Chapter 3
HUMAN RESOURCE MANAGEMENT & SOFTWARE INDUSTRY

3.1 Introduction

The twenty first century has begun. The traditional corporation is also becoming a thing of the past. Efficiency and economies of scale, two dominant twentieth-century themes, have been replaced by new values; teamwork over individualism, global markets over domestic ones and customer-driven focus over short run profits. Only fluid, flexible and highly adaptive organizations will thrive in the fast paced global economy.

For HR professionals, one thing is certain: traditional approaches that were conceived in cultures emphasizing command and control are giving way to new approaches characterized by employee commitment, cooperation and communication. Companies with rigid structures will be swept away. Companies, which are empowering employees, letting workers manage everything from budgets to inventory control, often without direct oversight from top management will survive.

The issue of workplace flexibility has emerged in response to the needs of today's companies and the diversity of its employees. Before the 1980s standardization was the norm in personnel administration. Consistency and conformity were once hallmarks of management policy. Today, developing the capacity for flexibility is considered a vital component of the important with respect to the changing scenario of business.

3.2 Human Resource Management: Past and Future

Modern HR management is radically different from personnel management of decades ago. Since the turn of the century, the management philosophy that has
defined the personnel function has undergone significant changes. In the last ninety years and so both the scientific management approach and the human relations approach have appeared and declined: today what has popularly become known as human resource approach has emerged.

The emerging trend in Human Resource management is clearly toward the adoption of the human resource approach, through which organizations benefit in two significant ways: an increase in organizational effectiveness and the satisfaction of each employee's needs, rather than addressing organizational goals, human needs are compatible: one set need not to be gained at the expense of the other.

The human resource approach is relatively new in management. The term became popular during the 1970s as research in the behavioral sciences showed that managing people as resource rather than as factor of production or as human being who act solely on the basis of emotions could result in real benefits to both the organization and the employee. As important as the approach has become, the term human resource resources-like many other terms in the management literature is hard to define with clarity. Nonetheless, a number of principles provide the basis for a human resources approach:

1. Employees are investments that will, if effectively, managed and developed, provide long term rewards to the organization in form of greater productivity.

2. Policies, programs and practices must be created in which employees are encouraged to develop and utilize their skills to the maximum extent.

3. A working environment must be created in which employees are encouraged to develop and utilize their skills to the maximum extent

4. HR programs and practices must implemented with the goal of balancing the needs and meeting the goals of both the organization and the employee.
3.3 Role of HR Function in the Success of an Organization.

Managers, owners and even college professors sometimes question whether the HR department can really affect the financial success of an organization. Without a doubt, organizations wishing to remain competitive in today's rapidly changing global marketplace need to address the issue of achieving productivity through their employees. The question that is often asked, however, is how important the HR function is in that achievement, given other critical factors such as the leadership provided by the top management, product line, market advantage and research and development.

The importance of the HR function is the organization's effort to achieve financial success was solidly supported by a 1990 report. The top one hundred rapid-growth companies as identified by Inc. Magazine were included in a study of twelve HR practices. The results indicated a strong relationship between HR practices and bottom-line profits. A second finding was that company size, measured by number of employees, did not affect the results: companies of all sizes were equally affected. The results generally indicated that more successful companies are engaged in more HR practices than did less successful rapid-growth companies were generally able to use the HR function to solve problems and achieve success in the following ways:

- Having the HR directors report directly to the president.
- Placing a major company emphasis on employee recruitment, selection and training.
- Using team building and creating an environment of rapid decision making at lower levels.
- Communicating key company performance objectives through all programs and linking them to goals at all levels.
- Including HR Planning as part of management's strategic planning.
Employers who have successfully integrated the HR function into the top level of management and strategic planning and who have placed a strong emphasis on employee recruitment, selection, motivation and team building, can expect greater employee productivity and thus greater overall company success.

To acquire and retain employees, HR administrators perform five critical roles: create and implement policy, maintain communication, offer advice, provide services and control personnel programs and procedure.

3.4 Responsibilities for HR Function

The responsibilities for performing the HR function does not reside only in the HR department; all managers at all levels of the organization share responsibility. In most organizations, particularly larger ones, the HR staff designs HR policies and procedure and the operating managers implement them. On occasion, line managers help design HR policies and HR affairs help implement them. But the primary responsibility for day-today supervision.

3.5 IT: A facilitator in HR processes and interventions

3.5.1 Recruitment & Placement

Recruitment and placement represents the oldest and the most crucial categories of the personnel manager's job. Recruitment, selecting and placing employees have always been central to personnel's role. If anything, this role is more important than ever before. In today's competitive world, in which jobs increasingly demand high levels of worker commitment and in which quality, service and flexibility are required for a firm's survival, hiring people who are capable of a committed effort can be much greater challenge. Computer with the help of internet has made it easier for them to recruit talent across the countries. It has become easier today to search for talents, thousands of resumes are
floating in the internet and recruiting people has become easier. The technology has made it cost effective for the companies in recruiting people.

3.5.2 Computer Application in Skills Inventory

Most managers lack complete, accurate information about their employees' capabilities. Furthermore, when vacancies occur, either due to attrition of new opportunities, simply posting the opening on a company bulletin board does not guarantee that every employee will see the posting or will interpret the information appropriately. One way to improve the likelihood that qualified internal candidates will be introduced into the selection process is to have a skills inventory completed and updated regularly by the employees.

Both the development of the inventory content and the updating of inventories require significant input from employees. They must believe in the validity of the inventory, and this will happen only if they participate in the development of their workstations. Otherwise, hard copies memo should invite every employee to describe him or self in terms of the range of skills to be listed, the standards that differentiate various skill levels, and how skills should be categorized.

Inventories should be regularly updated when an employee has completed a course, seminar, workshop or assignment that is applicable. If computers are not generally available, employees should be allowed time each quarter to update the inventory. Time spent on updating may be minimized by periodically providing each employee with a hard copy of his or her inventory to mark up before the actual data entry. Skills should be reassessed at least annually at the time of performance appraisals. If an employee has questions about interpretations of skills levels or categories, supervisors or HRM personnel should offer assistance. Periodic review of the inventory and the process should occur, and all employees should receive regular training to maintain the validity of the system.
When a vacancy occurs, interviewers would specify the parameters of the job in terms of the skill categories and levels. The computer program would then produce a list of employees who qualify according to these parameters. This list would be modified based on other factors, such as attendance, quality of performance, time in position or interest of the candidate. Employees otherwise qualified could receive a letter informing them of the opening and inviting them to apply if interested, with a copy to the employee's supervisor.

A company that is interested in retention should encourage expressing interest in a position that offers greater responsibility. Employees who see company behaviors that encourage growth and development are more likely to stay with the company. Developing a skills inventory system with significant employee input, active encouragement to update and results that keep employees informed of promotional possibilities will enhance retention.

Another aspect of developing a skills inventory process as previously described as straightforward communication with employees. If an employee is otherwise qualified, is invited to apply, does so, and is then found to have either performance supervision. Most employees accept constructive criticism. If it is offered in a manner designed to help them progress. Further, with employee participation in establishing the content and standards of the inventory, employees should have a better understanding of what is expected of them in order to qualify at specified levels and should be able to provide valuable job analysis data based on what they actually know about their jobs.

3.5.3 Recruitment sources

As companies strive to increase the usefulness of each penny, it is important for HRM managers to investigate the return earned for recruitment costs. To facilitate this, each employment application should ask how the applicant heard of the company position. The answers can then be coded for easy data entry. If a computerized application were used, the application would choose from the list of
codes. The usual source includes a relative friend who is already employed, newspaper, state employment magazine or radio/TV ad. If more than newspaper is used then use a different code for each.

Analysis of data may show you that different types of position are filled from different sources. If quality applicants for certain classification come from a particular source that is where fund should be spent for vacancies. If few or no quality application comes from a given source, then review the reason for using that source.

Research often shows that the best source of quality applicants is current employees. If your current analysis agrees, this suggests the importance of keeping your employee informed of vacancies as well as the benefits of working with your company. The effectiveness of your efforts should be evaluated regularly. One way to accomplish this is to computerize a survey listing all vacancies and have it available on a portable computer at various locations. Employees should be able to step up to the screen and complete the survey anonymously within a few minutes. Some surveys include a brief computer game at the end of the survey as a reward. This works well in location where there are many computer literate employees. Whenever a company spends money, it should analyze the return from comparative sources. The computer facilitates this analysis.

3.5.4 Computer Interactive Performance Test

Microprocessor and minicomputer have opened up new possibilities for measuring various types of performance. One expert classifies the uses of computer in selection into four kinds of application. The first simply uses the computer as a way to administer s currently available printed test. Using the computer in this way facilitates scoring and compilation of cumulative norms.
A second way in which computers are used today in selection testing may be called the adaptive tests automatically tailor a sequence of test items to each examinee, contingent on his or her responses to earlier items in the sequence. In tests like these, correct responses generally trigger more difficult items, for instance. The effect is to reduce substantially the number of test items needed, since those are either too easy or too hard for the examinee are not administered.

Third, computers are being used to enhance the administration of tests when dynamics are involved, as tests of perpetual speed. Here the computer can be used to present signals rapidly and sequentially to test the person's perceptual speed. Similarly test of short-term memory, where the stimulus can be removed from the display and recall later, is another example of an application here.

Fourth computers are being used to measure capabilities not measurable by printed tests. For example measuring capabilities like the ability or function under different time pressure, or under different workload conditions, or, for that matter, the ability to concentrate under stress are not human capabilities easily measured by printed tests. Computers are being used in this area, for instance, by measuring the person's ability to concentrate as various stimuli are projected on the screen.

3.5.5 The computer aided interview

Computer aided interviews are built on the principles of patterned and structured interviews. The basic idea is to present the applicant with a series of questions regarding his or her background, experience, education, skills, knowledge and work attitude, questions that relate or a specific job a person has applied. The question are presented in a multiple choice format, one at a time, and the applicant is expected to respond to the question on computer screen by pressing a key corresponding to the desired responses. Computer aided interviews usually precede and supplement the face-to-face interview. At the end of the computer aided interview a printed report is produced that lists all interview
question applicants responses, and follow-up comments and question to be asked such as "give me some examples of why-your supervisor would rate your customer service skills as outstanding" for the interviewer to ask. The typical computer aided interview involves about 100 questions and is completed in less than 20 minutes.

Computer aided interview can have some enormous benefits. Their ability to branch to follow-up questions allows topics to be persuaded as they might be in face-to-face interview, a lot of information can thus be obtained quickly without interviewer services. Several of the interpersonal interview problems are obviously avoided with this non-personal approach of interviewing, particularly for large companies with the resources to develop job specific computer aided interviews, the saving in interviewer time and in avoiding hiring mistakes can be considerable.

3.5.6 Training and Development

In recruitment and placement we are concerned with identifying the human requirements of the job, choosing feasible job candidates and then testing and selecting those who will best fulfill the job's demands. Hiring the right people doesn't guarantee their success. They must also be trained to their jobs and their performance appraisal to make sure they are doing their jobs satisfactorily. Training and development fosters employee commitments by helping employees to use their skill fully and by involving them and their work. With the help of information technology it has become easier for the companies to train their employees. It has also become cost effective.
3.5.7 Computer assisted instruction

Many firms are now using computer to facilitate the training process. Computer assisted instruction systems like control data's Plato has several advantages. They provide self paced individualized instruction that is one on one and easy to use, and trainees get immediate feedback to their input. Computer Assisted instruction also provides accountability in those tests are taken on the computer so that management can monitor each trainee's progress and needs. A computer assisted instruction-training program can also be easily modified to reflect technological innovations in the equipment for which the employee is being trained. This training also tends to be more flexible in that trainee's can usually use the computer almost any time they want, and thus get their training when they prefer. Computer assisted instruction systems like Plato can also provide simulation capabilities. Specifically, the system can be designed to simulate complex or difficult tasks and to challenge trainees with "what if" question like, "if the wind velocity on the ground is 80 knots, then what will happen if you decrease your aircraft velocity below its stall speed?"

Some examples of how systems like Plato are being used can help to illustrate the usefulness of Computer aided instructions. In some school, security analyst trainees are able to learn and manipulate various stock valuation models, by programming in various assumptions about economic growth rates and risks; they can thus assess how changes in these factors will influence the price of these stocks.

Plato is also being used to train airline pilots. Part of the training includes time in a cockpit trainer in a flight simulator and in an actual airplane. All expensive pieces of equipment. The Plato system minimizes the amount of time spent in the simulator and thus reduces truing costs. By using this computerized system, pilots familiarize themselves with the complicated instrument panel before working with the actual equipment in a simulator or airplane.
3.5.8 A Computerized Managerial Assessment and Development

There are number of Computerized Management Assessment and Development Programs that can facilitate an employer's development process. One particular useful example of such a management development tool is called ACUMEN.

ACUMEN is a sophisticated managerial assessment and development program. The major aim of ACUMEN is to help you develop a fuller understanding and appreciation of how your thinking styles and personal dispositions play a role in your productivity and management effectiveness. Acumen's analysis of your assessment responses, presented in a graphic or textual form, provides this information.

When you view a graphic profile display you will notice that each scale's extension is of varying length presented. On the circular graph, some scales extend a long way away from the center of the circle while other segments are relatively short. Similarly scales on the bar graph will vary in length. The longer the extension indicates styles that are prominent in your profile. By comparing the extensions, you will be able to find the thinking styles that have the most impact on your behavior.

A computerized management tool like ACUMEN can be very valuable, both for assessing aptitudes and for providing detailed development advice for the trainee.

3.5.9 Incentives and Attitude Surveys

According to a Louis Harris survey reported by Industry Week in 1989 fewer employees were satisfied with their jobs than in 1988. The reasons given were based on a dissonance between expectations and experience in ethical management behavior, concern for employees, and communication. Mergers and acquisitions have only exacerbated the filling of mistrust of management.
Today most companies are aware of the need for employee anonymity, the impact of both the design of the questions and also their sequence and the importance of effective communication, including the purpose of the survey before it's taken and feedback to the employees after it's completed. Computerization of surveys can provide anonymity, if there is no audit trail to the user, especially for short answers that are entered rather than written or typed on a distinguishable machine.

Survey software packages are available that generate questions in a number of standard topics and can be customized by modifying existing questions or by adding question. If the survey is computerized then reports can be generated at ease to provide snapshots of a given period if tune, trend analysis and breakdowns according to various demographics. You may be interested in responses by age, sex, job categories department division function or geography.

The survey may be conducted by placing microcomputer in several locations convenient for employee use. Employees are advised where the computer will be for how long and when the data will be collected. The screen should not be viewable by supervisor or passerby. While there may be some risk that employee will take the survey more than once there are comparable risks with other methods.

In addition to the survey topics previously listed manager may be interested in knowing how their peers and subordinates perceive them. Packages that may be customized are available which allow the manager to complete a self-assessable task used to compare self-perceptions to the others. This comparison may assist in the development if a more effective manager is there. The same protection for anonymous participation is required as is the necessity for communicating the purpose of the assessment and feedback to participants.
Employees who are leaving the company are often asked their opinions during the formal or information exit interview concerned about the future references. Employee often state innocuous reason for leaving reasons known to be acceptable to the company. However of the exiting employees could respond to computer question and be assured that answers would not be looked at until several people had responded more helpful information might be learned.

3.5.10 Performance Appraisal

One measure of the performance of HRM interviewers is how long the people they place stay with the company. This retention measure can be verified, which makes it suitable for computerization. Personnel /HRM professionals often begin their careers interviewing applicants, some times without adequate training in interviewing techniques. And one purpose of an effective performance appraisal system is to pinpoint areas in which an employee needs further training.

If company research show a high turnover rate of employees within the first six months of employment. For example this implies mismatch between employee and the position. The problem may be an inadequate job analysis, inaccurate job specification or a poorly trained interviewer. The first step is to establish what the retention rates are, both for the interviewer and for the supervisor.

Retention can be calculated by capturing the names, sex, position, code of job applied for, department code where referred and supervisor's code. By linking this spreadsheet to one that lists new hires and one that lists terminations, retention rates can be calculated regularly. A macro can link the spreadsheets, complete the calculations, and print the report.

A table can be constructed in which a unique number or a two-or-three letter abbreviation identifies supervisors who have hired someone in the specified time frame. Each time a new employee is hired one column of data will include the supervisor 's identification. Through a database count or extraction you can total
the number of employees hired by each adjusting the formula to perform that discrimination of data. This is particularly helpful if the interviewer feels that one supervisor significantly impacted the retention rate negatively.

While retention rates should not be used as the sole measure of the effectiveness of an interviewer. It offers one objective performance measure on which to base decisions about future goals and or training.

3.5.11 Compensation

Developing a pay plan involves evaluating the relative worth of the jobs and then pricing each job using wage curves and pay grades. Computer recruiting people from different countries and their needs and compensation may be different. Satisfying each person's need takes a lot of hard work. With the help of computers and internet, it has become easy to satisfy the needs of the employees and give them a desirable pay package.

3.5.12 Benefits spreadsheet

In the 1990's companies will continue to be concerned about controlling benefits costs. One prerequisite to this is to be fully aware of how much the benefits offered are actually costing the company on an ongoing basis. A benefits spreadsheet will provide with this information.

The spreadsheet should list the following: each employee the job code, pay rate department and each benefit listed all in separate columns. In order to accurately track your current liabilities for benefits accrued but not used, list separate columns for liability and use of this benefit.

For example, suppose you want a report on accrued vacation. In the liability column calculate the accumulation minus use times current hourly rate of pay. This will tell us how much we owe to our employees. If the employee is not using
the vacation until retirement and the wages increases the cost may double or treble.

3.5.13 Computer Application in Compensation: Computerized job Evaluations

Computer aided job evaluation can dramatically streamline the job evaluation process. Computer aided job evaluation can simplify job analysis help keep job description up to date increase evaluation objectivity reduce the time spent in committee meeting and ease the burden of system maintenance. It features electronic data entry, computerized checking if questionnaire responses and automated output not only of job evaluations but also of a variety of compensation reports. The computer aided job evaluation "streamlines and speeds the job evaluation process for non benchmark" jobs.

3.5.14 Computers in Appraisal Statistics

Effective merit pay plans are always built on a foundation of fair and accurate appraisals. Some supervisor's grade more stringently than others; some truly has mostly stars; and others are subject to traditional rating errors. Comparing the results of various departments or divisions may flag a certain problems for closer examination.

After accumulating appraisal data from various departments and/or supervisor extract the particular area you would like to review. You may extract more than one area at a time by sorting the data.

By analyzing the results of the appraisal process it is possible to see problem areas that demand further training. Cleaning up these problems may well be a prerequisite to installing an effective incentive plan.
3.5.15 Labour relationships

In today's competitive world it is very essential to maintain a good relation with your employee. Finding talent is become difficult and retaining talent is becoming more difficult. If a company doesn't maintain a good relationship with employees it is very difficult survive. Computer has helped in maintaining a good relationship with your employees in many ways by providing various types of information and maintaining a database of it.

3.5.16 Computer Assist both Labour and Management

Both sides of labour-management relations may benefit from the use of computers. Management may track grievances to see and on what subjects training in needed Labour may find that computer provide new ways to assists members.

Management is able to track trends in grievances within any given time period for the whole company a division or department or a particular supervisor or group of supervisors. For example the researcher might hypothesize that supervisors with less than one year of experience in their position might generate more grievances than experienced supervisors with less than one year of experience in their position might generate more grievances than experienced supervisors. If this proves to be true then either new supervisor should be trained before starting in the position or should be offered frequent training sessions during the first year. However research might prove that in some departments this hypothesis is not true. Thus if there are large number of grievances from a large department an investigation might reveal the need for managerial training probably defined by the subject of the grievances results better communication on a topic of or the development of a process that allows more input from employees before instituting new polices. Grievances may incorporate more than one code.
labour, too, can benefit from computerization. With the demographic changes in
the workplace labour is searching for new ways to meet the needs of its
members and potential member. One area of concern that has continued for
many years is for job security due to mergers and acquisition that have cost
many employees their jobs. Another is the trend toward service industry and
away from manufacturing that has led to need for knowledgeable worker who are
more highly educated. A third is the many low paying jobs that have been
generated by the service industry. Computer based network nation wide would
help to adjust the unemployment caused by having skills in one location and jobs
in another. As Hallett suggests unions could become "the single best source of
information training standards and individuals specific skills and talents. With the
supports of international unions locals could be linked effectively and relatively
inexpensively to provide this source of information thus assuring their members a
degree of job security".

3.5.17 Collective Bargaining

Sometimes the simulations are complex strategies; sometimes they are basic as
looking at cash-flow projections. These same concepts may be applied to labour
management negotiations. When labour suggests a 5% wage increase the first
year followed by 3% each for the next two year management counters with 3,3,5,
understanding that their proposal will cost less over the course of three years.
However costing out other benefit may not be as easily understood. There fore
programs that rapidly calculate the dollar cost of benefits (both direct and indirect
costs offer the opportunity for more knowledgeable bargaining.

To quickly calculate the costs of offers or counter offers a simple table based on
the percent of each step in salary ranges or each employee's annual pay or a
particular benefit can be created. For example, if each wage step is 4% higher
than the below and the first step of each grade equals the middle step of the
previous grade simply changing the first grade's first step in the table of the wage
plan will update it. Then by linking this table to the rate each employee is paid the new total cost is available. If an employee is paid at the rate of step 4 grade 3 and a cell address next to that employee's name tells the company what is budgeted for that employee. If that employee has worked for an average of 100 hours overtime each of the last three years a formula would be placed next to the employee's name includes the cell address plus the hourly wage rate (if the wage plan is not in hourly figures) time 100 (to represent the 100 hours).

If one side suggests that the benefits package should be raised by 7% to include so many Rupees for child care the negotiator should have available the numbers of employees who have expressed an interest in this benefits and how many children are involved as well as a range of possible costs of child care in this area. By combining this information with current percentage of payroll assigned to benefit costs. It will be clear whether or not the 7% is a realistic figure of probable costs. The negotiator might be willing to give 5% and with the data of probable use and cost figured in be able to negotiate a wording of the benefit that better control costs keeping them within the intended rang.

Computer than help to prepare the negotiator for the bargain and could possibly shorten the time spent bargaining. If bargaining is done on site portable or laptop computer with 30 to 40 megabyte memories provide support.

3.5.18 Employee security and safety

Employee safety and security cannot be neglected. Places where safety requirements are necessary they provide instruction board for the employee regarding the safety measures they are supposed to follow. Work relating safety is also necessary. What hazardous the workplace is and the degree of effect it has on the employees is now measurable these days due to the advent of computers. An employee's can be unfired ability if regularly and necessary precautionary measures can be prescribed. This safe guards the employee's
health and establishes a better relation with the employer, which is necessary in this competitive world.

3.5.19 Computer to Monitor safety

Companies that must comply with state and federal laws are obligated to file federal reports monitor employee exposure to various hazards to note trends and provide employee with information in hazards on their workplaces. Computers can add it in all three areas.

3.5.19.1 Reporting

Most federal forms can be formulated on a company's computer so that only the raw data need to be entered. The computer will perform the instructed calculations and print out the results in an acceptable format. If a piece of information has been input in error only the figures need to be changed. Recalculations are automatic, which some forms the typing of results takes several hours. This task is completed in minutes in computer. One of several programs available for providing the correct information in proper sequence is PRO-AM, by safety inc.

3.5.19.2 Monitoring

Computer can track personal exposure level for noise particulate vapors or other contaminates for a given location giving timely warnings of trigger points. A dosimeter sensor can be plugged into a personal computer to translate reading on an hourly basis. Not only does this protect say the hearing of the workers it can also spot equipment's that needs servicing if for example a given decibel level indicates increased friction. Trends of various hazards can also be plotted for work redesign to make the workplace safer.
3.5.19.3 Communicating

The effectiveness of training in any area depends in part on the Hawthorne Effect. The degree to which the students feel that the training is important and accurate. In communicating the hazards of a workplace employees might not listen because they feel that they will not be exposed to a particular hazard or that they are already careful or that their work situation does not support those safeguards. If the supervisors push for results or the point of ignoring torn gloves, holes in respirators, inadequate ventilation or workers who are not wearing safety glasses the employees will ignore the training. Also employees may not understand key part of training.

Interactive computers can help with some of these problems. if an employee is assigned to work with a hazardous substance that was discussed with her a few weeks before the knowledge may have become hazy. Access to a personal computer can allow the employee to refresh her memory on how to handle the substance and what to avoid doing. If there are words within the explanation that are not clear an interactive program will allow the employee to question that word until she is ready to return to the original explanation. How recently an employee has reviewed the information correlates with the degree of retention and computer assisted instruction provides training any time the employee needs help.

3.5.20 Computer as Expert systems in HRM

An expert system is a programme that attempts to simulate how human experts solve problems. This is done by entering knowledge from one or more expert sources into what is known as knowledge base. This knowledge base includes the rules for solving a specific type of problem. When a user queries the expert system the rules are evaluated and the user is presented with an expert answer.
In HRM Knowledge system are useful in several areas. For example as cafeteria benefit plan proliferate the interaction of decision made by employees. Many violate a rule that requires that at least 60% of employees must choose term life insurance in order for that benefit to be offered at a group rate. The computerized HRM aid could signal management of that fact as well as allow employees to ask what if questions to see the impact of various decisions on outcomes such as incomes tax rate, total retirement income early retirement or net pay after deferring income.

Knowledge systems are also valuable in reviewing the impact of changes in career ladders in weighing of elements in job analysis and in her effect of recruitment on such outcomes as total wage and benefit costs categories and promotional opportunities. Risk managers can more accurately assess the cost of various combinations if benefit packages and differing experience ratings of health plans. Supervisors’ can more clearly evaluate the impact of merit pay with computer systems that establish percentage increases based on performance ratings. The company can also judge the bottom line impact of various percentage raises for various levels of demonstrated accomplishment based on performance appraisal. While small knowledge systems are useful in contract negotiations large expert systems will give more accurate estimates of strategic decisions on HRM without bias or emotion and without overlooking significant details.

With the demographic shifts and the increasing rate of change in the external environment HR managers must be able to offer ways for companies to remain competitive domestically and internationally. Knowledge based expert systems will become a part of the arsenal.

3.6 IT AND HRM –The Flourishing of a Symbiotic Relationship

The rapidity with which developments are taking place in the field of information Technology (IT) leaves one awestruck. IT has come to play a significant role in
managing business organizations in the globalized business environment. The functional area of Human Resource Management (HRM) has also gained prominence in recent organizations. In order for IT to flourish it also requires significant input from the HRM area. Consequently a symbiotic relationship has emerged between the IT and HRM.

Due to globalization the business organizations world over are experiencing immense competitive pressure. As a result they are striving to achieve operational efficiency, productivity improvement, cost reduction, increased connectivity, organizational restructuring and reengineering business processes. For achieving this, the business organizations are continuously innovating to apply emerging techniques and tools of information technology such as decision support systems (DSS) Expert Systems (ES) and Artificial Intelligence (AI) models. The symbiotic relationship between IT and HRM is expected to grow further and will significantly contribute towards the success of an organization.

The human resource function has been transformed from its relative obscurity to a prominent management function in the organization. It has resulted due to the growing size of business organizations, globalized environment and increased emphasis on managing human resource. On the other hand unprecedented developments have taken place in the field of information technology. The world has witnessed large scale changes taking place in the way the business organizations do business, due to the increased application of IT tools and techniques (Saxena and Bhadu 1998).

IT encompasses a wide range of tools including Hardware (from main frames to micro computers) software (from world processing programmes to expert systems) Network and workstations (Scott Morton, 1991). The symbiotic relationship, which exists between information technology and human resource management, has flourished in recent times. The impact of IT on the human resource function has been both pervasive and profound (Snell et, al., 1992).
There is a growing tendency in the leading organizations to use information and information systems as strategic competitive weapon to remain far ahead of their competitors. The application of IT to the functional area of human resource management provides a lot of potential benefits to the business organizations. It is ironical that many business organizations have not been able to reap the full benefits of IT applications.

3.6.1 Role of IT in Business Applications

In recent times the organization has been treating information as a strategic resource. In today's fiercely competitive environment the managers must learn to use IT effectively to manage the operations on a global scale and also to provide customer delight in products/services. IT has transformed entire organizations in their efforts to create value for their customers. The following table shows how various aspects of IT bring about organizational change.

Table -3.1
How Information Technology Can Transform Organizations

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<thead>
<tr>
<th>Information Technology</th>
<th>Organizational Change</th>
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<tbody>
<tr>
<td>Global networks</td>
<td>International division of labour: the operations of a firm are no longer determined by location; the global reach of firms is extended; costs of global coordination decline. Transaction costs decline.</td>
</tr>
<tr>
<td>Enterprise network</td>
<td>Collaborative work and teamwork: the organization of work can now be coordinated across divisional boundaries; a customer and product orientation emerges; widely dispersed task forces become the dominant work group. The costs of management (agency costs) decline. Business processes are changed.</td>
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<tr>
<td>Distributed computing</td>
<td>Empowerment: individuals and work groups now have</td>
</tr>
<tr>
<td>Portable computing</td>
<td>Virtual organizations: work is no longer tied to geographic location, Knowledge and information can be delivered anywhere they are needed, anytime. Work becomes portable. Organizational costs decline as real estate is less essential for business.</td>
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<tr>
<td>Graphical user interfaces</td>
<td>Accessibility: everyone in the organization — even senior executive — can access information and knowledge; work flows can be automated, contributed to by all from remote locations. Organizational costs decline as work flows move from paper to digital image, documents, and voice.</td>
</tr>
</tbody>
</table>


The business organization have now become flattened, decentralized, network oriented and rely on real-time information to quickly reach the market place with products and services which can not only satisfy but exceed the customer's expectations. This customer orientation among its employees. It is changing the organization in such a way that they are becoming more dependent on the knowledge, learning and decision making of its key employees. Many behavioral scientists argue that for IT efforts to be successful, it must fit well with the organization's culture. IT can either threaten or support organizational culture. For example the emergence of computers was viewed as a threat by trade union leaders as they perceived that it will result in retrenchment of some of the employees. On the other hand various financial institutions welcomed computers as it facilitated in providing various financial services, both speedily and in cost effective manner.
It is helping in achieving major organizational change through re-engineering business processes. BPR involves radial re-thinking regarding the flow of the work in the various processes and procedures with an objective to reduce the cost and maximize the benefits of IT.

According to Dr. Stanley Device, "The IT is transforming the society into a any time, any where, no-matter' place in which the role of every individual will dramatically change in near feature. The instances of IT leveraged re-engineering achievements have been abounding. On the other hand, many corporate executive has got a computer terminal for IT desk and ninety percent of them hardly ever use it. There are displayed as status symbol and the monitor stays wrapped inside a plastic cover with a layer of dust on its top. It has become amply clear that the computers have been very successful in transaction processing at the operational level. For example Computerised Reservation System (CRS) for railways, airlines etc. but at the higher level, the tools have not been successfully used due to the lack of training in using such tools. In this context it can be suggested that information technology should apply technologies like voice recognition, image processing, animation etc. and create an ambience where use of technology will get naturally integrated into people's thinking and behavior at all levels.

### 3.6.2 Impact of IT on Management of Human Resources

One of the early commercial areas, which become widely computerized, was the personnel accounting. The computerization of wages and salaries of employees became the common practice. The computers provide all the details regarding gross pay such as salary, perks, overtime and other benefits. It also calculates all the deduction regarding PF, Income tax, loans etc. to arrive at net pay. The employees are provided with a computerized salary slip, which contains all these details. Computer programme may be used to print the salary cheques, various personnel records can also be computerized which can provide additional such as length of service, qualifications, attendance, sickness and vacations records.
to provide comprehensive data bases of employees records. For this purpose special software can be developed which meets the exact specifications of the user organization. Such software package should be user-friendly with various menu selections to seek help at every stage in running the programme. The use of computers should not be limited to developing and maintaining the payroll and personal record alone but should be used to further analyzing the payroll information to determine various information such as job costing, total cost to dates and the relationship to total wage cost to the total job cost.

Table –3.2
IT Capabilities and Their Organizational Impacts

<table>
<thead>
<tr>
<th>Capability</th>
<th>Organizational Impact/Benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transactional</td>
<td>IT can transform unstructured processes into routinized transactions</td>
</tr>
<tr>
<td>Geographical</td>
<td>IT can transfer information with rapidity and ease across large distance, making processes independent of geography</td>
</tr>
<tr>
<td>Automatical</td>
<td>IT can replace or reduce human labour in a process</td>
</tr>
<tr>
<td>Analytical</td>
<td>It can bring complex analytical methods to bear on a process</td>
</tr>
<tr>
<td>Informational</td>
<td>IT can bring vast amounts of detailed information into a process</td>
</tr>
<tr>
<td>Sequential</td>
<td>IT can bring vast changes in the sequence of tasks in a process, often allowing multiple tasks to be worked on simultaneously</td>
</tr>
<tr>
<td>Knowledge</td>
<td>IT allows the capture and dissemination of knowledge and expertise of improve the process</td>
</tr>
<tr>
<td>Tracking</td>
<td>IT allows the detailed tracking of task status, inputs and outputs</td>
</tr>
<tr>
<td>Disintermediation</td>
<td>IT can be used to connect two parties within a process that would otherwise communicate through an intermediary (internal or external)</td>
</tr>
</tbody>
</table>
A large number of firms have made use of IT to transform their HR functions (Kinnie & Arthur, 1993). It is significant to note that how IT is used in HR Department. IT facilitates the quick and easy access to databases, which can be developed relatively inexpensively. Moreover some of the software can be used to process the data to create new information using the connectivity provided by IT networks to communicate more easily with others in remote parts of the world. Increasing use of various Decision support System (DSS) and Expert system (ES) allows the institutionalization of organizational knowledge. According to Towers Perrin (1992), "It can be a potent weapon for lowering administrative cost increasing productivity, speeding response times, improving decision making and enhancing customer services".

Despite the potential benefits of IT many business organizations have failed to apply the tools of IT to increase the productivity. In many businesses IT has been used as no more than electronics failing cabinet for keeping records and information related to other administrative tasks. Although various IT tools are readily available for application in the area of HRM, The mindset of senior managers is to be blamed for not applying them.

### 3.6.3 Operational Impact of IT on HRM

The HRM has strong administrative nature, which can be greatly done by the increased use of IT to improve its efficiency and effectiveness. The operational impact of IT on HR can be assessed in terms of following parameters:
3.6.3.1 Alleviation of the Administrative Burden

The increased use of IT tools alleviates the administrative burden of HR personnel. As a result they find more free time, which they must utilize in performing some developmental works such as organizing training programmes. The bureaucratic organizational structure is characterized by centralized decision-making, formalized rules and standardized procedures. The increased application of IT in the HR area reverses the effects of bureaucracy (Huber, 1990). A proper information system which is having the backing of sound IT tools and techniques enables one to manage the HR in much flatter, less hierarchical and more flexible organizational structure.

3.6.3.2 Reduced Labour Cost

IT has been used for computational functions to simplify transaction processing which results in significant reduction of labour cost by means of reduction in organizational overheads as well as variable transaction cost due to the less number of employees which are now required after the introduction of IT techniques in HR departments of an organization. However this reduction in labour cost is compensated by rapid growth in information requirements.

3.6.3.3 Productivity Improvement

A large number of business organizations have felt the need for developing Human Resources Information System (HRIS). The HRIS is considered as an electronic repository of personnel data which contains employee addresses, emergency contacts, educational qualifications, salary & others perks, Jobs History, and performance evaluation data etc. An on-line HR database uses digitized image technology to eliminate paper work and thus improve productivity. Moreover, IT can be used for quickly preparing some of the reports (by reconfiguration of data) to various governmental agencies in a time bound manner. For example TELCO has a large number of employees on their roles but
their computerized HRIS is so efficient that every employee receives a bouquet on his/her birthday from the management.

Many organization are developing their HRIS using on-line human data bases. for example IBM developed a system called NOVA to keep track of overtime, vacations, absence data and feed it to managers via an on-line system.

3.6.4 Relational Impact of IT on HR

The relational impact of IT on HR can be assessed in the following manner:

3.6.4.1 Providing Managers and Employees Access to the HR Data Base

In case of large corporations, having multiple Strategic Business Units (SBUs), it is essential that HR data bases are frequently revised and updated. This is made possible by providing employees remote access to the base using suitable backbone network.

The on-line system provides various facilities to the managers and employees even in remote locations to enter, retrieve and edit data themselves by using the authorized password code. Moreover, such on-line systems can be used of seeking real time opinion surveys and suggestion schemes to have increased communication of employees with management. These on line systems have reduced the gaps among various layers within the HR department to improve their services.

3.6.4.2 Improving Services Levels

Suitable DSS can be developed that help-line managers to diagnose HR trends in a timely manner before they become problems. For example a DSS can alert HR manager to the upcoming actions such as performance appraisal, salary increases, promotions etc. In this way service level of the HR Department can be
enhanced by satisfying its customers that is the employees of the organization. For example IBM developed a system called on-line Personalized Reference Library (OPRL) for the personalized learning of their employees. OPRL helps in skills developments by bringing the training (electronically) to the employees rather than vice-versa (Herren, 1989).

Artificial intelligence model can be used to provide just the help a performer needs to do a job, just when the performance needs it, and in just the form in which he or she needs it. (Carr, 1992).

3.6.4.3 Increasing Connectivity

Increasingly new HR systems are being developed with an overall view of the entire system architecture (Venkatraman, 1991). With IT applications both the distance and time can shrink to near zero, with the help of Internet it is possible to globally search for potential employees. The staffing function which includes tracking, recruitment and selection of employees can be greatly facilitated.

3.6.5 The Transformational Impact of IT on HR

As a result of global competitions, faster product life cycles and the importance of learning organizations, the business organizations are changing the way they do business. The business organizations are experiencing changing trends in the areas of restructuring, reengineering, global outsourcing and strategic alliances. IT is playing a pivotal roll in this transformation. IT can take place in the following three ways:

3.6.5.1 Reengineering Work Process

Reengineering can be achieved by radical rethinking and fundamental redesign in order to satisfy customer needs (Hammer & Champly, 1993). Many business organizations successfully apply IT in their reengineering efforts. For example the
tools of IT such as Decision Support System (DSS) and Artificial Intelligence (AI) models can be used to bring about decentralization and delegation of authority in such a way that generalists can do the job of experts. Hence IT enables an organization to reverse the effects of bureaucracy. The objective of reengineering in HR area is to align employees with the needs of customers. Various IT tools & techniques can be used to bring about major changes in the way people perform their duties leading to the practices such as flexi-time, mobile employees and customer aligned employees.

IT helps in cutting the bureaucratic 'red-tap'. The organizations can re-engineer by reducing the hierarchical levels i.e. by flattening the organizational structure.

3.6.5.2 Building Virtual Teams

A large number of business organizations are awaking to the need of developing teams consisting of cross-functional and transnational members to handle special assignment. These are called 'virtual terms' Developing such teams is formidable task which can be achieved by using a number of IT system which are collectively called as groupware. This groupware consists of E-mail, video-conferencing and computer conferencing which makes it possible for team members to co-ordinate both across time zones and remote locations. For example a team member in Paris can share information and ask for help from another team member who is located in Tokyo.

IT has been immensely useful in automating the entire office operations. The convergence of computers (especially the microcomputers and telecommunications gave rise to office automation from the early 1980's and which has gradually evolved to the paperless electronic office. Now a days' the covers the use of word processors, PCS, workstations, terminals, peripheral equipments, networks and fax system. It embraces document preparation, desktop publishing, electronic mail, document storage and retrieval, data and
voice communication business packages, information management graphics and view data.

In electronic office there is less emphasis on the written word and more emphasis on retaining, manipulating and utilizing information in electronic form. For example e-mail has become a very effective communication tool. The information in electronic office need not be retained in filling cabinets but can be electronically filed, indexed and retrieved. The information held electronically can also be presented in a form, which helps in decision making through the use of spreadsheets and business graphics software. The electronic office brings about increased interpersonal communications in organizations. The electronic office requires a well-designed information system, which integrates all the databases with the corporate database. The electronic office utilizes very well tuned software packaged which can handle all the activities and operations of the electronic office.

3.6.5.3 Creating Network Organizations

A major challenge for human resource managers in a network organization is to achieve co-ordination between line managers and employees in HR Departments. It can be achieved by pooling the combined resources, which can be shared by all concerned in the organizations. In network organizations the main role of HR managers is to assign and track the activities of individuals within the network. Various IT tools have been found to be useful in this regard. It helps in reducing the numbers of experts required for carrying out some assignments as the IT can electronically provide the expertise of many experts.

Unlike a traditional hierarchy, a network organization is a configuration of independent business units, both inside and outside the firm, that pursue their respective specialties but form more or less permanent relationships. They are broader in scope than the virtual teams.
3.7 Evolving Role of the HR Function

The increasing application of IT in the HRM functional area exerts great influence over the way in which business organizations manage their human resources. The major operational impact of IT on HR changes the complexion of human resource department. While earlier it was viewed as an administrative function with IT applications, it is now more service-oriented and less bureaucratic in nature. However, it is still felt that the business organization have not been able to take full advantage of the capabilities provided by informational technology.

As a result of the relational impact of IT on HR, the role of HR within an organization undergoes a major change. While earlier, they were secretive about employee information; with the increased IT applications, such information is widely shared and is available to line managers and employees themselves. This value addition performed by HR department by leveraging benefits of IT enables the HR departments to be a highly professional one, providing customer-oriented service. These initiatives help HR department in quickly responding to various HR issues, applications, and problems.

The transformational impact causes transformation in the HR functions itself. Consequently, the HR executives have done self-introspection to reveal capabilities. Another trend is towards outsourcing of various activities of the HR functions. For example, various organizations offload the preparations of payroll system to external vendors. Similarly, the outside consultants, faculty members, and academic institutions can be roped in for organizing various training programmes for the employees of the organization. The increased application of IT leads to much smaller HR staff. In some cases, the HR representative is deployed in various other departments of the organization. Another transformation which is taking place within HR function is that other managers and employees have been empowered to perform various HR-related tasks on their own using a suitable Decision Support System (DSS), Expert System (ES) and Artificial Intelligence (AI) models. Though it is a remote possibility but in
future the role of HR may erode to such an extent that HR function may cease of exist. Such powerful impact the IT has on the HR function.

3.8 Computer Based Human Resource Information System

It can be defined as a computer based information system which is designed to support both the operational and decision making functions of the human resources department in an organizations (Basandra, 1997). Although many standard packages are available in the market, they do not fully meet the requirements of particular organizations. Hence it is necessary to design a tailor made information system which is very comprehensive. Such information system include the following:

1. **Employer Records:** Details of employees are contained in this record. Each employee is given a unique employee code number to help accessing and retrieving information related to him/her.

2. **Manpower Planning Records:** A suitable date base has to be developed which will help managers in planning for the human resources. It includes future projections regarding manpower requirements and existing manpower of an organization. It helps in developing prepare status reports.

3. **Recruitment and Selection:** It is based on the pervious component. The details of vacancies and status of each applicant has to be computerized to periodically prepare status reports.

4. **Training Records:** A good computer based information system which helps the HRM function invariably has a well maintained training records data base. It provides useful information regarding the skills required for each job positions and skill possessed by each employee holding that job position. Training needs can be identified by
performing the gap analysis and training programmes designed and scheduled accordingly. Using the Relational Data Base Management systems (RDBMS) the information regarding training of each employee is merged with employee records.

5. **Performance Appraisal Records**: Every organization have the practice of periodically reviewing the performance appraisal of each and every employee. Such a system can also be computerized to make it more efficient. This performance appraisal becomes the basis of promotion to the deserving employees.

3.9 **IT and HR Strategies**

Any investment in IT should be judiciously undertaken giving consideration to the organizational and human resource contextual situation of an organization. One should always remember that IT is not a panacea but is only a means to achieving an end in itself. In order to tap full potential of IT the management should take steps to align it with HR strategy. It can be made possible by first determining the internal customer segment which the HR department is trying to serve. Each customer segment have different needs and hence required different help from the HR departments. The HR managers have to determine what HR services can meet the above needs. The IT applications act as channels through which HR Department can provide services to its internal customers. These IT applications have come a long way from the implementation of HRIS to an advanced on-line quarries system in their endeavor to better serve its customers.

3.10 **Concluding Remarks**

In the above section it has been made amply clear that IT plays a vital role in managing the human resource of an organization. Due to many organizational and environmental factors, the human resource functional area has become very complex. The information requirements of managers and employees have also
undergone a dramatic change. The information technology is facilitating the management of human resources by providing means to develop and channels to transfer the required information both speedily and in a cost effective manner.

More recently the business organizations have started attaching high importance to the issue of quality information systems and consequently strives to transform organizations in which IT plays a crucial role. The symbiotic relationship between IT and HRM is expected to further grow and prosper since wide sweeping changes are taking place in both the areas. Those business organizations will survive and prosper which will treat information as a strategic resource and to utilize it in managing one of their most precious resources, i.e. human resources.