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The Human Resource Information System: The Impact of the Computerized Human Resource Function on the Organization

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THE HUMAN RESOURCE INFORMATION SYSTEM: THE IMPACT OF THE
COMPUTERIZED HUMAN RESOURCE FUNCTION ON THE ORGANIZATION

by

Dayna Gitler

A Thesis Submitted to the Faculty of the Graduate School
of Loyola University of Chicago in Partial Fulfillment
of the Requirements for the Degree of
Master of Science in Industrial Relations

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PREFACE

My purpose in preparing this thesis was to explore the impact of the computerized human resource function on the organization. My intent was to analyze the history, the current status, and the future role of the human resource information system.

The focus of my thesis is on the automation of the human resource function in large organizations, those which employ more than two hundred individuals. My belief was that it would not be cost effective for an organization of a smaller size to implement a human resource information system.

I chose to explore this topic to determine whether the administration and management of the human resource function requires the kind of human resource information and analytic decision making tools best supplied by a human resource information system. My objective was also to analyze how organizations select, implement, and manage human resource information systems.

Issues such as how to evaluate software packages, sell the human resource information system to top management, and train human resource professionals on the uses and applications of a new system are discussed. In addition, my thesis examines the advantages and disadvantages of working with a human resource information system and explores management issues in software utilization.

VITA

The author, Dayna Renee Gitler, is the daughter of Marvin Gitler and Lois (Dantzker) Gitler. She was born September 6, 1964, in Chicago, Illinois.

Her elementary education was obtained at Hynes Elementary and Golf Junior High School in Morton Grove, Illinois. Her secondary education was completed in 1982 at Niles North High School in Skokie, Illinois.

In January, 1987, Ms. Gitler graduated from Loyola University of Chicago, receiving the degree of Bachelor of Science in psychology. She was an active participant in Psi Chi, the National Honor Society in Psychology.

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BACKGROUND

Definition Of Terms

The management of the human resource function is improving due to better methods of computerization. A computer supported human resource information system is the cornerstone of this human resource effort. It supports and enhances a wide variety of human resource related activities.

Human resource managers are using computers in their daily assignments. They are learning that computerization of the human resource function manages detailed information regarding applicant tracking, benefits administration, manpower planning, government regulations, health and safety, and labor relations. Instead of finding themselves caught up in a stack of paperwork, human resource managers are learning that they can effectively and efficiently extract information they might require from the human resource information system. Less time spent on sorting through paperwork results in more time for human resource managers to spend on developing new and more efficient ways to manage the human resource function in the organization.

A human resource information system has been defined as a computer based method for collecting, storing,

maintaining, retrieving, and validating data needed by an organization about its employees, applicants, and former employees.¹

The human resource information system is known by other nomenclatures, such as computerized personnel data systems, employee data systems, and employee information systems.

Alfred J. Walker, an expert on the topic of human resource information systems, emphasizes five basic concepts that are involved in the definition. These include the data base, data entry, retrieval, the Human Resource Information Center, and data quality.² He believes that if a human resource information system is built without one of these elements, the system will not meet the organization's standards.

The human resource information system must have a data base of both employee and organizational data from which to produce needed reports, audits, and analyses. The data base should be of an appropriate size so that all objectives of the human resource system are accomplished. A complete understanding of what the organization is

¹Donald Harris. "Beyond the Basics: New HRIS Developments." Personnel (January 1986): 49.

²Alfred J. Walker. HRIS Development (New York: Van Nostrand Reinhold Company, 1982), 17.

trying to accomplish through implementation of a human resource information system is required.

The data base must include items needed internally by the organization as well as those for government reporting requirements. The data base must also consist of the elements necessary to produce reports and other forms of output.

Development of a human resource information system should be the joint responsibility of human resources and data processing. It is important for those developing the human resource information system to understand human resource operations, policies, and procedures. A complete understanding of the human resource function enables those who are working on the project to develop a comprehensive data base composed of elements such as an effective input method, understandable editing and processing steps, and efficient output methods that allow the user to utilize the information entered into the system.

Data entry is an essential element of a successful human resource information system. The data entry method needs to be simplified so that data entry personnel can enter data with relative ease, and in a manner which is consistently error free.

Several types of data must be entered into the system. There will be company specific data that the

implementation staff working on the project will enter into the system to get it established. This type includes salary grade and job code tables, tax tables, and valid activity rules (rules a company establishes to indicate which activities are allowed in an organization, and which events change an employee's status) and employment status codes (codes representing an employee's status in terms of the activities processed for that employee). Once the basic company data has been entered a second type of data, employee specific, will need to be entered. This is usually accomplished by data entry or clerical staff.

Depending on the design of the system, the organization may choose to enter these distinct types of data, in different ways on the system and assign to them different degrees of security. Assigning security levels enables the organization to allow access on a selective basis.

The third key ingredient to a well designed human resource information system is the retrieval of desired information. The optimum retrieval process operates in a cost effective manner, and allows users the flexibility to do what they wish with the data entered into the system. The retrieval process allows the data base elements to be presented in various ways. Producing standard fixed reports, sorting and selecting records, summarizing fields, and outputting data files should all be within the power

of the user in the human resource department.

Today's systems allow the user to ask a question of the data and retrieve the answer via terminal, receiving real time updated information, in a pseudo English language style. A dictionary contains the description of where the element is in the data base and some specifications of the element in order for the system to properly display, sort, and protect the data from misuse. All the user has to do is follow the retrieval rules of a system. The system compares existing records with parameter-driven requests, and selects those that meet the user's criteria and displays the data in the manner the user desires.³

A fourth necessary component of an effective human resource information system establishes the organization's Human Resource Information Center. An organization formally designates a group of individuals as those who are responsible for the everyday operation of the human resource information system. The Human Resource Information Center in large organizations, where the human resource department is separate from the systems department, usually reports to data processing. In smaller companies the Human Resource Information Center may be composed of one or two individuals employed in the human resource

³Ibid., 20.

department. These individuals, in charge of the daily operations of the system, report to the head of the human resource department.⁴

The Human Resource Information Center is important for a number of reasons. It helps ensure that the data entered into the system is being stored in memory and that changes in the data base are being processed. It ensures the accuracy of the data base. It also serves some security purposes such as granting only specified individuals access to the data retrieval processes. Overall the Human Resource Information Center is the system administrator, coordinating all activities between users, the human resource department, and the human resource information system.

The fifth essential procedure is assuring the quality of the data in the system. This principle covers accuracy and timeliness. The quality of the data should be accurate. Certain types of data may require different degrees of accuracy. For example, salary administration information or government reporting requirements need a high degree of accuracy, whereas the organization may place less emphasis on the accuracy of coding of an employee's

⁴Ibid., 21.

college major.

It is also important for users to be able to retrieve reports and other output from the system. The problem that may result is one of timeliness. Many companies only produce reports corresponding to payroll cycles, such as monthly, which may not correspond to the users time frame. If data can not be received by users when it is needed, the quality of the data as well as the credibility of the system will suffer.

From the information mentioned above, one can clearly see that all five of these basic concepts play an important role in the efficiency of a human resource information system.

Historical Analysis Of Computers In Human Resource Management

The use of computers in the area of human resource management can be traced back to the 1940s. The first employee information systems were characterized by tabulating, and sorting equipment used basically for staffing purposes. These systems enabled an organization to improve their staffing methods of exempt and nonexempt employees. The systems of this era kept little more useful personnel data than name, salary, location, date of birth, sex, and department code.⁵

⁵Alfred J. Walker. "Arriving Soon: The Paperless Personnel Office." Personnel Journal (July 1980): 560.

In the 1950s and early 1960s the computer industry grew rapidly. Technology advanced more rapidly than the perceived needs of the human resource department for more elaborate systems, except in the defense and aerospace industry where the first nonpayroll systems were developed.

The finance department was the first to install automated payroll systems on business computers. Technically computed payroll systems were an improvement over the earlier mechanical calculating machines. The transition was simplified by the nature of payroll processing which was often very structured. Companies justified the implementation because it was cost effective to automate the payroll process.

The human resource information systems of the 1950s were personnel records applications connected to payroll systems in some manner and justified because most of the data needed for generating the payroll could also be used to generate employee lists and other information needed by managers.⁶

In the 1950s organizations like General Motors, AT&T, Mobil, and General Electric, hired technical individuals

⁶Edward Blair. "Bootstrapping Your HRIS Capabilities." Personnel Administrator (February 1988): 68.

to work on human resource automation. These companies reported rapid advances in efficient record keeping.⁷

During the 1950s, in the absence of stand alone human resource systems, payroll systems were updated and human resource programmers would try to customize parts of the payroll system for their needs. New methods of handling excessive data in the human resource department were needed by the 1960s.

Human resource information systems of the 1960s were of a new type. At this time the concept of master plans and management information systems developed, together with the idea of a single system covering all aspects of the organization. This plan wasn't feasible. The precepts of management information systems theory never took into account the thousands of job steps, inputs for changes and other decisions and exits and reentry points that had to be incorporated into a system and constantly updated to make it work.⁸

In the 1970s more government reporting requirements, such as those required under the Equal Employment Opportunity Act of 1973, the Occupational Safety and Health Act

⁷Walker, "Arriving Soon: The Paperless Personnel Office," 560.

⁸Walker, HRIS Development, 7.

1970, and the Employee Retirement Income and Security Act of 1974, increased the demand for automated human resource systems. At the same time the costs of computer processing and storage decreased making the effort of computerization more affordable for smaller firms. By the late 1970s companies found it possible to develop human resource information systems.

Over the years, personnel organizations were unable to compete with line organizations for information system resources. Human resources typically couldn't demonstrate or substantiate the kind of need and cost payback that could be shown for service or product related organizations. Thus the information needs of human resource professionals were set aside, and their ability to cope with manual systems was tested for a long period of time.⁹

The trends in computing technology are positively affecting human resource management and the response is an increase in the number of companies implementing human resource information systems. These trends include: the increasing use of the micro-chip which has expanded processing capacities and decreased the cost of processing components; magnetic disk storage devices which are capable of reliably maintaining larger data bases at dimin-

⁹Blair, 68.

ishing costs; and the increasing number of human resource information systems' software packages available, eliminating the need for expensive time consuming program development. One other significant trend, within the past few years, is the introduction of the personal computer. The personal computer has made computerization accessible as well as affordable for millions of individuals and for small organizations.

Today personal computers are used throughout the human resource department. Comprehensive micro human resource information systems, software which allows individuals at the personal computer level to perform the same tasks that are done at the mainframe level, are particularly attractive for small companies where mainframe systems are too costly or are not available.

One common use for personal computers is downloading portions of the employee database from the mainframe. This process enables human resource professionals to have data from the mainframe system at their own personal computer to use in whatever way they wish.

Specialized applications of personal computers in the human resource department include spreadsheet applications, word processing, and graphics applications. These enable human resource professionals to decrease the amount of time spent on many trivial projects, and increase the

amount of time spent on managing the human resource function more effectively.

Compensation and benefits software programs can be loaded into a personal computer. Comparisons of benefit plan alternatives can be examined using spreadsheet applications. In the area of compensation, a software package may be utilized to complete salary survey studies.

Another application of the microcomputer in the human resource department is that of maintaining the database for equal employment opportunities and affirmative action plans. The personal computer can simplify the process and supplement the mainframe human resource information system. An example of this type of simplification process is downloading employee data to a personal computer to do equal employment opportunity monitoring and "what if" affirmative action planning. There are also many other uses for personal computers in the human resource department.

Computers are now common items in the human resource departments of most organizations. Computerization has become a necessity to the effectiveness of the human resource function. Human resource information systems help to track large amounts of data and provide human resource professionals with a way of meeting their organization's information needs.

Current Impact Of Automation On Human Resources

Computers in today's world are becoming more and more complex; therefore, there is a need for a new kind of coherence, a coherence of automation.¹⁰ According to Susan Messenheimer, president of AIM Publications and Consulting Inc.,

Automation today is a dispersed event. It has occurred in clusters or islands that are only beginning to be integrated with each other. More than any other single factor, this automation diaspora with its multiple, and often incompatible languages and standards restricted the use of computers and other electronic systems to the land of the desperate and the home of the brave.¹¹

In 1988 the primary focus of office automation can be described by the word integration: integration of the corporate hierarchy, meaning establishing links between the data processing management information science function at the corporate level, departmental work group and individual desk top levels; integration within departments and work groups; and integration of applications on the desk top.¹²

Integration is needed at the corporate level so de-

¹⁰Carol Weiszmann. "Office Systems of the '90s: Automation and the Bottom Line." Forbes, 27 June 1988, supp.

¹¹Ibid.

¹²Ibid.

partments can more effectively communicate with each other, remote locations can communicate with headquarters, and customers can communicate with suppliers.

Most companies, employing more than two hundred individuals, are using personal computers to exchange data with larger systems, such as the Hewlett Packard 3000, and the IBM 3081 mainframes. Between 1985 and 1986 according to one survey by CIO Publishing the number of personal computers connected either to a mainframe or to a local area network grew from thirty-eight percent to sixty-five percent. Other trends in large companies include: using their information systems to electronically exchange a wide assortment of documents and data; using personal computers for sending electronic mail to other companies and accessing public information data bases; adding video imaging capability to their information systems; and establishing groups to explore the ways artificial intelligence can boost productivity and cut costs.¹³

According to a Gallup survey, done for Minolta Corporation, of owners and managers of United States businesses with fewer than five hundred employees, office automation has paid off here too. Some of the results are worth noting: no less than sixty percent of the small

¹³ Ibid.

firms reporting fast sales growth over the past five years said improvements in office equipment had helped their financial record keeping compared to fifty-two percent among slow growth companies and forty-six percent among stable companies; approximately forty percent of the fast growth companies also cited improvements in word processing and database operations compared to fewer than thirty percent among slow growth and stable companies. The bottom line of the Minolta Gallup survey is that the small firms which have made improvements in office automation are growing more quickly than those who have not.¹⁴

The impact of the personal computer on this day and age can not be underestimated. At the end of 1988 according to International Data Corporation, one of the industry's largest market research firm, there are nearly fifty-six million personal computers in operation around the world. Twenty-nine percent of these are at work in U.S. business offices. By the end of 1991 there will be seventy-five million personal computers on this planet and thirty-two percent of them will be used by the U.S. workforce.¹⁵

Those who desire to automate the human resource

¹⁴ Ibid.

¹⁵ Ibid.

department have to decide what type of machines to use, what vendors to do business with, and what software to purchase. There are numerous complicated decisions to make. Human resource professionals are looking to standards set in the computer industry. Some of the trends are: vendors supporting IBM's defacto document interchange and computer and office systems which are able to communicate with IBM mainframes; vendors agreeing to support the International Open Systems Interconnection Standards, a model architecture that will make it easier for users' programs to operate on a variety of machines from different vendors; and hardware and software vendors starting to support universal operating systems, those which allow programs to be transported across device and vendor types.¹⁶

Automation will continue to increase in its complexity. The cost of support for new kinds of improved automation will obviously continue to rise. The newest systems emerging in the marketplace are those which have the capacity to incorporate elements of knowledge.¹⁷ Human users of systems may be relieved of tedious tasks by incorporating knowledge into automated systems. Software

¹⁶ Ibid.

¹⁷ Ibid.

firms are attempting to make improvements in their products by using techniques of artificial intelligence.

Neural networks and expert systems are beginning to bring knowledge to computing, which is possibly the next frontier of automation.

The Dependence Of The Human Resource Function On The Human Resource Information System

Personnel Journal surveyed a randomly selected group of their subscribers in early 1988 to identify the changes and growth in computerized human resource information systems within the past five years. Many of the facts in the following section are based on the results of the survey conducted by Personnel Journal.¹⁸

Automation of the human resource department is rapidly becoming a necessity. Human resource functions are being computerized, many human resource professionals are computer literate, and many are becoming more involved in the selection, purchase, and implementation of their company's computer software and hardware.

Five years ago fifty-four percent of Personnel Journal's survey respondents characterized their human resource information system as primarily manual. In 1988 that figure was reduced to one-third, a thirty percent

¹⁸Morton E. Grossman and Margaret Magnus. "The Growing Dependence on HRIS." Personnel Journal (September 1988): 53.

decrease in manual systems since 1984.¹⁹

It is obvious that organizations are automating the human resource function. The rapid spread of computerization in the last five years can be seen to be a result of the growing dependence on the microcomputer. The personal computer and the development of related human resource information systems' software packages allows not only large organizations to automate the human resource department but also enables smaller firms to do so by making it affordable.

The increasing number of software packages on the market represents an increase in the demand for them and an increase in the amount of companies with automated human resource information systems. In 1988 forty-five percent of organizations characterized their computerized systems as purchased software packages. The use of purchased software packages had increased for every human resource function.²⁰

Also increasing in 1988, was the number of companies which were developing software internally. The proportion of firms developing software in house for any human resource function grew from seventy percent to eighty-five

¹⁹ Ibid.

²⁰ Ibid., 55.

percent in the five year period.²¹

The Personnel Journal survey concludes that the major human resource functions that were automated in the last five years were benefits administration, record keeping and administration, compensation, and EEO and affirmative action. Computerization of all human resource functions did increase: labor relations by ninety-eight percent; employment and recruitment by sixty-eight percent; turnover tracking and analysis by fifty-five percent; and training and development by forty-nine percent.²²

As human resource departments are automated, more firms are beginning to establish budgets for such systems and human resource professionals are becoming more involved in all aspects of this process. These facts demonstrate the growing importance of the computerization of the human resource department.

Today computerization of human resource functions is occurring rapidly. The importance of automation continues to grow. To handle growing demands for automation, separate human resource information departments or centers are being developed. In the past automated human resource information systems were used for basic record keeping func-

²¹ Ibid.

²² Ibid.

tions, but the current trend is toward more specialized functions. According to the 1988 Personnel Journal survey: eighty-two percent of respondents use computers for storage, retrieval and updating of the human resource database; seventy-two percent use computers to produce basic management reports; forty-eight percent use computers to produce basic human resource calculations; eleven percent use computers for long range forecasting and strategic planning; and ten percent use computers for evaluation of human resource policies and practices.²³

The human resource department is responsible for purchasing the human resource information system, although other departments may be involved in the final decision. The criteria human resource professionals consider when purchasing a system include ease of use, purchase price, database security, employee training required to make the system functional, ease of adding human resource functions to the system, the number of facilitated human resource functions, ability to modify components of existing system, availability of technical consultation, ease of understanding documentation, and ability to interface with other systems.²⁴

²³ Ibid.

²⁴ Ibid.

Automation affects every human resource function and requires an increasing commitment of time, money, and personnel from the human resource department, as well as support from top management. The role of human resource information systems will continue to grow as human resource executives learn to understand how systems can help them to meet their information needs. Thus there is a growing dependence of the human resource function on the human resource information system.

SELECTING A HUMAN RESOURCE INFORMATION SYSTEM

Choosing To Make Or Buy A Human Resource Information System

A company's decision to build or buy a human resource information system is not an easy one to make. Many factors are involved in the decision making process. This may appear to be a relatively simple decision, but if careful planning and consideration are not involved, this seemingly easy task may turn into a difficult assignment.

There are a wide variety of software packages available on the market today. These range from software for mainframes, minis, and microcomputers and exist for practically every type of human resource function. Even with the number of software packages available to the consumer, many organizations are still opting to build their own human resource information system. Clearly there are advantages and disadvantages associated with each method.

A definition of what it means to build or buy is needed at this point. According to Vincent Ceriello, former Vice President for manpower planning and development, at the Bank of America, and a pioneer of human resource systems with Ford and Insci, building a human resource information system refers to the organization developing one itself. It may mean starting with a skeleton or framework and customizing the human resource

information system to suit the firm's needs. A skeleton system implies a basic bare bones collection of data elements, usually from an existing system. It may mean building the system around some specific data management language, such as FOCUS, NOMAD, OR RAMIS.²⁵

An organization which develops its own human resource information system can tailor the system to its needs. The organization will determine which human resource functions require automation, and then implement them accordingly. An organization will implement those modules that rank highest on its priority list first, and then at a later date implement other modules as needed. A module is an umbrella term covering a group of related human resource activities.

Buying a human resource information system can have different meanings. A company may purchase a complete package from a vendor or parts of a package. An organization may find a human resource information system that satisfies its current needs and fulfills organizational requirements. However, organizations are not always able to find packaged systems to meet their needs. In this instance, an organization may choose to purchase a packaged human resource information system and customize

²⁵Vincent R. Ceriello. "Computerizing the Personnel Department: Make or Buy." Personnel Journal, (September 1984): 45.

it to function effectively in the organization's specific environment. An organization can also gain access to a human resource information system through timesharing or service bureaus. In the latter case the firm doesn't literally own anything and therefore can not control how the system is modified or enhanced.²⁶

An organization which purchases a human resource information system from a software vendor, buys a system that comes equipped with several modules. These modules automate the benefits, salary administration, manpower planning, health and safety, labor relations, and other human resource functions. The organization which purchases such a product has to determine which modules are most important for it to implement. Human resource information systems, bought from a vendor, often provide an organization with more modules than it currently desires. It is not uncommon for an organization to purchase a human resource information system and only utilize several of the provided modules.

Several issues must be considered before a company can effectively make the decision of whether to build or buy a human resource information system. The most important items for a firm to analyze are those of time, scope,

²⁶ Ibid.

cost, and maintenance.

An organization which decides to build its own human resource information system must understand that the project is going to be very time consuming. It can tie up employees for a number of months or even a year. It is important for an organization to realize that unanticipated higher priority projects may demand their attention and create delays in the implementation of the human resource information system. These unexpected projects may require the reassignment of individuals, from developing the human resource information system, to a project of more importance.

Delays in time can lead to a breakdown of the consensus on the system's basic objectives. If the process of designing a system is delayed, individuals working on the project may choose to reevaluate its goals. New objectives may be set causing further setbacks in the system's development.

There are advantages to building a human resource information system. By developing a system, the company may achieve a superior product. An internally developed system would be more likely to provide for unique requirements of an organization. Another advantage is that the organization has control over the project from the beginning to end, and it controls the allocation of re-

sources within the staffing and budgeting constraints.

If time is a factor, buying is probably the better option for an organization. Most vendors will devote their time and energy to a company's project, and will offer their specialized expertise in human resource information systems design and development. This will give the company a head start in developing specifications and program code.²⁷

The direct and indirect costs associated with building or buying a package also need to be considered. Costs for developing a system are usually underestimated.²⁸ Problems affecting cost over a long project may include: normal employee turnover; lack of vital information concerning the project; poor communication between data processing and the user; project team members who do not fully understand the human resource information system requirements, applications, and basic computer technology; changing management demands; redefinition of goals and priorities; and new security and privacy issues. If these problems occur, the project may not flow as smoothly as expected.²⁹

²⁷ Ibid., 46.

²⁸ Ibid.

²⁹ Ibid.

Building a human resource information system is considered to be more economical when staff costs are below those of the vendor. Most likely vendor rates will not be substantially more, but there will be a difference for their product margin, which should be acceptable for their experience and training.³⁰

By purchasing a human resource information system, generally an organization can forecast costs and completion dates. However, there are no guarantees in vendor prices. If a package needs to be modified before it can be utilized by an organization, the purchase may turn out to be more costly than anticipated.

The organization needs to determine the scope of the project. Many companies believe they can develop a comprehensive human resource information system to cover all functional areas only to realize that it is not practical or necessary. If the scope of a company's project is too broad, attention to details such as training and documentation may suffer.

Many organizations believe the vendor will take care of the organization's training needs, but often this is not the case. The vendor can not understand a company's culture and environment as well as the employees of that

³⁰ Ibid.

organization. Organizations can not rely only on vendors to help them when the scope of their projects increase past their expectations. Vendors may lack the ability to understand how a company's specific human resource department is run.

Documentation also has an affect on the scope of a project. The process of documentation is very tedious. Many companies find their programmers dislike this task, because it is very time consuming. If the scope of the human resource information system is not broad, the organization should consider purchasing a system which comes documented. The decision to purchase is more practical for an organization when the scope is limited and a vendor exists which matches the company's requirements.

If the proposed human resource information system requires highly customized features, unique to the industry or organization, or to the personnel policies, it would probably be more practical for the organization to build its own system. It would be a smart move on the part of the company to build its own system if it had an unusual software or hardware environment. Building a system in any of these circumstances would however require a major company commitment.

Maintenance is another area of concern. An organization needs to plan for ongoing maintenance and devel-

opment of the human resource information system.

Systems built internally can utilize the organization's own staff to provide further maintenance and enhancement. Maintenance can be updating the system due to new government legislation, or it could entail debugging programs, locating and correcting faults that prevent a program from running in the manner that it should. Enhancement of a system may entail adding new modules to the existing system. A single individual, or a dozen individuals, may handle the maintenance and enhancement tasks depending on the scope of the system. Maintenance and enhancement costs must be considered to accurately figure out the total cost of system development.³¹

A staffing commitment from the human resource staff and one from the data processing department is needed for systems design, project management and data base development. Once a decision has been made to make or buy, resources are then necessary to develop the system, implement it successfully, maintain it properly, and enhance it necessarily.

User involvement is critical for a successful project. Staff resources dedicated to the human resource information system project, from both the technical and

³¹Ibid., 47.

user communities, will need to be present and active over the useful life of the system, usually five to seven years.³²

For the organization which buys a system, a vendor may provide ongoing maintenance from a technical point of view, but probably won't deal with nonautomated aspects of the human resource information system. Increasingly, vendors are deferring and encouraging clients to use third party implementation specialists. These firms, a hybrid between vendors and consultants and often with specific experience in one or more packages, offer a variety of services, including technical and user training, documentation, the installation of the human resource information system.³³

The issue of maintenance calls for a cooperative effort on the part of users and technical staff whether the human resource information system is built in-house or purchased from a vendor. In both situations, the task of maintaining the system should be well planned.³⁴

The decision to build or buy a human resource information system should include a needs assessment. An organ-

³² Ibid., 48.

³³ Ibid.

³⁴ Ibid.

ization should determine what percentage of the basic features, it requires of a system, can be found in a purchased package. Compatibility is defined as a seventy to eighty percent fit between data elements a company requires and those that a vendor supplies.³⁵

Analyzing the company's needs may be an easy process if the project is small in scope. If a company is considering updating or implementing a new human resource information system to accommodate several personnel functions, the needs analysis becomes a more significant and more difficult undertaking.

The organization can only discover what it needs after studying systems in use, and the functions provided. This analysis should include charting the human resource information flow, both electronic and manual. This information flow charting is a method to expose the efficiencies and inefficiencies in the existing methods of human resource information management and these flow charts should indicate how well the current systems will meet and react to the demands of an active and expanding company.³⁶

³⁵Ibid.

³⁶Dolores Tolberg. "HRIS Build-or-Buy Analysis." Personnel Administrator, (July 1986): 30.

Once an organization defines the requirements of a new system, the staff assigned to the project can begin to evaluate the available software. A company may demand unique requirements of a system in which case it is better to build a system tailored to its needs. An organization may also find a vendor's package is adequate to cover its needs, and will opt to buy. In either case the features and functions of the available software must be compared to the list of objectives and needs to ensure that the requirements the organization desires of a system are met.

If an organization, after consulting with vendors, decides software packages are not available to fulfill its desired requirements, it may choose to do one of the following: buy a package and accept its minor inadequacies or even consider changing some of the company procedures to better utilize the standard product; opt to buy a package and add desired functions and features to it; or choose to create a custom system. The choice of an organization will depend on such circumstances as the hardware environment, the scope of the project, and the amount of modification needed to have the package perform as planned.³⁷

A company must decide which option will best meet its needs in terms of product functionality, features, cost

³⁷ Ibid.

estimates, time estimates, and availability of both labor and machine resources. Only then can a legitimate build or buy decision be made.

Evaluating Human Resource Software Packages

The success of a human resource information system largely depends on the software it utilizes. It is important to understand what constitutes a good software program, because many differences exist between the numerous kinds available. There are three distinct types of software programs: packaged; custom designed; and customized packaged programs.³⁸

Packaged software refers to that which is readily available to be bought from a vendor. The advantages of packaged software programs are numerous. Vendors allow consumers to test the software and contact users to hear their opinions of the product. This allows organizations to weed out packages which do not come highly recommended. Another advantage is that packaged programs have often been field tested at client sites. This enables them to run more efficiently. Packaged software is less expensive than custom developed software and offers the advantage of being delivered to the client in a ready to run format.

³⁸Vincent R. Ceriello. "Computerizing the Personnel Department: How Do You Pick The Right Software?" Personnel Journal, (November 1984): 53.

There are also disadvantages associated with packaged software. One problem is trying to find a program that will fill the needs of an organization with unique requirements. Most organizations have trouble finding a software package which will computerize all the human resource functions they wish to be automated. In this situation a company may have to modify their human resource policies and practices to fit the design of the software.

An organization also has to be concerned about the hidden costs of maintaining a purchased software program. With the introduction of new government legislation and government requirements, systems will need to be updated. The issue of who will perform maintenance and enhancement tasks needs to be discussed.

Choosing the right human resource information system software requires spending a lot of time evaluating different packages. Since it is often difficult for an organization to find the right packaged software, many companies opt to have software customized to their needs.

Companies creating customized software employ programmers who design packages and write programs to meet clients specific needs. Organizations choosing customized software, cannot find readymade programs to automate the functions they desire. Instead they hire technically

trained individuals to customize software programs. It is more expensive to purchase custom software. The price generally ensures the user the ability to utilize the system the way it prefers. Custom software programmers will often suggest additions to a human resource information system that will further enhance its capabilities.³⁹

Finding experienced, reliable individuals to customize software is not always an easy task. It is difficult, today, to find capable individuals due to the prevailing market conditions. Currently there is a very strong demand for computer programmers, and as a result many software companies can not find quality programmers to fulfill their internal needs. Software firms which lack experienced programmers, obviously will be reluctant to lend these talented individuals to client firms, especially for an assignment involving the customization of an entirely new software product.

When qualified programmers are found to customize a package, they often take longer than expected to develop the software programs. An organization should realize, before hiring programmers to customize human resource information system software, that few programs are delivered to the client completely bug free.⁴⁰

³⁹Ibid., 54.

⁴⁰Ibid.

A third type of software program is the combination of packaged and customized software. For example a company could buy a software program and customize it. The combination of a customized packaged product allows the company to save time and money. An advantage to this type of system is that often the finished product is better suited to the organization's needs.

Modified systems can be costly to maintain. Attracting programmers to work on the modification of software is not a simple task. Programmers generally prefer customizing software programs from the ground up because compensation for these projects is greater. Many vendors will provide needed modifications, but it is advised that an organization draw up a contract that establishes in advance the cost and completion date of the project.⁴¹

Following the decision to purchase a human resource information system, an organization chooses the type of software program it wishes to use. When evaluating software programs, an organization should be concerned that the software meets the general requirements of all good software, and that the software meets the specific requirements of the human resource environment.⁴² Evaluating

⁴¹ Ibid.

⁴² Ibid.

software programs to ensure that the organization receives a reliable and high quality product is necessary. The elements of a human resource information system software product that should be evaluated are listed below.

The documentation of a software program should be evaluated. Good documentation consists of: an overview which explains the program and the available options; instructions which take the user step by step through the program; technical information which consists of source code and program logic (providing an organization with the information needed to modify the software); and an index should be provided for quick reference.⁴³

Documentation manuals should be written for the average, computer literate, person's comprehension level. Documentation should include instructions informing the user what to do when he or she runs into problems. It should also explain how to get back on track after making mistakes, and include information to avoid the same mistake in the future.

A warranty should be provided with the purchase of any human resource information system software product. A warranty is important because almost all systems contain undetected defects that show up after installation. An

⁴³Ibid., 55-56.

ideal warranty would consist of a full money back guarantee but at the very least an organization should insist on a limited warranty, such as the vendor replacing defective disks, diskettes, and tapes on which their software is shipped, and the vendor guaranteeing to fix defects that surface within a certain time period.

Testing a system is a crucial component of the evaluation stage. An organization should make sure the system operates in its specific hardware environment, and on its operating system. The software package should be user friendly. Data entry clerks as well as computer programmers should understand how the system operates.

A responsive human resource information system software program will often utilize English language prompts. Prompts are messages from the computer telling the operator what to do next.⁴⁴ A user friendly system will display these prompts in English. A software product which does not use English language prompts makes it difficult for the nontechnical person to efficiently use the system.

A software program should be evaluated for error traps. Error traps refuse to allow faulty data to be accepted by the system. For example the system should not accept a zip code of four digits. Error traps safeguard

⁴⁴Ibid.

against human errors.

The evaluation process should also include examining whether the human resource information system software program has the capability of being interfaced with an existing payroll system. An integrated human resource/payroll system allows the organization to save time because data normally entered on both systems, only has to be entered on one.

The ability to link the human resource information system software with a good word processing facility is vital to the automation of any personnel administrative procedure. During the evaluation process, it should be determined if the software program can be integrated with a word processing package if separate word processing facilities are to be used.⁴⁵

When reviewing software programs, an organization needs to concern itself with the issue of long term maintenance. If an organization does not have internal expertise to update and maintain the system, it will have to rely on external resources. The question of who will maintain the system is an important one for an organization to analyze.

⁴⁵Colin Richards-Carpenter. "Evaluating Personnel Software" Personnel Management, (August 1985): 39.

A software program should be also be examined for its inquiry capabilities. An efficient system should allow a user to make inquiries of the system without the help of computer experts. Every software program should contain a query mode, which allows the user to display a file or record contained in its data base. Not only should human resource data be accessible, but it also should be presented well.

Report generator facilities allow users to create quality customized reports, and present data in a clear and concise manner. The consumer should evaluate the flexibility of the report generators. These facilities should allow the nontechnical user to create reports without the help of data processing. A software package lacking report generators limits an organization to only standard reports provided by the vendor.

During the evaluation process, it is crucial for an organization to determine whether the software vendor supplies enhancements. An organization's current data needs are likely to require modification in the future, and it is desirable if a system can be modified to adapt to an organization's changing requirements. Enhancements might include changes in the software program which are needed to account for new government legislation, or it could be a company's own revisions to the software program. Most

software programs come with the source code, which protects an organization in case the vendor goes out of business or stops supporting a particular version of the human resource information system. Vendors should be willing to modify a software package as needed.

In conclusion, software programs should be carefully evaluated before they are purchased. After evaluating the elements of a human resource information system software package, an organization should be able to choose a highly reliable software program that would meet its needs.

Selecting A Human Resource Information System Vendor

It is becoming increasingly popular these days for organizations to turn to software vendors to fill their information needs. Organizations which do not have the internal resources or time to devote to developing a human resource information system are purchasing software packages from vendors. Relying on a vendor's systems knowledge and expertise, seems to be a correct choice for many companies today.

According to John E. Spirig and Joe Pasqualetto, in today's human resource information system and payroll marketplace, there are more than three hundred different vendors of microcomputer based software in the United states alone and many vendors of mainframe and minicomputer software. Before an organization chooses a software vendor it

should complete a thorough evaluation of the company.⁴⁶

An organization which is planning to purchase a human resource information system should compile a list of potential vendors. Many advertise in personnel publications. The names of others can be obtained through professional organizations, conferences, exhibitions, network referrals, and computer software directories.

The first step that should be taken by an organization in the vendor evaluation process is establishing a project team for vendor selection. It should be composed of individuals with technical and human resource expertise.

The project team's chore is to evaluate the advantages and disadvantages of software products sold by vendors, but it should not limit itself to this task alone. It is essential that the project team involve itself in researching information on the vendor company. Inquiries about the vendor's past clients, the education of its staff, and the length of time the company has been in business could reveal valuable information about a vendor.

The project team should visit vendor sites, when possible, and examine the software products the company has

⁴⁶John E. Spirig and Joe Pasqualetto. "Software: Buy It Right." Personnel Journal, (June 1988): 50.

to offer. It is important for the project team to recognize that a vendor's staff is composed of sales people whose job is to minimize the product's disadvantages. Realizing that a software presentation will be a sales pitch, a project team should try to talk to technical individuals employed by the vendor, or persons who are not part of the sales staff to obtain a more realistic point of view. It would also be a good idea for the project team to talk with a member of top management to confirm that the vendor's long range business plans include maintaining and enhancing the software products the organization has considered buying.⁴⁷

Having the opportunity to talk with individuals on the vendor's technical staff, the project team can clear up any of its concerns that are of a technical nature. A technical evaluation should include a close examination of the system's technical documentation, as well as a demonstration of how the system actually works.

There are six important questions prospective buyers should ask of software vendors.⁴⁸ The first is how long they have been in business. It is important to work with

⁴⁷ Ibid., 57-58.

⁴⁸ Vincent R. Ceriello. "Computerizing the Personnel Department: How Do YOU Choose A Vendor." Personnel Journal, (December 1984): 34-35.

an established financially stable vendor. New vendors should not be disqualified automatically, but more research may be required by an organization to determine if the vendor is reliable.

A second necessary question which should be directed to a vendor, is how experienced are they in the field of human resources. Few firms have the resources to develop products for every kind of business. If the software vendor's main product is its payroll system, the organization may want to know what percentage of the vendor's staff is actually devoted to developing the human resource software products. It is always wise for an organization to inquire about the number of human resource information systems that have been installed at client sites.

A third important question to be asked, is whether the human resource information system is delivered with a warranty. A full money back guarantee is the preferred choice, however a vendor should at least offer a minimum guarantee or a limited guarantee. If the vendor does not provide a warranty with purchased software packages, it is best that an organization takes its business elsewhere.

A fourth crucial question is whether the vendor provides installation support. Whether the vendor's staff is willing to work with the organization until the system is up and running is an important issue. An organization

should also inquire whether a vendor will assist the company in the conversion process from one system to another.

The fifth question to be asked of a vendor is whether it provides training. An organization will want to find out how many training classes are included with the purchase of a system, and what the vendor charges for any additional instruction that may be needed. The organization should inquire about the location of the classes, the experience and expertise of the trainers, and how often they are held.

A sixth necessary question to be asked is whether the vendor provides ongoing support of the software after it is purchased. Determining what support activities are offered by the vendor, if any, and how much they will cost the organization is essential.

Evaluating vendors on the answers received from the above questions, will eliminate some vendors from further consideration. The next step in the evaluation process is for the organization to use a request for proposal.

A request for proposal is a formal document that describes the requirements for a human resource information system. The request for proposal is presented to each vendor for completion, and then returned to the organization. The request for proposal is a letter to

vendors telling them what an organization's ideal human resource information system is and it asks them to make a bid.⁴⁹

The request for proposal is important to the success of human resource information system software selection because it: defines goals and requirements ; it simplifies an organization's decision by facilitating the comparison among vendors; it saves the organization time by providing it with the information it needs in writing, and in a manner that makes the evaluation process easier; it reduces the organization's chance of overlooking crucial factors in the evaluation process; and it reduces the organization's chance for disagreements with vendors because they know what is expected of them.⁵⁰

The request for proposal should begin with background information on the company or a profile of the business. This section should include the type of business it is, the industry it is in, the number of locations it has, the number of individuals that are employed by the organization, the primary products or services of the organization, a list of any current systems used by the company,

⁴⁹Lisa M. Plantamura. "Choosing an HRIS Vendor." Personnel Administrator, (November 1985): 18.

⁵⁰Ceriello, "How Do You Choose A Vendor," 35.

and the reason for issuing the request for proposal. Included should be a statement regarding nondisclosure of company information and a disclaimer that releases the company from commitment to any scheduled decision dates, and allow for the elimination of any vendor from the evaluation, without cause at any time. Costs incurred by the vendor should be specified as entirely the vendor's responsibility.⁵¹

In a second section of the request for proposal, an organization should request information on the functional capabilities of the human resource information system. A company may ask the vendor what human resource applications it provides and question how they work. Any company specific requirements should be defined here. The organization should address the issues of report capabilities, processing options, and system interfacing abilities.⁵²

A third section should address technical issues. These must be developed and evaluated with the involvement of the company's data processing staff. Items such as file structures, program design, modification and enhancement capabilities are important items to discuss. Also included in the technical section should be an outline of

⁵¹Plantamura, 18.

⁵²Ibid.

the company's computer environment. It is crucial that the organization conveys to the vendor the type of hardware it uses and any specific software requirements it may have.⁵³

A separate section of the request for proposal should inquire about the vendor's stability. An organization should request information on the vendor's staff, its commitment to research and development and on the vendor's financial well being. An organization should ask for a copy of the vendor's most recent financial statement.⁵⁴

In an additional section of the request for proposal the organization should inquire about the direct and indirect costs involved in purchasing a human resource information system. Costs for training, support, maintenance, and enhancements should all be requested.

There are several remaining issues to be discussed in the request for proposal. Inquiring about these specific components may help an organization decide which vendor to choose when it comes down to the final evaluation. Several of these issues are discussed below.

An account representative is assigned by a vendor and is responsible for aiding a company through the implementation process. This person can play a critical

⁵³ Ibid.

⁵⁴ Ibid., 20.

role in the success or failure of the system. A company should determine whether the vendor will replace this person with another, if for any reason the organization's implementation staff and the account manager have problems working together. If the vendor only employs a limited number of account representatives, with experience in the human resources area, a company may decide to work with a more flexible vendor.

The amount of training a vendor supplies with the purchase of its human resource information system may influence an organization to choose one vendor over another. Many vendors provide a specified number of days of training and then charge the company for any additional instruction it may require. A company should request information from the vendor on this topic.

The documentation provided by a vendor can also help sway a company's choice. Generally one set of documentation is provided with the purchase of a system. If a company intends on a large number of individuals using their system, it should request the cost of extra documented materials.

An organization should also determine what type of maintenance agreement is included with the purchase of a human resource information system. The type of warranty and the cost of additional maintenance requirements once

the warranty runs out are two issues to be examined.

Any additional support vendors might provide should be requested. Many vendors provide telephone support. Some even offer twenty-four hour assistance. An organization should explore a vendor's service hours, cost, location and promised response times for support activities.

Included in the final evaluation process should also be an inquiry into a vendor's references. The organization should request a list of clients from the vendor, and check their satisfaction with the vendor's products. Every vendor will have at least one unhappy client, but if many unsatisfied users are discovered, the organization should eliminate the vendor from the evaluation process.

A completed request for proposal should enable an organization to narrow its choice of quality vendors. The final item that should be requested of a vendor is that the proposal be signed by a vendor official who is legally authorized to bind them to a contract.⁵⁵ The real evaluation process begins after receipt of request for proposal responses.

The organization should compare vendors' proposals to the company's needs and to each other. Vendors' products can then be ranked. It is appropriate for a company to

⁵⁵Ibid.

decide which vendors need to be evaluated further.

An organization should visit those vendor facilities that are still under consideration. Product demonstrations, and question and answer sessions with the vendor's staff should help a company make the final decision.

Selection of a vendor is a critical aspect of human resource information system implementation. It can be very time consuming. The ultimate decision should be made with a thorough understanding of the functional and technical aspects of the vendor's product. A great deal of information must be evaluated during this process. Although the level of detail may vary with the type and size of the projected system, or the time allotted to the study, rushing the evaluation process could lead to an inappropriate product selection. After choosing a vendor it is important for a firm to draw up a contract with the vendor that will protect its interests.⁵⁶

If the project team has made a good product selection, carefully prepared an implementation strategy and workplan, and maintained a reasonable level of trust with the vendor's representatives, then contract negotiations should focus on: price, the complete costs of software, training, maintenance, support services, documentation;

⁵⁶Ibid., 22.

delivery terms, when, how, and where software and training will be delivered and by whom; installation and acceptance testing, who will provide this and when, and how it relates to delivery terms and price; and items such as confidentiality, non-disclosure, terms of the warranty, license rights, and rights to custom modification and to future releases of the system.⁵⁷

Deciding Whether To Work With A Consultant

Because the human resource information systems marketplace can be confusing, many organizations are seeking the help of consultants. By providing an objective evaluation of the organization and its computing needs, a good consultant can aid its clients in the automation of the human resource functions.

Using consultants is a common way of doing business. In large companies the systems department is usually so swamped with application requests that it cannot satisfy the majority of end users. In this situation using a consultant may be the only way to get a job done.⁵⁸

Consultants are generally bias free, so they can provide top management with an objective view of the

⁵⁷Naomi Bloom. "Effective Software Contracts." HRSP Review, 4(Winter 1988): 9.

⁵⁸Henry Fersko-Weiss. "Managing Your Computer Consultant." Personal Computing, (January 1986): 76.

benefits of a new system, or of a solution of a troubling problem. This objectivity is needed in large companies where politics and power struggles are an often occurrence. It is important for an organization to thoroughly examine the credentials of a consultant it has considered hiring. There is no official body which regulates consultants, so it is important that an organization spends time investigating possible candidates.

Today there is a tremendous demand for consultants with human resource and systems expertise. Fees for consultants begin at fifty to one hundred dollars an hour for junior level people, and increase to between two and three hundred dollars an hour, plus expenses, for senior level consultants.

According to Timothy D. Crowe Jr. and Robert D. Gatti, presidents of Timothy D. Crowe Personnel Consultants and R.D. Gatti and Associates, there are many reasons for hiring a consultant but the actual implementation of a project is not one of them. A consultant, according to them, should be used as a catalyst, facilitator, educator, problem solver, or a supplement to the organization's staff, but the actual implementation of a project should remain a client responsibility.⁵⁹

⁵⁹ Timothy D. Crowe Jr. and Robert D. Gatti. "Rules For Hiring Consultants." Human Resource Systems: Innovation For Excellence Conference Highlights, (April 1986): 19.

A consultant should be used by an organization when the organization lacks individuals with certain skills, or when the skills it desires are out of its users range of expertise. For example, if an organization is weak in long range planning it may choose to hire a consultant to help with the planning process.

A consultant would also be an aid to an organization in the contract negotiations with vendors. A consultant may be invaluable in this situation because the company, represented by an expert, knows that crucial questions and issues will be discussed with vendors.

Other situations in which a consultant may be helpful include during installation and implementation of a new system, and during the conversion process from one system to another. Many firms employ consultants on a continuous basis during these events.

There are times when a consultant should not be hired by an organization. While consultants can bring in expertise unavailable internally this is not always the best way for an organization to solve its problems. It is often more appropriate for a company to train someone inside the organization. The advantage of this approach is that the organization obtains an internal expert who knows the company well, and will in all likelihood be more respon-

sive to the organization's needs.

Many companies hire consultants for the first phase of a project to give the company an overview of its needs and to develop a plan for solving problems, and then do the implementation on their own. This enables these organizations to build expertise through the learning process and reduce its dependence on the consultant. These companies use consultants as guides and allow them to work their way out of their assignments leaving behind trained staff members and organizations which can operate efficiently on their own.⁶⁰

A company should weigh the costs and benefits of staying inside the organization as opposed to those of going outside for help. Each situation should be evaluated individually. If a company needs quick expertise, or an objective viewpoint it may be best to hire a consultant. If the company has a problem that would take a long time to solve, it would be to the organization's advantage to develop its internal expertise.⁶¹

Five groups generally supply consultants to human resource information systems users. The first group is accounting firms. Many public accounting firms have well

⁶⁰Fersko-Weiss, 83.

⁶¹Ibid.

established consulting divisions. Accounting firms often have informal subcontractor relationships with software vendors, or they sell their own software, so this may not be the best group of consultants to work with if a company is seeking an objective individual.⁶²

General management consultants are another type. They may be a good choice if they speak the language of the organization's business and approach it as professionals. The disadvantage of this group is that many are not systems experts, and often cost the organization a small fortune anyway.⁶³

There is also a group of technical consultants. Information systems consultants who are former programmers or analysts are generally a good choice for solving technical problems, but often offer no help in the area of human resources. These consultants are a good choice when they do have a technical background and understand the area of human resource management.⁶⁴

College professors are another group of individuals who often offer consulting services to organizations.

⁶²Vincent R. Ceriello. "Computerizing the Personnel Department: Do You Need A Consultant?" Personnel Journal, (October 1984): 38.

⁶³Ibid.

⁶⁴Ibid., 40.

It is important for a company to research professors backgrounds, because many may have limited experience working outside of the university environment. An organization should make sure it hires a well rounded individual, one with academic expertise and practical hands on experience in the business community.⁶⁵

There is also a group referred to as specialized consultants. These individuals specialize their practice around the area of human resource information systems. A disadvantage often associated with these specialists is that they concentrate on a certain issue or aspect involved with human resource information system. For example an organization should be careful it does not hire an implementation specialist when it really needs an individual with expertise in long range planning.⁶⁶

Before entering the marketplace for a consultant a company should set up the objectives the consultant is to accomplish. They should be clearly defined and communicate to the consultant what is expected of him or her, in what time frame, and at what cost. The consultant should be presented with realistic expectations and issues that represent the problems of the organization honestly and

⁶⁵ Ibid.

⁶⁶ Ibid.

comprehensively.⁶⁷

Finding the right consultant should begin by getting referrals. A company should contact businesses in the same industry or companies with the same organizational structures that have done similar projects. Consulting associations can also be helpful. They will usually give organizations names of consultants with the expertise they are looking for. There are even consultant brokers who will match a consultant with a company's project.

An organization should check a consulting company's financial condition, past projects, general reputation and history, before choosing to work with it. It is essential that the organization examine the credentials of the consultant who has been assigned to the project. An interview should be requested with the consultant before the company makes its final decision.

After a consultant has been hired, a planned approach to accomplishing goals should be developed. This type of planning should include provisions for interim reports on the consultant's progress. For example, weekly or biweekly meetings planned to discuss the consultant's progress or any problems that may have developed help to assure that the consultant is receiving the information needed to work

⁶⁷Crowe and Gatti, 19.

effectively. These meetings will also help to confirm whether the consultant is adhering to the organization's timetables.⁶⁸

A contract should be drawn up by the company and signed by the consultant. Issues that should be discussed in the contract include: the time frame for the project, the fees to be paid, how the consultant's progress will be evaluated, and who will be completing the actual work.⁶⁹

As mentioned above, organizations set high standards for consultants, but it is often forgotten what consultants expect in return from their clients. Consultants expect a sense of seriousness and responsiveness to requests for information.⁷⁰ If the client has vague goals or no commitment to the project he or she should not expect miracles from the consultant.

Consultants generally are very interested in the organizations they work for. Most consultants prefer being well informed about the decision making process, the corporate culture, and who has the authority to allocate resources in the company, than to be ignorant about such matters.

⁶⁸ Ibid.

⁶⁹ Ceriello, "Do You Need A Consultant," 40.

⁷⁰ Crowe and Gatti, 19.

DETERMINING THE ORGANIZATION'S NEEDS

Conducting An Effective Needs Analysis

There are many reasons why a company would look to buy a new human resource information system. Often it is due to the inadequacies in its current system. An organization looking to build or buy a human resource information system should determine the specific requirements that the proposed human resource information system must meet to be effective.

A needs analysis should be performed to define and identify the organization specific factors that make up its unique environment. An effective needs analysis is necessary to determine the new or upgraded system's scope, content, procedures, interfaces, data flows, equipment needed, and software characteristics.⁷¹

A needs analysis is designed to produce:

- a statement of objectives that define which organizational functions will be included in the process of automation;
- an inventory of affected users, each of whom will be interviewed to determine current system use and needs, short term expectations, and long term requirements;

⁷¹John E. Spirig and Joe Pasqualetto. "Software: Buy It Right." Personnel Journal, (June 1988): 53.

- an overview of requirements that sorts the interview responses into an area by area summary of functions performed, systems support required, common interfaces and unique needs;
- a detailed requirements list that builds upon the list of functional needs and itemizes the data needed by clerical, professional, and management staff in each of the participating areas;
- a prioritized list of user needs developed from interview analysis and ranked according to user need and cost and benefits;
- a preliminary dictionary of data that itemizes and defines each unique element of data that users need from the system.

The needs analysis should be user initiated and user directed with a project team from the human resource and data processing groups. The project team should also be composed of individuals who work in areas that will also be directly affected by the implementation of a new system.⁷²

According to Robert H. Stambaugh, Vice President with the URC Consulting Group in Los Altos California, there are a few generalizations that apply when conducting a

⁷²Robert H. Stambaugh. "HRMS: Performing A Needs Analysis." Personnel Administrator, (March 1985): 20, 22.

needs analysis. First, the responsibility of identifying objectives should belong to the top level human resource decision makers rather than to the human resource information system project leader. They should be general and limited to four to six major goals the system is meant to satisfy. Agreement on these objectives, by top level human resource executives, must be reached or the system is not likely to succeed.⁷³

It is important for organizations to evaluate the needs of system users. This is the second generalization. Organizations should interview those individuals who will be using the new human resource information system, review the current computerized or manual system in the human resource department, and determine what it would take to satisfy their needs. This interviewing process should be semistructured and the project team should question the users about what they believe they need from a system today and in the future.⁷⁴

After completion of the interviews, a statement should be prepared by the project team, including what it would take to fulfill the users needs in each human resource functional area. This should be a list of general-

⁷³Ibid., 22.

⁷⁴Ibid.

ized needs. For example, if automation of the benefits function was desired, a list of users expectations from computerization of this function should be included.⁷⁵

Next a detailed requirements list is generated. This requires the project team to work closely with users to determine which needs are the most important to them. The information gathered from the interview process is reviewed and user needs are recognized. This process divides each human resource function into a set of activities performed in that functional area. An analysis should be conducted, breaking each activity into a set of steps, each of which has its own needs.⁷⁶

Another critical aspect of an effective needs analysis, is the anticipation of future data needs. An analysis of future needs is often neglected because the project team is too caught up in what the proposed human resource information system presently requires. Another reason is that after system implementation, corporate or departmental needs change. Divestitures, acquisitions, and mergers are having an impact on corporations. The company will have to alter its strategic plan to accommodate any company wide changes that are made and this will affect

⁷⁵Ibid., 23-24.

⁷⁶Ibid., 24.

how the organization utilizes their human resource information system. System users and managers being interviewed to determine the organizational needs do not always know what the future holds in terms of data requirements and the need for automated procedures; therefore, individuals in upper level management, who are involved with the development and approval of strategic planning, need to be a part of the needs analysis.⁷⁷

A new system can not be all things to all people. The project team should prioritize users needs. Through the interviewing process, the project team should choose those which it believes are the most important to concentrate its effort on at this time.

Working with human resource department users and organizational managers the team or individual responsible for the needs analysis must learn what the existing information flow looks like, how data is used, and what kinds of inputs, outputs, processes, and data elements are needed to perform the functions required by the organization. The needs analysis should be heavily planning oriented and should result in a long-range view of what the system will be expected to accomplish.

The final needs analysis should be submitted to top

⁷⁷John E. Spirig and Joe Pasqualetto, 54.

management. The needs analysis report, according to Alfred Walker, should contain: a statement about the overall project and the underlying need for a human resource information system; a list of specific user needs and problems; a description of current system operations; the suggested human resource information system configuration; an estimate of the time and cost of development; a list of organizational changes that may be necessary to implement for the system to run efficiently; a list of system constraints; a list of project team members and their activities; and other impacts the human resource information system might have on its users.⁷⁸

The needs analysis is an integral part of the human resource information system development. Without it neither management, end users, project team members nor prospective vendors will share the expectations, definitions and constraints that determine overall project success.⁷⁹

Determining Automation Priorities

The translation process of human resource management objectives into a successfully implemented human resource information system is difficult. Many human resource information system projects are misdirected toward a non-

⁷⁸Alfred J. Walker. HRIS Development, 77.

⁷⁹Robert H. Stambaugh, 24.

problem, a poorly defined or understood problem or a problem better solved without automation.⁸⁰

Naomi Lee Bloom, a managing partner of a systems consulting firm, specializing in human resource information systems, says an organization taking a strategic approach to the implementation of a system, ensures that automation dollars are directed toward high payoff projects, that each automation effort builds upon a solid foundation of consistent and agreed upon data and process definitions, and that efficient use is made of computing and staff resources.⁸¹

Bloom believes strategic planning's goal is to create a conceptual framework within which individual automation projects can be logically and technically integrated. Such a goal is achieved by: developing a model of the business to be supported; determining which business functions and data would benefit most from various levels of and approaches to automation; integrating these automation priorities into a realistic concept of the target system; and developing a plan for transferring today's system into the desired system.⁸²

⁸⁰Naomi Lee Bloom. "HRMS Planning Pays Off." Personnel Journal, (April 1988): 65.

⁸¹Ibid.

⁸²Ibid.

There is considerable similarity in the relevant data entities and their relationships between organizations. By examining entity relationships, an organization can determine which might benefit from automation. An organization made up of fifty employees may find that using a manual system to administer its benefit plans is quite adequate. The benefit administrators may see no need for automation of this function in their organization. However, in a larger organization composed of two thousand employees, it may be advantageous and cost effective to computerize the benefits function. Relevant information gathered on data entities helps to identify automation targets.⁸³

Automation of human resource functions may improve service levels and/or lower costs in the human resource department. Computerized techniques are readily available and tend to be cheaper to use than many manual processes. The more often a business process is performed, the more likely it is that computerization will decrease its costs and improve the productivity of that function. Highly repetitive processes in the human resource department are good targets for automation as well.⁸⁴

⁸³ Ibid., 66.

⁸⁴ Ibid.

Automation in the human resource department can be a strategic necessity. It may be necessary to automate the human resource department to keep up with ones competitors. Once human resource functions are automated a company may be able to gain a strategic or tactical advantage over its competitors. An example is the use by high tech firms of personal computer accessible job postings to attract skilled technical staff in a tight labor market. The organization utilizing this computerized function clearly has a tactical advantage over the organization without it.⁸⁵

A combination of factors should guide the organization's selection of automation priorities in the human resource department: the need to decrease the number of clerical human resource support staffers that are costly, error prone, hard to hire and retrain; the need to improve strategic planning and decision making; the need to improve work force productivity; and the need to improve the productivity of the human resource department.⁸⁶

When planning for human resource information systems it is important to consider what changes in corporate direction and related changes in overall human resource

⁸⁵Ibid., 67.

⁸⁶Ibid., 68.

management strategy must be accommodated. In many organizations there is a formal strategic planning cycle in which goals and objectives as well as strategies for achieving them are defined for a three to five year period. It is not unusual for the human resource department to adopt the organization's strategic plan and translate it into its own.

Human resource information system strategic plans must be integrated with the strategic planning efforts of the information systems department. If an organization does not have an information systems department, or the information systems department does not have a strategic plan, the human resource department must develop its own. However, if the information systems department has developed a strategic plan which is accepted by the organization, the human resource department should attempt to integrate its strategic plans with it. The project team should participate in and fully support this strategic planning effort.⁸⁷

In conclusion, the human resource information system strategic planning process can be summarized as follows: translate current human resource business objectives, information problems, current data, and process views, as

⁸⁷Ibid., 69.

well as broad planning assumptions into the automation priorities for the company's human resource information system; generate alternate visions of a target system that would meet these automation priorities; use an assessment of technological possibilities to identify those alternative visions best able to meet the company's objectives; determine how prepared the organization is for change and for successfully implementing a human resource information system; evaluate the best target systems for their degree of fit to assumptions, objectives and constraints; develop broad cost and benefit estimates for the most promising visions; and finally select the target human resource information system.⁸⁸

Cost/Benefit Analysis

An important step that must be included in determining organizational needs is a cost/benefit analysis. It is determined in the needs analysis what functions need to be automated. The cost/benefit analysis will show where actual savings are and how much they amount to when these functions are computerized.

Before conducting a cost/benefit analysis the project team should be clear about the relative significance of dollar savings, for instance whether it is really neces-

⁸⁸ Ibid., 69-70.

sary to rest the justification of the human resource information system, primarily on cost savings. When presenting the human resource information system proposal to upper level management, the project team may not want to base the justification for the human resource information system on cost savings because it may have to rely on indirect savings and intangible benefits.

When performing a cost/benefit analysis the most substantial area of savings achieved by an organization's installation of a human resource information system is in people-time savings.⁸⁹ In other words it usually takes people less time to perform a task when the function is automated compared to when it is not. The savings that result can be significant.

The argument against calculating the people savings of an organization is that it is impossible to reduce a staff, by layoff or transfer, by a calculated number of hours. Although some hours may be freed up allowing more work to be performed with the same resources. If costs of the new human resource information system do not exceed overall savings, there will be an increase in productivity.⁹⁰

⁸⁹Alfred J. Walker. HRIS Development, 208-209.

⁹⁰Ibid.

Another area to be explored in a cost/benefit analysis is cost avoidance. This refers to the savings an organization realizes by automating its functions. When this area is examined the question arises as to what would happen if the human resource information system was not developed and installed. The costs associated with continuous use of an outdated system, or the cost of hiring extra individuals to perform work on a manual system could be enormous.⁹¹

Computerization of human resource functions has many benefits. It enables the system's users to complete their tasks in a shorter amount of time and it allows the organization to save money by eliminating unnecessary manpower.

Direct and indirect savings should be identified when analyzing costs and benefits. What one individual on the project team may see as an indirect saving may be seen by a member of top management as a direct saving. The project team may be biased in their opinions since they are trying to sell the system to management. It is suggested that when the project team presents its cost/benefit analysis to management that they have instructions followed by examples of what a direct and indirect savings consist of. The project team can then follow these instructions and

⁹¹Ibid., 209-210.

present a more plausible report to management. It is best that the project team emphasizes direct savings because they are easier to demonstrate and prove.⁹²

Savings that can be realized by users from the installation of a human resource information system are numerous. Savings can be expected in every functional area of the human resource department. In the area of benefits administration, automation brings about savings by more accurate insurance premium billings being sent from carriers. Savings also result from the reduction in time it takes to calculate estimated benefits and vested benefit amounts under the Employee Retirement Income Security Act of 1974. The elimination of errors such as double social security payments for the same employee, and more precise data on the employee population, yielding better quotes in new plan coverages and expenses, are two other examples.⁹³

In the area of wage and salary administration savings may result from: reducing the clerical time in producing salary increase sheets for line managers; reducing clerical and management time in preparation of salary survey participant data; reducing the time necessary to produce compa-ratio studies, because many systems automatically

⁹²Ibid., 210.

⁹³Ibid., 211.

calculate compa-ratio figures which eliminates the time human resource executives have to spend doing the calculations by hand; and by facilitating the tracking of equal pay for equal work compliance, avoiding noncompliance costs.⁹⁴

In the functional area of training, costs may be saved by: better site and data selection for training classes; reduced time to monitor training taken versus performance, output, and other measurements; easier comparison of course content for possible duplication of courses; and reduced clerical and administrative time to produce employee training records for employees, supervisors, and training departments.⁹⁵

Other savings can be realized from the automation of human resource functions. Word processing packages make it inexpensive to produce applicant rejection letters, the number of individuals needed to keep the human resource functions running smoothly decreases, and the standardization and uniformity of data which often result from computerization help to save the organization money.⁹⁶

According to Alfred J. Walker, very often the organization will have been gathering and processing human re-

⁹⁴ Ibid., 211-212.

⁹⁵ Ibid., 213.

⁹⁶ Ibid., 214.

source information with an old system that the new human resource information system will absorb, replace, or otherwise make obsolete. The costs of any system that will be replaced by the human resource information system should be included in the cost/benefit analysis of savings. The following items should be included if applicable: hardware costs, if dedicated portions of the old system can be identified and reduced; annual run charges; telecommunication expenses.⁹⁷

An organization needs to analyze the costs associated with the implementation of a human resource information system. The project team should examine all costs which are reasonable. The costs associated with a human resource information system can be divided into three categories.

The first category, amortization or development costs, refer to costs associated with the purchase of hardware, project team salaries and expenses, analyst and programming salaries and expenses, software purchases, forms design, documentation and training expenses.⁹⁸

The second category, conversion and installation costs include initial data collection, file loading, systems testing, user acceptance testing, training and

⁹⁷ Ibid., 215.

⁹⁸ Ibid., 217.

forms and booklet printing expenses.⁹⁹

The third category is ongoing costs. Included in this group are the costs of the Human Resource Information Center staff salaries and expenses, human resource run costs, programmer maintenance and enhancements, annual hardware and software leases, training costs, and forms and booklet expenses.¹⁰⁰

All three categories of costs need to be analyzed by the project team and compared with cost savings in the cost/benefit analysis. After completion of the cost/benefit analysis, the needs analysis, and the determination of automation priorities, justification of the human resource information system to management is necessary.

Project Management And Ownership

Often a key fundamental decision is overlooked in the installation of a human resource information system. When reviewing human resource information system development and implementation project work plans, it is often found that no clear cut responsibility for project ownership has been established. For whatever reason, the human resource information system project has been organized so that project management in many cases is nonexistent.¹⁰¹

⁹⁹ Ibid.

¹⁰⁰ Ibid.

¹⁰¹ Edward S. Goldmacher. "HRIS Project Management and Ownership." Personnel Administrator, (January 1986):

The issues of project management and ownership are clearly intertwined. Most human resource departments today, has a strategic corporate function. The organization's need for a human resource information system is no longer doubted. Human resource information systems are being integrated with many other information management systems of a company.¹⁰²

After the organization's needs have been analyzed, automation priorities have been determined, a cost/benefit analysis has been completed, software has been purchased or developed internally, and the organization has formally established a project team, the question of system ownership becomes one of importance. The ultimate responsibility for the project is generally given to the project supervisor, typically a corporate officer with whom the system ownership is vested.¹⁰³

The responsibility of day to day project management however is not given to the project supervisor but rather to the project manager. The project manager directs the project team leaders who represent functional and techni-

¹⁰² Ibid.

¹⁰³ Ibid., 30.

cal expertise. The project team is responsible for analyzing requirements, soliciting bids from and evaluating software vendors, and developing functional specifications. It is important for both the project supervisor and project manager to participate in scheduled project steering committee meetings.¹⁰⁴

Management support of a human resource information system project can be ensured by establishing a human resource information system steering committee, consisting of key executives from the human resource, finance, and data processing departments. The steering committee's responsibilities should include authorization of the project, reviewing progress with the human resource information system project team, and acting on any policy issues that arise during the development and installation of the new system.¹⁰⁵

The project steering committee serves many useful purposes. In addition to keeping all parties informed of the project's status, the steering committee serves as a vehicle to bond the various user communities to the human resource information system. The steering committee is authorized to discuss and resolve any policy issues which

¹⁰⁴ Ibid.

¹⁰⁵ James A Battisti. "Communication Strategies For Improving HRIS Management." Personnel, (July 1986): 65.

surface with the implementation of a new system.¹⁰⁶

Project ownership and therefore system ownership usually belong to one of three departments. Data processing, human resources, or payroll can claim ownership of the project.

It is most common to assign project ownership to the technical function, data processing. This is an obvious choice because the data processing department has experience in the implementation of systems. The data processing department's project management knowledge and the ability of its technical employees to engage in linear thinking, have a positive effect on the success of technical projects.¹⁰⁷

A disadvantage associated with allowing the data processing department to manage the human resource information system project is that technically oriented people generally lack the ability to understand the human resource issues to be solved by the proposed system. Technical individuals, unfamiliar with the area of human resources, may not really understand what the system is supposed to do.

Assigning project ownership to the payroll depart-

¹⁰⁶Edward S. Goldmaucher, 30.

¹⁰⁷Ibid.

ment is another choice. The payroll department in most organizations is already automated. Payroll professionals usually have a clear understanding of the issues at hand, and are used to standard, rigidly defined tasks and schedules.¹⁰⁸

Arguments against giving payroll ownership of the human resource information system project may include: the payroll department not wanting to be bothered with system ownership tasks if its function is already automated and running smoothly; payroll professionals finding it unnecessary to add extra tasks to their already demanding workload; and an existing unfriendly relationship between the payroll department and human resources.¹⁰⁹

To effectively manage the human resource information system, ownership is usually given to the human resource department. Within the department there is an understanding of the issues at hand, and a desire and need for an up to date management information system. The driving force for the entire project probably developed in the human resource department. It only makes sense that this is where the project manager and supervisors should reside.¹¹⁰

¹⁰⁸ Ibid., 31.

¹⁰⁹ Ibid.

¹¹⁰ Ibid., 32.

Logically, one would think, system ownership and project responsibility would be given to the human resource department for the implementation of a human resource information system. However, there are disadvantages with this approach.

Human resource professionals typically are not project oriented and the majority of human resource professionals do not have large scale system management experience. This can be a great disadvantage when it is time to implement a new system that is aimed at automating human resource functions. Human resource professionals tend to be people issue oriented and not systems issue oriented, in other words, they have a tendency to think laterally which requires a high degree of flexibility and creativity. This quality may help individuals when coping with human resource problems but it could be a hinderance when dealing with system issues.¹¹¹

According to Edward S. Goldmacher, a principal with American Management Systems, Inc., in virtually every project involving large scale system implementation, the most valuable talent is an ability to clearly define the problem at hand. If a project manager can not define the

¹¹¹ Ibid.

system problem to be solved, upper management should not expect the system to provide the solution. Before taking on a project of this scope the human resource professional must recognize the project management, data processing and linear thinking weaknesses and ensure that the appropriate expertise is acquired as needed.¹¹²

Project management and ownership issues can become involved and complex. In one organization a project steering committee may believe system ownership should reside with the data processing department. In another, the steering committee may choose human resources as the project manager. There is no simple solution to this dilemma. Determining project management and ownership issues can be a complicated matter.

Once the organization's needs have been determined and adequately defined, and the issues of system ownership have been discussed, the next step is for the project team to receive management's approval for the entire project.

¹¹² Ibid.

SELLING THE HUMAN RESOURCE INFORMATION SYSTEM TO TOP MANAGEMENT

Giving An Effective Presentation

Justification, to upper level management, of a human resource information system is often not an easy task for the project team. Many human resource professionals, in the past, have justified expenditures to top management for relevant human resource issues such as health care or training program costs, however, it is often the case that they have had no experience in justifying a human resource information system.

Little or no knowledge of human resource information systems can make it all the more difficult for human resource professionals or members of the project team to effectively present their proposal to top management. A short term result of a well prepared and effective presentation, is often top management's approval of the human resource information system. A long term result may be upper level management's acceptance of the human resource department as a key participant in the decision making process of the organization.

The critical requirement of effective presentations is the concise, graphic presentation of information that makes a point usually about the bottom line impacts of

conditions or trends affecting the business.¹¹³ Andrew O. Manzini, Vice President of Human Resources and Administration for Ebasco Services, said

When you have an opportunity to talk to top management, you do not want to waste it. Human resource people may be the only people in the organization who have to get permission for doing what they are paid to do, but the approval and support of management for human resource programs and policies from human resource information system budgets to a new program of medical cost containment is often just a matter of putting your case before managers in ways that can be quickly understood, clearly related to business objectives, and which emphasizes the reality of raw data.¹¹⁴

To have an impact on resource allocation and the decision making process, the project team should stress, in their presentation to top management, the effect of what would happen if the organization did not implement a new or upgraded human resource information system. For example, the implementation of a new system may be necessary to keep up with the company's competition. It is also essential that upper level management is informed about the steps that need to be taken to implement the system successfully. An estimate of the cost should be included and expected returns of the system should be explained.¹¹⁵

¹¹³Andy Manzini. "Key Guidelines For Effective Presentations To Managers." Fifth Annual HRSP Conference (May 1985): 25.

¹¹⁴Ibid.

¹¹⁵Ibid.

Cost justification is a crucial element of the proposal to management. According to Ken Aron, Human Resource Information System Manager at Miller Brewing Company, when the project team presents their case to top management they should estimate costs on the high side and benefits conservatively. He explains that it is better for ranges of costs and benefits to be presented, rather than a simple dollar figure. A range of numbers tends to be more believable.¹¹⁶

Benefits of a system can be both quantifiable and nonquantifiable. Quantifiable benefits include actual dollars to be saved and the risk that is avoided. Risk is an issue which must be examined thoroughly. Executive management must understand what is at risk if the current system is not adequate to prevent problems in areas regulated by legislation.

Nonquantifiable benefits include intangible improvements such as improved employee morale or better decision making. These are important but should not be over emphasized at the presentation.

Recommendations should be kept simple. Overselling of the system should be avoided. The project team should present their recommendations, support them, but give

¹¹⁶Joan Frazee and Janet Harrington-Keller. "Money Matters: Selling HRIS To Management." Personnel Journal, (August 1987): 99.

acceptable alternatives as well.

Marc Miller, President of Marc S. Miller and Associates, advises the project team to do their homework and approach management with a strong project plan. It is important for the project team to know their company and understand the corporate culture.

An effective presentation should be a synthesis of raw data and an analytical interpretation of that data which direct management's attention to specific issues, dramatize relevant trends or facts, or specifically support the point of view being presented.¹¹⁷

It is important for the presenters to understand the values of their audience. For example, the project team should not use highly technical terms in its presentation if its audience is unable to comprehend the meaning of these words. It is important for human resources to build its credibility by displaying a sound understanding of the business apart from the human resource function, as well as how the system will fit into the overall business plan.

According to John E. Spirig, a founding principal and executive Vice President of Implementation Support Associates, Inc., selling the value of the human resource information system, means to a large extent, selling the importance of human resources. This requires a discussion

¹¹⁷Manzini, 25.

of new human resource management functions and responsibilities such as data quality control and standards management. A presentation to top management should focus on issues that are of concern to them; putting human resource forward as a important player on the strategic plan team. Only when top management recognizes human resources critical role in the company will they become willing to allocate resources to develop and maintain the human resource information system.¹¹⁸

The Human Resource Information System As A Key Management Tool In Strategic Planning

Human resource managers and human resource information system managers are realizing the importance of the need to align human resources and the human resource information system with strategic business plans. Human resource information system managers are identifying long term strategic goals of the company, and then finding ways to integrate the human resource information system's strategic plan with those corporate goals.

The alignment of the human resource information system and the corporate mission may be difficult to achieve. If an organization's strategic goal is to increase sales by fifty percent, it is unlikely that the human resource

¹¹⁸John E. Spirig. "Selling the HRIS." Personnel, (October 1988): 34.

information system can help play a very big role in the company's plans. However, if the organization's strategic plan was to diversify into other industries, the human resource information system could help the organization achieve its goals, for example, by aiding in the analysis of prospective companies balance sheets.¹¹⁹

An efficient human resource information system can serve as a management tool in the alignment or integration of human resources department goals with the goals of long-term, corporate strategic planning. Human resource issues are increasingly being recognized as critical factors in strategic planning and decision making. The ability of the human resource information system to quantify, analyze, and model change has enhanced the human resource information system's status in many organizations.¹²⁰

According to Bob Stambaugh, Vice President of CRC Consulting Group,

When we talk about long-range strategic planning in human resource information systems, we sometimes forget that more than software and hardware is involved in the word systems. When we talk about integrating systems we should have in mind the broader idea of systems, the people, processes, and procedures of the company and the human resource func-

¹¹⁹Joe Pasqualetto. "Evaluating The Future Of HRIS." Personnel Journal, (August 1988): 82.

¹²⁰John E. Spirig. "Selling The HRIS," 32.

tion. That plus the fact that strategic planning deals in issues and subjects not immediately visible in day to day operations and therefore hard to sell to most managers, makes the task of integrating human resource information system planning with the strategic business plan a challenge in most companies.¹²¹

Joe Pasqualetto, Director of Consulting services for Implementation Support Associates, Inc., explains that a human resource information system's ability to support effective management of the following plans is strategically significant: human resource planning, including the strategically linked analysis of the supply and demand for people and their costs/benefits, involving forecasting and generating decision-support information on ways of meeting strategic goals; career planning and development for talented managers and professionals in order to manage training, reduce turnover, reward and retain strategically critical performers and help develop the managers and professionals needed for the future prosperity of the company; skills inventory information to identify people according to what they can do for the organization today and tomorrow; succession planning data and systems, to ensure the continuity and desired change in leadership capabilities focusing on key managers and their replace-

¹²¹Bob Stambaugh. "Integrating HRIS Planning With The Strategic Business Plan." Seventh Annual HRSP Conference, (June 1987): 10.

ments; and employee cost information including data needed to conduct salary planning and labor negotiation, benefits administration and management, pension planning and all other employee related costs that can be specifically identified in a comprehensive human resource information system.¹²²

The information and analytical capabilities of a comprehensive, business based human resource information system can provide a strategic advantage for companies undergoing or planning change. Together with the organization's other systems, human resource systems provide the data and planning capabilities needed by top management to develop and implement policies and programs that help the company achieve its goals more effectively.¹²³

In organizations in which corporate strategic planners work with human resource managers to develop scenarios for change, the kinds of information and mechanized processing available in a well designed human resource information system are virtually essential. The quality of human resources is so critical to the performance of the company, that in all but the smallest organizations com-

¹²²Joe Pasqualetto. "Evaluating The Future of HRIS," 83.

¹²³John E. Spirig. "Selling The HRIS," 32.

puterized planning models are a necessary tool.¹²⁴

Corporate Philosophy And Strategy And Its Effect On Shaping The Use Of The Human Resource Information System

Today, as computers are affecting virtually every part of a company's operation, it might have been expected that computerization would also affect the culture that guides those operations.

Culture is generally defined as a subtle and complex set of unwritten rules and matter of fact prejudices; a value system.¹²⁵ Establishing that value system involves nearly every aspect of the firm's operations, controls and reward mechanisms. Culture affects the whole organization.

Computerization is having a noticeable affect on the culture of organizations, and human resource information systems are influencing an organization's culture by affecting its employees' behavior. For example, the PRISM system used at Federal Express has had a profound influence on the organization's culture. PRISM is a computerized personnel tracking system, which provides information on any of the company's worldwide employees with the touch of a keyboard. This system enables Federal Express to monitor the best and brightest employees closely and assists

¹²⁴Ibid.

¹²⁵Jane C. Linder. "Computers, Corporate Culture and Change." Personnel Journal, (September 1985): 49.

in decisions made to promote them accordingly.¹²⁶

Federal Express management responds to its employees needs, because strategically they know it is a good move. It is also a tradition; the Federal Express management team has always behaved in this manner. The PRISM system monitors several award and recognition programs for Federal Express employees; therefore, the human resource information system affects the behavior of the employees at Federal Express and helps to strengthen the company's philosophy. The Federal Express philosophy of people-service-profit is reinforced by the utilization of the PRISM system.¹²⁷

Automation, such as implementing a human resource information system, can affect employees behavior. If computerization is used effectively it may influence the organization's culture. Human resource managers can then attempt to strengthen or change the organization's culture to coincide with the company's strategic plans.

Upper level management often looks to the systems department to establish the strategic direction for computerization. Human resource professionals are often mis-

¹²⁶Sal Vittolino. "What Perkins Delivers to Federal Express." Human Resource Executive, (February 1989): 16.

¹²⁷Ibid.

takenly not asked to contribute to this strategic planning process. It is important for top management and human resource professionals to get involved in the human resource information system strategic planning process. This would help ensure that computerization of the human resource function would have a positive cultural impact.

To use a human resource information system to influence culture there are four steps that should be followed.¹²⁸

The first step is to identify the desired corporate culture and to define the cultural characteristics that the company wants to encourage. This is a crucial step because an organization's culture will affect the implementation of company programs.¹²⁹

Jane C. Linder, President of Linder and Associates, explains how it is difficult to find a clear framework for describing culture. She relies on five dimensions of culture which address a company's internal relationships. These five dimensions are described below.

The first dimension is the entrepreneur culture versus the conservative culture. Conservative companies

¹²⁸Jane C. Linder. "Computers Corporate Culture and Change." Personnel Journal, (September 1985): 50.

¹²⁹Ibid.

tend to be formal and cautious establishments. The people employed by conservative companies are often more concerned with how something is done than about what actually is achieved.¹³⁰

Entrepreneurial firms are the opposite. They encourage risk taking, are informal, aggressive and impulsive.

A second dimension of culture which addresses a company's internal relationships is of the type which supports clear lines of authority and responsibility versus the organization whose culture supports ambiguous ones.¹³¹

Companies with clear lines of authority delegate responsibility and decision making to specified individuals. They have the tendency to align authority with responsibility.¹³²

In the culture composed of ambiguous authority, support for new ideas or strategic plans has to be gathered from numerous employees. An individual does not usually have decision making power but rather authority and responsibility is shared by a number of individuals.¹³³

A third dimension of culture is familial versus in-

¹³⁰ Ibid.

¹³¹ Ibid.

¹³² Ibid.

¹³³ Ibid.

dividualistic companies. Familial companies value teamwork. Employees working in an organization which supports this type of culture generally build strong relationships with other employees. Individuals in positions of seniority train their subordinates to assume their responsibilities when they move up in a company.¹³⁴

Individualistic firms place great importance on competition. The individual employee is emphasized, and what he or she can contribute to the organization.

A fourth dimension is the led versus the managed culture. Led cultures emphasize long term goals. Companies which encourage a led culture are creative and have a clear vision of their future.¹³⁵

A managed company evolves around its financial objectives. Its statement of values depends on the problem at hand, however organizations which advocate a managed culture often foster rapid growth and extensive activity.¹³⁶

A fifth dimension of corporate culture which address an organization's internal relationships is described as the ethical versus the amoral philosophy.¹³⁷

¹³⁴ Ibid.

¹³⁵ Ibid., 52.

¹³⁶ Ibid.

¹³⁷ Ibid.

Ethical companies conform to professional standards. They distinguish between what is right and what is wrong, and value honesty and fair play.

Amoral cultures believe success is good regardless of how it is achieved. Amoral companies are not capable of distinguishing between what is right and wrong.

The dimensions mentioned above are oversimplifications of cultural patterns that may result in organizations. A company's upper level management staff is making an important decision when it determines the type of culture it wishes to support.

Information systems can be used as a means to promote top management's strategic plans. They can help reach the overall goal of establishing a set of shared values that guide employees to strategically valuable behavior.

The second step, allowing human resource information systems to influence culture, is to determine what kind of system supports the desired culture. Culture determines how organizations choose to process information.¹³⁸

Human resource information system professionals are aware that company culture affects their success in build-

¹³⁸ Ibid.

ing systems, however the implementation of a new system in the human resource department can also help to influence culture. For example, when personal computers are installed at a company, individuals who are not familiar with the way they operate may be reluctant to use them. With time and a successful training program, individuals who were once afraid of the computers, should learn to feel more comfortable with them. Having a personal computer available, may inspire users to devise new ways of effectively utilizing them.¹³⁹

According to Linder, this is one way a system can influence an individual's behavior. With time and encouragement the behavior, of working with a system, is internalized and copied by others. A result may be a change in the organization's culture.¹⁴⁰

A system alone will not change a culture. A system cannot create ethics or leadership where none exist. Culture affects all individuals employed at a company, therefore, by carefully choosing its systems, an organization can reinforce culture building activities and experience success in disseminating new behavior patterns.¹⁴¹

¹³⁹ Ibid.

¹⁴⁰ Ibid.

¹⁴¹ Ibid.

When using human resource information systems to influence an organization's culture, a third step, identifying the proper organizational power structure for systems is crucial. A system's power structure determines to what extent it is accepted into the framework of the company and has a significant influence on behavior.¹⁴²

Linder explains that a system's power structure is determined by the organization that controls the system, its information value to those who control it, and its strategic importance to the company and culture is influenced by who controls a system, who sets the pace of decisions, and by who pays the bills.¹⁴³

Computerization increases the power of selected people in the organization by giving them access to information that no one else has. Individuals who are computer literate are able to analyze more alternatives than individuals who are not. This advantage translates into politically useful credibility and stature.¹⁴⁴

Management influences culture by assigning individuals, with credibility and stature, to work on a system project, such as the implementation of a human resource

¹⁴² Ibid.

¹⁴³ Ibid.

¹⁴⁴ Ibid.

information system.

In general, to encourage a particular culture, management should identify a system that is strategically important to the company, and assign a culture consistent individual to be the system's project leader.

The fourth step to be completed to ensure that the human resource information system influences the company's culture is to prepare a migration plan. To manage culture through systems, executive, human resource, and human resource information system management should evaluate their existing systems and planned system implementations to determine to what extent they encourage the chosen culture. This plan can then be formulated for cultural strengthening or cultural change.¹⁴⁵

Systems, existing and proposed, should be ranked in order of importance to the organization. Then these systems should be tested for cultural consistency. A human resource information system migration plan, ensures that a company's most important systems are culture consistent. The specific migration plan that is followed depends of whether the organization's effort is toward cultural strengthening or toward cultural change.¹⁴⁶

¹⁴⁵ Ibid., 54.

¹⁴⁶ Ibid.

Systems are useful as a tool for influencing culture only if the migration strategy can be executed successfully. For projects to succeed the human resource information system project team needs to understand how the human resource information system can influence the company's culture and upper level management must support the project.¹⁴⁷

In conclusion human resource information systems are affecting employee's attitudes and behaviors. In order for an organization to use human resource information systems to influence its culture it should identify cultural objectives that are consistent with the company's strategy, determine the types of systems that will support these objectives, identify the proper organizational power structure for those systems, and formulate a migration plan for moving toward a culture consistent systems environment. Following this approach, an organization can use a human resource information system as a tool to help strengthen or change their corporate culture.

¹⁴⁷ Ibid.

TRAINING OF HUMAN RESOURCE PROFESSIONALS

The Role Of The Human Resource Information Systems Professional

Career opportunities in the human resource information systems field are increasing for a number of reasons. Growing emphasis on cost containment and productivity, and the increase in the number of government regulations have increased the need for human resource information systems professionals.

The human resource information systems profession has been influenced by technology. Dependence on technology has controlled the development of human resource information systems and the skills required of professionals who work in the field.¹⁴⁸

Two types of technology have had a major impact on the human resource information systems profession, computer hardware and computer software. The first computers were large mainframe systems. Human resource systems professionals were affected by these large mainframe systems because development was restricted to the schedule capabilities of these computers.¹⁴⁹

Mainframe systems were often centralized and controlled

¹⁴⁸Richard Cottrell and Charlyn J. Robertson." The HRIS Profession: Development and Direction." Personnel Journal, (September 1987): 111.

¹⁴⁹Ibid., 112.

by the management information systems department. Human resource applications generally were not high on the department's priority list.¹⁵⁰

Computer software also influenced the human resource systems profession. Computer software utilizing programming languages that were difficult to comprehend, had a positive impact on the demand for human resource information system professionals with a well rounded computer background. The human resource information systems professional was needed to help unexperienced users understand different programming languages, and software packages.

In the past, the typical human resource information systems professional shared the following responsibilities: heavy involvement with software implementation and project management; liaison between system users and the management information systems department; the responsibility of providing end user information; and the principal concern of meeting the basic needs of system users.¹⁵¹

Today the tasks of the human resource systems professionals are changing dramatically. With numerous mergers, acquisitions, and divestitures, organizations are finding they often need to integrate different types of systems,

¹⁵⁰ Ibid.

¹⁵¹ Ibid.

or add numerous new employees into their current systems at a moments notice.

Today, the human resource information systems department has a key role in the strategic planning process of the organization. The human resource systems department serves a corporate function as well as a divisional function. On the corporate level there is a need for professionals in this department to coordinate, consult, plan, and support corporate human resource information system strategies and requirements. On the divisional level professionals are needed to support the daily operations of the human resource information system.¹⁵²

Cynthia D. Diers, President of the Association of Human Resource System Professionals, states

A human resource systems professional is anyone dedicated to using information and technology to manage human resources.¹⁵³

Dier explains that a human resource systems professional can be one of the following:

- A person working in human resources who manages the human resource information system.
- A person working in a human resource functional area who has a personal computer and uses employee information to

¹⁵²Ibid., 114.

¹⁵³Cynthia D. Diers. "What is A Human Resource Systems Professional?" HRSP Review: A Publication of the Association of Human Resource Systems Professionals, (Spring 1989): 2.

make decisions and supply information to monitor policy compliance or project corporate needs.

- A person working at a college or university who is educating individuals on how to use computers to manage human resources.
- A person working for a software vendor developing new human resource or selling software to the human resource community.
- A person working for a consulting organization who provides services to human resource departments to help find better ways to capture and manage human resource data.
- A person who is working in the management information systems department of an organization and has responsibility for analyzing, designing and programming the human resource system.
- A person who works in the payroll department and uses employee information to produce paychecks and comply with various local, state, and federal laws.

Human resource professionals, although the term appears to cover a broad spectrum of individuals, are commonly bonded by their use of information and technology to improve the management of human resources.¹⁵⁴

According to Richard Cottrel, Manager of Compensation and Benefits for Dataserve, and Charlyn J. Robertson, a Compensation and Benefits Planning Analyst at First Bank System, individuals who desire to pursue a career in human resource information systems should understand the areas of concentration that have surfaced during the professions developmental stages. These include: interpersonal communications, the ability to effectively communicate with software vendors and the data processing department is

¹⁵⁴ Ibid.

vital; consulting, the ability to advise a client base of users; technical knowledge, the need to be familiar with how minicomputers, microcomputers, and local area networks operate; human resources, the ability to understand human resource functions; project management experience in implementing major systems, and possessing project management skills; and design and development, ability to coordinate various technologies.¹⁵⁵

One of the most important responsibilities of today's human resource information system professional is to ensure effective end user training. Training is a process whose purpose is to make the user skilled and knowledgeable. It is important for the human resource systems professional to be effective in the role of system trainer because today's systems are becoming more and more complex.

As one can note from the previous discussion, there are many career paths for an individual to follow when choosing a career in the field of human resource information systems. For human resource systems professionals to advance in their field, they should present themselves as more than system experts. It is important for them to get involved with the rest of the human resource staff and

¹⁵⁵Cottrell and Robertson, 120.

partake in networking activities. As human resource systems professionals continue to prove their worth to the organization, and technology continues to advance, they will be increasingly valued by the organization.

A good grasp of the capabilities of computer hardware and software and a conceptual understanding of where the information technology field is going will open many doors to the human resource professional.

Training In Computer Literacy

It is necessary that human resource professionals have access to detailed human resource information. Human resource executives should be able to obtain computerized information without being dependent upon the data processing department. In order to do this human resource executives must learn how to use the organization's human resource information system. A human resource executive who understands computers will be much more effective in implementing new computer projects in the organization.¹⁵⁶

It is important for today's managers to be computer literate in order to improve their information processing and decision making capabilities. Computer literacy is a term that refers to the competence needed to use compu-

¹⁵⁶Marilyn Buckner. "How Do Senior HRD Professionals Become Computer Literate?" Training and Development Journal, (May 1984): 18.

ters and interact in a computer prominent society. Although the term computer literacy is commonly used, it lacks common meaning. Without a common understanding of what is or should be meant by computer literacy, efforts to achieve literacy lack focus.¹⁵⁷

According to Robert W. Hollman and Belva J. Cooly, Associate Professors of Management at University of Montana, the overall framework for training in computer literacy should consist of three phases: the assessment of training needs, implementation of training, and the evaluation of training.¹⁵⁸

The assessment phase consists of performing an analysis of factors pertinent to the training effort. It is important for the organization to examine its goals and strategies and determine how they will affect the human resource information system. An organization's attitude and policy toward the new human resource information system, and the organization's need for computer literacy are other factors that should be analyzed.¹⁵⁹

¹⁵⁷Ellen Konar, Allen I. Kraut and Wilson Wong. "Computer Literacy: With Ask You Shall Receive." Personnel Journal, (July 1986): 83.

¹⁵⁸Robert W. Hollmann and Belva J. Cooley. "Overcoming Managerial Fears of Computers Through Computer Literacy Training." Personnel Administrator, (October 1984): 25.

¹⁵⁹Ibid.

It is important for the instructor of the training program to determine the needs of the individuals he or she is about to train. Examining what these individuals already know about computers, what computer skills they possess, what fears and attitudes they have, and what computer skills they would like to develop is a critical part of the assessment phase.¹⁶⁰

Information in the assessment phase can be collected by interviews, questionnaires, surveys or by small group discussions. Any of these methods may prove to be valuable.

In the assessment phase, it is crucial that the trainer examines such issues as whether the trainees are experiencing any fear or anxiety due to the upcoming training program. If it is found that the trainees are reluctant to participate in the training program due to fear or anxiety, it is important that the trainer attempts to alleviate these fears.

The trainer may choose to alleviate employee fears in a variety of ways. The employee trainer can hold an orientation meeting. During the orientation session the trainer should explain to employees what will occur during the

¹⁶⁰ Ibid., 26.

training session and what will be expected of them. Presenting employees with a realistic picture of the upcoming training program is one way to attempt to alleviate employee fears.

Another way for an organization to reduce employee anxiety is to provide individuals scheduled for training, with reading materials designed to familiarize them with the topics to be discussed at the training session. Implementing programs which increase the employee acceptance of the proposed training program is critical. Determining what kind of instructional aids would be useful for the various components of the program is also recommended.

After completion of the assessment phase, the organization is ready to implement its training program. It is important that the training sessions are implemented in an environment conducive to learning.¹⁶¹

According to Hollman and Cooley, factors important to the development of a positive learning environment include application of the following basic principles of learning theory.¹⁶²

The first principle of learning theory that should be applied is that material, taught by an instructor, should

¹⁶¹ Ibid.

¹⁶² Ibid.

be analyzed carefully and divided into appropriate units that can be mastered in a sequential fashion.¹⁶³ It is easier for an individual to understand how one module of a human resource information system operates, than it is for that person to understand how the whole human resource information system functions. After a trainee accomplishes a task, he or she will then be asked to achieve another. This approach allows the trainee to feel a sense of accomplishment at each step of the process, and any unnecessary overload of material is avoided.

A second principle of learning theory is the establishment of a conducive learning environment.¹⁶⁴ Learning is facilitated by practice and repetition. It is critical that the trainer designates time for the trainees to practice the material they have just been taught so they fully understand how to operate the human resource information system.

It is also crucial for a trainer to recognize that not all individuals learn at the same rate.¹⁶⁵ Instructional activities should be planned to account for such differences. Often classes that are offered in computers allow in-

¹⁶³ Ibid.

¹⁶⁴ Ibid., 29.

¹⁶⁵ Ibid.

dividuals to work at their own pace. This method accounts for differences in learning rates which might arise.

It is necessary for instructors to supply their trainees with feedback.¹⁶⁶ Providing feedback to trainees should help to reinforce their new behavior. The more reinforcement an individual receives, the more likely that individual is to continue performing that behavior. This factor also helps create a good learning environment.

Trainees should be taught skills which are transferable to their jobs or organizational settings.¹⁶⁷ Teaching trainees skills which are applicable to their jobs makes sense. However it does not make sense to teach employees skills which are not transferrable to their organizational environment. This would be a waste of both the instructor's and trainees' time.

All the factors mentioned above help to create a good learning environment. After a good learning environment is established, it can be enhanced by the selection of proper instructional techniques. The selection process requires the trainer to consider both learning principles and training objectives. Instructional techniques should be

¹⁶⁶ Ibid.

¹⁶⁷ Ibid.

identified that can best satisfy the training objectives. The training method that is finally selected should be one which meets the most learning principles and is designed for the trainees. A program should not be designed for the technically oriented person with no computer fear if the majority of the trainees have never touched a computer.¹⁶⁸

An effective computer literacy training program should have an evaluation phase that assess the effectiveness of the training. The evaluation model suggested by Ralph Catalanetto and David Kirkpatrick provides for an extremely comprehensive evaluation. According to this model, training program evaluation should consider four dimensions.¹⁶⁹

The first dimension, is the reaction of the trainees to the training program. A positive or negative reaction can tell a lot about a training program. The trainees should be questioned as to how the training program could be improved. Valuable information could be discovered by an indepth examination of the trainees reactions.¹⁷⁰

An evaluation phase should determine what the trainees learned. Whether the trainees learned all the

¹⁶⁸ Ibid.

¹⁶⁹ Ibid., 31.

¹⁷⁰ Ibid.

material they had set out to, and whether they in fact have become computer literate.¹⁷¹

The evaluation phase should also be aimed at analyzing the trainees behavior changes on the job. Determining whether trainees actually are using their new skills, and if they are encouraged to do so is a significant part of the evaluation phase.¹⁷²

The overall performance of the trainees should be analyzed. It is important to examine whether the trainees performance has improved, and whether these improvements were a result of the training effort.¹⁷³

Training professionals and managers have been concerned about the relatively low degree of on-the-job application skills taught in training programs. Often follow up assessment in the work place indicates that little of what was taught in the training program is actually applied on the job.

Obstacles to computer literacy include fear and time. Often senior human resource executives are intimidated by the computer knowledge of younger human resource professionals. Many senior human resource executives may feel

¹⁷¹ Ibid.

¹⁷² Ibid.

¹⁷³ Ibid.

that these human resource professionals, just entering the work force, are considerably more knowledgeable in the area of computers due to the fact that many college programs require students to complete courses in computers and data processing. Senior human resource professionals may be afraid of jeopardizing their status by admitting they are computer illiterate. Individuals try to avoid situations in which they might feel uncomfortable and many human resource professionals will be hesitant to learn something new and complicated.¹⁷⁴

To train senior human resource executives successfully, who may feel selfconscious about revealing their lack of computer expertise, it is a good idea for an organization to provide individualized training. For example, a company's trainer could conduct a private training session for a senior human resource executive who may be reluctant to attend a computer class with the rest of the human resource department employees.

Time limitations are another obstacle to the development of computer literacy. For those who use computers as a means to an end rather than an end in itself, priorities are often elsewhere. Individuals may find the time to attend a training program, but back on the job they may

¹⁷⁴Buckner, 22.

not have the time to implement the skills they have learned.¹⁷⁵

Computer literacy is important to a human resource professional's career. The human resource executive who is not computer literate will fall behind other professionals and will not be an attractive candidate for another position.

Human resource professionals want to become computer literate because computers are great management tools. Human resource executives can use them to maintain budgets, allocate resources, and manage project details.

A Successful Training Approach

When implementing a new or upgraded human resource information system, it is important for the organization to include provisions to develop a comprehensive education program that introduces the new system to users who are required to use it effectively.¹⁷⁶

An organization must offer effective training programs that allow the human resource information system users to understand how to effectively utilize the new system. Since users from a variety of human resource functions will be affected by the implementation of a new

¹⁷⁵Konar, Kraut and Wong, 86.

¹⁷⁶Jan Fretwell. "A Successful Training Approach." Personnel Administrator, (September 1986): 28.

human resource information system, different training approaches may need to be analyzed and implemented for different user groups.¹⁷⁷

Jan Fretwell, a partner of the Oracle Consulting Group, explains that an effective training program should consist of three components: an overview session, specific user group needs, and a summary session.¹⁷⁸

In the overview session, the trainer should provide reasons for the implementation of a new human resource information system. It is important for users to understand why it is necessary to computerize the human resource functions, or update a present automated system. The instructor should explain the advantages and disadvantages of the new system and should provide an accurate description of how the new system will function.¹⁷⁹

The company's implementation strategy should be discussed during the overview session. An estimate of how long the implementation process should take, as well as detailed plans for the conversion from the old system should be conveyed to the system's users.¹⁸⁰

¹⁷⁷ Ibid.

¹⁷⁸ Ibid.

¹⁷⁹ Ibid., 29.

¹⁸⁰ Ibid.

Specific user group needs can be addressed after the overview session has been completed.¹⁸¹ Separate workshops may be set up for data entry personnel, human resource executives, and for individuals in data processing. Each workshop should address the concerns of the individual groups. Classes may need to be established to train specified users on certain modules. For example, the benefits manager should attend a class on automating the benefits function, and a compensation analyst may choose to attend a class on effectively implementing the salary administration module.

It is important that information is presented in a manner that the trainees can understand. Presenting an excess of technical information may frighten human resource professionals. Likewise a workshop for technically oriented individuals, which emphasizes details of the human resource function is not the most effective training approach. The trainer must design the program to accommodate the users needs. It is also important that the trainer does not overwhelm the trainees with an abundance of new information. The result is often information overload, and users who want nothing further to do with the new system.

¹⁸¹ Ibid.

A summary session reinforces the material presented in the training program.¹⁸² Any further questions users may have should be answered, and the benefits of the new human resource information system should be emphasized.

Trainers should be selected carefully. They should be familiar with the current system and organization as well as have some knowledge of the new system.¹⁸³ Instructors should be able to elaborate on different uses of the system and should be able to provide the trainees with specific examples of ways in which the new human resource information system can aid them in their daily tasks. The ideal instructor would be one who is familiar with the operations of a human resource department and who has experience working in a systems environment.

Training sessions are generally more effective when they are conducted close to the date of system implementation.¹⁸⁴ Once a date is confirmed for system implementation, users should be informed about the upcoming training sessions. The training sessions should be planned far

¹⁸² Ibid.

¹⁸³ Ibid., 30.

¹⁸⁴ Ibid.

enough in advance so that users have plenty of time to arrange their schedules.

Following these guidelines will increase the organization's chances of developing a training program that responds to the system's users needs. A training program is successful when it introduces the users to the system and provides them with the knowledge required to effectively utilize it.¹⁸⁵

¹⁸⁵Ibid., 31.

BASIC COMPONENTS OF AN EFFECTIVE HUMAN RESOURCE INFORMATION SYSTEM

The modern human resource information system is made up of a series of connected modules. A module is an umbrella term covering a group of related human resource activities. The specific components and parameters of modules may vary with the organization. It is intended that these modules can be added one at a time or as the need arises. For example, an organization may find that initially it is imperative that it automates its benefit and salary functions. However, at a later date it may find that due to the introduction of new government requirements it is critical to computerize its equal employment and affirmative action function. Whether an organization installs a single module or several, will depend on its current needs.¹⁸⁶

Most modules facilitate the computerization of a single human resource function. Modules come equipped with their own input forms, screens, and reports which are specifically designed to present the data unique to that human resource function.¹⁸⁷

Whether an organization chooses to build a human

¹⁸⁶ Alfred J. Walker. HRIS Development, 24-25.

¹⁸⁷ Ibid., 25.

resource information system in house, or purchase one from a software vendor will influence what modules the organization will utilize.

A recommended approach to installation, for a company that builds or buys a human resource information system, is for the organization to limit the number of modules it initially installs. This prevents an organization from tying up all of its resources for the system implementation project, and it also allows the systems' users to become accustomed to one or two computerized human resource functions, rather than the automation of the whole human resource department. A wise decision might be for the organization to initially install a base human resource module and one or two additional support modules. Of course, how the company goes about the installation process will depend on the staff available to run the human resource information system and the funds available for development.¹⁸⁸

This approach, implementing one or two modules at a time, allows an organization to initially concentrate on those functions which are the most important and most necessary for it to automate. Less important items can be computerized at a later date. An organization's decision

¹⁸⁸ Ibid.

as to which human resource functions to computerize will depend on which are supported by top management.

Most human resource information systems come with a base human resource module, which stores the core employee and human resource data. It provides the central data base support and file organizer to which other modules and applications can be added. This module generally maintains basic employee information such as name, date of birth, address, and classification codes which are necessary to determine an employee's class and status.¹⁸⁹

Standard organizational data such as job titles, department and location information, and salary grades, can be kept in this module also. In addition, benefits administration, salary administration, and human resource record keeping activities are supported by this module.¹⁹⁰

Applicant Tracking

An applicant tracking module enables the human resource department to maintain a record of all job applicants throughout the preemployment cycle. It can keep track of accepted resumes, ensuing interviews and resulting job offers. Most applicant tracking modules store a complete background on each job applicant.

¹⁸⁹Ibid., 26.

¹⁹⁰Ibid.

Areas of importance in an applicant tracking module are: the computerization of the human resource department interview, preemployment testing, referrals of applications and resumes, job offers, and affirmative action tracking.

The human resource department interview can be thought of as two events, scheduling the interview and conducting the interview. For each of these activities, the information of interest includes the applicant's name, date, time, place, interviewer, and job for which the applicant is being interviewed. All of this valuable information can be maintained on an efficient applicant tracking module.

Most companies receive hundreds of job applications each year. It is virtually impossible for an organization to review all the old applications it has received when there is a new job opening. However, with the aid of an applicant tracking module it may be feasible for an organization to store a summary of the applicants qualifications in the system and quickly search for candidates who may qualify for the position.

An applicant tracking module is a valuable tool which enables a recruiter to search through a computerized system to determine a position's status. For example, by using an applicant tracking module, a recruiter can tell

how many individuals have applied for a position, if there are any past applicants who may be suitable candidates for the position, and whether the position has been filled or is still vacant.

The applicant tracking module can be valuable in the testing of applicants. It can be helpful in both the scheduling and the administration of tests. The applicant tracking system can hold valuable information such as the type of test, name, date, time, place, test score, and name of test administrator. It is important that companies keep test scores documented on a computerized system. This is a method of protection in the event that legal action is brought against the organization. An applicant tracking system should be flexible to accommodate a variety of tests.¹⁹¹

Recruiters choose applicants which they believe to be qualified for a position. Often the resumes of these applicants are passed on to a supervisor for review. The applicant tracking system can be a useful tool in recording the supervisors ratings of prospective applicants. A system generated turnaround document may be sent out with application or resume to a supervisor. The supervisor com-

¹⁹¹Elliot Witkin. "Developing Requirements For An Applicant Tracking System: Part Two." HRSP Review, (Winter 1988):20.

pletes this document, indicating his or her decision on the applicant. This form is then returned to the recruiter for input to the system.¹⁹²

When a company extends a job offer to an individual, and it is accepted, the applicant tracking system should validate that the job is being filled. The status of the job should be changed from open to closed.

An applicant tracking module should also aid an organization with its affirmative action tracking of prospective employees. The system should store a complete background on each applicant. Data fields should be included in the system to facilitate the tracking of individuals with disabilities and handicaps, and should allow for the tracking of women and minorities.

The applicant tracking module should be integrated with the human resource base module. Once an applicant becomes an employee, the information collected on the individual in the applicant tracking module should be transferred to the human resource base module. In general an applicant tracking module should reflect the events which occur in the preemployment process. It should uphold government requirements, create written reports on applicants, and aid in the process of matching applicants to

¹⁹²Ibid.

job openings.

Position Control

The position control module enables management to track and monitor all authorized jobs in a company. Position control refers to a stand alone data base that references all employee positions within an organization. This module stores the positions of an organization, even if they are not filled by active employees.¹⁹³

A unique number is assigned to each position, and a history of the incumbents can be kept, along with the level of the job, its location, and salary grade.¹⁹⁴

The position control module allows the organization to track labor costs and aids in recording and controlling the job positions established by the company. A position may be described as a budgeted work unit performed by a predefined number of employees. A position will have characteristics which determine the type of individual who may occupy it, the positions budgeted cost, its organizational and or cost center location, and its ideal job description.

A position control module can be very useful in large

¹⁹³Gretchen M. TenEyck. "Position Control Contributes to HR Management." Personnel Administrator, (February 1988): 42.

¹⁹⁴Alfred J. Walker. HRIS Development, 28.

organizations, those employing more than two hundred individuals, because employees are continually being hired, promoted, transferred, terminated and retired. This module allows an organization to reduce recruitment and training costs by highlighting the positions that experience unusually high turnover or those that are hard to recruit for. By using position control history, an organization can identify those positions where turnover is heavy, or where the attrition rate is excessive and strategically plan accordingly.

According to Gretchen M. TenEyck, a marketing representative of Tesseract Corporation, a position control module which allows for: obsolete, current and planned positions; the tracking of reporting relationships; and position description information, can be used to do the following. It can develop model scenarios covering modified organizational structure or compensation and benefits plans; associate job content skills with a position; construct organizational charts; take an inventory of positions by function and job content across the corporation; ensure similar jobs are consistently evaluated and classified for equal employment opportunity and affirmative action programs; automate the job posting function; permit the periodic comparison of actual human resource cost, headcount and complement data with the current budget or

with the original budget established for the financial period; and search for future opportunities that match the employees career objectives and abilities.¹⁹⁵

When the human resource information system utilizes a position control module it keeps position control data and common employee data in sync. This enables an organization to use the position control module as a strategic management tool. As organization familiar with the module's potential, understands how it can become a major contributor to the strategic success of the human resource department.¹⁹⁶

Manpower Planning

A manpower planning, or career planning module enables an organization to maintain an inventory of employee skills. This module can contain a variety of human resource information regarding the various positions of the organization and the skills required of professionals in those positions.

A typical skills inventory can maintain a large amount of information on each employee. In addition to biographical data, employment history, appraisal ratings, career goals, and training sessions attended, information

¹⁹⁵TenEyck, 44.

¹⁹⁶Ibid., 46.

on the specific skills and or experience of each employee can be a component of the skills inventory. The module's goal is to come up with the skills required to perform jobs effectively.¹⁹⁷

Human resource departments are often required to project the number of individuals that will be needed to support a business plan. Included in the projection may be estimates of the staffing levels required for the plan to succeed, by job category, department and location. A recruiting and training effort or possibly layoff expenses may also be included. This task is facilitated by a manpower planning module that can make projections based on the current work force.¹⁹⁸

The manpower planning module can be used to chart employees in terms of their skills. The availability of this information ensures that employees possess the necessary skills before being promoted to higher level positions.¹⁹⁹

The manpower planning module can also direct job

¹⁹⁷Boveington, Kurt W. and Harry A. Washing. "Keeping Account of Employees' Skills." Supervisory Management, (May 1986): 21.

¹⁹⁸William I. Travis. "How To Justify A Human Resources Information System." Personnel Journal, (February 1988): 86.

¹⁹⁹Boveington and Washing, 22.

transfers and relations and other development activities. Management can determine which employees are lacking specific skills by searching through the manpower planning data base. Individuals with deficient skills can be recognized, and proper development programs can be designed and implemented by the organization to ensure that it has a pool of employees proficient at the skills that meet its needs.²⁰⁰

The manpower planning module can be helpful in career counseling. It can serve as a communication vehicle during the counseling session. For instance, an employee and his supervisor can discuss the skills needed to advance upwards in the corporate hierarchy. The computerized skills inventory facilitates the discussion. Managers can justify not giving an employee a promotion due to the need for training in a specific skill group.²⁰¹

Information obtained from a manpower planning module can play a significant role in human resource planning activities. It helps management compare the current demand for human resource employees with the skills available. Human resources can then implement appropriate policies to recruit employees with needed skills, or train and develop

²⁰⁰ Ibid.

²⁰¹ Ibid.

their existing employees.²⁰²

The manpower planning module can be a key management tool. It is a tool which when used effectively will strengthen the human resource functions within an organization. By keeping an account of employees skills, management can more effectively match skills with current and future job demands.

Benefits Administration

There is a growing need for more accurate employee record keeping in the area of benefits. The need arises from new legislation that has been passed, placing more restrictions on benefit plans. A few of the laws affecting the benefits arena are the Employee Retirement Income Security Act of 1974, the Consolidated Omnibus Budget Act of 1986, and the Tax Reform Act of 1986.

Section 89 of the 1986 Tax Reform Act is a complex law governing employee benefits and discrimination issues. It affects all employers and will cover health, accident and life insurance, tuition reimbursement, cafeteria plans, fringe benefit plans, group legal programs, educational assistance and dependent care programs.

Employers have to analyze their current benefit plans to see if they meet Section 89's standard qualifications.

²⁰²Ibid.

An organization needs to determine who is covered under their benefit plans, and what type of coverage is offered to these individuals.

Section 89 will require organizations to expand their system's data base, due to the fact that so much data must be tracked and maintained for government reporting purposes. Information an employer needs to collect to perform the discrimination testing required by the new law includes accurate data on dependents, former employees, groups eligible to participate in the plans and coverage. Computerizing the benefits function facilitates this record keeping process.

The benefits module is used to track all employees basic benefits such as health insurance, life insurance and disability. It should also track deferred benefits such as pensions, profit sharing, thrift and savings plans.

In essence, the benefits administration module is used to automate the organization's benefit plans, generate annual benefits statements, and produce reports. The system should capture important information about employees' benefits including spousal information, dependents, coverage amounts, and beneficiary designations. The system should also support mandated benefit regulations.

It is important that the benefits administration

module accept a large number of welfare and deferred plans. An organization should have the ability to implement a new plan without having to modify the system.

Many efficient benefits administration modules can be integrated with an organization's payroll system. For example, employees could contribute to their pension plan through an automatic payroll deduction. It is common to find organization's integrating their payroll and human resource information systems.

A benefits administration module should be flexible. It should support numerous vesting schedules. Standard vesting schedules as well as user defined schedules should be supported. Benefits administration modules can not validate user defined schedules but they can check for lost vesting, lowered vesting already achieved, and for vesting over one hundred percent.

A benefits administration module should produce necessary employee benefits statements and reports. Examples of reports include: a list of employees participating in a welfare plan along with data pertaining to the plan; a list of participants in a user specified plan including the participants beneficiary data; and a report of new plan participants, which captures the employees who have become active in a plan within a user defined time frame.

When implementing a human resource information sys-

tem, most organizations place a high priority on automating their benefits function. Due to the increasing number of government requirements placed upon today's organization, it is important that organizations realize the necessity of computerization in the benefits area.

Equal Employment Opportunity and Affirmative Action

Companies no longer question the need to comply with equal employment opportunity laws. It is an organization requirement, however, it is difficult for an organization to know its current equal employment opportunity statistical status without utilizing a human resource information system.²⁰³

Organizations need to be able to respond quickly and accurately to changing equal employment laws and requirements. New legislation, in this area, is having a dramatic effect on the impact of human resource programs. An equal employment opportunity and affirmative action module enables an organization to record the goals and timetables that it has established to correct any deficiencies in its work force. This module should keep track of an organization's progress towards its goals.²⁰⁴

This module should have the capability of tracking

²⁰³Travis, 85.

²⁰⁴Alfred J. Walker. HRIS Development, 30.

the utilization of women and minorities. Ideally it should help the organization analyze its recruitment and hiring plans, staffing, transfers and promotional programs.²⁰⁵

Many equal employment opportunity and affirmative action modules display population demographics for Equal Employment Opportunity reporting. This information can be extremely useful to an organization's employment manager; it keeps the individual abreast of changes in the labor markets that are important to the company, and it helps ensure that proper representation of protected classes is maintained within the company's workforce.

Effectively using a computerized equal employment opportunity and affirmative action module, enables an organization to stay in compliance with changing government requirements.

Employee Health And Safety

The safety module stores employee injury and accident information. Under the requirements of the Federal Occupational Safety and Health Act of 1970, employers with more than eleven employees must keep and maintain records of all injuries and illnesses, medical conditions, and toxic exposures. This information must be recorded and saved for

²⁰⁵Ibid.

a period of five years.²⁰⁶

The health and safety module automates data concerning an organization's employees' health. The system enables an organization to manage and monitor illnesses that occur in the work environment or affect job requirements.

An illness or injury portion of the module should maintain all the information to complete the Occupational Health and Safety Act Summary Log and the Supplementary Record. The module should also maintain the necessary information to complete required state forms.

Besides abiding by regulatory requirements an organization may choose to analyze each incident of illness or injury. A safety and health module should allow for this and provide the information in terms of damages, costs, and corrective actions. Data such as the nature of injury or illness, part of body injured, and date the injury occurred are useful data to have stored in a health and safety module when examining and controlling a company's safety program.

In addition, toxic substances and hazardous exposures can be monitored through this module. Information that could be stored in the system includes the names of employees exposed to hazardous materials, the job categories

²⁰⁶Alfred J. Walker. HRIS Development, 29.

of workers at high risk, and emergency contact and physician information: Maintaining this type of information can be very valuable to an organization; however, the number of companies actually storing this type of information in a health and safety module is questionable.

Employee Labor Relations

A labor relations module enables an organization to track grievances and disciplinary actions. Labor relations modules should allow each employee to have multiple union affiliations, each with separate seniority tracking. This module should have the capability of storing a large number of grievances and disciplinary actions and should have the ability to track multiple steps in a grievance proceeding. For example, the module should be capable of monitoring those employees on suspension.

Many labor relations modules provide absence recording. This information allows an organization to review the amount of and reasons for absenteeism within the organization. The module should be capable of recording all pertinent information concerning employee absenteeism. The date of absence, the day of absence, number of hours missed, and whether or not the absence was excused should all be captured on the human resource information system.

Another feature of many labor relations modules is the capability to record employees' past, present, and

future performance appraisals. This becomes an important documentation tool when employees are terminated, especially when an organization needs a strong defense in wrongful discharge cases.

Reports that are often produced from a labor relations module include: seniority listings, membership lists of employees in unions, and performance appraisal distribution lists.

Salary Administration

A salary administration module provides an organization with the tools it needs to process salary related events. Compensation professionals establish salary guidelines and perform job evaluations for the organization. This salary information can then be entered and stored in the salary administration module. The salary administration module provides the organization with the ability to maintain computerized job evaluations, perform budgeting analysis, and generate salary grade ranges.

Salary administration modules facilitate the compensation function. They aid an organization in administering salary plans by automating the data and yet making it easily accessible.

One advantage of a salary administration module is the way it aids the organization in its merit review process. Today's systems allow performance ratings and

employee level data to be viewed on-line. This enables compensation professionals to identify who is due for a salary review, and then automate the salary review after it has been performed. This module should produce salary review forms, and should process the approved increase amounts.

Salary administration modules also can aid compensation professionals in the recording of nonmerit increases. For example, a salary administration module can be used to record increases based on seniority.

Another feature of many salary administration modules is a planning component which enables the organization to project and monitor salary expenditures for a budget year. Many modules allow an organization to monitor a plan's compliance with projections using user defined control level criteria.

An effective system should enable an organization to create numerous salary plans per plan year in order to see the effect of different average increase policies on the budget. It is important for a salary administration module to be flexible. A module which allows an employee to receive multiple salary increases in a day, is an example of a flexible system.

It is essential that salary administration modules provide tools to help organizations regenerate their

salary grades. This task, performed in the compensation department, is facilitated by computerization. Organizations need to stay competitive with market conditions, and maintain internally equitable salary grades. The salary grade regeneration feature, included in many salary administration modules, allows an organization to see which employees have been affected by recalculation procedures.

A salary administration module should provide an organization with a way to track an employee's total compensation. For example, a system which lists an employee's current base salary, bonuses, commissions, and the annualized value of ongoing monetary perquisites is more valuable than a salary administration module which just captures an employee's base salary.

A salary administration module can be a very valuable tool to an organization. It facilitates the job evaluation, merit review, and budgeting processes.

ADVANTAGES AND DISADVANTAGES OF WORKING WITH A HUMAN RESOURCE INFORMATION SYSTEM

The Benefits of Working With A Human Resource Information System

The human resource information system is a management tool. It allows an organization to answer questions, compare fields of information about the organization's employees, and project the impact of proposed policies on the company. For example, queries such as what would be the net effect on payroll costs if pay rates were increased by five percent for employees can be proposed and their potential impact can be estimated. In this way a system can be very helpful in human resource planning.

Organizations benefit from a human resource information system because it is a time saving device. Initially creating and establishing a data base and training the organization's employees can be time consuming, but once the system's users understand how to operate the human resource information system, they will be able to perform their jobs more efficiently. The amount of time needed to perform human resource tasks will be decreased by automating those functions.

A human resource information system may eliminate the amount of clerical help needed to keep track of paperwork in the human resource department. Automation of an organization's human resource functions, eliminates much of the

paperwork because employee data is stored on the human resource information system. Human resource executives search through a data base for employee specific information instead of shuffling through a file of papers. The dependence on clerical help is therefore decreased.

Human resource information systems are advantageous because they keep an accurate complete, up to date, data base. Today's human resource information systems are very beneficial because they are on-line systems. On-line refers to the use of computer terminals for either retrieval of employee data from the human resource information system files, or for entry of employee data into human resource information system files. The entry of employee data in some human resource information systems causes changes in the human resource information system files immediately (called realtime processing) while the entry of data in other human resource information systems creates the change after overnight processing. On-line systems are advantageous because less paperwork is required to look up employee information, and because they have the capability of updating the human resource information system files immediately.²⁰⁷

²⁰⁷Albert Lederer. "Information Technology: 1. Planning and developing a Human Resources Information System." Personnel, (May-June 1984): 18.

Human resource information systems have the potential to produce more accurate information for operating, controlling, and planning than manual systems. If an organization implements well developed procedures for regulating the input to the human resource information system, and if the system's users understand how the human resource information system operates, then the system should function with a high degree of accuracy. Generally, a computerized system produces reports and tabulations with a higher degree of accuracy than manual processes.²⁰⁸

Human resource information systems can be used to transform human resource practices into financial and strategic goals. For example, Motorola Inc. documents through its human resource information system that each dollar spent on training returns four times the cost of this training to the company. Whirlpool demonstrated a significant increase in awareness of and commitment to the company's strategic business plans by those who attended a senior executive training program over those who did not.²⁰⁹

Another benefit of a human resource information sys-

²⁰⁸Ibid., 15.

²⁰⁹Dave Ulrich. "Human Resources: The Competitive Road Not Taken." Information Strategy: The Executive's Journal, (Summer 1988): 4.

tem is the role it can play in succession planning. An effective human resource information system can alert senior executives of gaps that arise in succession plans. In one company, data from a succession plan highlighted a significant age distribution gap. In the past the company had experienced a downturn in business. Senior management had limited the hiring of new employees. A senior executive twenty years later examined the age distribution in the organization: few managers, two levels below senior management, were between forty-five and fifty-five years of age. Because of this information made available to senior management by the human resource information system, management redesigned career paths and succession plans to cover the age distribution gap. If this age distribution gap had been left undetected the company might not have had the management talent needed to meet the future changing demands of its market.²¹⁰

Human resource information systems are also beneficial to an organization because they help the organization determine how its employee programs compare to industry standards. This enables human resource executives to make strategic decisions about human resource practices. For instance, salary comparisons against competitors enable

²¹⁰Ibid., 5.

senior management to select a compensation policy that reflects the company's business strategy.²¹¹

There are many advantages of working with a human resource information system. An organization will benefit from the time and money that a computerized system will save. Using a human resource information system as a management tool enables an organization to successfully plan and reach its strategic goals.

The Drawbacks of Working With A Human Resource Information System

A big disadvantage to implementing a human resource information system, is the amount of time and resources that need to be devoted for this type of project to be successful. Planning, design, and implementation requirements are often underestimated. A successful implementation takes a long time, especially in a large organization.

The human resource information system is expensive in terms of financial outlay and manpower requirements for development and installation. The implementation will tie up staff members for months. They will have to devote their time to numerous planning and training sessions. Individuals with new types of skills may be in short

²¹¹ Ibid.

supply. For example, the organization may have to hire programmers, computer operators and other system professionals. This can have a significant impact on the compensation function.

Another disadvantage of working with a human resource information system is that it increases its users dependence on technology. Individuals who understand the technology will want to learn more, but those who do not understand the operations of the new human resource information system will find it threatening.²¹²

The human resource information system also causes human resources and system users to be more dependent on management information systems. Until human resource executives learn to operate a new system to obtain the information they need, they will be dependent on data processing to supply them with the reports they desire.

A disadvantage of working with a human resource information system is that many benefits realized from system use are hard to quantify. For example, improved morale is hard to measure. Management expects to see tangible benefits from the implementation of a new system but actually many intangible benefits are noted.

Although labor time may be saved by an organization

²¹²Albert L. Leader. "Information Technology", 16.

automating its human resource functions, more time will be spent retrieving data. Therefore it is best to view a system as a means of raising the levels of performance of professionalism of the entire organization.

Many support activities need to be provided to keep a human resource system operating effectively. Data processing is required to provide system stability on a continuous basis. It has to ensure that hardware, software, and data are available, functioning, and responsive to organizational needs. Data processing is concerned with maintenance procedures, archival procedures, timely recovery procedures, and security procedures.²¹³

Implementing a human resource information system involves overcoming a few obstacles. According to a Personnel Journal survey conducted in 1984, respondents felt there were many common problems faced by organizations during the implementation of a new human resource information system.²¹⁴

Twenty-six percent of survey respondents said that cost or budget limitations were the main problem faced when computerizing the human resource department. This

²¹³Albert S. King. "How Micros Are Changing HR Information Management." Personnel, (May 1985): 68.

²¹⁴Mort Grossman and Margaret Magnus. "Personnel Journal Reports: Computers and the Personnel Department." Personnel Journal, (April 1985): 46.

problem along with the need for larger budgets for human resource information systems was recognized.²¹⁵

Other problems included: the time required and staff needed for data entry process and the time consuming conversion process (16.3%); and getting data processing to understand the computer needs of human resources, to develop programs for human resources, and give priority to human resources (13.0%).²¹⁶

In many organizations the implemented human resource information system is not running efficiently. Human resource systems professionals are often burdened with maintenance activities and are unable to respond to managers' requests for new reports or processes based on the human resource data base. So even though there are many advantages to working with a human resource information system, there are many disadvantages as well.

²¹⁵ Ibid.

²¹⁶ Ibid.

MANAGEMENT ISSUES IN SOFTWARE UTILIZATION

Privacy of Employee Information

Most companies, that utilize human resource information systems, have developed a comprehensive set of policies and procedures regarding employee data and human resource information systems. Data in a human resource system that is particular to employees is essentially private. An organization which stores private information in a computerized system has the responsibility to ensure that this data is protected from careless dissemination or inappropriate use.²¹⁷ Privacy is an important issue that needs to be examined by organizations today, because more data elements are being stored in human resource information systems.

Technology has enabled the organization to increase the amount and type of information that can be kept in a human resource information system. At the same time social management and regulatory developments have created apparent needs for more mechanized data about individual employees and their families.²¹⁸

An important question to be asked by an organization,

²¹⁷ Joe Pasqualetto. "Staffing, Privacy and Security Measures." Personnel Journal, (September 1988): 88.

²¹⁸ Ibid.

developing a privacy policy, is what information should be stored in the human resource information system. It is critical that an organization determines what information should be maintained in a human resource information system. An organization should not maintain unnecessary information. Human resource records should only contain data that are business related.

According to Barbara Bland-Acosta, a systems consultant for Implementation Support Associates, human resource managers, responsible for creating and using an effective human resource information system, must address privacy issues regarding employee data before the implementation of a computerized system. Procedures and policies regarding privacy issues must be understood by human resource information system users and the employee population at large before the human resource information system is installed.²¹⁹

It is critical that a company communicates its position on the privacy of human resource information system data to its employees. A well communicated privacy policy can make the human resource information system a positive factor in employee relations.

²¹⁹Barbara Bland-Acosta. "Developing an HRIS Privacy Policy." Personnel Administrator, (July 1988): 52.

The data privacy policy in an organization must be tailored to meet corporate needs and human resource requirements. Bland-Acosta explains that the development of an effective privacy policy must address the company's position on the following issues:

- its definition of private records
- what data elements should be included in the human resource information system
- who should have access to private records maintained by the system
- what information can be divulged to outsiders
- and whether employees should have access to their human resource information system records

A data privacy policy that addresses these issues, helps a company avoid legal vulnerability and improve the quality and usefulness of its human resource information system data throughout the organization.²²⁰

An organization must define what is meant by private records. Private information is any data that is or can be related to an individual employee, by name, social security number, or other unique identifier. In a human resource information system, this covers virtually every data element in the data base.²²¹

Organizations collect a multitude of personnel data. Most employees believe that their employer has a right and need to collect and maintain personnel information in com-

²²⁰ Ibid., 53.

²²¹ Ibid.

puterized files. Problems may arise in an organization when the collected personnel information is perceived as either not relevant to the job or to the employer's business needs.²²²

There should be a clear business reason for every data element collected and stored in a human resource information system. An organization should be able to explain to its employees why certain data elements are stored in the human resource information system. Systems have limits to the number of different data elements that can be efficiently collected and maintained; therefore, if there is no business reason to collect a certain type of information, a company should not spend its time and money storing the information.

An organization should avoid the duplication of data in a human resource information system. Duplication of data can create security risks. It is also inefficient and wasteful. An organization should establish guidelines for data that should be duplicated. Duplication should be limited to backups of data performed by the data processing department.

An effective policy regarding the contents of the human resource information system is one that:

²²²Ibid., 54.

- ensures that no irrelevant data elements or types of information are collected and stored in the human resource information system
- prevents the collection and maintenance of dubious or unverifiable information, including misleading data such as explainable arrest records
- provides for periodic reviews of computerized records to ensure that wrong information is not being kept
- justifies the business necessity of all human resource information in the human resource information system
- communicates these guidelines to the employee population of the organization.²²³

Included in an organization's privacy policy should be the company's position on the issues of disclosure of human resource information to insiders, individuals employed by the organization, and to outsiders, persons seeking information about an organization's employees who are not employed by the organization. Outsiders may include government agencies, credit companies, marketing organizations, and others seeking information about an organization's employees. This element of a privacy policy should clearly spell out the types of data and levels of detail that will be released to inquiring individuals.²²⁴

The critical issues an organization should be aware of, concerning disclosure of employee information to outsiders include: who will be allowed to access employee information, how much information the inquirer should re-

²²³ Ibid., 56.

²²⁴ Ibid.

ceive, and under what circumstances these outsiders will be allowed to obtain access to employee information stored in the human resource information system.

A privacy policy, in regard to outside disclosures, should be clearly written. Specific forms and procedures, such as signed forms from employees using the company as a credit reference, should exist if exceptions to the disclosure policy are allowed. This element of a privacy policy needs to be effectively communicated to the organization's employees.²²⁵

An effective privacy policy allows employees the opportunity to access and review their personnel records. Employee review of files ensures the accuracy and currency of the data maintained in them. Employees should be given the opportunity to verify and comment on information stored in the human resource information system. However, an organization must ensure that an individual employee sees, reads, or amends only his or her own personnel records.

A goal of a well designed human resource information system is to provide information to a diverse range of largely nontechnical managers and analysts in an organization. An organization that increases the number of indi-

²²⁵Ibid., 58-59.

viduals who have access to private records increases the opportunities for privacy abuse. The future of a successful human resource information system includes more access to the information stored in a human resource information system, by a growing constituency of users, because of both business needs and the increased availability of technology. The need to protect private data from those with no need to know is likely to become a pressing issue of the 1990s.

Security of Company Information

Data base security, according to Joe Pasqualetto, a director of consulting services for Implementation Support Associates, is the protection of human resources data and systems as proprietary, company owned investments that should be protected from theft or damage. Security is the overall protection of all data and processes from unauthorized users and uses that harm the integrity of the data. Security measures should treat the human resource information system and its data as corporate property whose quality and content have value.²²⁶

Data base and system security in a human resource information system operate as though the system and its con-

²²⁶Joe Pasqualetto. "Staffing, Privacy and Security Measures." Personnel Journal, (September 1988): 87.

tents are corporate assets and usually has two themes. The first involves the protection of data quality or the integrity of the human resource information system data base. This theme includes preventing errors, inconsistencies, bad data, or procedures that damage data integrity from occurring. The second involves the protection of the human resource information system from unauthorized use, deliberate or accidental data dissemination, and incursions from hackers or thieves.²²⁷

Human resource information system managers generally place a high level of importance on data quality. Data quality or data integrity refers to the accuracy, relevance, and currency of the contents of a data base. When a human resource information system is supporting a growing number of users, data quality is often the chief goal of security methods and procedures.²²⁸

Before an organization can accurately produce data it must determine whose responsibility it is to:

- ensure that data entered into the human resource information system is accurately defined
- edit and perform other systematic validity checks on the system data
- update and make corrections to incorrect data elements
- provide quality data and reports
- act as the system security officer.²²⁹

²²⁷ Ibid., 89.

²²⁸ Ibid.

²²⁹ Ibid.

Pasqualetto explains that to assure compliance with a security policy that protects the quality of human resource information system data, these questions of responsibility must be clearly answered and communicated to all users of the system. The role of human resource information system manager is to ensure that the same security standards are understood and complied with by all users.²³⁰

Security addresses the need to keep data beyond the reach of competitors, outside intruders or anyone in the company with access to a terminal and the ability to enter an electronic system. Provisions to assure data base security include technical features such as access codes (specific sign on codes assigned by the organization's security officer or Human Resource Information Center), techniques such as locked rooms and terminals, data storage techniques (such as backups and copying files to off-line storage mediums) and departmental rules and regulations regarding retrievals and report distribution.

Systems can be designed so that passwords and access codes are assigned only to those with a need to access specific data. These access codes can be periodically renewed or changed as a further security measure. A system

²³⁰ Ibid.

of access limitations should be carefully designed and monitored by the human resource information systems department.

The responsibility for developing access limits and system security procedures is usually a main function of the Human Resource Information Center. Typically the Human Resource Information Center is responsible for the day to day management of the human resource information system, maintaining data integrity, codes and other procedures that help limit data base access to departments and individuals with a clearly defined need to know.

Many mainframe software packages send out a warning message when a particular user does something unusual. For example, if a user enters his or her password erroneously more than a preset number of times, many human resource information systems will log the individual off the system and shut the terminal down. A security violation message is often posted on the screen when a user tries to find out secured information.

An organization must also concern itself with physical security measures. These should include: safeguarding a human resource information system from fires and intense heat; access restriction methods for the computer center; and off site storage facilities to store backups of important data from the human resource information sys-

tem. An organization should consider utilizing the following physical security devices: padded cells, storage areas that permit a specific user to gain access to otherwise restricted data; password protection procedures, including methods to deactivate the log on identification codes of employees who are terminated from the organization or are no longer allowed access to specific information; and data encryption methods especially when maximum security is required.²³¹

It is critical that organizations copy data files to offline storage mediums. This procedure is called creating backup files. In most corporate computer centers such files are created every time the system executes a function. These files are generally stored apart from regular data files, and are utilized by the organization in the event of system failure or other system emergency.²³²

The human resource department has to identify the level of security each application of the organization requires and attempt to provide that security at the lowest cost. Computer security should be discussed with members of the human resource staff to ensure that they un-

²³¹Frank Tetz. "Computers Can Make Office Records More Private." (March 1985): 32.

²³²Robert B. Chapman. "Securing the HR System: An Introduction." Computers in Personnel, (Fall 1986): 53.

derstand the commitment and responsibilities they must accept to secure human resource data effectively.²³³

Connectivity Between Departments

The technology is available now for human resource departments to effectively manage complex data sharing. Organizations are attempting to integrate several computerized systems into one large computer network. For example, organizations are linking personal computers together by using local area networks. However, while the human resource group is linking together the department's personal computers and building its human resource information network system, management information sciences and payroll may be moving in a direction which opposes a proposed organization wide connectivity plan. The challenge then for an organization is to effectively plan for and implement connections with all of the organizations departments that desire access to employee data.²³⁴

Connectivity is becoming an issue organizations have to contend with. An organization's failure to address connectivity issues will result in a waste of time, effort,

²³³Ibid., 54.

²³⁴Bill Radford. "The Connectivity Challenge." Personnel Administrator, (July 1988): 61.

and money. Connectivity allows an organization to design in a networked fashion, this allows employees to access the information they need more readily. An organization which lacks connectivity between its data systems is lacking in efficiency because the structure and components of the organization's automated systems will be inadequate to handle the speed, volume, or accuracy of data flow requirements.²³⁵

According to Bill Radford, Vice President of Product Development for Radford Associates, the key to connectivity and building successful employee data links includes: foresight to project corporate data sharing needs for the next five years; company wide coordination to prioritize requirements and goals; strategic and operational planning; and knowledge of the range and relative merits of existing technology.²³⁶

Radford explains that with top management involvement, it is important to plan the company's direction in areas such as benefits administration and human resource payroll interfaces. These plans should include consideration of data sources and data flows. For example, in the interface between the human resource and payroll systems,

²³⁵ Ibid.

²³⁶ Ibid.

would it be more efficient for new hires to be entered first in the payroll system or the human resource system.²³⁷

The process for improving or building connectivity among an organization's departments should flow directly from the organization's operational plan. The steps an organization needs to take to effectively interface its systems should be realistically prioritized. It is a good idea for an organization to initiate a connectivity project by working on a system connection that has a high probability of succeeding.²³⁸

Connectivity and compatibility between an organization's systems can be considered at three levels. The first is the physical level. This encompasses computers, file servers, cabling, telecommunications equipment, and network gateways. The physical connection requires that there is a path from one employee data system to another. For instance, a gateway from the human resource information system local area network to the company's mainframe computer.²³⁹

The second level is the system software level. This

²³⁷ Ibid.

²³⁸ Ibid.

²³⁹ Ibid., 62.

consists of mainframe and micro link packages as well as personal computer and personal computer link packages.

The requirements at this level include software that can manage the sending and receiving of data among employee data systems. For example, gateway software which operates on an organization's local area network and mainframe system, could send and receive data in multiple compatible formats.²⁴⁰

The third level of connectivity and compatibility involves application software and employee transaction management applications. The application software connection must manage the sharing of fields, and the transaction rules among employees data systems. For example, should new hire transactions be entered into the payroll or human resource information system and which system should be dominant.²⁴¹

Radford explains that when planning the application transaction flow for a company's data connections, the following requirements should be considered:

- whether the flow is auditable
- what type of edit validations are required
- whether data formats are compatible
- whether data backups are easily available
- whether the data transfer process is secure
- and whether there cross validation steps to ensure that

²⁴⁰ Ibid.

²⁴¹ Ibid.

shared fields are transferred successfully.²⁴²

Human resource departments are clearly recognizing the need to create workable connections among the increasingly sophisticated systems it has to use to handle its extensive data flow. Human resource professionals see bright opportunities for a leadership role in the corporate mainstream as they control this flow of vital data. Organizations should begin planning now for the connectivity that is needed for their systems to keep a firm grip on the accuracy, timeliness and integration of information.

Documentation of the System

When an organization installs a new human resource information system, individuals involved in the implementation process are generally curious as to how the system works, what it can accomplish, and how it will affect their current position. Individuals, employed at a company which is installing a new human resource information system, are usually eager to learn what the new system can do to make their daily tasks easier. It is during system installation and implementation that an organization should put forth additional effort to document a new human resource information system correctly and effec-

²⁴²Ibid., 63.

tively. Doing so can have a great impact on the long term viability and usefulness of the new system.²⁴³

Documentation is often not given a high priority at the time of system installation. Individuals working on the project are more concerned with getting the system up and running than they are with updating incorrect documentation. This is unfortunate because a great deal happens to the validity of documentation between the time it is originally written and final implementation of the human resource information system.

When an organization develops a human resource information system internally, many modifications and enhancements are often made to the system. Documentation written in the early stages of project development is often incorrect and out of date when system development reaches completion. Therefore, if a vendor package is extensively modified to meet company specific needs, revisions are required to the documentation that reflect the changes that were made.

Rarely is a human resource information system implemented in an organization without some kind of modifications having been made to it. Therefore, documentation

²⁴³Maureen MacAdam. "HRIS Training: Keep Documentation On Track." Personnel Journal, (October 1987): 45.

should be completed at the time of system implementation so that changes that were made to the system are recorded and so current and future system users remember why these changes were made.

The importance of currency in systems documentation is magnified by the close link between systems documentation and training. New users are helped immeasurably by up to date comprehensively inclusive documentation and are seriously confounded by incomplete or incorrect documentation.²⁴⁴

Documentation comes in many forms. It should be developed according to the needs of the human resource information system environment and user community in the specific organization. The type of documentation that is chosen, whether written in manuals, on line documentation, or some combination of paper and electronic documentation, is affected by environmental factors such as the number and computer literacy levels of users, whether the organization is centralized or decentralized, and the type of training to be provided. The more widespread and geographically dispersed an organization, the greater the need for good documentation and training in order to operate the system properly.²⁴⁵

²⁴⁴Ibid., 49.

²⁴⁵Ibid.

According to Alfred J. Walker, the normal set of documents needed for a human resource information system include the following: a field user's manual, an error correction manual, a retrieval manual, a managers manual, technical manuals, and on-line documentation.²⁴⁶

The field user's manual should be an easy to understand event oriented manual. It should explain to system users how to use the system efficiently.²⁴⁷ For example, the field user's manual should explain in simple terms how a new employee is set up on the system. The field users manual serves as the basic instructional material for persons responsible for the input of data retrievals and day to day use of the system.²⁴⁸

Packaged systems are commonly modified by users. Changes are often made to coding schemes or to report formats to account for an organization's unique requirements. It is important that changes made during implementation are recorded in user manuals. This prevents new

²⁴⁶ Alfred J. Walker. HRIS Development, 167.

²⁴⁷ Ibid.

²⁴⁸ Maureen MacAdam. "HRIS Training: Keeping Documentation on Track." Personnel Journal, (October 1987): 50.

system users from being confused by out of date documentation.

User manuals should be written in clear concise terms. Illustrations should complement written instructions making it easier for individuals to understand the documentation. It is important for user manuals to consist of step by step instructions for each procedure mentioned in its contents.

An error correction manual should be maintained by an organization. This is generally a guide on how to correct data entered erroneously into the system's data base. It is written for the clerical employee or data originator and explains how to correct errors. This type of documentation stresses the importance of data base accuracy.²⁴⁹

A retrieval manual is a document which is a complete in depth manual on how to exercise a system's retrieval programs and generate on-line or ad hoc requests for data. This document enables users to effectively retrieve desired data by providing the instructions users require to run reports. The retrieval manual also often shows sample listings of system provided reports, and may explain techniques users could use to create their own reports.²⁵⁰

²⁴⁹ Alfred J. Walker. HRIS Development, 168.

²⁵⁰ Ibid.

A managers manual is a guide on the system overview and general procedures of a system. It is important for this manual to explain why the new system was installed. Managers should understand the advantages of the human resource information system, and what its purpose is in the organization. A general description of what kinds of information are in the data base, how this information is gathered and maintained, and the kinds of personnel processes mechanized or supported by the new human resource information system should be included.²⁵¹

This important piece of documentation should depict the analytic potential of the new system. Managers should be shown how to use the system as a management tool to more efficiently perform their jobs. A readable manual that stresses what the system can do to improve the quality of managerial performance is a critical element of this document.

Another necessary type of documentation comes in the form of technical manuals. Technical documentation includes run books, flow charts, or other program logic diagrams, program listings, and complete operational and control documentation for use by technical data systems

²⁵¹Maureen MacAdam. "HRIS Training: Keeping Documentation on Track." Personnel Journal, (October 1987): 49-50.

people.²⁵²

Technical manuals must be well organized. They should include a broad perspective and an all inclusive vision prevalent among systems developers and implementation teams at the time of installation. Code modifications made during implementation must be represented in technical manuals.

Technical manuals are generally provided with a vendor bought package, but additional elements added to the software package by an organization must also be documented. These include user created reports, or customized screens and tables. This document must be completely prepared for an internally developed system.

One final type of system documentation worth mentioning is on-line documentation. On-line documentation is becoming an increasingly popular and effective way to document human resource information systems. Most human resource information systems used by organizations today have on-line capabilities. Organizations with an on-line system generally utilize some form of on-line documentation.

On-line documentation allows system users to find answers to their system related questions without having

²⁵²Ibid.

to search through cumbersome written manuals. Instead, system users working at terminals, can find assistance by accessing the on-line documentation facilities. A common form of on-line documentation utilizes help screens. Help screens, in general, explain how to use a particular function of the system. For example, a help screen may provide step by step instructions as to how to run a specific report.

Whatever the format of documentation, complete, usable, and updated reference manuals are needed to guide employees in the day to day use of the human resource information system. These various documents mentioned above, should be designed to support training efforts for new system users.

THE FUTURE OF HUMAN RESOURCE INFORMATION SYSTEMS

Technology will change the workplace far more in the 1990s than it has in past ten years. New technological innovations will more than ever force managers to focus on two related and challenging objectives, staying abreast of technology as it evolves, and pulling it to work in their companies.²⁵³

Computers are strategic management tools. There will be one terminal for every three white collar employees by 1990 versus one for every five in 1985.²⁵⁴ The number of computers in offices is expected to quadruple to forty-six million by the year 2000 according to Gartner Group, a Stamford Connecticut market research firm.²⁵⁵

The future growth of human resource information system applications will be based on the changing and expanding role of the human resource department. The technical equipment to run a paperless human resource office is here, however, how organizations utilize human resource information systems differs.²⁵⁶

²⁵³Joel Dreyfuss. "Catching the Computer Wave." Fortune, (September 26, 1988): 78.

²⁵⁴Ibid.

²⁵⁵Ibid.

²⁵⁶Alfred J. Walker. HRIS Development, 233.

Many organizations implement human resource information systems to facilitate compliance with government requirements. Others implement highly user oriented systems that provide information for analysis, decision making, and forecasting. No matter how an organization utilizes an information system, the dominant trend today is for organizations to become computerized.

Influencing the demand for human resource information systems is the demographics, economics, and changing social values of today's workplace. Today's demographics and economic pressures contribute to the increasing demand for nonstandard working hours. Changing social values (marked especially by the growing importance of nonwork activities and leisure pursuits) are influencing worker expectations that employers should adapt working hours to meet employees' needs and desires. Some employers have experimented with alternative work time arrangements and have discovered that giving employees what they want in this area can result in greatly increased productivity.²⁵⁷

According to Alfred J. Walker, to experiment with alternate hours on any large scale most employers would require the record keeping and analytical capabilities provided by a human resource information system. A human

²⁵⁷ *ibid.*, 235.

resource information system enables an organization to keep track of a variety of work schedules.²⁵⁸

Benefits offered by employers are also becoming more diverse in response to changing worker values, economic forces, and social trends. To manage the more flexible, more varied benefit programs expected in the future, as these programs assume an even larger part of total compensation, employers will increasingly need the efficient record keeping and analytic capabilities provided only by a human resource information system.²⁵⁹

Organizations need to prepare themselves for a changing work force. There is an increasing number of women entering the labor force, an aging population, and a shortage of workers under the age of eighteen. The human resource department has to analyze these critical issues and strategically plan accordingly.

The impact of demographics, economics, and changing social values will vary according to an organization's future needs. When an organization consists of a human resource department which has a key role in strategic human resource planning, the organization is often more successful in determining its future needs. This planning process

²⁵⁸ Ibid.

²⁵⁹ Ibid., 235.

is facilitated by obtaining information from the human resource information system on the current work force and labor markets. An organization's whose human resource function is actively involved in planning can determine, from this data, what the company's future human resource functions will require, and what needs to be done to obtain, train, and maintain the work force needed to reach the organization goals in the years ahead.²⁶⁰

In conclusion the efficient administration and management of human resource programs requires the kind of human resource information and analytic decision making tools best supplied by a human resource information system.²⁶¹

²⁶⁰ Ibid., 238.

²⁶¹ Ibid.

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The final copies have been examined by the director of the thesis and the signature which appears below verifies the fact that the thesis is now given final approval by the Committee with reference to content and form.

The thesis is therefore accepted in partial fulfillment of the requirements for the degree of Master of Science in Industrial Relations.

November 27, 1987
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