiring, disciplinary action, promotions, and training program enrollment (Walker, 2001; Zampetti & Adamson, 2001).

Many HRIS products provide real-time reporting and even screen-based historical information about the employees and/or the functional unit that can provide the manager with the information they need. There are also several third-party software products available that provide managers with almost continuous data about the status of their unit and the organization—much as a dashboard on a car provides immediate information. The analysis of more complex situations is beyond the capabilities of many of these reporting and query tools. To facilitate decision making on complex issues, the manager usually relies on the analyst/power user to complete some type of analysis before making a decision.
Analyst (Power User)

The analyst/power user is perhaps the most demanding user of the HRIS. The primary role of the analyst is to acquire as much relevant data as possible, examine it, and provide reasonable alternatives with appropriate supporting information to facilitate the decision process of the manager. The analyst is referred to as a power user because this person accesses more areas of the HRIS than almost any other user. Analysts must be proficient with reporting and query tools. Analysts must also understand the process used to collect the data, how new data are verified, and how the HRIS and the employee life cycle interact. They also need to understand the data definitions in terms of what data exist, the structure of the data, and what data fields are up-to-date and complete. Some HRIS also provide tools that the analyst can use to model scenarios or perform “what-if” analyses on questions of interest.

As an example, a recruiting analyst might be asked to provide a short-list of potential internal candidates for a position that opened in the marketing function of a large retailer. Characteristics of interest of the potential candidate are queried and may include (1) when they were last promoted, (2) whether they have engaged in continuous personal-skills development, (3) what their undergraduate degree was, and (4) whether they have ever expressed any interest in marketing. The analyst would query appropriate tables and develop a list of internal candidates.

Another example might have the HR analyst completing an analysis of corporate headquarters turnover to determine if a particular function or salary issue is the cause of the problem. This information would be drawn from existing reports, ad hoc queries, and available salary information. This information could be compiled into categories by salary, function, gender, or organizational level and examined to determine if the cause of the turnover can be pinpointed and then countered.

Technician (HRIS Expert)

HRIS experts straddle the boundary of two functions. Their role is to ensure that appropriate HR staff have all the access, information, and tools necessary to do their jobs. HRIS experts do this by understanding what is needed from an HR-process standpoint and then interpreting that into technical language so that the technical staff—programmers, database administrators, and application administrators—know exactly what to do. When the technical staff is planning to install the latest update and one of the results will be a change in functionality, the HRIS expert must take what the technical staff provides and interpret that into language HR users understand so as to indicate how processes and activities might change. For example, if an HR professional required that a new report be generated every other Tuesday, the HRIS expert would learn what data the report requires—perhaps mock the report up with the user—and then explain to the technical people how to make sure that this report is automatically generated on the time schedule.

Clerical Employee

Much like power users, these employees also spend a significant portion of their day interacting with the HRIS. The difference is that of depth. The clerical employee must understand the process required to enter information into the HRIS and may also
need to start the process or generate periodic reports. While clerical staff in the HR employment department do not generally provide input about whether to hire an individual to a particular position, they bear considerable responsibility for seeing that the new employee gets paid properly. Hiring a new employee requires that someone, for example, a clerical employee, enter the appropriate information into the HRIS—such as the reporting relationship of the new employee as well as his or her benefits, salary, and direct deposit information.

**Employee Self-Service**

All the employees in the organization may interface with the HRIS through a self-service Web portal or secure employee kiosk, removing the necessity of an HR clerk or staff member assisting with many routine HR record modifications (Walker, 2001). Self-service capabilities encourage employees to manage their personal HR profiles with respect to a variety of functions, such as benefit and retirement plan monitoring or computerized training, in addition to using HRIS-based systems to complete numerous personnel forms (Adamson & Zampetti, 2001; Zampetti & Adamson, 2001). Typical self-service applications are accessible most of the day throughout the week. Employees log on to the system, where their identity is authenticated and verified. Then appropriate change options are offered to the employee based on certain parameters that control the areas where the employee is allowed to make valid alterations to the HRIS—such as personnel data updates, job postings, or desired training enrollments (Adamson & Zampetti, 2001; Zampetti & Adamson, 2001). One fairly large financial-services organization noted that self-service options significantly enabled them to reduce the annual benefits open-enrollment process by reducing the paper generated, reducing necessary mailings, and reducing the data that had to be read and entered into the HRIS. Data entry time alone was reduced from 6 to 2 weeks (Bedell, 2003a).

**Nonemployees**

**Job Seekers**

It is estimated that 70% to 90% of large organizations use online recruitment, and that number continues to increase (Stone, Łukaszewski, & Isenhour, 2005). Online recruiting tends to attract individuals who are well educated, Internet savvy, and searching for higher-level positions (McManus & Ferguson, 2003). Online recruitment also attracts people born since 1980, who have grown up with computers and are therefore comfortable with obtaining information on the Internet (Zusman & Landis, 2002). A successful recruitment Web site needs to be user-friendly and easy to navigate, while attracting candidates to apply to an organization by clearly communicating the benefits of joining it.

The job seeker has little or no prior information about how to interface with the HRIS and has had nearly zero training opportunity with the HRIS. Therefore, the recruiting portal needs to provide ease of use and ease of access to up-to-date job information. The Web form that is used to collect applicant data must also be reliably entered into the appropriate fields within the company’s HRIS database. This online recruiting activity will facilitate searches for new employees to fill existing and future positions.
**Partner Organizations**

The partner organizations to HR functions require certain information to complete their tasks. **Sourcing partners** such as Monster.com, Adecco, and most executive recruiting firms require information about vacant positions including a position description, job specifications, desired candidate competencies, potential salary range, and contact information. The information provided is limited to specific searches for open jobs and is updated as needed.

Business partners that are the recipients of decisions to outsource portions of the HR function (e.g., benefit management firms) or that facilitate process completion on behalf of the employee (e.g., banks) require information that is related to current employees. This requirement increases the need for accurate data, training, and specialized security assurances, as employee information is leaving the organization.

**Important Data**

As is evident in the above sections, each customer/user of the HRIS has slightly different needs with regard to what information he or she will be using. Some users simply input data and information, a few simply look at data and information provided in the form of reports, while a few others analyze the data and information to make decisions. What these users all have in common is that all the information is about potential and current employees with a focus on managing the organization’s human capital to achieve strategic organizational goals. Specific data from the HRIS database fit into three categories:

1. Information about people, such as biographical information and competencies (knowledge, skills, abilities, and other factors)
2. Information about the organization, such as jobs, positions, job specifications, organizational structure, compensation, employee/labor relations, and legally required data
3. Data that are created as a result of the interaction of the first two categories, for example, individual job history, performance appraisals, and compensation information

**HRIS Architecture**

**The HRIS “Dinosaur”**

In the early days of HR applications (in the 1970s), large “dinosaurs” roamed the IT landscape. These were called mainframe computers and were primarily built by International Business Machines (IBM). These large systems hosted payroll applications for most enterprises. Users of the system, which mainly consisted of IT personnel and HRMS (human resource management system) administrators, executed large batch processes while directly logged onto the mainframe computer. Although access to the mainframe could be done via a desktop monitor, no processing was done locally. This architecture is commonly called a single-tier computing system—user interface, application processing, and data storage resided on the mainframe.
During the 1980s, it was discovered that many typical HR functions (such as employee benefits and recruiting) did not require the high-powered and expensive processing available on the mainframe computers. With the advent of the personal computer (PC), many of these functions could be reallocated to the local processing-power of the PC. By the end of the decade, HRIS software vendors such as PeopleSoft began using this power of PCs and created the client-server architecture (see Figure 3.1).

The purpose of client-server architecture was to spread out low-powered processing capability to the dozens of PCs now being used across an organization. High-performance applications such as Payroll would still be run in a batch process on the mainframe computer or outsourced to vendors such as Automated Data Processing (ADP). But day-to-day processing could be implemented on the PC. In this case, an HR application's logic or set of business rules would run on the local machine. Issues such as having valid data entries for hiring dates, home addresses, and name formats would be checked instantly by the PC, that is, without looking up the business rule at the server on the mainframe. Even more complex checks such as term of employment and salary deduction calculations could be done on the local PC. In addition, software applications could apply the more graphics-oriented user interface of the Windows environment. Ease of computer usage was a major factor that enabled individuals with a relatively low level of technology experience to use the applications.
This meant that the HR software application technology could be divorced from the database technology. This separation simplified the HR application and allowed enterprises to select the most appropriate database management system (DBMS) for their needs. (See Chapter 2 for an extended discussion of DBMS.) The most common database design is the relational model. This model standardizes how data are physically stored on the computer and provides standard data access via the Structured Query Language (SQL). In fact, most software products are able to communicate to a variety of DBMS servers. This 2-tier architecture was a huge leap forward in allowing HR professionals to serve many more employees—data were still located in a central-dized database, but logic could be distributed to the PC that needed to run the specific application, and thus usability of the HRIS increased!

**Three-Tier Architecture**

Throughout the 1990s and into the current decade, this division of processing activity expanded from 2-tier to 3-tier and, finally, N-tier architectures. With a 3-tier architecture, the servers have two roles—as database (DBMS) server and as application server(s) (see Figure 3.2).

With the development of the 2-tier and 3-tier systems, the HRIS professional still managed the user interface, but more demanding processing occurred in the middle, application server, tier. Products such as BEA’s Tuxedo transaction processor implemented transaction logic to maintain data reliability. For example, if two recruiters updated the same job position at the same time, a transaction processor would ensure that both updates were entered into the database. This allowed several users to access the central database simultaneously. This type of software, which performed tasks between the client and the database server, became known as middleware—software that managed data and transactions before they were saved to the database. There are a couple of drawbacks with both 2-tier and 3-tier systems. First, a large amount of information has to move from the client computer across the network to the server to execute database transactions quickly, which necessitates the use of significant bandwidth, or the ability to move lots of data quickly between computers. Second, the user

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**Figure 3.2 Three-Tier Architecture**

![Diagram of Three-Tier Architecture](image)
interface client needs to be installed (along with database drivers) on every PC needed to access the HRIS. The corollary issue of this requirement is that employees need to be trained on this application. Therefore, HRIS access tended to be limited to employees within the "four walls" of the enterprise, that is, only those residing within the local area network of the organization. Low-bandwidth access, such as Internet dial up, was impractical.

To provide for employee self-service, the Web browser was adopted to solve the above issues. The browser provides a "thin client" and is a relatively small piece of software requiring fairly small client computing resources, made possible by the 3-tier computing model. A "thick client" would require a significant-sized software product and computing power at the client location (as necessitated by the 2-tier model). An Internet Web browser comes installed on all major operating systems (Windows, Mac OS, Linux, and even Palm OS). The browser’s user interface has become ubiquitous. Therefore, very little employee training is required to use a browser-based application. Finally, a browser works well in a low-bandwidth network environment. So now the typical HRIS application architecture looks like Figure 3.3.

A standard Web server, such as Microsoft’s Internet Information Server (IIS) or Apache’s Web server, manages communication between the browser and the application server using the Hypertext Markup Language (HTML). The application server manages multiple user sessions logged onto the system at the same time as well as more complex business rule execution. And the application server also issues transactions to the centralized database server. Instead of just limiting ourselves to a 4-tier label, this architecture has been labeled N-tier for the following reasons:

- It is expandable to multiple Web servers and application servers to handle load balancing.
- Web servers can be geographically dispersed to provide worldwide access.
- Additional file servers can be added to save documents, reports, error logs, and so on, that are generated on a daily basis.
Multiple print servers or specialized printers can be added as needed. For example, Payroll check printing requires a security-enabled toner called MICR (Magnetic Ink Character Recognition) to print encoded checks for bank cashing. These check printers can be physically located in a secure environment but connected to the HRIS N-tier architecture like any other printer.

Additional “process schedulers” can be added to handle large batch jobs such as payroll cycles. These servers offload “heavy” processing from the main application server so that user interaction is not affected.

N-Tier Architecture With Enterprise Resource Planning

The architecture diagram becomes even more complicated when other ERP components are added. HRIS do not exist in a vacuum. They interact with other business operations within the company. For example, when Payroll is run, these financial-related transactions need to be registered in the company’s General Ledger (GL) application. Typically, GL exists within the Financial/Accounting component of large ERP systems from SAP, Oracle, and Microsoft. Therefore, GL transactions must be interfaced between Payroll and these systems. So additional application servers and databases enter the picture, as depicted in Figure 3.3. In this figure, the Internet browser communicates (using HTML) to one or more Web servers. The Web server manages various client sessions to accommodate many users at the same time. The Web server passes requests to the application server, where the business logic for the application is executed. Finally, information is stored in the DBMS as in the 2- and 3-tier models. There exist many variations of this diagram: In some cases, databases can be shared (in this situation, HRIS is subsumed within the ERP system); in other cases, Internet technologies such as the Extensible Markup Language (XML, which is similar to HTML) and Web services are used to integrate HRIS and ERP. The ultimate goal is to provide a single data truth so that all enterprise data can be accessed by all users wherever and whenever needed. Data should not be duplicated, reentered, or copied to multiple systems. ERP applications provide the infrastructure to avoid this problem. So even though the architecture may be more complicated, this complexity is hidden from the end user, and the logical view of the system remains relatively simple. For example, a consultant for a large IT services company can travel throughout the world, work with multiple clients, but still be able to record his or her time and prepare expense reports using a single browser application from any hotel room.

Security

Security ranks as a top priority for any HRIS. Security needs to be addressed to handle the following situations:

- Exposure of sensitive Payroll and Benefits data among employees
- Loss of sensitive personnel data outside the enterprise (such as the Social Security Number)
- Unauthorized updates of key data such as salary amounts, stock options (both quantity and dates), and so on
• Sharing of personnel or applicant review—comments to unauthorized employees
• Sharing data with external organizations and service providers, such as those described in the Recruitment, Payroll, and Benefits sections (below)

Security needs to be maintained at a variety of levels. First, physical access to the DBMS and application server needs to be limited so that machines cannot be destroyed or logged into directly. Network, operating system, and DBMS access must be limited so that tools outside the HR application cannot be used to query sensitive data. This includes hackers directing probes at the systems or using a variety of techniques to gain access. In the case of external users, special network access may need to be set up. A virtual private network (VPN) can be implemented so that users outside the company can log into the computing resources as if they were within the firewall. Alternatively, many HRIS applications provide specially built “portals” that enable Internet browser access to specific components of the system. This leads to segregation of users into different security categories.

All enterprise-level HRIS implement their own level of security on top of the operating system and DBMS. Typically, this security is administered via users and user roles. A user of the system is assigned a security role (such as Recruiter, Benefits Administrator, Manager, Payroll Administrator, or basic Employee). Then each role can be assigned to access certain parts of the system. Security can thus be limited or allowed along three dimensions—the role, the column, and the row of the HRIS database:

1. What menu items, links, pages, or screens can the user role access? For example, only the Payroll Administrator should be able to see links to the Payroll setup and execution processes. The average employee would not know that these pages exist.

2. Once on a particular page or screen, a specific user role may be able to edit or change certain fields. This is called column-level security. An ordinary employee, on the other hand, would be able to view only his or her own Job Title and Salary information and would not be able to change these values.

3. Also, within a particular page or screen, a specific user role retrieves only the data belonging to that user. This is called row-level security. For example, employees can view their own check stub history for prior weeks’ payment. But they cannot access other employees’ history. Row-level security supports hierarchical access—the greater the number of persons who report to an employee such as a manager or a supervisor, the more the quantity of data that becomes viewable. In some cases, managers may need to allocate bonuses across several departments. Employees can see only their bonuses, while managers can edit the bonus data of all employees reporting to them.

Within the typical corporation, the HR function exists primarily as support for the operational components of the corporation (Sales, Marketing, Procurement, and Manufacturing). In the same way, HRIS support the general ERP system operations. Employee information must be shared between Procurement and HR so that approval
processes can be maintained. Employee data are also shared between Sales Force Automation and Payroll to determine commissions. There exist many other examples that demonstrate the need for HRIS to be integrated within the ERP. This heightens the need for security in the HRIS database because it is important to enable business processes that span information silos and eliminate data redundancy.

**Best of Breed**

An HRIS, as discussed in the previous section, exists as one of the main parts of an overall ERP software solution for the company. Yet the HRIS is not a monolithic solution even within HR business processes. There exist alternative software applications that solve specific HR business issues. This section addresses these types of solutions, the pros and cons of using multiple applications, and technical infrastructure. In general, an architecture that combines products from multiple vendors is called “best of breed” (BOB).

The most well-known example of this comes from the audio industry—surround-sound receivers combined with CD players, DVD players, high-end speakers, and even the occasional retro turntable. All these components “plug and play” with each other to provide the best possible sound experience. This architecture works because of the standards that have been established for decades that enable different devices to work together. We will see below that BOB software components for an HRIS still need to mature somewhat to reach the capability of the analog audio components. Yet the goal remains the same—deliver the best possible point solution to meet the business need.

For this synergy to work properly, three conditions need to be present for each software solution.

- First, there should be a perceived need for a specialized solution. For example, an Optical Character Recognition (OCR) program for paper resume scanning would not be needed if a company expects to receive electronic job applications, over the Internet, 90%+ of the time.

- Second, a universally agreed-on set of guidelines for interoperability must exist between applications. This exists at both the syntactical and the semantic levels. *Syntactical* refers to the base “alphabet” used to describe an interface. For any two applications to communicate, they will need to share data. This data exchange can be done with databases, simple text files (such as Excel), or, increasingly, XML. Basically, XML is similar to HTML, which is used in all Internet browsers. XML files can be shared or transmitted between most software applications today. XML presents a structured syntax—an alphabet—to describe any data elements within an HRIS. See the Technical Section at the end of the chapter for more on BOB architecture.

An HR example would consist of selecting the most robust HR software applications—regardless of vendor—for each need and then using the XML language to efficiently
move data among those applications. This might consist of selecting the Resumix software for resume tracking, Oracle/PeopleSoft for the majority of HR applications and data management, Chronos software for time and labor tracking, ADP software for payroll purposes, and a proprietary vendor product for outsourced HR benefits administration.

• Third, applications need to “speak the same language.” Just as the Roman alphabet allows the spelling of words in multiple different languages and formats, XML enables data to be described with many different tags. The semantics of the language need to map between software applications. An employee’s data description may consist of Name, Address, Birth Date, Phone, Title, Location, and so on. If one of the applications does not have most of the same set of XML tags, it will not be able to exchange employee data. As important as the data semantics between applications is the business process semantics. For example, a time-keeping system may have a different definition of a pay period from the payroll application that actually prints employee checks.

If the above conditions are met, HRIS applications should be able to interoperate with many point solutions. What are the typical solutions found in an HRIS implementation? The following sections will detail examples of solutions for some of the HR programs in an organization.

**Recruitment**

The business process to recruit new employees for a company has many BOB opportunities. Large HRIS applications tend to focus on the internal hiring processes of the company—creating and approving job requisitions, saving applicant data, scheduling interviews, capturing interview results, and finally hiring the new employee. Yet there exist other software applications to “fine tune” the hiring process. OCR scanning applications can eliminate rekeying of applicant data from paper-based resumes, performing applicant database searches, posting job requisitions directly to Internet job sites, and running background applicant checks. These examples of specific functionality are typically not provided in an HRIS. See the Technical Section at the end of the chapter for details on how Oracle’s alliance program provides value to enterprises using their recruiting solution.

**Time Collection**

Most companies require employees to submit time-keeping data each pay period. For hourly employees, this typically means using a punch card and time clock to track hours. Some solutions use employee badges with magnetic stripes to clock in and out. Again, most HRIS vendors do not provide the hardware needed to track time. Time-keeping systems will capture the hourly data from various readers throughout a site. Employee scheduling for various shift coverages can be implemented with time collection/planning software. For example, transit districts schedule bus operators to
cover a very complex route system throughout the week. Unionized rules force certain break periods and preferences for senior operators. Driver schedules are posted for future pay periods; and actual hours worked, reported sick, taken as vacation time, and so on, are collected for prior pay periods. Such data will be reviewed each pay period prior to transmitting to the HRIS payroll application.

**Payroll**

In some cases, the entire Payroll process may be outsourced to another vendor, such as ADP. ADP specializes in providing payroll services for companies of all sizes. For some enterprises, the cost of maintaining a payroll application and staff in-house may outweigh the benefits of controlling the process. In this case, employee time data, pay rate, and benefit information would be transmitted to ADP for processing. This choice of using an outside provider is conceptually the reverse of the typical BOB motivation. The enterprise is not looking for the best technical or functional solution but for the lowest-cost provider of a commodity service. In the case of a large multinational corporation with lots of employee levels, it would probably be prudent to purchase the HRIS payroll application.

**Benefits**

Each year, most employers present their employees with what is called the Benefits Open Enrollment period. This is similar to course enrollment for students each semester. Instead of enrolling in courses, employees enroll for Major Medical, Dental, and Insurance benefits. For example, employees choose between health care providers such as Kaiser or Blue Cross for their medical insurance. These providers support interfaces with the major HRIS applications so that as employees log into the enrollment software, they can review offerings tailored to their company’s plan. On selecting a particular insurance program, enrollment data can be transmitted to the provider.

As one can see in Figure 3.4, BOB solutions introduce additional complexity into the software architecture. This complexity adds IT expense in the form of new software licensing and/or programming charges. The justification for the added functionality needs to compensate for these additional costs. So a cost-benefit analysis should be performed by the HR function to determine whether the BOB alternative is to be used. Detailed procedures to compute a cost-benefit analysis are covered in Chapter 6.

In summary, BOB options can create a much more powerful solution than a stand-alone HRIS. The BOB alternative also creates system flexibility, as each application can be managed and upgraded independently. Yet this power and flexibility may end up costing the IT department, by giving rise to more complex systems administration issues.

**System Implementation Process**

A variety of authors, consultants, and others have discussed implementation methods for information systems. Rampton, Turnbull, and Doran (1999) discuss 13 steps in the implementation process. Jessup and Valacich (1999) divide the implementation of a system into 5 steps, with a focus on the systems side of the process. Regan and
O’Conner (2002) provide 8 steps for implementing information systems. Some organizations have proprietary processes that they use for all implementations. Points to remember as this section is examined are as follows: (1) this is a process that will take a team of individuals anywhere from 6 weeks to 3 years to complete; (2) a variety of ways to manage this process may be attempted, so long as the key issues are examined and organizational goals for the implementation are achieved; and (3) there is no single definitive approach to be used in all situations.

**Planning**

The first key step is planning. This is an absolutely critical step in any business process and especially in the design of any large-scale software implementation involving multiple-process interfaces. Note that the planning process doesn’t guarantee success—rather, it increases the probability that the implementation will be successful. The systematic examination of the following topics provides the organization with the opportunity to see how the implementation will work—to peer into the crystal ball—and identify some contingencies for implementation steps that might not go perfectly. In other words, a robust planning process provides a framework within which the implementation team can proceed, and it provides some decision-making parameters for any unforeseen difficulties that might appear (Bedell, 2003b).

The topics that need to be discussed during the various steps of the planning process include, but are not limited to, the following:

- Project Manager or Project Leader
- **Steering Committee**/Project Charter
- Implementation Team
- Project Scope
- Management Sponsorship
- Process Mapping

![Figure 3.4 Best-of-Breed Solutions Architecture](image-url)
**Project Manager**

The choice of project manager deserves some serious thought. There are really three good options for project manager. The first choice is to hire a consultant to be the project manager. This is the most expensive option and provides the best project management expertise but brings the least knowledge of your organization’s mission, processes, and needs.

The second option is to hire a full-time project manager who has presumably been certified by the project management institute. This option is more affordable, although you must have plenty of projects to justify this position. A full-time position requires project management knowledge/certification and the project manager to have personal knowledge of your organization’s mission, goals, and, to a lesser extent, HR processes.

The third option is to select someone who is involved in the project and temporarily move him or her into a project management role. This person should bring excellent knowledge of the organization’s mission, processes, and needs. However, unless the candidate has a project management certification, he or she may not be the strongest choice to keep a project on time. This decision is largely about the trade-off between cost and existing organizational knowledge.

**Steering Committee/Project Charter**

While project managers are responsible for the project, they are often assisted with the planning and implementation process by a team of individuals known as the steering committee. The steering committee is usually composed of the project manager, the senior-management member who is the project sponsor, and the lead employee from each involved area (e.g., lead systems analyst, lead database administrator). Also on the steering committee are HR functional experts, whose role is to provide expertise about what HR data are needed, how the HR process maps should be interpreted, and what data are required for decision making.

The steering committee has three key purposes. First, this group works under the direction of the project manager to establish the project scope, which is then often codified through the development of a project charter document. A second role of the steering committee is to develop a change management plan. The third major role of the steering committee is to assist the project manager in decision making.

Once a set of preliminary planning decisions are completed, the steering committee may develop a document known as the project charter, which will help maintain the guidelines on how the project should function. The charter is an all-encompassing document that

- makes the case for the implementation,
- shows the project’s connection to organizational goals and strategies,
The project charter helps keep the entire team focused on the goals for the project by forcing the team to agree on what is critical. The project charter can also serve as a valuable political document within the organization, as some members of top management are usually asked to participate in developing the charter through an approval process or by helping draft the document. This approval process signifies to other, less involved management individuals that the implementation of this software is an expected organizational goal. Finally, the charter provides all the team members with key “talking points” about the project so that the scope, process, and goals can be clearly and consistently shared with those who might have questions. An example of a real steering committee’s list of responsibilities is presented in Figure 3.5.

Figure 3.5 Example of a Steering Committee’s List of Responsibilities

- Decides issues that involve policies and dollar amounts under the charge of the Executive Sponsor Committee
- Resolves issues where there is no consensus within the functional implementation team
- Reviews and approves plan, approach, and key decisions
- Reviews project budget, agreeing on necessary funds, and champions availability
- Manages expectations and guides communications
- Ensures that appropriate resources are available to the project
- Recommends policy and advocates needed change; ensures that policies are carried out
- Reviews progress as it relates to implementation timetable
- Provides periodic reports and advice to the executive management team

SOURCE: This is from an HRIS implementation that was early and under budget—a rarity (M. D. Bedell, personal communication, 2002).

Implementation Team

The implementation team works with the project manager to complete the actual software implementation. A good configuration for the implementation team includes both functional and technical personnel. Functional personnel are usually drawn from the ranks of the HR department in the form of HR professionals with some technological proficiency. These functional experts are most often the power
users, and they bring to the implementation team their extensive knowledge about HR processes as well as some technological skills. Technical personnel include HRIS specialists, systems analysts, database administrators, and hardware experts.

Ideally, the technical personnel will have more than just a passing familiarity with HR processes; however, it is most likely that the HRIS specialist will be interpreting the functional references of the HR functional experts into the technical language of the technical personnel. The implementation team reports to the project manager while working on project-related activities; however, it is very likely that a matrix organizational structure will develop for the duration of the project. In this matrix structure, the implementation team members continue to be evaluated by the regular supervisors, yet they also report to the project manager for project-related issues.

The lead implementation team members—both functional and technical—are usually also included on the steering committee, as described in the previous section.

As soon as the implementation team is chosen, two steps need to be taken quickly. First, the functional team experts should begin process mapping (see below). Second, implementation team training provided by the software vendor should be identified and scheduled by the project manager for the implementation team to attend.

**Project Scope**

Project scope is defined as those portions of the information system that need to be completely operational to satisfy the needs of the various customers, employees, and senior management. This definition of the scope of the project is absolutely critical to success. One difficulty that all steering committees face is project creep. Project creep occurs when decisions are made to implement additional functionality beyond what was defined in the project scope. The problem with project creep is that it may lead to huge cost overruns, a failure to complete the project on schedule, and then, in the rush to meet final deadlines, the delivery of a project that fails to meet the needs of the customers (see Sidebar 1).

**Sidebar 1**

One of the authors participated in an implementation where a midsized oil company changed their HR system from PeopleSoft to SAP to match the financial product they were using. They used a methodology to define the project scope (and avoid project creep) by asking all the HR professionals to spend a few days with them over a couple of weeks discussing what HRIS capabilities would be implemented. Capabilities were divided into categories of “mission critical,” would “make our lives easier,” and “in our wildest dreams.” The “mission critical” items were of course implemented. The “make our lives easier” items were prioritized into three categories: (1) those that were added, (2) those that would be implemented if the project were ahead of schedule, and (3) those that could be implemented during the second phase. The “wildest dreams” category items were given to the IT folks to work on in the future as time allowed (Bedell, 2002).
Management Sponsorship

Management sponsorship of the implementation project is crucial. Senior management has the ability to add or remove budget dollars/resources as needed, move political hurdles out of the way, and facilitate the change management process through publicly demonstrated support for the project. Needless to say, the project manager and steering committee would be politically astute enough to develop and maintain an open, honest relationship with the management sponsor. A strong relationship with the senior management sponsor also reassures other senior managers that their employees are working. Remember, the implementation team usually consists of individuals from HR, Systems, Accounting, and potentially other functions. Their supervisors are not necessarily involved.

The senior management sponsor usually has a vested interest in the project. However, his or her formal acceptance as a project sponsor probably will not happen until the project charter is completed and the business case has also been made as to why the implementation should take place.

Process Mapping

The implementation of any new information system represents an immense change from the way processes and decisions were previously made. To facilitate that end, it is important to understand an existing process before starting any implementation. On the surface, this appears to be a rather straightforward task—simply flowchart the process and identify (1) the data elements that go into the process at each step, (2) how those data elements are stored and modified, and (3) what output exists. In reality, additional information and structure are required to ensure that the essence of the entire organizational process is captured.

The first step is to generate a list of all the processes performed by each area of the HR function and a second list of processes that are touched by more than one area of the HR function. For example, three processes of interest in the recruiting department are (1) bringing candidates in for interviews, (2) checking references, and (3) extending offers. The functional team experts would ask questions such as the following: Are these three processes or steps of one larger process? What data are required? Are there processes (or steps) that are completed by other departments that are critical? Does the compensation area do anything to help determine what an appropriate salary is? If it’s a new position, does the organizational development group have to make a decision about how to place this position with regard to formal reporting and budgeting relationships?

The second step is to start generating a model of each process within the entire HR function. A successful model will incorporate both a flowchart picture and a dataflow model (i.e., what data elements, processes, and outputs go with each step of the process). One of the authors helped develop a template for an implementation he was previously involved with. This template is presented in Figure 3.6 and is designed to be used by any subject matter expert as a guide to mapping processes. The example in question requires the subject matter expert or functional implementation team member to provide the name of the business process, a description of the process, as well as the procedure. In addition, the person mapping this process is asked to provide
an inventory of the inputs needed as well as the outputs created by the process. In all cases, it is useful for the person completing the process to provide an example of each input and output.

The steering committee and implementation team that are interested in receiving the maximum benefit from this process will note that the process identification and mapping process provides information that is comparable with that which is used in many reengineering processes (Hammer & Champy, 1993). Much of the value of reengineering—as well as this implementation process—comes from taking a systematic look at processes and removing duplication of effort and processes that are no longer necessary. Of the implementations in which one author was involved,
one implementation “accidentally” found cost savings as a result of this mapping process; another intentionally set time aside to ask these questions and found considerable duplication and potential processes cost savings; and a third implementation did not care to take the time (M. D. Bedell, personal communication, 2002, 2004; Darter & Bedell, 1997).

The completed process maps are ideally compiled into a large chart that provides an overall view of the organization’s processes. The details of the processes can be stored electronically in an easy-to-access central storage location, and it is useful to have copies in binders that can be distributed during the software implementation and configuration process.

**Software Implementation**

Once the planning process is reasonably complete, the process-mapping process is nearly completed, and the implementation team has received most of their training, the actual software implementation can begin. This software implementation involves eight steps. Some of the steps go on concurrently, while some work in sequence. For example, the first step—hardware verification—must precede any software installation. Hardware verification consists of examining the specifications of the various software components (e.g., database, file server, compiler) and ensuring that the hardware can meet the needs of the organization now and in the near future. After the hardware is verified, the software installation process begins. Usually, an installer from the vendor works with the organization’s technical professionals to install the ERP software and any related software tools. Note that this is also a training situation for the technical professionals as they work with the installer.

**Data migration** and configuration/fit-gap processes should also be ongoing. Data migration involves identifying which data should be migrated and how much historical data should be included, as well as the actual process of moving the data. The configuration or “fit-gap” process consists of systematically working through every HR process and matching each of those to each of the integral HRIS processes. The result is an understanding of where organizational processes and the software processes mesh (fit) and where they do not (gap). Any gaps that are identified need to be closed either through modification of organizational processes or by software customization.

The last step of the software implementation is system testing. In most cases, extensive testing is done while data are migrated, to verify data integrity. Data integrity means that the information is stored where it should be, that it can be queried, and that it is available to individuals with appropriate security clearance. The technical software team members test each module for proper functionality, and the functional HR team members verify that the module functions and maintains data integrity. For example, payroll modules have to be tested thoroughly to avoid double payments or missing payments and to make sure that checks print.

Throughout the entire implementation process, documentation of each action and decision must be recorded. This will provide the ongoing maintenance team with the roadmap to follow while they work on each new update, patch, security adjustment, or biannual legal change.
Customization

One of the most difficult decisions that many steering committees face is the desire to customize—especially since modern HR software comes with ample opportunity and excellent tools for customization. This decision appears to be simple. Customization will enable the software to match the organization’s process more closely. The organization will have to do less change management training since all the screens and reports will look just like the old ones. The main downside to customization is that there will be significant maintenance costs, as every tiny change has to be customized all over again with each software upgrade.

With no customization, the version of the software to be implemented is referred to as the “vanilla” version. The advantage of a vanilla implementation is that it provides a catalyst for the organization to engage in process reengineering in order to develop best practices that will match the industry best practices that the software is developed around. The downside is that the cost of change management efforts will increase. Most steering committees will decide that truly unique processes that are related to organizational competitive advantage are worth customizing. To simply customize so as to replicate old reports or screens is usually determined to be not worth the cost. A good method to determine which modifications need to be done is to have the steering committee request a complete business case, including a cost-benefit analysis, from the person requesting the customization. The goal of the business case is to determine whether the modification will help the software manage mission-critical decisions well enough to justify the cost.

Change Management

Change management focuses on the most difficult part of the implementation process—the interaction between the user and the software. The major obstacle is to get user acceptance of the new HRIS. The introduction of this new system will typically encounter strong resistance from the employees. Thus, it is important that the implementation team develop a change management plan consisting of communication, education, and training to prevent and solve these issues. Failure to develop a change management plan may lead to morale issues, fear, and potential turnover among the workforce. Chapter 8 covers the issues of and solutions to the change management problem.

“Go Live!”

This is the moment of truth. It is time for the implementation to be put in place. There are two possible ways that the new software can be put to use. Option 1 is to do an immediate change, where the old software is turned off and the new software is turned on. As issues with the new software are identified, they are reported, and adjustments are made. The positive of an immediate change is that it is done! The potential negative of deciding to do an immediate change is that, regardless of training and the change management process, there is an organization-wide learning curve while the users adjust to the new software. There may be a period when customers may be served
at a level that is less than expected. And—as illustrated by Hershey’s choice to use this “go-live” option in 1999 on their distribution system—if there are significant problems, significant profits may be destroyed as well. In Hershey’s case, they could not deliver $100 million of inventory to stores during the Halloween sales season (Koch, 2002).

The second option is a parallel change. This option turns the new software on some period of time before the old software is to be turned off, and it incorporates final system testing into the changeover process. The time period in question is usually a meaningful business cycle to the organization (e.g., a month or a quarter). During this time, both software systems are functioning, receiving input, running reports, being queried. The positive of a parallel change is that there is enormous testing that goes on before the old software disappears. The negatives are that the users will hang on to the old software because it is comfortable and that there will have to be dual data entry performed for every task.

Regardless of which option is chosen, it is absolutely critical that appropriate support for training and software be in place. Many of the larger HRIS products employ context-sensitive help modules that rely on the end-user training materials to remind users of what they previously had learned. The user should also have access to helpdesk staff, who are aware of the change and able to help the user get through a variety of tasks.

**Evaluation of Project**

Every project provides an opportunity to learn something about what might have been done better. Any organization that plans to maintain a large information system should begin to collect regular data about what worked, what did not work, and where potential areas for improvement exist. A specific schedule of measurement or identification of milestones and related reporting should be created during the planning process and adhered to rigorously. Measurement milestones could be weekly, quarterly, or attached to each major step in the implementation process. In addition, a dollar value should be assigned to each critical step so that budgets can be assessed and evaluated. The emphasis here should be on measurement of important business metrics; this topic is covered in Chapter 6.

**Potential Pitfalls**

A comprehensive list of what might go wrong during an HRIS implementation would be woefully incomplete. Instead, some of the most common pitfalls are reiterated here:

- Poor planning
- Incomplete steering committee or steering committee without top management support
- Implementation team problems or incomplete implementation team
- Failure to adequately assess the politics of the organization
- Insufficient process mapping
- Scope creep
- Poor implementation of or insufficient change management
Summary

This chapter attempts to provide a snapshot of all that must be understood to successfully manage an HRIS implementation. The first discussion focuses on knowing the users/customers of the HRIS and organizational goals. Next, the three main categories of HRIS data are enumerated. A comprehensive list would be ideal but was omitted here as the list would stretch for pages and would undoubtedly still be incomplete. From these three components, parameters can be identified so that implementation planning may begin.

The next major section of the chapter discusses various hardware configurations, from the legacy “dinosaur” system to the contemporary N-tier architecture with BOB opportunities. In addition, the XML language is described to demonstrate that it is possible to assemble an outstanding HRIS and even an ERP system without relying on a single vendor.

The chapter concludes with a general discussion of the steps that one might take to plan and implement an HRIS. A brief discussion of the need to document and learn from the implementation for organizational learning purposes was included. In addition, some mention of metrics is provided, as the HRIS implementation team should be able to prove that they met their goals in terms of budget, functionality, and usability.

Discussion Questions

1. Identify the various types of users/customers of an HRIS.
2. What are the three broad categories of data that an HRIS manages?
3. How does network bandwidth affect a 2-tier client server architecture?
4. How does an N-tier architecture simplify IT departments’ task of maintaining client software?
5. Discuss row-level security. How does this work? Why may this be more valuable to an HRIS than a manufacturing software solution?
6. Research various middleware products from IBM, BEA, or Oracle, and discuss how these products can be leveraged in an HRIS.
7. Given the role of enterprise application integration (EAI) products in supporting BOB solutions, how could these products be used to integrate with other ERP components (Financials, CRM, etc.)? (See the Technical Section of this chapter for an explanation of EAI products.)
8. Research hr-xml.org. How many transactions or interfaces do the standards support? How many software vendors are involved with the organization?
9. Take a specific industry, say the K-12 education industry. How might HireRight’s integration with PeopleSoft/Oracle assist the process of hiring employees such as bus drivers, janitors, campus security?
10. When might BOB not be “best”?
11. The systems development process has been discussed by many. Name five discussion topics that need to be completed during the planning process.
12. Discuss the different project manager options and explain the pros and cons of each.

13. What is a project charter? Why is it important?

14. Why is it absolutely critical to have the scope of the project identified?

15. Why is project creep not a good thing?

16. Complete a flowchart of the process you follow to enroll in classes and pay your tuition. Then apply the process template in the section System Implementation Process.

17. Why do employees fear change? Give some examples as to how you might eliminate the fear of change.

CASE STUDY: VIGNETTE REVISITED

This case is revisited with some additional information that involves the understanding of the material in this chapter. The additional information will be added to the situation described in the vignette at the beginning of this chapter.

A billion dollar retailer with 4,000+ stores finds that it cannot move fast enough to beat the competition. The organization’s senior management arrives at the conclusion that it would be easier to achieve the strategic goals enumerated by the board of directors if the various organizational functions would share information. Shared information would enable them to develop and deploy new actions and tactics more quickly. The CEO and the President have therefore ordered the major functions to immediately update their information systems so that data sharing is possible. The senior vice presidents (SVP) of accounting and human resources immediately decide that the only solution is to jointly decide on an ERP product. ERP software applications are a set of integrated database applications, or modules, that carry out the most common business functions, including human resources, general ledger, accounts payable, accounts receivable, order management, inventory control, and customer relationship management. To speed the installation along, they will install it using a rapid implementation methodology that a company down the street used. The goal is to have the new systems operational in 9 months.

Shortly after this decision has been made, the SVP of HR calls you into his office and tells you that you will be management sponsor for this project. You have to decide on everything. You sit back in your nice office and think,

What’s the problem with this scenario? It shouldn’t be difficult to select a vendor and then borrow the methodology from down the street. It worked for them, it should work for us! We’ll call a few vendors in the morning and find out about cost, time frame, and implementation methods. In the meantime, I should find out a little more about how to do this and who will be using it. I remember from my information systems class in college that this is a reasonable first step when it comes to buying software.

What do you think your response would be to this inquiry? As you go through this chapter’s material, keep this vignette in mind and see if your answer changes.
New Information for the Case: Part 1

After some discussions with department heads from all the departments in the organization, you realize that there are a large number of people (stakeholders) who will be affected by the new systems. Furthermore, you come to realize how important HR data really are to these stakeholders. Based on this information, you think, Wow, there are far more people who could be potentially using this information system than I expected. The old textbook and the vendor information should provide a lot to think about!

Using the information from the section of this chapter titled HRIS Customers/Users: Data Importance, please answer the following questions:

1. Identify some of the customers who would be logical members of the implementation team and explain why.
2. Think through an HR process and sketch out what data are necessary to complete your sample process well. How much history does the organization need to convert to continue functioning?
3. Pick one area of the HR function (e.g., recruiting), and make a list of processes that will need to be mapped and possibly reengineered during this implementation.

New Information for the Case: Part 2

Over the next month as you continue to obtain information about the design and implementation of the new system, you are still somewhat confused about what to do. Once again, we find you in your office thinking,

There are so many potential decisions to make with regard to hardware! I wonder what we need to schedule, if we need to buy hardware, and how we should configure the servers to ensure maximum security. It's time to make another list of questions!

Based on the information in the section of the chapter titled HRIS Architecture, please respond to the following:

1. Make a list of questions for each of the following individuals: lead hardware technical expert, network manager, and chief software manager.
2. What configuration should the company use? Make a suggestion and support it!

New Information for the Case: Part 3

As part of your investigation, you have uncovered a system concept called “best of breed.” You are in your office again trying to decide what to do, and you think, Perhaps best of breed might be the easiest and best way to go.

1. Make a recommendation as to whether a BOB option should be chosen or a more standardized option with simpler interfaces between hardware and software should be elected.
2. Think about what the best answer should be when you have to connect your system with accounting and finance. Make a recommendation and support it!

**New Information for the Case: Part 4**

You have just sat down in your office feeling as if there is way too much to do! Your IS software professional has given you the information from one of the potential vendors about the various steps that need to be taken in implementation of the HRIS. Your immediate reaction is *Man am I going to be at work late for the next many months!*

Based on the information in this chapter, answer the following questions:

1. Develop the first few steps of the project plan.
2. Discuss the potential political necessities outlined in this section as they relate to this type of implementation.
3. Think about and create a list of steps that make sense for your organization.
4. Is the 9-month rapid-implementation time frame feasible? Or will it just lead to failure?

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**TECHNICAL SECTION**

**Best-of-Breed Architecture**

The software “Plug and Play” standard is called eXtensible Markup Language (XML). XML is a tagged language very similar to HTML. Whereas HTML has a very well-defined (and somewhat limited) set of tags, XML can be extended to include any tag set. Note the tags in the following Recruitment Open position (used to hire a DBMS administrator).

```
Data can be shared between software applications by passing XML (either over the Internet or via files) to each other. Some service providers, such as job services, have further refined the XML standard so that common tag and document structures are used between applications (even from different vendors). The XML tags can be thought of as the alphabet, and various industry or process standards as the language. Once a group of people agree on an alphabet and a dictionary, one can spell as many sentences as needed! A specific example of a language is HR-XML (www.hr-xml.org). The HR-XML Consortium provides a standard set of XML tags so that multiple HR applications can exchange data sets more easily. A full description of XML is beyond the scope of this text.

In natural-language conversations there occasionally exists a need for a translator. This person acts as a bridge between the two individuals communicating. This same situation exists between software applications, because even if the two applications adhere to the same standard (language), there is typically only an 80% to 90% actual match (think of natural-language dialects of the English language). In the computer world, the role of the interpreter is played by specialized software called middleware. More specifically, enterprise application integration (EAI) software will act as a communication hub between multiple application spokes. Think of EAI as a traffic controller that not only routes XML data but also translates the XML tags between HR applications. (See Figure 3.7.)
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Alliance Programs

Most of the major HRIS software companies (Oracle, SAP, Microsoft) invest in alliances with other independent software vendors (ISVs). The primary goal is to provide a total solution to make both vendors’ products more attractive and effective for their customer base. A secondary goal for the HRIS vendors is to create an “ecosystem” of solutions that can compete more effectively with other HRIS applications. The larger the ecosystem or number of partners in a program, the bigger the footprint the HRIS application will have. A side effect is that the HRIS provider appears to be more “open” from a technical perspective. In fact, Oracle, SAP, and Microsoft are actively selling their technical integration capabilities (middleware) alongside the HR applications.

Oracle has more than 100 partners focused on just HR alone within their alliance program (Refer to www.oracle.com for details.) In many cases, these partners have pre-built integrations that are delivered to joint customers. Oracle offers a validation program that verifies whether the interfaces work as promised. Tom Herrmann, Vice
President, ISV Management and Programs at Oracle, states, “Oracle recognizes the need to provide key services that have been validated to work with our HR applications. This provides a higher level of quality and faster implementation times to our customers” (personal communication, 2007). Let's examine the “Attract to Onboard” recruitment process. One specific Oracle partner provides a unique service for recruiters. Most companies employ background checks for potential employees during the recruitment process. HireRight (www.hireright.com) provides this service for employers—including criminal record checks, employment/education verification, motor vehicle records, drug screening, and so on. Hiring managers and recruiters may select a background

![Figure 3.8 Oracle Alliance Program Illustration](image)
check for applicants directly from within the PeopleSoft eRecruit and Talent Acquisition Manager or Oracle iRecruitment products. According to John Reese, Marketing Director at HireRight,

This combined solution has helped organizations to get more return on investment from their recruitment application and take advantage of today’s most streamlined process for safe hiring. The pre-integrated screening solution from HireRight creates a seamless Recruiting → Screening → Hiring process for users of the recruitment application. (personal communication, 2007)

Once the check is complete, the user is notified and can view the screening results from within the recruitment application. Since this is all done from within the HRIS application, users benefit in that they do not need to learn additional software applications to complete tasks related to the hiring process. At a technical level, Oracle and HireRight leverage the HR-XML standard to exchange information. Executed in “real time,” this solution improves the efficiency of the candidate selection process. This program flow is depicted in Figure 3.8.

**Note**

1. BEA is a large software company located in Silicon Valley. Tuxedo is their flagship product to manage high-volume data. See www.bea.com/framework.jsp?CNT=index.htm&FP=/content/products/tux&WT.ac=topnav_products_tux

**References**


PART II

Determining HRIS Needs