

E-HRM Tools: An Empirical Study in Select Indian Organisations.

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ABSTRACT : Information and communication technology (ICT) has provided leverage for fundamental reconfiguration of services provided by the human resource function, not only in terms of the range of activities that have been automated, but also in the point-of-access for internal stakeholders. Most of dynamic organizations are equipped with different types of tools which facilitates in delivery of HR services. The present research in its endeavor identifies the extent to which different instruments/ tools are in use in selected Indian organizations. This paper also explores difference in use pattern of (electronic human resource management) e-HRM tools in context to private vis-a-vis public and manufacturing/mining vis-a-vis services. It also identifies whether the application of e-HRM tools is same or different for select Indian organizations. Employees' responses have been compiled through a structured questionnaire consisting of demographic variables and statements regarding use of e-HRM tools. The researcher has used one sample t-test, paired sample t test, and one way ANNOVA as statistical toll for analyzing the result. The study reveals that all the e-HRM tools are not fully utilized in Indian organizations and private organization are ahead of public organizations in application of e-HRM tools similarly services sector is of manufacturing/mining sector in application of e-HRM tools. Among eight select organizations Coal India Ltd is laggard in application of e-HRM tools.

KEYWORDS: ANNOVA, Automation, Point- of- access, Questionnaire, Stakeholders

I. INTRODUCTION

The gradual penetration of information and communication technology (ICT) in all facets of business is leading to multidimensional and often unpredictable changes and advancements. Except manufacturing and operations most of the functions of the organization is performed with the click of mouse and latest evolution touch screen, thus most of the business and its employee in present face many challenges and opportunities that evolve from complex nature of work and unending changes taking place in the range of work. One of the major challenges includes rapid change in work technology. One of the largest breakthroughs in the work arena is automation, and digitisation of the work and near constant technological advancement, with a definite move towards the use of technologically sophisticated ways of getting things done, hence HR function of an organization cannot remain aloof and secluded and same pattern has got to be followed for human resource management practices, henceforth new, dynamic ways of managing HR are being seen every day. This has more impetus as different stakeholders are hungry of information need and ask for customised information in 24*7 mode at their finger tips.

As per Wright and Dyer (2000) ICT has led to rapid development of e-business and still emerging as a big force, therefore HR and HR professionals are faced with the challenge of performing in ways that are in line with the business. In this view HR function becomes a critical partners in driving success, but to do so it require that HR changes its focus, its role, and its delivery systems. HRM has to act both proactively and reactively in response to the changing business environment and this is prevalent in the way that human resource management practices both within and outside the organisation is being conducted. New dynamic, flexible and adaptable way of managing HR issues policies and practices are being sought after and HR service delivery in electronic form is the solution of above mentioned issue. Application of ICT for HR function is named with various names like web-based human resources, human resource information systems (HRIS), virtual human resource management, human resource intranet, computer-based human resource management systems, and human resource portals but the term e-HRM is extensively used. Global and national changes are impacting the Indian business environment and subsequently influence how human resources are managed. E-HRM has made few buzzwords like automation, transparency, empowerment, paperless office, least human interference a reality which was once supposed the panacea for all the ills of workplace. Technology has led a revolution in the delivery of HR services in organisations. This is quite evident in the way that human resource services both within and outside the organisation is being delivered.

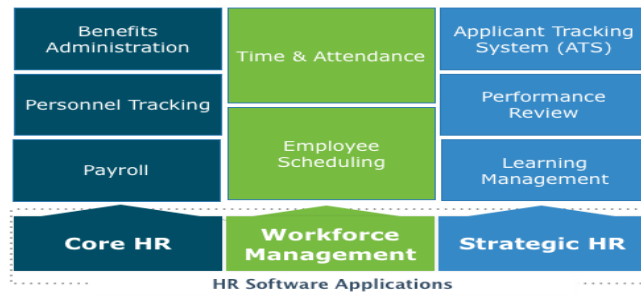
There is a wide practice by HR personnel in organization to activate e-HRM tools to execute responsibilities on digital base by e-personnel data management, e-administration, e-Job design and analysis, e-human resource planning, e-recruitment, e-selection, virtual training, online performance management, e-compensation, e-time and labour management, and e-compliance reporting resulting in stakeholders are less and less likely to receive HR services in face-to-face and pen and paper mode and consumes operational, non-strategic, transaction-oriented services by participating in ICT-mediated interfaces with HR staff or external vendors via telephones, mobile, World Wide Web and other wireless devices.

II. LITERATURE REVIEW.

Delivery Tools/ Instruments-According to Kettley and Reilly (2003), computerized human resource information system consists of a fully integrated, organization wide network of HR-related data, information, services, databases, tools and transactions. Technology has only recently developed in a way that enables e-HRM to make its mark, especially the introduction of corporate intranets and web-enabled HRIS. The nature of the development path, however, varies considerably from organization to organization. Kavanagh and Thite (2008) reported that to improve effectiveness and efficiency in terms of service delivery, cost reduction and value-added services, HR departments came under pressure to harness technology that was becoming cheaper and more powerful. Sanayei and Mirzaei (2008) in empirical study aim at providing an explanation of e-HRM and introducing its activities and tools, after the investigation, the effect of various independent variables such as job satisfaction, professional commitment, and organizational commitment on the effectiveness of HRM as a dependent variable. E-HRM tools such as intranet, extranet, HR portals; integrated HR suite software is rarely used, however according to expert's judgment if they are used, they would have a positive effect on HRM output in Iranian organizations. Florkowski and Olivas-Lujan (2006) examines the diffusion patterns of eight information technologies that are transforming HR service-delivery in North America and Europe: HR functional applications, integrated HR suites, IVR systems, HR intranets, employee and manager self-service applications, HR extranets, and HR portals. The overall diffusion was best characterized as an outgrowth of internal influences, fuelled primarily by contacts among members in the social system of potential adopters. Companies in the 21st century can be broadly said to have adopted at least one of the above mentioned e-HRM technologies.

Foster et al. (2004) describe that the application of the internet to the Human Resource function (e-HR) combines two elements; one is the use of electronic media while the other is the active participation of employees in the process. Bondarouk, T. et al. (2004) states organisations need to embrace the e-HRM revolution which relies on cutting edge information technology, ranging from internet-enabled human resources information systems (HRIS) to corporate intranets and portals. According to Biesalski (2003), e-HRM is a web-based tool to automate and support HR processes. According to Lengnick-Hall, & Moritz, (2003) the final stage of total digitalization in the 1990s arrived when HR professionals and ICT specialists joined forces and developed electronic information systems that moved HR decision making from drawers to computer. As per Watson Wyatt's (2002) survey of HR technology issues revealed that a wide variety of HR and payroll systems are being used today. According to the results of the study, web technology is the predominant method for delivering HR-related services to employees and managers, and offers significant opportunities to improve communication, knowledge sharing and HR delivery systems. In the views of Wright, M. et al. (2001) e-HRM refers to the processing and transmission of digitized information used in HRM, including text, sound and visual images, from one computer to another electronic device. As stated by Doughty (2000), today, within the HR software market there are a myriad of HR systems, payroll, training administration, 360 degree feedback, psychological testing and competency software tools operating in their own software features.

HR functional applications (HRFA) – According to Florkowski and Olivas-Luján (2006) HRFA are software-enabled automation of discrete tasks and responsibilities to the HR function. Application software is a defined subclass of computer software that employs the capabilities of a computer directly to a task that the user wishes to perform. An HR functional application implies software for a specific activity or group of activity. Most common functional applications available for the different tasks are, benefits administration, personnel tracking and payroll, Recruitment, Time and attendance, Payroll, Benefits administration, Performance appraisal, Industrial relations advisory, Occupational health and safety module.

Figure-1 Functionality of HR Software Applications

Source- <http://www.softwareadvice.com/hr/>

As per Software Advice (2014), core HR encompasses the three traditional human resources management functions: benefits administration, personnel tracking and payroll. Workforce management comprises the range of software solutions intended to effectively schedule and track the workforce and include applications to track time and attendance, monitor compliance with labor laws, and usually include payroll functionality, or integrate well with other payroll software. Strategic HR involves growing company by attracting and developing the best people, as well as better managing workforce overall. Strategic HR applications generally provide some combination of applicant tracking and recruiting, learning management, as well as performance review functionality. This type of software streamlines these strategic processes to ensure that a company is using its staff as efficiently as possible, and also that employees are continuing to grow and develop--increasing employee satisfaction and retention rates.

Integrated HR software suite applications (ISA) – As per Wikipedia (2014) Integrated software is software for personal computers that combines the most commonly used functions of many productivity software programs into one application. According to Florkowski and Olivas-Luján (2006) ISA is multiple applications bundled together as a package are referred to as an application suite. The separate applications in a suite usually have a user interface that has some commonality making it easier for the user to learn and use each application. And often they may have some capability to interact with each other in ways beneficial to the user. Integrated software suite applications (ISA) can be contrasted with system software which is involved in integrating a computer's various capabilities, but typically does not directly apply them in the performance of tasks that benefit the user. ISA delivers business intelligence with analysis including, online analytical processing (OLAP), data mining, extract, transformation, and data warehousing, and reporting. This helps achieve optimum levels of capability and providing complete control of all HR aspects by integrating all organization and employee data to provide information on every facet of the operations right from employee policies to payroll processing. This also generates comprehensive reports that stretch the entire spectrum of the database. ISA has lot of leverage over HR functional application like, enhanced navigation, flexible functionality, simplified data management, streamlined communications integrated reporting, and shared environment and speed to value. As per Software Advice portal (2014) of course, core HR, workforce management and strategic HR functions often overlap. While there are best-of-breed solutions for individual functions in each category, there are also integrated suites boasting across-the-board functionality.

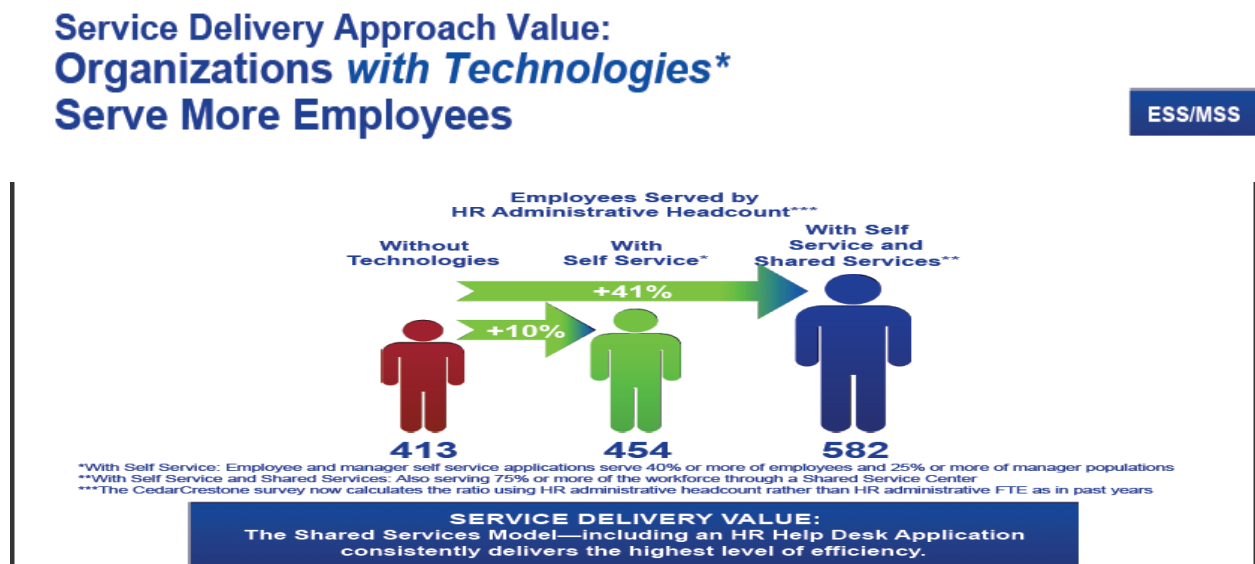
Interactive voice response (IVR) – As per Wikipedia (2014), interactive voice response, is a communication technology in which someone uses a touch-tone telephone to interact with a database to acquire information or enter data into the database. IVR technology does not require human interaction over the telephone as the user's interaction with the database is predetermined by what the IVR system will allow the user access to. As per Wikipedia (2014) Interactive voice response (IVR) is a technology that allows a computer to interact with humans through the use of voice and dual-tone multi-frequency-signaling (DTMF) tones input via keypad. Florkowski and Olivas-Luján (2006) states IVR system channels phone calls automatically to targeted recipients or recordings by pressing touchtone buttons. IVR allows employees to interact with a company's host system via a telephone keypad or by speech recognition, after which they can service their own inquiries by following the IVR dialogue. HR function subsequently leverages this technology to facilitate telephone-driven consumption of such services as benefits enrolment, training registration, employee announcements, work-related surveys etc. External organizations and agencies also are able to verify employees' status or income levels by calling the appropriate numbers. IVR helps in automation of operations, Serve employee after normal business hours, improve employee service, lower call centre costs, prioritize employee, so urgent calls are handled quickly.

HR intranet applications (HRIA) – As per Weidenhammer (2013) an intranet creates a single, secure repository for all confidential human resources information and processes. It can provide an easy-to-navigate environment that is accessible by all employees, regardless of where they are located or which computing platform they are using. Employees have immediate access to the latest information. An Intranet can help employees quickly find the information they need. Employees aren't overwhelmed by cumbersome manuals, and they save time searching because they don't have to wade through pages of irrelevant information. To make things even more efficient, employees can enter data online. This data can be automatically integrated into back-end information systems, so it can be validated on input, eliminating errors. In addition, the human resources staff does not have to re-enter employee data, freeing up time for other more important tasks.

According to Florkowski and Olivas-Luján (2006) HRIA is private computer network that provides employees with direct access to link internal database and/ or a seamless interface with the internet. It is a network designed to organize and share information and carry out digital business transactions within a company. An intranet employs applications associated with the internet such as web pages, browsers, e-mails, newsgroups and mailing lists but is accessible only to those within the organization. HR Intranets offer the greatest innovation to HR departments since the advent of the desktop computer. As per Sanayei and Mirzaei (2008), as intranet usage proliferated worldwide opportunities emerged to utilize e-mail and electronic-form software to reduce the costs of data entry for payroll, benefits administration, training administration etc. Rodgers, K. (2009) the term HR intranet means different things to different people, but it's really about using your internal IT network to communicate and collaborate. An HR intranet usually provides self-service access to your central HR systems so managers and staff can input personal data and carry out transactions online, such as booking training courses. Some firms also have sophisticated employee portals on the front – a sort of internal home page where employees go to log on to different IT systems and get information. HR self-service capability is typically provided as an add-on to your HR management system. HR intranet facilitates improvement in data quality, empowerment of employee, reduction in paper consumption, streamlining process, rapid dissemination of valuable information on a wide variety of topics, enables employee to perform various task, connects employee and standardizes HR practices.

Self-service (SS) applications- As per CedarCrestone (2013) HR Systems Survey report with self service 10% more employees can be served and 41% more employees can be served with self service and shared service when compared to HR service delivery instruments without these technologies.

Figure-2 Service Delivery Value of Self Service and Shared Service

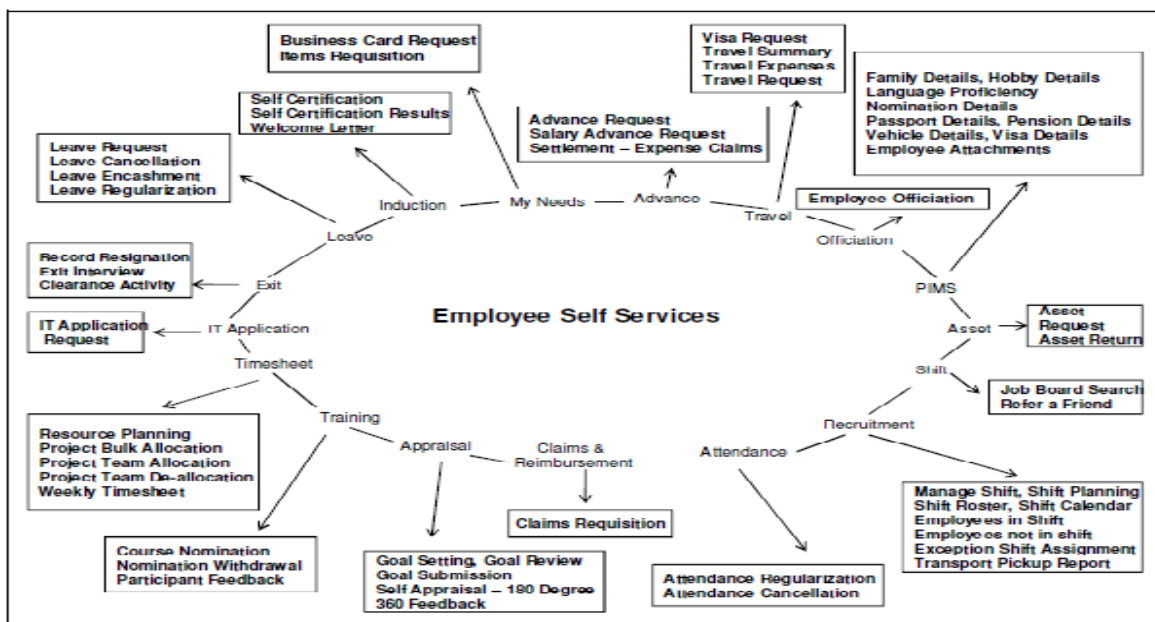


Source- CedarCrestone (2013), "CedarCrestone 2013-2014 HR Systems Survey: HR Technologies, Service Delivery Approaches and Metrics" – 16th Annual Edition, Retrieved from http://www.cedarcrestone.com/media/whitepapers/CedarCrestone_2013-HRSS-HRTech-100713.pdf
Self-service application can be broadly classified in two ways.

Employee self-service (ESS) applications- As per Ulrich, (1997), while attempting to make strategic changes within the human resource function, HR professionals must still deliver good HR services to their stakeholders who include employees and managers. One of the most important fundamental principles in managing human resources is fostering the employment relationship so that employees may feel an attachment to their work and contribute willingly to the success of the organization. As per Keebler & Rhodes (2002), there is agreement on the fact that the employees of an organization are just as important as its customers, and therefore need to be kept satisfied and motivated. This can be achieved to an extent by improving HR service delivery. According to Kettley P, and Reilly P (2003), before embarking on e-HRM, organizations should review and optimize their business processes. This may be a case of major process redesign, or a more tactical exercise tackling areas of concern. Following a process review, a common next step is to introduce a form of self service. This is likely to involve employee self service, where staff can access their personal record and update it or add new information. Keebler & Rhodes (2002) go on to discuss how, while improving HR efficiencies is the major focus in e-HRM technology design, it should also assist in making e-HRM technology more user-friendly. This should improve the service experience of the managers and employees. In this way, a client service improvement of the HR system can be achieved.

Florkowski and Olivas-Luján (2006) mentions ESS is a software-enabled set of HR transactions that can be initiated and completed without direct involvement of HR staff. It is a web-based application tool that provides employees with access to their personal records and their payroll details. It enables employee self-service and provides access to a comprehensive employee database. The employee database acts a centralized repository of vital employee related information available to HR, employees and managers. Its inherent employee self-service capabilities ensure that this data remains current without tedious data entry by HR. The employee self service is the base on which all other functional modules can be added to create a comprehensive employee self service based HR system. The Employee Self Service pay an important role in working time and schedule, personal information, training and performance management, life events, benefits, careers, time off from work, with ESS employee can view and access pay slips, summary of year’s earnings and deductions, loan statements, PF statements, reimbursement statement, income tax statement, IT declaration and IT calculator, reimbursement claim workflow, ticketing, leave workflows.

FIGURE-3 ESS- Bird Eye



SOURCE- Varma S., Gopal, R. (2010), The implications of implementing electronic human resource management (e-HRM) systems in companies, research thesis, Dr. D. Y. Patil University, Maharashtra.

Manager self-service (MSS) applications- According to Adamson & Zampetti, (2001).The objectives of manager self-service include improvement in the delivery of HR services, elimination of process steps, approvals and forms, speeding up and streamlining of workflow, reduction in administrative costs, improvement in management’s access to important information, providing more time, and finally, enabling strategic HR

Manager self service provides managers with the tools needed to efficiently perform employee administration, as well as the information needed to help employees improve performance and enhance their skills. Manager self service transforms managerial activities from manual, paper-based processes with multiple levels of approval to a web-enabled, self-service system, it allows both managers and employees to stay focused on improving performance and simultaneously minimizes unnecessary human resources involvement in manager-employee interactions, increasing organizational efficiency. As per ADP Employee (2013) It has been seen that line managers are irritated by the fact that they are one step behind from information or they have only secondary information not primary. Manager Self-Service puts the information managers need at their fingertips giving them the ability to more closely monitor and direct their team towards the strategic goals of the organization. Manager self-service application leverage its utility in employee information, organization and staffing, employee time and schedule, employee leave and stability, evaluation of employee competencies, compensation management, timely performance reviews and development processes. It also facilitates new-hire initiation, reporting, competency gap analysis, employee training and development, automated workflows, organization charts, status changes, review and approval of timecards and leave requests, budget and cost centre, delegation of authority at the appropriate level and time, project management, administration, PF funds & gratuity mgmt. According to Kettley P, and Reilly P (2003), Manager self service is usually a logical development, allowing the sign-off of various decisions or proposals. Redesigning the HR function will impact on the roles and skills of HR staff. There will be many areas of up skilling as the move away from transactional work gathers pace. This will stretch the capability of staff, not just in terms of technological facility but also in customer and relationship skills. As per Florkowski and Olivas-Luján (2006) MSS is a software-enabled set of HR transactions by managers that can be initiated and completed without direct involvement of HR staff.

HR extranet applications (HREA) – As per Murugan et al. (1988) extranet is the electronic computer-to-computer exchange of information in a structured format that can occur between business trading partners, vendors and between various units within an organization. According to Florkowski and Olivas-Luján (2006) HREA application is a private computer network that links the information system of client-firms to external vendors delivering co-sourced or outsourced HR service. HR extranets essentially act as conduits for electronic commerce between client firms and HR vendors or a business-to-business (B2B) market for HR services. Two different business models can govern these relationships. In the first one, the HR department shares workforce data with vendors who use the information to effectively manage HR services under their stewardship. Lacking authorization to communicate with vendors, employees continue to go to their employer to update service choices, revise personnel records, and voice complaints about services rendered. The second model saddles vendors with broad responsibility for database management and service administration. Here, workers use the extranet to directly initiate or modify service delivery from external providers. Flanagan (1997) state extranet facilitates the exchange and processing of high volumes of data from one computer to another. Extranets have been used by employees to communicate with vendors, service providing partners, and numerous other audiences who contribute to the operating efficiency or to the bottom line. As per HRCentral (2013) HR extranet has application with employee training, management training and coaching, legal compliance, salary, benefit and payroll administration, personnel file, health and safety programs, unemployment claims management etc.

HR portal applications (HRPA) – As per Microsoft business solution (2012) a portal is a unified place that connects people to contextually relevant information, services, and applications. According to Florkowski and Olivas-Luján (2006) HRPA is website interface that offers a personalized unified access point to all information sources, tools, and systems individual needs to effectively consume or deliver HR services. The range of work-related data and activities that one can link to is role driven. In some instances, employees have the ability to interact directly with external vendors catering to personal needs and interests. Portals are highly configurable through code modules. As per Microsoft business solution (2012) HR portal can provide HR-related content and applications to those who need it—those assigned to the Employee, Manager, Payroll Administrator, and Human Resources Administrator roles. As per Quikker (2008) HR portal solutions offer access to additional process based tools and applications that enable staff to achieve major efficiencies in their work. The HR Portal now becomes a habitual tool for employees to manage all of their work related tasks, from requesting a holiday; through managing their performance and development, as well as providing access to improved communication tools to enable collaboration. Through better understanding of organizational objectives, and how they can contribute, staff becomes more engaged and aligned. They become more productive. The capability for integration offered by HR portals represents another shift in value by protecting existing investments in systems and processes. With an HR portal ‘synchronized’ to other systems within the business it now becomes the single point of integration for company information and offers an option for employee self service – single sign-on /single data-entry.

HR Magazine, editorial content (2010) states personalization, online decision support, tools designed to help employees compare benefits plan features, understand insurance coverage relating to specific events and estimate medical costs while enrolling via portals is highlights of portal application. HR portal give employee a consultant while reducing the volume of e-mail and calls to HR staff members for help with benefits decisions. Video is also playing a more prominent role on HR portals. Latest portal is helpful for employees to be able to navigate to all of those areas seamlessly to complete transactions without receiving multiple login prompts. As HR portals continue to evolve, many experts say the next wave will feature social networking-type tools that encourage employees to share expertise, join communities of practice or connect in other ways. Kluemper, D & Rosen, P. (2009) states, indeed, social media, or web 2.0 as a vibrant network has been suggested by some scholars to be the potential technology that will have a major impact on HR. Firestone (2003) states HR portals are vehicles through which HR information and applications can be channelled effectively and efficiently. As per Cascio (2000) and Collins (2001), through HR portals, employees can update own administrative activities and may have also have access to customized and personalized news, resource applications, and e-commerce options. Through HR portals managers are able to generate reports, examine employee activities and manage their own activities”

III. RESEARCH METHODOLOGY

Research emphasis and objective-The literature review reveals very little empirical study has been from emerging countries like India which is all together different from western countries, so there is a possibility of different result in context to e-HRM instruments and tools in use. The present research in its endeavor identifies extent to which e-HRM tools are in use in eight select Indian organizations. This paper explores difference in use pattern of e-HRM tools in context to private vis-a-vis public and manufacturing vis-a-vis services. This paper also explores difference in use pattern of e-HRM tools in among select Indian organization.

Research Hypothesis –

- A1) H0-It is hypothesized that application of different e-HRM tools are same to the mean (test) value in Indian organizations.
- A2) H0- It is hypothesized that that the application of e-HRM tools are at the same level for public and private organizations.
- A3) H0-- It is hypothesized that that the application of e-HRM tools are at the same level for manufacturing/ mining and services organizations
- A4) H0-- It is hypothesized that the application of e-HRM tools are at the same level for all the select Indian organizations.

Sample unit - The researcher has selected eight organizations as sample organizations which have sound HR practices. The study consists of public and private organizations both from manufacturing/mining sector and services sector. The organization where the study was conducted is illustrated below.

Table- 2 Sample Organizations

Organization	Manufacturing /Mining	Services
Public	1. National Thermal Power Corporation (NTPC). 2. Coal India Ltd (CIL).	3. State Bank of India(SBI) 4. Life Corporation of India (LIC)
Private	5. Moser Baer India Ltd 6. Tata Motors	7. ICICI Bank Ltd 8. HCL

Source –Formulated by scholar

Sample profile and sample size- Sample (target respondents) are all the internal stakeholders like operatives, supervisors, managers of the select Indian organizations. With 5% confidence interval (margin of error) and 95% confidence level with total population of 9, 50,189 (tentative sum all the employee of the select organizations) sample size needed is 384. Estimating 33 % (one out every three) as good response rate, total number of 1164 questionnaire were sent for survey. The percentage of people who do actually fill out a survey that they receive is known as the response rate. Out of 180 questionnaire (surveys) send online, 32 respondents filled the questionnaire and submitted i.e. response rate of 17.8%. Out of 984 questionnaire(surveys) provided to respondents in hard copy format 418 responses were collected i.e. response rate of 42.5%.total 450 responses out of a total number of surveys of 1164 i.e. overall response rate of 38.7%. Out of 450 responses 405 responses were found valid. Response having discrepancy and incomplete were not fit for further processing were discarded. For compatibility and convenience in data analysis and hypothesis testing, 50 responses from each

organization were entered for statistical interpretation. The time period of the study (data collected) is from April 2013 to Feb 2014.

Data collection- Structured questionnaire with 5-point response scale (not at all, very little, to some extent, to great extent, very much) has been used as a research instrument. A score of 1 for the response not at all, 2 to very little, 3 to some extent, 4 to great extent, 5 to very much is assigned. The statement of questionnaire is as follows.

- [1] To what extent Interactive Voice Response (IVR) is used as an instrument for performing HR activities in your organization?
- [2] your organization?
- [3] To what extent HR Intranet is used as an instrument for performing HR activities in your organization?
- [4] To what extent Self Service (SS) (Employee Self Service –ESS / Manager Self Service -MSS) is used as an instrument for performing HR activities in your organization?
- [5] instrument for performing HR activities in your organization?
- [6] To what extent HR Extranet is used as an instrument for performing HR activities in your organization?
- [7] To what extent HR Portal is used as an instrument for performing HR activities in your organization?
- [8] To what extent HR Functional Application (HRFA) software are used as an instrument for performing HR activities in your organization?
- [9] activities in your organization?
- [10] To what extent Integrated HRM Suite Applications (ISA) software is used as an instrument for performing HR activities in your organization?
- [11] HR activities in your organization?

IV. DATA ANALYSIS AND INTERPRETATION.

Beside descriptive statistics one sample t-test had been used to test the hypothesis A1. Paired Sample t Test has been used to test the hypothesis A2 and A3. ANOVA has been used to test the hypothesis A4. A Cronbach's Alpha of 0.812 shows questionnaire are reliable.

Application of Tools For testing the hypothesis (A1), one sample T -test has been used using a hypothesised mean value of 3.5 assuming that a mean value less than 3.5 will offer support to the null hypothesis. The aim here is to compare the sample mean with hypothesised mean for probability estimation, that the sample mean is different by chance or random occurrence. As SPSS don't have a provision for one tailed t-test so the researcher has converted 2-tailed value in one tailed value by dividing it by two

Table-3 One-Sample t Test of e-HRM Instruments/ Tools

Attributes	Test Value = 3.5		Degree of freedom = 399
	Mean	t	Sig. (2-tailed)
IVR	2.427	-18.975	.000*
HRIA	4.147	12.929	.000*
SS	3.875	6.222	.000*
HREA	3.060	-6.284	.000*
HRPA	3.602	1.555	.121
HRFA	2.682	-17.009	.000*
ISA	3.670	3.079	.002*

Source – Data analysis by scholar

Significance level with*- Null hypothesis rejected or else accepted (Table value of t +1.645, one tailed test, df 399, sig 5%)

In case of IVR low significance values of 0.00 indicates that there is a significant difference between the test value and the observed means. So the null hypothesis is rejected but t value is negative and observed mean value less than test value, it can be concluded that IVR as an instrument not fully utilized in Indian organization. In case of HRIA low significance values of 0.00 indicates that there is a significant difference between the test value and the observed means. So the null hypothesis is rejected. It can be concluded that HRIA as an instrument fully utilized in Indian organization. In case of SS, low significance values of 0.00 indicate that there is a significant difference between the test value and the observed mean. So the null hypothesis is rejected. It can be concluded that SS as an instrument fully utilized in Indian organization. For HREA low significance value 0.00 indicates that there is there is a significant difference between the test value and the observed means. So the null hypothesis is rejected but t value is negative and observed mean value less than test value, it can be concluded that HREA as an instrument not fully utilized in Indian organizations. In case of HRPA high significance values of .0605 (.121/2) indicates that there is no significant difference between the test value and observed value. So the null hypothesis is accepted.

Based on this results it can be concluded that application of HRPAs equal to mean value, so one can conclude that HRPAs as instruments are not fully utilized in Indian organization. In case of HRFA low significance values of 0.00 indicates that there is a significant difference between the test value and the observed means. So the null hypothesis is rejected but t value is negative and observed mean value less than test value, it can be concluded that HRFA as an instrument not fully utilized in Indian organization. In case of ISA low significance values of 0.01 (0.02/2) indicates that there is a significant difference between the test value and the observed means. So the null hypothesis is rejected. It can be concluded that ISA as an instrument is fully utilized in Indian organizations. Overall null hypothesis (H0) A1 is partially rejected and can be concluded that only HRFA, SS, ISA is fully utilized as e-HRM tool in Indian organization.

E-HRM Instruments/ Tools (Public vis-a-vis Private) - To test the hypothesis (A2) paired sample T test has been used as a statistical tool.

TABLE-4 Paired Sample t Test of e-HRM Instruments/ Tools
(Private vis-a-vis Public)

Pair	Tool	Mean Private	Mean Public	Difference of Mean	t	Sign
1	IVR	2.77	2.085	.685	7.579	.000*
2	HRFA	4.44	3.855	.585	6.198	.0008*
3	SS	4.215	3.535	.680	6.356	.000*
4	HREA	3.555	2.565	.99	8.437	.000*
5	HRPA	4.00	3.205	.795	6.699	.000*
6	HRFA	2.685	2.68	.005	.051	.959
7	ISA	4.065	3.275	.79	7.969	.0008*

Source – Data analysis by scholar

Significance level with*- Null hypothesis rejected or else accepted (Table value of t 1.96 two tailed test, df 399, sig 5%)

Table-4 shows null hypothesis-A2 for IVR, HRFA, SS, HREA, HRPA, ISA is rejected as the significance level is much below the assumed significance level of t at 0.05. So application of IVR, HRFA, SS, HREA, HRPA, ISA is not same for public and private organizations. Null hypothesis-A for e-HRM tool HRFA is accepted as the significance level is above the assumed significance level of F at 0.05 hence, the application of HRFA is same for public and private organizations. Overall null hypothesis (H0) A2 is partially rejected

E-HRM Instruments/ Tools (Manufacturing vis-à-vis Services) -To test the hypothesis A3 paired sample T test has been used as a statistical tool.

TABLE- 5 Paired Sample Test of e-HRM Instruments/ Tools
(Manufacturing/Mining vis-à-vis Service)

Pair	Tool	Mean Manufacturing	Mean Service	Difference of Mean	t	Sign
1	IVR	2.37	2.485	-.115	-1.167	.245
2	HRFA	4.005	4.29	-.285	-2.847	.005*
3	SS	3.84	3.91	-.07	-.584	.560
4	HREA	3.215	2.905	.31	2.115	.036*
5	HRPA	3.515	3.69	-.175	-1.356	.177
6	HRFA	2.51	2.855	-.345	-3.632	.000*
7	ISA	3.51	3.83	-.32	-2.915	.004*

Source – Data analysis by scholar

Significance level with*- Null hypothesis rejected or else accepted (Table value of t 1.96 for two tailed test, df 199, sig 5%)

For HRFA, HREA, HRFA, ISA null hypothesis is rejected as the significance level is below the assumed significance level of t at 0.05. So, application of HRFA, HRFA, ISA is not same for manufacturing/mining and services sector. Null hypothesis-A3 for e-HRM tools IVR, SSA, HRPA is accepted as the significance level is above the assumed significance level of t at 0.05. So application of IVR, SSA, HRPA is same for

manufacturing/mining and services sector. Overall it can be concluded that null hypothesis (H0) A3 is partially rejected for e-HRM tools taking manufacturing/mining vis-à-vis service as paired sample test of comparison.

E-HRM Instruments/ Tools (Organization vis-a-vis Organization)-To test the hypothesis (A4) one way ANNOVA has been used as a statistical tool.

TABLE- 6 One way ANNOVA of e-HRM Instruments/ Tools (Organization vis-à-vis s Organization)

Tool	MEAN (ORGANISATION WISE)								MEAN	F	SIG.
	CIL	HCL	ICICI	LIC	MB	NTPC	SBI	TM			
IVR	1.4	2.1	3.3	2.48	3.04	2.4	2.06	2.64	2.43	18.02	.00*
HRIA	2.5	4.34	4.1	4.46	4.7	4.2	4.26	4.62	4.15	41.23	.00*
SS	2.08	3.96	4.02	3.42	4.44	4.4	4.24	4.44	3.87	35.57	.00*
HREA	2	3.56	3.06	2.06	3.82	3.26	2.94	3.78	3.06	16.27	.00*
HRPA	2.02	3.86	3.92	2.94	4.22	3.82	4.04	4	3.60	21.80	.00*
HRFA	2.16	2.84	2.62	2.8	2.6	2.6	3.16	2.68	2.68	4.57	.00*
ISA	2.2	3.88	3.98	3.94	4.14	3.44	3.52	4.26	3.67	25.18	.00*

Source – Data analysis by scholar

Significance level with*- Null hypothesis rejected or else accepted (Table value of f +1.96, D.F. 399, sig 5%)

Table-6 shows significance level all e-HRM tools; IVR, HRIA, SS, HREA, HRPA HRFA, and ISA is below the assumed significance level of F at 0.05so null hypothesis (H0) A4 is rejected and it can be concluded that level of all the e-HRM tools is different in Indian organizations.

V. CONCLUSION RECOMMENDATIONS AND MANAGERIAL IMPLICATIONS

Conclusion- By examining the data, it became evident that most of e-HRM tools like, HRIA, SSA, ISA and are in high use in Indian organizations HRPA has limited use and application of IVR, HREA, HRFA, is minimal. It is quite obvious that most of Indian organizations are using ISA hence HRFA is less in use. From analysis it is quite obvious application of most of e-HRM instruments like IVR, HRIA, SSA, HREA, HRPA, and ISA are significantly different for private and public organizations. But in case application of HRFA there is no significant difference or we can say that application of HRFA is same for public and private organizations. Positive t values indicate private organizations are ahead in application of e-HRM tools compared to public organizations. In the same way researcher finds that application of some of e-HRM instruments like HRIA, HREA, HRFA, ISA, are significantly different for manufacturing/ mining and services. But in case application of IVR, SSA and HRPA there is no significant difference or we can say that application of these instruments is same for manufacturing/mining and services organizations. Negative t value shows for most of the tools except HREA, services sector are ahead. In case of HREA, manufacturing sector is ahead by providing a link to employee for accessing third party services. Research statistics shows that there is difference in application of e-HRM tools, so it can be said depth and penetration of e-HRM tools are not uniform in Indian organizations. Further it is obvious from the study that CIL is laggard as mean value to most of the tools is lowest when compared to other organizations.

Recommendations- It is obvious that applications of e-HRM instruments are at different stage of growth and all the instruments are not fully utilized. To gain maximum benefit out of the e-HRM instruments, organization must inculcate instruments relevant to them and simultaneously provide awareness and training to those employees who are either digitally illiterate or skeptical of using these instruments. In some organization at corporate level these instruments are functional but at unit level its application is limited. In similar manner application of these instruments are limited to certain level of employee or those who are higher in the hierarchy and there is dearth of trickledown effect. It is evident from the fact that public sector organizations are laggards in application of different e-HRM instruments compared to private sector organization and these organizations are supposed to take more initiative to harness the benefit of e-HRM. HR personnel must create awareness and if possible conduct workshop and seminar for staff and line manager to make it successful. The biggest motivation for employees to use e-HRM instruments is to provide a link to choose and track their career path.

These recommendations are more relevant to labor intensive organization like CIL where lots of e-HRM tools are still not functional and concept of HR self service, automation and mutation of transactions are distant dream. The demographic structures of the employee are also not in favor of e-HRM implementation. HR professionals, line managers and top management have to work hard and have take it as a mission, moreover

after 4-5 years almost all the employee will retire who joined CIL at the time of nationalization. Computer literacy can be imparted to those workforce who are literate and it has been seen that lot of workforce are illiterate or less educated who joined CIL at the time of nationalization.

Managerial Implications- Globalization is possible only when companies are technology savvy, HRM department that is capable to sail in IT enabled superhighway and can support a globalized workforce. The proliferation of information technology such as local area networks, corporate intranets, portal, e-mail, videoconferencing, social networking site is the hallmark of lean and mean flat networked company. If an organization want to be global then there HR function must have the support of technology, i.e. tools of e-HRM must be included while delivering the services.

A lot of discussion has been made related to digitization of HR function leading to dehumanization of HR function. Almost all the services being delivered on digital platform, HR function is more IT centric rather than people centric, hence putting a limitation on HR executive's role. Now they may be supposed to play secondary role and facilitator of IT function in delivering HR services. In some cases at the highest level HR professionals are just supposed to formulate HR framework, policy and strategy and all other activities being automated.

HR function is likely to be more process, IT oriented and lacking human touch, posing a big challenge for HR as a function. HR managers will show more willingness in acquiring hard IT skill rather than gaining soft management skill.

Sometime to safeguard interest and presence, HR managers may put hindrance in digitization of HRM function. Further all the HR issues cannot be mechanized and has to be resolved with case to case merit where HR managers have to take a leaf out of their cap and look beyond electronic solutions.

With improved transparency and empowerment, the role of HR as middleman has reduced, sometime sense of insecurity and neglect may crop up in the mind of HR professionals. HR professionals have to accept the fact and have to work for higher order needs of the organization.

Rapid growth of networking of computers and virtualization of HRM departments, HR practitioners are having a digital career as there is reduction in cost of technology and automation of process and work from home culture. So HR practitioners have lot of challenges and opportunities. These professionals will be tested on several parameters and to survive and excel have to deliver gold.

Generation Y is more technology savvy and knowledge workers, there could be hardly any resistance from stakeholders and HR department can adhere to its mission and go for digitization. Now demand of the day is to provide services on mobile/ Smartphone platform.

Social networking or web2.0 technology has already entered in some organizations for providing HR related issues. So HR professional and line managers should be ready for it and any other big change.

Overall it can be said e-HRM as an instrument in the hand of HR professionals can remove almost all the work related issue if implemented with right approach and spirit. So whole responsibility is with managers if e-HRM doesn't succeed they cannot blame e-HRM, if they do then people will use proverb "A bad workman quarrels with his tools".

VI. BARRIERS AND LIMITATIONS

One of the biggest limitation of this research is there is dearth of empirical research in Indian context and exclusive studies related to different e-HRM tools. Some of the employees were even sceptical of purpose of the study. In some cases researcher has to clarify and persuade the respondents. In some cases especially at operative level the researcher has to explain different queries of e-HRM. Present research has some limitation as researcher has selected eight organizations so its result cannot be blindly generalized to all other Indian organizations. Contextual analysis is important before implementing the results. Generalizing outside of this context, for instance to relatively smaller organizations, other sectors, more peripheral parts of the organization, or some other parts of the world, should only be done with great caution. The researcher has utilized non-probability sampling. Participants were selected based on judgmental and convenience sampling techniques. Extracting information related to relevant HR practices or application of ICT for HR services, is hard nut to crack as employees were unwilling to share as they bound by employment code are not supposed to disclose office/ business secrets.

One of the limitations of this research is perception based study. Respondent's opinion has been measured. It has been assumed that the respondents have revealed the correct information

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