MANAGING TODAY'S WORKFORCE: HUMAN RESOURCE INFORMATION SYSTEM (HRIS), ITS CHALLENGE AND OPPORTUNITIES

Neerja Kashive*****

ABSTRACT

Electronic Human resources Management (e-HRM) or human resource information System (HRIS) constitutes of commonly adopted management practice by organization in twenty first century .It helps in fulfilling of diverse expectations such as reducing costs, speeding up processes, improving quality ,and even gaining of more strategic role for HR within the organization .The use of Human resource information systems (HIRS) has been advocated as an opportunity for Human resource (HR) professionals   to become strategic partners with top management. The idea has been that HRIS would allow for the HR function to became more efficient and to provide better information for decision–making .This paper compares three model for HRIS with their advantages and limitations .It further explores the emergence of HIRS and its journey from mere administrative worker to strategic partner to new age relationship builder and knowledge facilitator.

Keywords: *Human Resources, Information Technology, ICT, e-HRM, HRIS*

*Asst Prof, Vivekanand Education society's, Institute of Management Studies and Research

INTRODUCTION

The rapid emergence of the information and communication technology (ICT) sector has placed India on the global stage during the last one and half decades. An increase in the free flow of information and ideas has brought knowledge and its applications to the global front. The sector has acted as a catalyst for growth across the Indian economy, including in areas such as real estate, automobiles, travel and tourism, railway and mortgage banking industries. It is contributing to better governance and efficiency, and helping in changing the image of India abroad .The rapid development of the ICT during the last two decades has boosted the implementation and application of electronic human resource management (e- HRM) (Strohmeier ,2007). Surveys of HR consultants suggest that both the number of organizations adopting HRIS and their depth of applications within the organizations are continually increasing (Cedar Crestone, 2005). Many experts forecasted that the computers would become the central tool for all professionals (Kovach& Cathcart, 1999).According to Tower Perrin's recent HR Service Delivery Survey of over 330 global organizations: 21% of organizations plan to increase their HR technology spending this year, 43% will maintain their current level of investment, and 36 % do intend to decrease their budget.

The Human Resource (HR) function of organizations is changing rapidly, reacting to the changing social and organizational environment and rapidly evolving information technologies. Social and organizational changes exert pressure on HR functions to provide expanded service of a higher quality, which are intricately linked with other corporate function (Pfeffer, 1997).Information technologies (IT), which provide enabling technologies to assist HR professionals in the delivery of services, have also simultaneously increased the expectations that employees, managers, customers, suppliers and regulators have for the HR function. Snell, Stueber and lepak (2002) observe that HR can meet the challenge of simultaneously becoming more strategic, flexible, cost -efficient and customer oriented by using information technology. They point out that it has the potential to lower administrative costs, increase productivity, speed response times, improve decision-making and enhance customer service all at the same time. The need for cost reduction, higher quality service and cultural change are the three main forces that have driven firms to seek IT-driven HR solutions (Yeung &Brockbank 1995). More and more companies use an HRIS, to actively support both their HR management and their business management (Shrivastava and Shaw, 2004; Hussain et al., 2006; lepak et al., 2007). An HRIS may be defined as "the system used

to acquire, store, manipulate, analyze, retrieve and distribute pertinent information regarding an organization's human resources". [Tannenbaum, 1990].

LITERATURE REVIEW:

Since the 1940s, IT system consisted of personnel administration and payroll activities run on sorting and tabulating equipment, but now they have been extended and modernized almost beyond recognition. During the 1960s, personnel departments took little part in the technological advances in computing that were occurring in the accounting and financial areas. The 1960s saw the introduction of computers in HR departments, on a very small scale and limited functionality (DeSanctis1986). In the late 1970s, increase in complexity due to globalization, changing legal environments and the growing percentage of white-collar workers created an increasing demand for HIRSs with functionalities that would provide the company 's business managers with management reports giving then HR information relevant to their needs (Hennessey,1979). In the mid-1980s (DeSanctis1986) concluded that "Human Resource Information Systems (HIRS) have became a major MIS sub- function within the personnel areas of many large corporations."

A number of definitions have been proposed for e-HRM. Initially e-HRM was interchangeably used with HR information System (HIRS) virtual HR (M), web based HRM, and intranet-based HRM. (DeSanctis1986) gave an early definition of HIRS as a 'specialized information system within the traditional functional areas of the organization, designed to support the planning, administration ,decision making and control activities of human resource management'. Haines and petit (1997) considered HIRS as a system used to acquire, store, manipulate, analyze, retrieve and distribute pertinent information about an organization human resources. This definition emphasized an information system and could be interpreted to exclude the process of its adoption, which plays an important role in achieving its goals.

Lengnick–Hall and Moritz (2003) have postulated that HIRS will be implemented at three different levels: the publishing of information; the automations of transactions; and, finally, a change in the way human resource managements is conducted in the organization by transforming HR in to a strategic partner with the line business. Thus the evolution of HR as promoted by HIRS evolves from information to automation and from automation to transformation. The evolution that Lengnick –Hall and Moritz and Walker (2001) propose that HIRS will create informational efficiencies and cost saving such that HR department can

turn their attention to providing better analysis of current data which can be used for strategic decision making .Similarly, Haines and Petit (1997) write, "Thus relieved from many routine paper handling tasks, the human resource professional can hopefully develop a service orientation and participate more fully in strategic decision making''. Some definitions see e-HRM as conducting HR transactions using the internet or intranet (Lengnick–Hall and Moritz 2003). According to these definitions value created by e-HRM would likely be assessed as improvement of the administrative HR processes and transformational outcomes of e-HRM like employee involvement or work force alignment might be ignored. Following the 'transactional' tradition, Voermance and Van Veldhoven (2007) write, 'e-HRM could be narrowly defined as the administrative support of the HR function in organization by using Internet technology'.   Other studies expanded the e-HRM definition with a network structure as a central issue. Strohmeier (2007) defines e-HRM as the 'planning, implementation and application of information technology for both networking and supporting at least two individual or collective actors in their shared performing of HR activities'. Lepak and snell (1998) used the term 'virtual HR' to describe a 'network- based structure built on partnerships and mediated by information technologies to help the organization acquire, develop and deploy intellectual capital'. In an attempt to integrate a process of 'doing' e-HRM, i.e. its adoption and structuring, Rue, Bondarouk and Looise(2004) define e-HRM as 'a way of implementing HRM strategies , policies and practices in organizations through the conscious and direct support of and/or with the full use of channels based on 'web-technologies'. Various theoretical perspectives were used to describe HRIS as discussed below.

THEORETICAL PERSPECTIVES:

- As per Strategic theoretical perspectives reviewed by Wright and McMahan (1992), implementing an HRIS may be a strategic reaction to, or an attempt to simulate, environmental forces that can or do affect the firm (Porter,1980,1985)

- According to resource- based view of the firm, an HRIS may be a strategic , value-adding, rare, imperfectly imitable, non-substitutable resource (Barney,1991),one that provides a competitive advantage(Broderick and Boudreau,1992)

- As per behavioral perspective, an HRIS may serve to elicit and control employee attitudes and behaviors domestically (Jackson, Schuler and Rivero, 1989; Schuler, 1992; Schular and Jackson, 1987) and globally (Schuler et al, 1993).

- In terms of a cybernetic system (Boulding, 1956; katz and kahn 1978; Thompson, 1967), and from a control theory perspective (Snell, 1992), an HRIS may be thought of as the tool to control inputs (people and their training), throughputs (behavior- based component of performance and reward systems) outputs (output-based components of performance and reward systems).

- Agency theory (Jensen and Meckling, 1976) suggest that an HIRS could be an effective monitoring device to minimizes the agency costs attributable to agents (managers acting on behalf of owners) hiding their actions or hiding information.

Table 1: Summary of literature review (HRIS)

Tannenbaum (1990)	" System that is used to "acquire, store, manipulate, analyze, retrieve, and distribute information about an organization's human resources"..
Broderick and Boudreau(1992)	Composite of databases, computer applications, hardware and software necessary to collect/record, store, manage, deliver, presents and manipulate data for human resources.
Haines and Petit (1997)	System used to acquire, store, manipulate, analyze, retrieve and distribute pertinent information about an organization human resources.
Leepak and Snell (1998)	Used the term virtual HR to describe a network based structure built on partnership and mediated by information technologies to help the organization to acquire, develop and deploy intellectual capital.
kovach and Cathcart (1999)	HIRS as any System for "collecting, storing maintaining, retrieving and validating data needed by an organization about his human resources".

Hendrickson(2003)	HIRS as a socio –technical (integrated) system whose purpose is to gather, store and analyze information regarding an organization human resources department comprising of computer hardware and applications as well as people policies , procedures and data required to manage the human resources function.
Rue, Bondarouk and Looise(2004)	E-HRM as 'a way of implementing HRM strategies, policies, and practices in organizations through the conscious and direct supports of and/ or with the full use of channels based on web –technologies.
Voermans and Van Veldhoven (2007)	E-HRM defined as the administrative support of the Hr function in organizations by using Internet technology'.
Strohmeire(2007)	E-HRM describes the activity of planning, implementing and applying information technology for both networking and supporting at least two individual or collective actors in their shared performing of HR activities.

1.   CLASSIFICATION OF HRIS :

According to Lengnick-Hall and Moritz (2003), HIRS has developed through three major forms. The simplest and easiest to implement is publishing information. More involved forms of HRIS included automated transactions. Finally the most complex forms of HRIS transform the way HR is conducted in the organization. Another Classification of HRM information system is based on the advancement of the tools it uses, in comparison with traditional HR which can be expressed in three generations of HRIS (Evans et al.. 2002) the following topology is being suggested by Benfatto(2010).

Table 2: Three generations of HRIS

		Three Generations of HRIS		
		1st Generation of HRIS: speeding up	2nd Generation of HRIS: qualitative changes & improvements	3rd Generation of HRIS: things that could not be done before
Function of HRIS	Publishing of information	HRIS major function is the publishing of information and the speeding up of this process compared to traditional HR	HRIS major function is the publishing of information & bringing upon qualitative changes in the way information is published (content of information communicated)	HRIS major function is the publishing of information and allowing HRM to do things in the communication of info that were not possible before (public reached)
	Automation of transactions	HRIS major function is the automation of transactions which are sped up, compared to prior traditional HR (time effective)	HRIS major function is the automation of transactions to which it has brought upon qualitative changes (fewer mistakes and better handling of data)	HRIS major function is the automation of transactions. It allows doing things that could not be done before (e.g. allows employees to choose from several benefit schemes)
	Transformation of HRM	HRIS allows HRM to take up a more strategic role, through the substantial savings in time it achieves	HRIS allows HRM to take up a more strategic role, through better quality	HRIS allows HRM to use tools it did not have before, in order to support the strategic function

Importance of HRIS

A survey by Overman (1992) concluded that the potential advantages of HRIS are faster information processing, greater information accuracy, improved planning and program development, and enhanced employee communications. According to some researcher, the use of a HRIS would reduce HR costs by automating information and reducing the number of HR employees; by helping employees to control their own personal information; and by allowing managers to access relevant information and data, conducts analyses, make decisions, and communicate with others without consulting an HR professional (Awazu & Desouza, 2003;Ball,2001). Ideally, with an appropriate use of HRIS, less people should be needed to performs administrative tasks and more time would be made available for HR managers to assist at strategic level.The future is bright for HIRS as it creates new paths for human resources and for the organizations that effectively use HIRS . One study even goes as far as to suggest that there is evidence that HIRS can improve shareholder value (Brown, 2002).

In contrast to administrative HIRS, strategic HIRS is much more difficult to explain and measure as there is no way to be sure that the benefits are a direct result of strategic deployment of an HRIS system. Strategic decisions may include those associated with

recruitment and retaining employees and administrative information held by HIRS can be used to analyze an organization and formulate strategies to increase the value of an HRIS. Some experts also believe that easy access to vital information will become an integrated part of much strategic decision-making process (Kavonch, Hughes, Fagan, Maggitti, 2002). But the possibilities of strategic deployment still remain in question. The following table summarizes the uses of HIRS as given by various researchers

Table 3: Benefits of HRIS

Martinsons (1994)	Distinguished between "unsophisticated" use of technology in HR, such as payroll and benefits administration and, "sophisticated" use such as recruitment and selection, training and development and performance appraisal.
(Kovach and Cathcart,1999)	Benefits of HRIS applications are to reduce time spent on administrative process.
(Kovach and Cathcart,1999)	HRIS is to provide decision support applications that help HR and non –HR managers, as well as employees, make better decisions rather than simply produce data faster.
Targowski and Deshpande(2001)	Part of utility of an HRIS is its positive impact on traditional HR processes such as recruitment, selection and training and development.
(Enshur, Nielson, & Grant – Vallone,2002)	Technology may be used for different purposes within particular HR functions- for recruitment and selection, performance evaluation, compensation and benefits, training and development, health and safety, employee relations and legal issues, retention and work life balance.
Kovach, Hughes, Fagan and Maggitti (2002)	HRIS will become the mechanism for sharing information across the functional area of an organization and will be used in strategic decision making.
Kovach, Hughes, Fagan and	HRIS will become the mechanism for sharing information

Maggitti(2002)	across the functional area of an organization and will be used in strategic decision making
Lengnick- Hall and Moritz(2003)	HRIS, not only reduces process and administrative costs, but can speed up transaction processing, reduce information errors and improve the tracking and control of human resource actions.
(Othman & tech ,2003)	Benefit of HRIS is that enables the creation of an IT- based work place.
(Chapman & Webster, 2003)	The use of technology in human resources has increased dramatically and is now a vital aspect of many personnel related decisions such as collecting job information, recruitment, employee selection, training and performance management
(Ngai and Wat, 2006)	HRIS functionally nowadays includes corporate communication, recruitment, selection, training , employee opinion survey, compensation, payroll services and employee verification as well as general information
Hussain , Wallace, and Cornelius (2007)	For senior HR professionals, strategic use of HRIS is increasingly the norm, irrespective of company size and this had led to the HR profession providing a value add for the company.
Holinchecket at, (2007)	Distinguish between administrative applications, talent management applications, workforce management applications, service delivery applications and workforce analysis and/ or decision support applications.

It is broadly argued that increased use of e-HRM allows HR professionals to achieve improved performance and thus facilitate participation in internal consultancy activities (Hussain, Wallace and Cornelius 2007). It is assumed that HR professionals both provide

value to the organization and improve their own standing in the organization by using e-HRM (Lawler and Mohrman 2003). E-HRM is also considered a medium to help HR professionals in making strategic decisions through the provisions of executive reports and summaries (Broderick and Boudereau, 1992). In contrast. Ball(2001) in her survey among small and medium-sized UK companies (127 usable returns, 24.4% response rate) found that e-HRM was primarily used in support of routine administrative HR tasks, for 'filling cabinet replication'. Hussain et al.(2007) in their survey among 101 senior HR professionals (22% response rate) in UK companies discovered that less than 50% of them used e-HRM in support of HR strategic tasks and concluded that e-HRM is 'likely to be used more for strategic decision making in the future' (Hussain et al.2007).However the recent survey among 210 HR executives in leading Canadian corporations (response rate 13.6%) showed that e-HRM is 'still being used more for administrative ends than for analytical or decision support ends' (Haines and Lafleur ,2008). Thus real use of HRIS is quite debatable.

HRIS functionally nowadays includes corporate communication, recruitment, selection, training, employee opinion survey, compensation, payroll services and employee verification as well as general information (Ngai and Wat, 2006). Holinchecket al. (2007) distinguish between administrative applications, talent management applications, work force management applications, service delivery applications and workforce analysis and / or decision support applications. This means a shift has been made from labor- intensive HRM to technology intensive HRM (Florkowski and Olivas-Luja'n, 2006). Kovach et al. (2002, p, 46) consider "getting the staff to adopt and adapt to a new system, which is actually a new business process for them" to be the most important difficulty when an HRIS is implemented.

Nevertheless they conclude that HRIS are the only way to achieve both administrative and strategic advantages. HRIS has grown in popularity since the 1960s (Cascio, 2005) in parallel with the growth of a new awareness of the personnel function from being a compiling office to a company strategic partner (see table below). According to Draganidis and Mentzas (2006), current HRIS s is converging to Web-enabled solutions joining Web services and employee self-service portals. Lindgren et al.(2004) say regarding the urgency of designing. Principles of HRIS that combine user controlled transparency over stored competencies (accounting privacy, completeness, correctness, and responsibility) and employee empowerment theory. Enshur et al.(2002) reported a trend of increased emphasis on HR as a

strategic business partner whose primary role is to recruit, develop and retain talented employees for the organization as given in table 4.

Table 4: Emerging Roles of HRIS

Stages of the development of HRM	Time Period	Relevant tasks	Role	Focus of restructuring within the stage
HR Partial/File Administration ("File maintenance")	Until mid of 1960s	Fulfilment of management information needs	Personnel Office	Focus on restructuring of HR database
HR Full-Administration "Government accountability"	From mid of 1960s until mid of 1980s	Compliance with legal & tax rules, fulfilment of administrative and legally mandated tasks	Personnel Administration	Focus on optimal legal handling of a full range of administrative tasks, development of HR departmental structure
HR Professionalization ("Organizational accountability")	In the 1980s and 1990s	Accountability for success (in single business units), effective use of HR tools (recruitment, development, etc.) for business success	Personnel Management	Focus on increasing professionalization of the HR departments, development of services and tools, optimising the cooperation with other HR partners
HR Strategic Integration ("Strategic Business Partner")	From the late 1990s, ongoing development	Demand for added value to the business. Contributions with strategic impact,, participative developed organizational strategy (strategic partnership)	Business Partner and role sets	Focus on outsourcing, enabling of line managers to do HRM, inclusion of new fields (e.g. knowledge management, cultural development, creation of a new model of cooperation between HR partners)

Table 1. Stages of the Human Resource Management view

Table 5: HRIS as centre for excellence

Shared service centre(SSC) Ulrich(1995)	HR Business Partners	Centre for excellence
Contact management, to monitor and manage service delivery at the point of contact with employees; Strongly integrated end-to-end processes for core transactions: performance monitoring systems that provide effective metrics to measure and improve the service	predicting seasonal peaks in business demand for HR services as a basis for planning HR delivery strategy Accurate historical data on individual performance reward and terms and conditions to support organization design decisions. Providing data on external benchmarks and comparators. Tools to support the development of scorecard metrics.	Specialist not generic tools External benchmarks/ comparators Scorecard metrics Predictive capability

2. DIFFERENT MODELS FOR HRIS :

The first model was an early attempt to link HR activity with business outcomes through the work of Fombrum, Tichy and Devanna(1984), who developed a model of the HR cycle to show how key HR policies and activities could be linked to the delivery of business strategy. This approach stated that HR could have a direct influence on employee performance in support of organizational strategy. The second view of emerge was the Harvard model, led by the work of Michael Beer (1984), which shifted the focus towards the consideration of the employee as a 'human resource', away from HR processes and systems and towards a model that sought to manage through developing high commitment amongst employees. This approach attempted to align employee commitment at an individual level with the goals and strategies of the organization. The three important models of HRIS are discussed below and compared.

Haines and Petit (1997) Model

Haines and Petit model is specifically identifying two measures, user satisfaction and system usage. According to Haines and Petit, user satisfaction and system usage together provide a more complete picture of system success than if either measure was used . The first is based on attitudes and beliefs whereas the second is based on behaviors. Haines and Petit drieve their research propositions from a relatively simple but inclusive model that is comprised of three sets of independent variables i.e. individual/ task (age, gender, education, task characteristics, work experience, computer experience, computer understanding) organizational (Size, user support, computer experience) and system (User involvement , training support , documentation, applications development, dependence, on-line , access, number of applications, case of use , usefulness) and two dependent variables (i.e. user information satisfaction and system usage). Erik Beulen(2009) used Haines and Petit model to study Accenture as case study.

HRIS system in Accenture

Accenture was established in the late 1940s as Arthur Anderson & Co. It transformed into an independent business unit called Anderson Consulting in 1989 and company was renamed as Accenture in 2005. The company focuses on service delivery, both in the field of management consulting and that of technology and outsourcing services. Each division has its own characteristics. Accenture is a global management consulting, technology services and outsourcing company, with net revenues of USD19.7 billion in the 2006-2007 fiscal years. It is committed to delivering services to businesses and governments, and employs more than 175,000 people in 49 countries. The increase of outsourcing, including offshore outsourcing makes the management of dispersed expertise more and more important.

Haines and Petit (1997) researched the conditions for successful HRISs and found three items to be the most important: the competences of the HR manager ("individual / tasks"), the way in which the HR department has been organized ("Organizational") and the application itself ("system"). They also note that "User information satisfaction' is a consequence of the HRIS success. This case analysis explore to which degree does Accenture meet the eleven system conditional identified in Haines and Petit's model. An assessment in presented in Table below as given by Erik Beulen(2009). The eleven system conditions were used as a framework to describe Accenture's HRIS.

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System conditions		Accenture's HRIS
1.	Involvement	Both the HR and the IT communities are deeply involved in the HRIS development and implementation process. The global Accenture HR team and the regional and country HR teams regularly consult to decide on adaptions and improvements intended to ensure a continued match between the HRIS and the needs of the company's business and HR managers
2.	Training	All HR staff, business managers and employees receive sufficient training on how to use the HRIS. Most training courses are web-based. When new functionalities are implemented, conference calls are often held to inform those involved on the changes and the way the HRIS now works
3.	Support	As Accenture has a skilled helpdesk and qualified support staff, and since it implements the concept of key users, support for the HR staff is sufficient. This support consists of regional Administrative Shared Service Centers that focus primarily on the execution of administrative tasks and making HR reports
4.	Documentation	The company's HRIS documentation has not been assessed. No conclusions can therefore be drawn
5.	Application development	The HRIS application is an SAP-based, in-house solution with extensive web functionalities and a good match with the requirements of the company's business and HR managers
6.	Dependence	The HRIS application is maintained by Accenture's own IT staff. They manage and maintain it by "remote-control", which means that dependency is very limited
7.	On line	All functionality is on-line: there is a web interface and its users can use the application interactively. The HRIS also includes self-service functionalities for both managers and employees
8.	Access	All HR staff have access to the HRIS, "anywhere, any time", through a web interface. The company's internal IT staff facilitates this access
9.	Applications	The HR staff has access to the applications of the HRIS on the basis of "need to have to execute their tasks". Access authorization is given from a central level. The employee's role and work level are the determining factors
10.	Ease-of-use	Ease-of-use is very good because of the web interface for HR staff, managers and employees, but also because of the extensive reporting facilities
11.	Usefulness	De HR staff perceives the HRIS as useful. This is especially because of the high degree to which its functionalities have been integrated with each other

Table II.
Haines and Petit's HRIS
system conditions and
their applicability to
Accenture

Source: Haines and Petit (1997)

Watson- Wyatt, Model (2002)

HRIS progression is measured by three variables :(1) access: the combined percentage of employees who use the organization's HRIS delivery channels, such as e-mail, voicemail, interactive voice response (IVR), video relay system (VRS), Internet, Intranet, and HR service centres ; (2) applications : the number of HR related services available on the organization's HRIS delivery channels; and (3) concentration : the extent to which access is focused on particular delivery channels.

HRIS effectiveness is measured with two variables :(1) HR efficiency: a combined measure of cost efficiency (HR operating budget as a percentage of total company revenue) and staffing efficiency (the number of HR staff relative to the total number of company employees); and (2) satisfaction: a combined measure of employee and manager satisfaction with HR services in organization where these levels are formally reported. In addition to these HRIS progression and performance measures, Watson Wyatt suggested use of information about the organization's HRIS strategy, business case, performance metrics and practices.

Table6: Watson-Wyatt model

HRIS PROGRESSION MEASURES	HR PERFORMANCE MEASURES
Access — the combined percentage of employees who use the organization's HRIS delivery channels (such as e-mail, voicemail, IVR, VRS, Internet, intranet and HR service centers)	**HR Efficiency** — a combined measure of cost efficiency (HR operating budget as a percentage of total company revenue) and staffing efficiency (the number of HR staff relative to the total number of company employees)
Applications — the number of HR-related services available on the organization's HRIS delivery channels	**Satisfaction** — a combined measure of employee and manager satisfaction with HR services in organizations where these levels are formally measured and reported
Concentration — the extent to which access is focused on particular HRIS delivery channels	

In conclusion. Watson -Wyatt reports that more HRIS progression does not necessarily result in better HR performance. The survey conducted suggest that implementation effectiveness may be a necessary but not sufficient condition for HRIS effectiveness, a distinction made by researchers who have studies the implementation of manufacturing resource planning (MRP) systems. Instead, other variables are likely to play an important role in the relation between progression and effectiveness. While the Watson- Wyatt model offers a point in departure for researcher, clearly more work is needed in developing a causal model of HRIS effectiveness.

Information Based Model:

Ostermann et al. (2009) adopt a holistic and integrative perspective where current empirical evidence as well as guiding principles of process management and strategy implementation is integrated into overall information- based model of benchmarking HRIS functionalities. In this perspective, along with the development of more complex HR practices and the upsurge of companywide HR portals based on Web technologies. HRIS is regarded as a key factor for providing "a competitive advantages for an organization in today's ever-changing, fast paced, global business environment" (Beckers et al. 2002 p 41) The information based model integrates the HRIS' performance drivers (environment maturity, back office / requirements, front office impact) as well as its fundamental tasks into a systematic model (Puxty, 1993) representing a holistic approach to monitor an HRIS functionality. This approach serves as framework for HRIS benchmarking based on the integrity of generated HR information in terms of its supports to specific business functions.
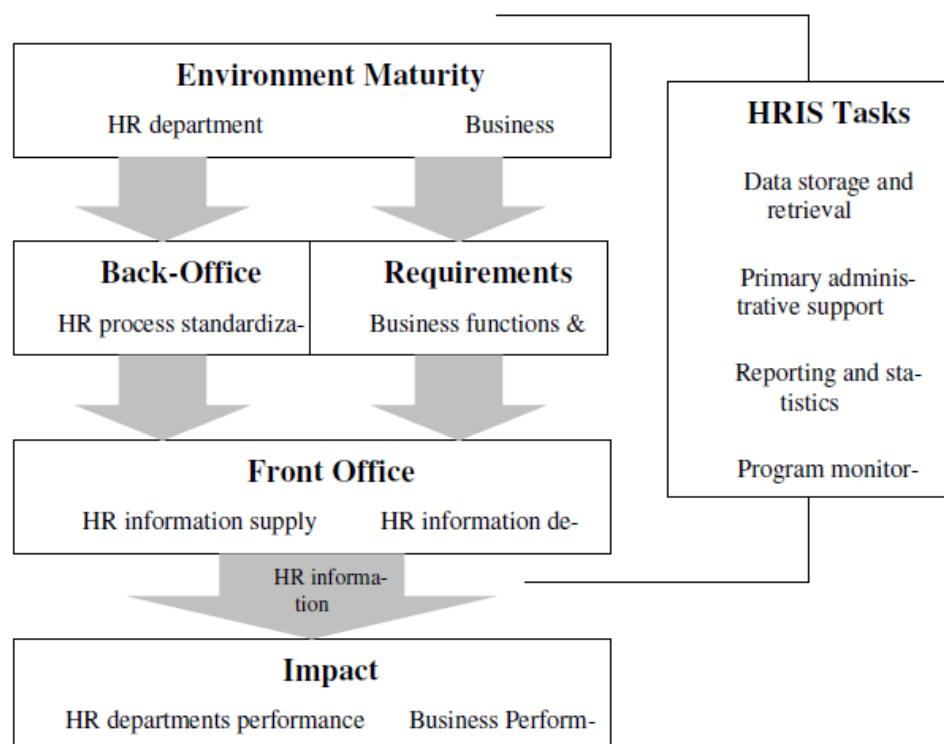

Figure 1. Holistic approach to benchmark HRIS (Ostermann et al, 2009)

3.   COMPARISON OF ALL THREE MODELS

Based on the review of these models we can affirm that both Haines and Petit model of HRIS success and Watson Wyatt model of HRIS progression and HRIS effectiveness have limitations. The first model is based on attitudes and beliefs (impacting on user information satisfaction component of HRIS success) and on behaviors(impacting on system usage component of HRIS success) .The user satisfaction and system usage as used by Haines and Petit model is based on an (isolated)HR functional perspective.

Watson Wyatt model instead refers to a (potential) buyer's perspective Indicates commonly include the range of HR performance indicators generated by a HRIS such as human value added, return on human capital invested, time to fill jobs or turnover costs (Benchmarking for functional 2006; Howes & foley 1993; Morrish 1994;Top 10 calculation, 1998) as well as the HRIS capability to generate (set of) data required for specific HR purposes and applications (e.g demographic data, work force data, time, and attendance data, etc.)(De-Sanctis, 1986; Ramptom, Trunbull, and Doran, 1999; Thomas, Skitmore, & Sharma, 2001). In the buyer's perspective, HIRS benchmarking is applied for comparing different vendors and HIRS software to support the potential buyer's decision- making. The basic measures deployed range from the persence or absence of HIRS key capabilities (Kanthawongs, 2004)to rating schemes including functionality, technology, user– friendliness or market strength (The best HR,2001) and environment-sensitive approaches, taking in to consideration a company's complement IT systems and resources (An HIRS "shopping 2004 ;20 question to" 2000) .

Table7: Comparison of three models for HRIS

Model	Perspective	Indicators	HIRS Benchmarking	Limitation
Haines and Petit model(1997)	(Isolated)HR Functional perspective	Based on user satisfaction and system usage	HIRS benchmarking focuses on the benefits of retrieved data and information supporting standard HR activities and applications	Focus more on perceived system success than on system sophistication namely the HRIS performance effectiveness

Watson Wyatt model(2002)	(potential)buyer's perspective	progression and performance measure	HIRS benchmarking is applied for comparing different vendors HIRS software in order to support the potential buyer's decision-making	Does not include any individual /task or organization variable on the HR progression side.
Ostermann et al. (2009)Holistic model	Information cased HRM Perspective	Environmental maturity, back office, front office ,fundamental task	HRIS benchmarking based on the integrity of generated HR information in terms of its supports to specific business functions.	Information-based model has to encompass the business and HR environment as different fundamental infrastructure parameters (like IT knowledge, IT environments networks), which have to be present in a certain quality in order to be able to establish a chain of relevant information.

4.   CHALLENGES OF HRIS IMPLEMENTATION:

1.   Technical Challenges

Usability: Usability of HIRS brings about lower effort expectancy in users and therefore increases user acceptance of information systems with easiness and speed for completion of a task (Fisher,2002). Users have high level of frustration and anger regarding technology and therefore universal usability should be the goal in order to ensure highest use of technology (Shneiderman, 2000) Designing easy-to HIRS is difficult (Schramm, 2006).

Complexity: The use of information technology consists of several choices between complexity and simplicity (Fisher and Howell 2004). Increasing functionality, enhancing features and integrity, increasing likelihood of programming errors, increasing user training needs and the possibility of overwhelming users in extraneous features are also result of decisions made in favor of complexity. McAfee (2003) suggested that introduction of information technology that include novel processes that are distinctively different from the current processes increases the likelihood of resistance in the implementation. Aiman-Smith and Green (2002) stated that more complex technologies have association o lower use satisfaction of information systems

2. Socio – technical challenges

User values: Users do not have a choice to use the new human resources information system or not to use it as choice has been already made by the management in favor of the new system. According to Reactance theory in cases of mandatory use and strike communication of the situation, removal of personal freedom by an authority leads individuals to certain reactions (Brehm, 1966) and these reactions are quite often in the opposite's direction (Bushman1998). This means that user may not have a positive approach for the new system regardless of its properties. According to Farahbakhsh et al...(2007) any information system implementation should have a staff empowerment and improvement of their attitudes towards the new information system.

User profiles : Potential users of a human resources information system are usually either competent at the previous information system but are not willing to learn a new system or are not competent but are willing to learn computers in general and the new software specifically. Both use profiles propose a challenge to the implement5ation and the process suffers from initial momentum (McAfee, 2003). According to Fisher and Howl (2004) people without technical backgrounds and people with low level of computer self-efficacy have difficulty due to the complexity and technical details of a new human resources information

system. Shirivastava and Shaw (2003) suggested that past usage of HIRS determines usability perception and the intention to use the system again, which are both among the success criteria for HIRS implementations.

User perceptions: Kossek et al. (1994) suggested that perceptions of potential users of a new technology have a critical impacts on the success of the implementation and (McAfee, 2003) supported this. Employees have a tendency o perceive the new system as something bad and stay at the distance as much as possible. Human resources professional have a tendency to worry that the new   human resources information system will result in their replacement or they will have critics for not already doing good enough job (Books, 2006). As Fisher and Howell (2004) suggest, people with less information are more likely to participate in sense making or signaling processes. According to them, these interpretations may receive confirmation or not the resulting impression takes an aura of truth, whether or not the impressions matches reality. These resulting impressions can influence emotional reactions and behaviors and accordingly the success of organizational systems and interventions. Therefore organizations should be ready o address possible interpretations at all stages of an organizational change (Fisher and Howell, 2004)

Organizational face several challenges to make of an HRIS a key enabler, in order to become high performance organization. One of the   challenges is how to progress from an "informatics" to an" informating" culture, which would increase the likelihood to improve the quality of information and use it as a competitive advantage to make better decisions and to achieve organizational goals. Another challenge is how to manage an reliable and effective change process, to overcome the natural resistance to changes that individuals and organizations show to new technology. Major concern of implementing an integrated HRIS is the loss of "personal touch" in the interaction in employees as automation and employee self-service portals brings the depersonalization of transactions that used to be managed more directly between two or more parties. In many cases firms achieve automations of excising HR processes but fail to progress to a more advance stage of an information culture (Torrington et.al.,2008). Claver et al. (2001) identified two organization positions towards IT: a first more simple ,where IT is important to a firm an it is used to improve operational effectiveness (informatics culture); a second more sophisticated, which visualizes IT as a foundational enabler to make a correct decisions through an HIRS (informational culture).

5.   Success Criteria For HRIS Implementations

Implementation of information systems should ultimately improve business results of the organizations and therefore long-term performs of key business performs of key business performs indicators such as gross margin is the base for the ideal measurement of success (Nicolaou,2004).The success   criteria   for   HIRS   implementations   are   efficiency, effectiveness, system usage, users satisfactions and technological quality.

- **Efficiency** : According o Society for Human Resources Management's Research on human Resources technology in 2005, three of the top five success reported by participants have relation to efficiency which are decreasing cycle time for processing employee information transitions, less time spends on administrative work, human resources departments ability   to manage the work force with the same number of human resources staff (Collison,2005).

- **Effectiveness** :   Society for human Resources Management's 2005 research on Human Resources Technology indicates that two of the top five success are relating to effectiveness (Collision 2005)

- **System usage**; System usage is a success criterion to measure the frequency of the use of HIRS and have two levels: User level and organization level. At users level System usage is a criterion to observe daily operations of the function and in relation to the behaviors of the users. At organization level, system usage is a success criterion o measure institutionalization and it considers consolidation of behaviors of the users and perspective of the management.

- **Users satisfaction**: Besides customer satisfaction as a success criterion, user satisfaction is the only criterion which considers attitude and beliefs (Haines and Petit 1997) As sociotechnical perspective suggest, user satisfaction deserves attention in order to realize the future benefits of the system and users are mainly human resources professional within the scope of this study. Social side of organization change may be one of the most important factors that affect users satisfaction (Deng and Gupta,2005)and as Greenwood (2002) suggests, may even decide the success or failure of a sociotechnical projects.

- **Technological Quality**: Technological quality is a success criterion to measure technical success in the implementation and it is part of the system quality. Technological quality deals with the structure of the HRIS' sophistication and mainly

aims to reduce technical risks and data redundancies. HRIS that have integration to their environment above a certain level, do not result in data redundancies, hold accurate information and provide that information at the right format and in the right time (De Lone and McLean, 1992).

6. PERFORMANCE MEASUREMENTS FOR HRIS.

When assessing the effectiveness of an HRIS, qualitative and quantitative parameters are the two major criteria to measure. The main elements of the qualitative dimension are user satisfaction, which reflect attitudes and beliefs to the IS ; easy to use and usefulness, which are positively correlated to user satisfaction ; and alignment of the IS to the organizational strategy. On the other hand, the main factors within the quantitative dimension are reduction in time of HR administrative process, cost savings and system usage. Additionally, there are two key enables that support the success of the system. The first is organizational suitability, i.e. the users' acceptance of the system, the existence of internal user support, active employee involvement and participation, and appropriate training. The second facilitator is system architecture, i.e. the approach taken to develop or acquire the most suitable HRIS to the organization. Wesley O Hagood; Lee Friedman (2002) gave following performance measurement for HRIS.

Table8: Performance Measures in HRIS

Figure 9. System Perspective Index

Customer Perspective	Internal Process Perspective	Financial Perspective	Learning & Growth	Productivity Criteria
Customer Satisfaction, Data Entry Error, Help desk	HRIS Availability, Project Mgt, Payroll Process Time	Accounting Data, HRIS Weekly, Cost/Unit Service, Rework/Unit Service, Planned vs. Actual Spend, Earned Value, Maintaining Optimal Balance of Lawson vs. Non-Lawson	Congruence of Skills/Needs, HRIS Employee Satisfaction (JDI), COTR Certification, PM Training	
310	400	500	400	1610/402
				Total/Ave Score

7.   Conclusion

The HR function can move beyond its traditional focus of hiring, training, compensation etc. to assume new roles such as human capital steward, relationship builder, and knowledge facilitator   (Lengnick – Hall and Moritz, 2003). Organizations can use electronic chat rooms and "open door" e-mail to get an early warning of employee concerns, problems, and grievances before they get into serious crises. As a result, HR will be able to constantly monitor people issues and make adjustment in a timely fashion. HRIS will make it possible to get non- strategic tasks done faster and cheaper with less reliance on HR staff (Christie, 2001), which will enable HR to play a more consultative role with line managers and take a more active role in the organization's strategy formulation and implementation (Lengnick-Hall and Moritz, 2003). Bussler and Davis (2001) claim that the HR professional of the future will need to become a data analyst or an internal corporate consultant. Thus, HR professionals need to prepare themselves for the future by gearing up for new roles or find themselves outsourced (Bussler and Davis, 2001-2002).As relationship builder, HR will assume new roles in the value – creation process.

HR function may shift its focus to networks of people as well as networks of computers. Social networks consisting of employee groups within an organization as well as outside of the firm will provide the synergy that combines human capital (knowledge, skills and

abilities of an organization's workforce) with social capital (trust, mutual understanding, and shared values and behaviors that bind people together and make cooperative action possible). The HR function can facilitate the accumulation of social capital by encouraging, nurturing, and supporting communities of practice that function in ways to enhance organizational effectiveness.

Finally, the HR function can play a more active role as knowledge facilitator. Now, largely the domain of information technology specialist, the HR function can help organizations design systems that employees will use and facilitate the Human resource professionals with knowledge's and skills in both HR and information technology will be uniquely positioned to make the HR function as value – adding contributor to their organizations.

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