

Enterprise Resource Planning: Driving Human Resource Management

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Abstract: Enterprise Resource Planning (ERP) Systems exist to create effective organizations but measurement of this is difficult. It exists as a driving force to the modern Human resource management in the Organizations. ERP helped in making Human resource Management processes simpler, smarter and efficient with quick availability of decision making data. In this article at the first, we will review the ERP and after that we will analyze its impact on the various aspects of Human Resource Management and how These functions can be made perform better with the ERP.

Keywords: *Enterprise Resource Planning, Human Resource Management.*

I. INTRODUCTION TO ERP

The waves of change brought by ERPs have begun to be felt and appreciated by organizations worldwide (Siriginidi Subba Rao, 2000). ERP systems are beneficial in providing support for all variations of best business practices, in enabling the implementation of these practices with a view towards enhancing productivity. ERP combines both organizational business process and total organizational IT into one integrated system. (Al Mashari, 2002). Much of the published research on ERP has been about the specific benefits of the technology or particular features of their implementation in individual organizations (Sarah Cadili, et al, 2005). ERP systems have a high degree of integration and information commonality. By streamlining data flows throughout an organization, this commercial software, offered by vendors like SAP, promise dramatic gains in a company's efficiency and bottom line (Ulf Melin, 2003). But who can guarantee the positive effect of ERP systems on organization aspects (structure, communication, objectives)? Does an erp system give the same implementation benefits in all organizations? Does this system help the organization to gain their goals? The only thing known for certain is that implementation is very resource-consuming and the impact and benefit of implementation is unclear. The response to these questions could be finding in effectiveness concept. ERP systems are by many regarded as a dream. come true and are in most cases implemented in order to improve organizational effectiveness (Cameron,K.S.,1999). Studies

show improved organizational effectiveness such as business process improvement, increased productivity and improved integration between business units (Purnendu Mandal, et al, 2003). Evaluation of the impact of ERP systems on organizational effectiveness is so difficult. Some of the famous problems are the complexity and comprehensiveness of ERP systems, the lack of empirical research on the impact of ERP systems on organizational effectiveness, and the shortcomings of traditional multivariate methods (such as factor analysis) for solving problems related to organizational effectiveness (Campbell, 1977). Gaps between effectiveness expectations and actual performance improvements with respect to employee work satisfaction, efficient resourcing, and customer interaction are reinforced in erp. ERP implementation increasingly identified people and organizational issues as critical features to be addressed for successful systems integration (C.G. Ash, J.M. Burn, 2003). come true and are in most cases implemented in order to improve organizational effectiveness (Cameron,K.S.,1999). Studies show improved organizational effectiveness such as business process improvement, increased productivity and improved integration between business units (Purnendu Mandal, et al, 2003).

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Advantages of ERP to Business Activities

Emphasizing advantages and merits of ERP to business activities, O'Leary (2000) indicated that the value creation is attained by the following capabilities:

ERP integrates firm activities: - Enterprise resource planning processes are cross-functional, forcing the firm out of traditional, functional, and locational silos. In addition, an organization's different business processes are often integrated with each other. Further, data that were formerly resident on different heterogeneous systems are now integrated into a single system.

ERPs employ use of "best practices:-" Enterprise resource planning systems have integrated within them a thousand best practice business processes. Those best practices can be used to improve the way that firms do business. Choice and implementation of an ERP require implementation of such best practices.

ERP enables organizational standardization:- Enterprise resource planning systems permit organizational standardization across different locations. As a result locations with substandard processes can be brought the firm can show a single image to the outside world. Rather than receiving different documents when a firm deals with different branches or plants, a single common view can be presented to the world, one that puts forth the best image.

ERP provides online and real-time information:- In legacy systems, much information is captured on paper and then passed to another part of the organization, where it is either repackaged (typically aggregated) or put into an electronic format. With ERP systems, information is gathered at the source and placed directly into the system. As a result, information is available online to others and in real time.

ERP allows simultaneous access to the same data for planning and control:- Enterprise resource planning uses a single database, where most information is entered once and only once. Since the data is available online and in real time, virtually all organizational users have access to the same

information for planning and control purposes. This can facilitate more consistent planning and control, in contrast to legacy systems.

ERP facilitates intra-organization communication and collaboration:- Enterprise resource planning also facilitates intraorganizational (between different functions and locations) communication and collaboration. The existence of interlocking processes brings functions and locations into communication and forces collaboration. The standardization of processes also facilitates collaboration because there are fewer conflicts between the processes. Furthermore, the single database facilitates communication by providing each location and function with the information they need.

ERP facilitates inter-organization communication and collaboration:- The ERP system provides the information backbone for communication and collaboration with other organizations. Increasingly, firms are opening up their databases to partners to facilitate procurement and other functions. In order for such an arrangement to work, there needs to be a single repository to which partners can go; ERP can be used to facilitate such exchanges. In general, ERP has following advantages.

II. ERP and HR

In today's world of Globalization, it's knowledge, commitment, skills, and training that provides the competitive advantage for world class companies like Microsoft, IBM etc. And it's HR's job to build that competitive advantage. That means an upgrading of HR's traditional role. In early 1900's HRM functions used to entail hiring and firing of employees, payment of salaries and administering the benefit plans. The function consisted largely of ensuring that procedures were followed. Today HRM function is shifting from protector and screener to strategic partner and change agent.

HRM as a strategic business partner function has major challenges, Especially in companies with multiple business units where HRM processes may not have a unified, simple method for tracking employees' time and communicating with them about benefits and services, Managing recruitments centrally and co-ordinating training programs organization wide. Lack of centrally driven performance management system and talent management.

ERP can fix all these issues by providing a centrally managed system with defined processes and procedures for various HRM functions. All the functions are defined inline to the best industry practices and procedures. HRM module

of ERP covers the Definition of Organization Structures, Locations, Business Group, Organizations, Organization hierarchies, Security Profiles, Master data management, Payroll processing and legal reporting, Performance and talent management, Recruitment etc. All these automated procedures helps in better driving the HRM functions and activities.

III. LITERATURE REVIEW

In the world of technologies ERP systems play an important role. Among the many definitions available in the literature, Al-Mashari (2003) defines an ERP system as “a package business software system that enables a (government) to manage the efficient and effective use of resources (materials, human resources, finance, etc.) by providing a total, integrated solution for the organization’s information processing needs”.

The origins of ERP can be found in the ‘70s when companies started to find a solution to the problem of large inventories whose cost became not manageable any longer. These inputs brought to Material Requirement Planning (MRP) systems whose main goal was to reduce the inventory by coordinating the procurement process activities with the production process. “Using accurate inventory record files, the available quantity of on-hand or scheduled-to-arrive materials could then be used to determine net material requirements“ (Umble & al. 2003:242). In the 1980’s MRP faced an evolution towards MRP II, which were capable to couple the inventory with the financial dimensions. Basically, with MRP II financial accounting and management systems created a system with the manufacturing and materials management systems (Umble & al. 2003:242). This evolution was an important step towards a more integrated view of business activities. The next step was taken in the 1990’s when MRP II scope enlarged to consider all the resource planning for the entire organization, including human resources, giving rise to the Enterprise Resource Planning Systems.

Kalling (2002) points out that the literature on ERP systems may be divided into three groups: research about how ERP systems add value; research about implementation issues; and research about combination of ERP with other IT resources. Interestingly, Kalling (2002) also highlights that research have neglected two important issues, the relationship between ERP and competitive advantage, the relationship between managerial processes and ERP-based competitive advantage.

Holland et Al. (1999) highlighted that ERP implementation processes may follow two paths, i.e. the choice of a standard, almost ready-to-use package (with little setting required) and the customization of an ERP system to tailor it to the organization’s needs. However, the first option

appears to be more probable than the second one (Morton & Hu, 2008). Therefore, this obliged standardization may not fit with the organization’s characteristics and, in turn, bring to the ERP implementation’s failure (Morton & Hu, 2008). In fact, the ERP systems require organizations to comply with the standard business processes which were used to design the ERP software packages.

Hong & Kim (2002) consider organizational resistance to change as a critical success factor for ERP implementation. Perceived risk and habit are the two most probable causes of resistance in ERP implementation (Sheth, 1981; Aladwani, 2001).

Even though the authors cautioned that “success is a multidimensional and interdependent construct—and that it is therefore necessary to study the interrelationships among, or to control for, those dimensions”, in this paper we tried to shed some light on two of the cited dimension, i.e. individual impact and organizational impact or ERP systems. In fact, among the vast literature on ERP systems, relatively little attention has been given to the impact of ERP systems on both the organizational and the individual level. In this paper we will focus on understanding ERP impact on HRM functions and the increased effectiveness as an outcome.

IV. HUMAN RESOURCE MANAGEMENT PROCESSES DRIVEN BY ERP

ORGANIZATIONAL STRUCTURE MANAGEMENT

One of the most important functions of HRM is Management of organizational structure in the form of Organizational chart which is a representation of Hierarchy of authority, Division of labor, Line and staff relationship and span of control. It shows the relationships between various departments and number of positions in each department, the occupancy of position is also maintained and the vacant positions are demarked. The reporting relationship between positions is to be maintained and all the specified items needs to be updated immediately with any kind of change emerging out of organizational transfers, job rotation, separations, hiring, promotions etc.

ERP facilitates the Management of organizational structure specific to a time period with the flexibility to analyze and change. It enables real time changes in the organizational structure through it’s integration with various employee related aspects like transfer and promotions. It enables view of entire organization in one shot and can project a picture of entire organizational structure in line with the future planning. It also helps in generating various reports like Number of employees reporting to a particular manager, number of employees in a department, List of all HOD’s etc. Thus it facilitates faster decision making and organizational restructuring and manpower planning on a real time basis.

PERSONNEL ADMINISTRATION AND MASTER DATA MANAGEMENT

Since the joining of an employee in the organization the HR department is responsible for the management of all his data like personal data, Organizational data, education details, experience details, salary data etc. These data elements need to be regularly updated according to any change in employee's status. Also the various administrative functions needs to be managed for the employee like their transfers, Promotions, Separations, etc. These functions also trigger a change in the master data components like Organizational data, Salary data etc.

A lot of reporting is also required on these master data elements like attrition reports, demographic reports on the age, gender etc.

Traditionally this data used to be maintained and administered in the form of manual employee files or using spreadsheet based excel formats. There was no real time updation of employee information and for retrieving any information HR professionals were required to make a lot of manual effort in the searching of manual files and spreadsheets, the data then used to be collated and reports used to be prepared with lot of chances of manual errors. ERP facilitated the management of master data and personnel administration by providing simple data entry windows and tight procedure with integrated approach which enforces real time updation of data. All data points required to be updated with a particular administrative Action like Promotion, Transfer etc. are preconfigured and leaves no scope for any master data mismanagement. ERP also facilitates faster reporting and master data analytics making processes simpler and decisions faster. With ERP the employee file can be created in the soft copy format with scanned copy of all the documents.

V. TIME MANAGEMENT AND LEAVE ADMINISTRATION

Information on the work performed by employees and their availability to work are essential elements of a human resources management. This information is captured in the form of the time data. This time data is transferred to other functional areas, such as payroll, and is an influential factor in enterprise-wise decision-making. Traditional time management and leave administration required tedious time capturing by the time office team in the form of time register or punch machines. There used to be leave forms and "on duty slips" which were filled by the employee and used to be approved by the manager. These forms and slips were then submitted to the time office which was manually entered in the register. Also a leave card used to be maintained by all the employees and the leaves used to be

manually updated and reduced every time quota is allotted or leave is availed. The management of shifts and rotations used to be very time consuming process. The holiday calendars used to manually verified while approving leave requests. All the policy matters like clubbing of leaves and taking of leaves on immediately after an off day etc were checked manually by the time office team. The time aspects like late coming, early going and overtime were very difficult to manage and maintain. An organization of 1000 employees used to have a team of approx. 4 to 5 members in the time office to handle these tasks.

ERP helps in making the Time management and leave administration simple and easily manageable. Time Management system in ERP provides with a flexible means of setting up, recording and evaluating working times. Information about working times is transferred to Payroll to calculate employees' gross pay. There are various options for recording working times: Manually entering time data online, using time recording terminals, or employees using self-service applications. Time accounts (leave, flexitime, and so on) can be managed manually or automatically. Working times can be allocated as activities in Controlling, and the resultant costs can be assigned to the appropriate source. Time management information is used within logistics to determine employee availability for capacity planning purposes. Enterprise work requirements can be determined and employee shifts scheduled. Time tickets can be generated automatically from Plant Data Collection (PDC) postings. The scope of functions available in Time Management can be customized according to the requirements of enterprise. This ranges from simple administration of leave and illness times to planning personnel capacity, valuating attendance and absence times using time accounts, determining overtime and bonus wage types, and processing incentive wages data (such as piecework, for example). In ERP Employees can use the Time Sheet to enter their own actual times. Time data can be recorded and transferred to Controlling, Human Resources, and Logistics for further processing. Time data can be recorded as attendances, absences, and employee remuneration information for Human Resources.

VI. WORKFORCE PROFILE

The study of workforce dynamics is the starting and most crucial point for any HRM activity. Analysis of headcount and headcount progress trends, turnover, and span of control, providing a consistent view of the workforce to line managers and HR. Drilling down from this level, one can gain deep insight into the recruiting life cycle, analyze staffing (i.e. Staffing levels, retention, diversity and performance), view employee performance by organization,

see retention (i.e. Retention hotspots or retention by top performers), and various other demographic trends.

In the traditional systems extraction and design of such reports was quite time consuming and cumbersome process. The data used to be available in spreadsheets or manual files which used to be collated to design various reports and used to consume a major time slot of HR professional's job. Another issue was that the data used to have time gaps and it was not updated on a real time basis leading to reduced accuracy of reports. The data also used to be scattered a multiple places and there was no single source. For an organization spread at multiple locations it used to be a herculean task to get the data from all the sites.

With the implementation of ERP systems for HRM the data updation is made real time and at common location which ensures easy retrieval and processing of the data, Users can view the entire organization by time periods and can select a divisional, departmental, or workgroup view within the organizational hierarchy. With the tight integration between the workforce profile subject area, with its dashboards and metrics, and the underlying HR system of record, managers can get various trends and support for decision making into hiring the right type of candidates, prevention of attrition, manpower planning etc. Managers can get a prediction on trends of attrition like which levels have more attrition, which age group, gender, experience level age, education family profile people have shown trends of attrition and which all are the employees having many of the similar characteristics and hence are more prone to leave the organization. Based on this various measures can be taken to identify and retain the employees in the organization.

VII. COMPENSATION MANAGEMENT AND SALARY ADMINISTRATION

Compensation Management and salary administration is a very important aspect of Human resource Management. The payroll officers and compensation specialists have to undergone the situation specified in the below example several times in their professional Career

“The Caliber A Bicycle Company is a large organization with subsidiaries in several regions. The personnel costs of the organization are substantial and due to an increasingly competitive market are of primary importance to upper management. The Human Resources Department has been requested to develop a compensation program that will not only support the needs of the organization but that will also reward, motivate, retain and attract the best employees. Such a program will ensure the organization of its competitive standing in the labor market by evaluating its jobs and placing them in salary structures consistent with the organization's compensation philosophy. The HR

department has also been asked to develop cost projects for the coming fiscal year”.

To handle the above situation compensation specialist need to have a lot of data and information for which he should have a well established process which could cover Cost Planning, Budgeting and Compensation Administration. Then only he can answer questions related to relative value, compensation trends and pricing of the jobs.

Compensation Management in ERP covers a range of functions associated with salary and compensation administration:

- Storing and reporting on job evaluation and salary survey results
- Participating in online salary surveys
- Planning compensation budgets and monitoring actual costs against budgeted costs
- Setting up compensation programs, such as Annual Salary review, Stock Option Program, that mirror
- Compensation policies
- Administering these programs so that employees receive compensation in line with company policy.
- Administering and handling long-term incentives
- Projecting future personnel costs and simulating “what if” scenarios

All the above activities help compensation specialist to resolve the issue specified in the example faster and with higher level of accuracy.

The salary administration and payroll system in ERP helps payroll officers and compensation specialists in Administration of salaries which is an ongoing process of human resource department. It enables maintenance of salary grade against each employee and ensures management of salary data. The processing of salary is faster and covers various aspects of payments, statutory and non statutory deductions, taxation, financial accounting of payroll expenses and legal reporting as per the legal laws of the country. On the contrary, in the traditional system the Salary administration used to be a very time taking process and Payroll officers used to take a lot of time and effort in manual calculations, postings, Tax calculations etc. There used to be huge teams scattered across different locations and they used to process payroll separately for their respective locations which is now done faster with just a click of mouse in the ERP. Country wide payroll can be processed centrally at one location making the process more efficient and effective.

VIII. RECRUITING

The recruitment process is an essential component of the HRM activities. Since Human resources are the key drivers of any organization it is very important and essential to ensure timely supply of the right talent. Recruitment professional needs to Plan the Organizational resource requirement properly, so that the right talent be provided at

the right time and in the right cost. The turnaround time of the entire cycle of recruitment should be reduced to minimum and proper tractability of any requirement be ensured. They also need to ensure that the talent pool is built and the proper analysis in terms of the entire cycle be done on the timely basis. The co-ordination aspect needs to be emphasized to manage the right flow of information amongst the various stakeholders like the Departments, Recruiting Manager, Candidate, interviewer, the Selection team, Vendors etc. The ERP system enables faster and efficient driving of Recruitment activity by providing the following system services

Requisition Management

ERP enables creation of online Job requisition against a vacancy which is an agreement between HR managers and recruiters about the conditions of a vacant position (such as what, when, how). It is determination of how candidates are to be evaluated and selected for a specific position in a structured fashion: how and when candidates are to be selected and ranked. This process is faster and integrated with vacancy and organizational structure.

Management of Job Postings

ERP provides for the Definition and implementation of a strategy to attract candidates to the company in general or for a particular job: search in talent pools, publications etc. It allows Resume parsing and creation of link on various job portals. The Resumes downloaded from various sites are stored in the Talent pool.

Application Entry

ERP facilitates the acceptance of incoming applications from various channels (such as e-mail, post, intranet, extranet, third parties, or special events. Candidates can directly login on the extended ERP portals and can put their details.

Applicant Tracking

ERP provides for the implementation of the recruitment plan; execution of processes regarding Talent Pool members and applications; applicant prequalification and selection, extending offers and completion. All validations are inbuilt which saves lot of time and effort in the manual scrutiny of the applications.

Processes Flow

ERP provides for the automatic execution of the process flow stage by stage and change of stage from one level to another, It also captures attributes like reason for rejection etc. The interview evaluation scores and test results can also be captured as part of the process flow.

Reporting

ERP provides various recruitment report based on the process, this includes report on the Recruitment yield pyramid, performance of vendor, time cycle and gaps in the process, turn around time at various level, interview success rate, candidate decline rate etc.

All the above features of ERP system helps in making the recruitment process much faster and efficient then the manual recruitment process.

IX. LEARNING ENROLLMENT AND COMPLETION (Training and Development)

From the learning management Perspective, ERP provides for the learning solutions which provide the flexibility to put online training calendars consisting of all the internal and external training programs and their key features. Employees can opt for a training program and they can raise an online request for the training program which they want to attend, The request is moved to the respective department through online workflows and after due approval the requester is enrolled for the training program and his attendance is booked. This reduces administrative effort and improves efficiency. Also the user can raise the request for cancellation of attendance from a particular course as per the defined guidelines. Once a course is completed the attendee can fill the online feedback form on the portal itself for the course which he has attended. This entire online process in ERP saves lot of time and effort in comparison to the manual process. Also it brings more transparency through online application, cancellation and feedback. Through it's integration with the employee master data the qualification is updated in the master record of an employee once the course is completed this ensures real time reporting and complete synchronization. The ERP provides for various reports required as part of learning solution analysis.

X. EMPLOYEE PORTALS

In the traditional HR systems a considerable amount of HR job used to involve employee services like filling up their leave forms, taking their income tax declarations, sending them payslips, taking their loan requests, claims and reimbursements processing, travel forms etc.

In ERP systems with employee service portals employees can take all these information through a web based interface. They can login in the portal and can apply for various benefits, loans , leave etc. They can also generate their payslips. Managers and HR Service Managers can give approvals over the portal. This saves lot of time and effort both for employee and HR. Also employee satisfaction increases with faster and quick service.

XI. PERFORMANCE MANAGEMENT SYSTEM

Performance management includes processes that effectively communicate company aligned goals, evaluate employee performance and reward them fairly. Clear goal planning, skill development and a true pay-for-performance culture are talent management practices that successful

companies use to demonstrate their employees are valued. Effective performance metrics has been proven to increase employee morale and overall productivity. Engaged, productive employees are essential to any company outperforming its competition. Rising costs, increased competition and time necessary to hire and train new talent have made retention of your top performers imperative to the bottom line. Recognizing gaps and developing skills enables managers to properly map out succession plans while employees develop attainable career paths. The performance management cycle begins with the identification of organizational goals for a specified period, these goals are then cascaded downwards at the departmental level where each department set the departmental goals in line with the organizational goal, mission and vision. These Departmental goals then form the basis for the employee goal setting in line with his manager, These goals are duly approves by manager and the progress on achievement is reviewed in the middle of the cycle period by both the employee and Manager. Then the year end review is carried out by employee, the manager or other part appraisers as per the organizational procedure. Once the process is over then takes place the Normalization process at the HR level and final ratings are given to employees based on the peer comparison and review. There ratings then form the basis of performance rewards and salary increases. This entire cycle requires HR department to carry out a number of activities like circulating the goals, Creating appraisal forms, circulation of forms at the respective stages, Then taking forms back after completion of each stage. A lot of data from the form used to be manually compiled in the spreadsheets for analysis. The follow up used to be very difficult and time consuming. Big team used to be involved to undertake the entire gamut of activities.

ERP helped in simplifying the HR task in Performance management process and making it easy for employee and managers as appraisee and appraisers respectively. ERP enables creation of Appraisal forms in the online format with link to organizational and department goals. HR managers can allocate Forms to all the employees within minutes .Employees can fill the form online and managers can evaluate the performance online in each stage. Report related to the status of appraisal forms and process cycle can be readily taken and reminders can be sent to all the employees and managers for whom the process is not yet accomplishes. The calibration notes can be downloaded for normalization committee and ratings can be uploaded and which can then be used for all the purposes. Also the performance improvement process is triggered wherever required and is linked to the corresponding improvement mechanism. ERP thus helps in driving the entire process faster and with higher level of efficiency and efficacy.

XII. CONCLUSION

ERP is a set of best practices for performing different duties in corporate organizations, including finance, human resource development, manufacturing and the warehouse. To address the uncertainties of economic and political conditions, business leaders must be able to constantly grow in terms of efficiency and efficacy. Human resource being a strategic partner in the overall growth and success of Organization needs to consistently outperform on all aspects. ERP system helps in better driving the Human resource management processes thereby contributing to the overall success of the organization

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