

# Human Resource Information Systems (HRIS) - The New Role of HR in the Giant Data Age

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**Abstract**—Mankind has entered the information age from an industrial age that prevailed till a few years back. When digitalisation have made the entire world engulfed with more and more data, the nature of information and the information technology is the fulcrum of future opportunities and challenges in this intense competitive business environment. Now, as the role of HR have transformed to a core strategic business function, it has become imperative for HR to be comprehensive, fast, accurate, enhanced quality and in line with the upcoming trends. Thus, it is of utmost importance of HR to incorporate information and communication technologies (ICT) to give a competitive advantage to the organization with along improve the value of the human capital. Human Resource Information System (HRIS) is a Management Information System (MIS) which contain databases that allow users to store and retrieve data concerning an organization's human resources which will at large help, to relief the overburdened task of data handling in the HR department and concentrate on its core business function. The function of HRIS is multifaceted ranging from operational assistance to carrying out data analytics to provide timely and diverse information for strategic decision making related to human capital.

The paper aims to describe the evolution of HRIS, its importance in the modern management and its roleplay in transforming HR from transactional HR to strategic HR. This paper also attempts to identify different vendors providing standard HRIS software solutions and also give a predictive analysis on future growth prospects in this field.

**Keywords:** Digitalization, HRIS, MIS, data analytics, human capital, HRIS Software solutions.

## 1. INTRODUCTION

The Information and Technology Revolution is the latest revolution known to mankind. Mankind has entered into the new era of information age from an industrial age that prevailed few years back. This new information age is characterized by huge chunks of data 'giant data' which is submerging the whole world and can be turned into valuable information through use of advanced digital technologies. Technology today is about speedy access to accurate current information, and the ability to access this information via multiple systems which give organizations a strategic edge. Thus, with the businesses going global and technology taking

the centre stage of core competency, vital information has become the oil for running the business engine in the competitive global business environment.

With the technological advancement and human capital giving the strategic edge, Human Resource Management have become an integral part of business with the role of a strategic partner in organizational decision making for making improved decision for improved productivity of the organization. Organizations have realized the growing necessity of technologies in leveraging the HRM functions, for intensifying competition, managing the global workforce, and to improve HR service delivery with cost savings. This emerging need of a high impact digital HR have been forcing the organizations and HR leaders to turn to investing in HR Technologies to improve HR's experience in business. Thus, the role of HR shifted from transactional HR to a transformational HR wherein the tech-centric HR is able to provide modernized workforce solutions to achieve enriched employee experience and improved sustainable performance.

Therefore, Collaboration of IT and HRM is a critical component for business and organizational sustainability; technological synchronization and collaboration can create value to the organization by enhancing the level of performance at individual, department and organizational level<sup>[i]</sup>. HR provides IT with HR practices to ensure IT has talent, discipline and accountability to design and use technology to provide decision-based data, while, IT provides HR with technological infrastructure to more efficiently and effectively deliver HR<sup>[ii]</sup>. Continuous innovation in information and communication technology and HR becoming the 'mainframe' of the organization, we see the emergence of Human Resource Information Systems (HRIS), a database system or a series of interconnected databases, a software that can combine multiple HR function<sup>[iii]</sup>. Apart from daily and operational information, HRIS has the ability to supply with strategic information management of the company<sup>[iv]</sup>. HRIS is an integrated acquiring and storing data to make analysis, make decisions in the field of HR<sup>[v]</sup>. Thus, HRIS is a

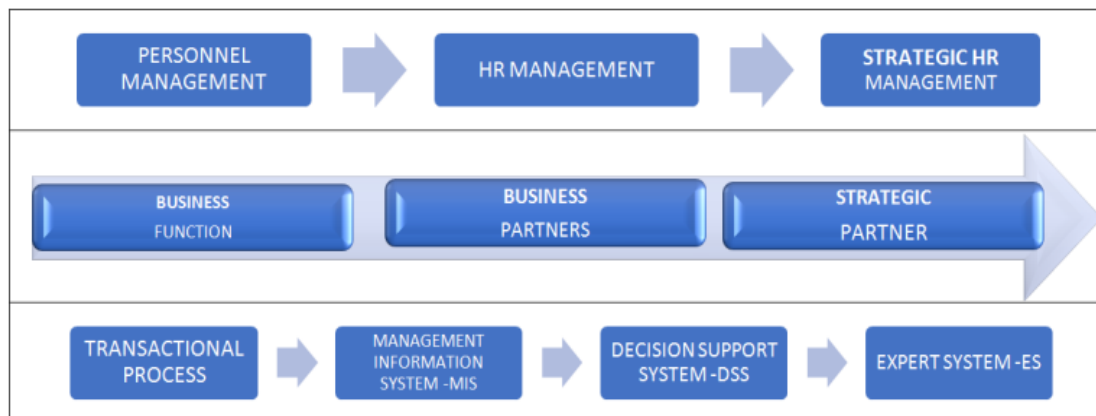
database technology enabling the HR to simplify the HR info-flow and provide them management with HR related information for strategic decision making.

## 2. HRIS IN MAKING STRATEGIC-HR

Human Resource Management have undergone a massive restructuring of its HR operations wherein its sole aim of being the personnel administrator in transactional HR have transformed itself to a core business partner in Strategic HR. Digitalization have changed the focus of HR from making HR operations more efficient and effective through process standardization and technology of formulating business strategies that add value to the organization; which involves anticipating critical workforce trends, shaping and executing business strategies, identifying and addressing people related risks and regulations, enhancing workforce performance and productivity, and offering new HR initiatives to support organization growth<sup>[vi]</sup>. Therefore, HR in collaboration with information technology have been the key enabler for HR to dive in to the role of strategic partner for increasing overall organizational effectiveness.

The role of HR transformed with the evolution of new technologies in the modern workplace. Figure-1 depicts that

innovation in the functioning of Human Resource Information System have led to substantial change in the HR developmental process. From the beginning, during the phase of Personnel Management, wherein the HR department used to keep records of each employee, handle their salaries, benefits, vacations etc. During 1960s to 1980s, when 'human capital' was considered as an important asset for the organization, HR became an integral part of the core business processes, HRIS was in the shape of mainframe computers wherein it performed the function of transactional information processing, where along with storage and retrieval of information, processing and manipulation of data also became important. It was only during the last twenty years of 20<sup>th</sup> century, with the advent of internet and web technologies, companies started to use HR information for strategic management. HRIS became an integrated system with the objective to provide information for decision making on human resources (Decision Support System -DSS). The latest dimension of HRIS is the Expert System-ES wherein the HRIS itself will be technologically capable to carry out multiple HR functionalities on its own with improved HR service quality.



Source: Dusmanescu, D. & Bradic-Martinovic A.<sup>[35]</sup>

## 3. REVIEW ON HRM TO E-HRM

The global view on technology integration in HR tech spaces concentrates on the issues of productivity, wellness, flexible workforce, performance review, talent management, user experience, innovation, digitalization, automation, HR cloud, artificial intelligence, data analytics and HR technology<sup>[vii]</sup>. With the technological innovation we see that the whole workplace has become restructured from real to virtual. The HR function itself transformed from technologically enabled e-HRM to information and communication enabled HRIS. While use of information and communication technology is becoming imperative for HRM, the need for a highly enhanced, compliance driven and cost enabled HR service

delivery that have led to the innovativeness in the information and communication technology that have transformed the whole structure of HR operations. One agent of change which is identified by the researchers is the use of Internet and Web technologies to augment and enhance HRM<sup>[viii]</sup>. In 90's organizations used the Internet and Web technologies for a myriad of HRM activities such as managing payrolls, employee directories and also for communicating with the employees<sup>[ix]</sup>. Thus, as web technologies matured, organizations enthusiastically adopted them and more and more of HRM functions became web enabled. Thus, we see the emergence of web technologically enabled functions of HRM defined by e-Recruitment, e-Payroll, e-Performance Management, e-Training etc. wherein almost all the routine

functions of HRM are carried out virtually. Therefore, the information and communication technology enable innovative ways of carrying out routine organizational tasks via the power of virtual work environment<sup>[xi]</sup>. Thus, the routine HRM activities takes place via smart suites of applications which are integrated or organization wide, through a network of HRM related data, information, services, databases, applications, and transactions that are generally accessible at any time by the employees and managers of the organization as a whole; and this integrated solution is derived as the Human Resource Information System (HRIS).

HRIS is the composite of databases, computer applications, and hardware and software necessary to collect, record, store, manage, deliver, manipulate, and present data for human resources. Here are several different components, called subsystems, that compose an HRIS: Employee administration, recruitment, time and attendance, training and development, pension administration, employment equity, performance evaluation, compensation management, benefits administration, performance management, scheduling, health

and safety, labor relations, and payroll interface<sup>[xi]</sup>. The role of HRIS is integral. In information technology process, information is always produced, distributed, processed and managed, so information technology will definitely be the solution of problems wherein human capabilities are in concern so as to develop and enhance productivity<sup>[xii]</sup>. Thus, HRIS support HRM in maintaining employee records, ensure legal compliance, enable managers to forecast and plan future HR requirement, provide information to managers and HR so they can manage knowledge and manage talent (career and succession planning), provide information to enable HR plans and activities to align more effectively with the organization's strategic plan, assist managers with decision making by providing relevant data so they can make more effective decisions (Bulmash J., 2006). The study also establishes the growing HRIS start ups in the HR Tech spaces wherein the companies deliver multiple, enhanced HR services to big business organizations and clients at global level through latest information and communication technologies.

Table 1

SI	Functions HR Co.'s	Ch	Pa	Se	On	Re	Bf	Sc	T	Pf	Co	Sp	Pc	L	Wm	Mo	Eg	Wt	
1	One Point <sup>[xiii]</sup>	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
2	HR Payroll <sup>[xiv]</sup>		1	1			1									1			
3	Criteria <sup>[xv]</sup>					1			1					1	1				
4	HRMS Soln. <sup>[xvi]</sup>	1	1		1		1		1	1	1	1	1	1	1	1	1		
5	JobDiva <sup>[xvii]</sup>	1		1	1	1		1		1	1			1	1				
6	PrecedentHR <sup>[xviii]</sup>	1		1	1	1		1	1	1		1		1		1	1	1	
7	EON App <sup>[xix]</sup>				1	1		1		1	1			1	1	1	1	1	
8	HR Works <sup>[xx]</sup>	1	1	1	1		1	1	1	1	1	1	1	1	1	1	1	1	
9	Pay NW <sup>[xxi]</sup>	1	1		1		1	1	1	1	1			1	1	1	1	1	
10	Kronos <sup>[xxii]</sup>		1	1	1			1	1	1		1	1	1	1	1	1	1	
11	emPerform <sup>[xxiii]</sup>	1			1	1	1	1	1	1	1	1	1	1	1	1	1	1	
12	EB <sup>[xxiv]</sup>						1				1					1			
13	iRecruit <sup>[xxv]</sup>	1	1	1	1	1		1	1		1	1	1	1	1	1	1	1	
14	AdminiSmart <sup>[xxvi]</sup>	1	1		1	1		1	1	1	1	1	1			1		1	
15	Ascentis <sup>[xxvii]</sup>	1	1		1	1	1	1	1	1		1	1		1	1	1	1	
16	Centranum <sup>[xxviii]</sup>				1	1		1	1	1		1	1	1	1	1	1	1	
17	Tricore <sup>[xxix]</sup>	1	1	1	1		1	1	1	1	1	1		1	1	1	1	1	
18	Bamboo HR <sup>[xxx]</sup>			1	1		1	1	1	1	1	1		1	1	1	1	1	
19	HRMantra <sup>[xxxi]</sup>	1	1	1	1		1	1	1	1				1	1	1	1	1	
20	Tisomo <sup>[xxxii]</sup>	1	1		1		1			1	1	1		1	1	1	1		
	Frequency	13	12	10	17	10		12	15	13	17	13	13	12	10	16	20	15	14

(Codes: Ch : Core HR-Personnel, Pa: Payroll, Se: Employees Self-Service, On: Onboarding, Re: Recruiting, Bf: Benefit Administration, Sc: Scheduling, T: Time and Attendance, Pf: Performance Management, Co: Compensation Management, Sp: Succession Planning, Pc: Position control, L: Learning Management, Wm: Workflow management, Mo: Mobile Capabilities, Eg: Employee Engagement, Wt: Workforce Tracking)

Table 1, depicts the various subsystems of HRIS which are basically, Core HR-Personnel, Pay roll, Employees Self-Service, On boarding, Recruiting, Benefit Administration, Scheduling, Time and Attendance, Performance Management, Compensation Management, Succession Planning, Positioning control, Learning Management, Workflow management, Mobile Capabilities, Employee Engagement, Workforce Tracking. The table compares the various sub-HRIS services delivered based on 20 popular HRIS vendors across the globe. With all the HRIS vendors enabling themselves with mobile capabilities, it is seen that Performance management, On boarding and Compensation management are the most popular HR services provided (85%), followed by Workforce management (80%) and Scheduling and Employee Engagement (75%). The HR services being provided least by the HRIS vendors are Learning management, Recruitment and Employees self service (50%). This is perhaps because specialized niche HR Tech vendors have huge market capture in the field of Learning, Recruiting and Employee self-service. It is difficult to carry out other HR routine functions with these functions.

#### 4. PREDICTION AS THE FUNCTIONS IN DATA AGE

The HRM function today is asked to bring new ideas, to change the HR processes and to develop the HR services delivery. HR now plays the role of creating value in the organization. HR has differentiated itself from the traditional practices, through integrating the HR service design by installing trust with every division of the organization by considering a holistic approach. The HR innovations must entail collaboration with top management; along with integration with the business goals, vision, missions of company; strategic plan and culture of organization and company-wide communication<sup>[xxxiii]</sup>. Intense business competition and the evolving quest of HRM innovation have transformed the role of HRM to a high-impact strategic HRM wherein the HR functions enabled to act strategically in achieving improved performance and also achieving organizational goals. 5.

#### 5. CONCLUSION

Days have gone for rolling through traditional subjective strand for managing human resource related functions. Days also have passed out to consider “HRM is solely based on humanitarian thinking and applications for gaining organizational effectiveness and efficiency”. The wide spread adoption of enterprise-resource-planning (ERP) and HR-information systems (HRIS) made data on business operations, organizations in consolidating and outsourcing of transactional HR work.

Performance, and personnel both more accessible and more standardized<sup>[xxxiv]</sup>. The proliferation of HR-information systems (HRIS) generated a community of software and

technology intermediaries. These intermediaries have become professional and technology that can help executives to use advanced analytics to find the links between recruiting and managing talent and using it more productively. HRIS has been enabling

This software and data ages are forcing HR functions to start quantifying their costs and performance. HRIS has brought many new challenges and opportunities for HR professionals to move beyond thinking of subjectivity to the objectivity that connects to strategy and organizational competitiveness.

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