Review article

Electronic Human Resource Management: A Contemporary Overview

Abstract:

Information technology (IT) has become an integrated element of modern business world. In current years, the usage of IT in functioning human resource management (HRM) activities has amplified significantly. Electronic human resource management (EHRM) has the capability to expand managerial proficiency and elevate the role of employees as the strategic stakeholders. Swift technological advancements have turned EHRM into a considerable theoretical and professional agenda. This theoretical paper has made an investigation into the contemporary level of developments of the theoretical facts linked to EHRM. In this paper, I tried to review the various features of EHRM specially the scholastic perceptions around EHRM, the role of EHRM, the categories of EHRM and the relationship of EHRM with contemporary business practices. I hope that the paper will contribute into HRM literature and regulate the value of EHRM practices, both theoretically and practically. I also expect this research to support the academicians and practitioners alike to have a complete representation of the contemporary issues related to EHRM.

Keywords: EHRM, Human resource management, Human resources, Information technology, Organization.

1. Introduction

More or less, since the beginning of this century, organizations steadily embraced electronic human resource management (EHRM) practices to accomplish managerial and tactical requirements (Hoq, 2021; Muqaddim & Hosain; 2021; Rahman & Hosain, 2021; Hosain, 2017; Marler & Parry, 2016; Strohmeier, 2009). EHRM has been successful to reduce operational expenses, develop facilities ~~and~~ rearrange the time spent of HR professionals and ~~to~~ make them more strategic (Ruël et al., 2007). Likewise, the current period of digitalization has brought outstanding developments in to the organizational environment. The vital modifications supported by information technology (IT) improved the way how organizations execute their businesses—leading to extraordinary transformations in managerial actions and techniques. Unlike past, the organizations are currently attempting to engage all their efforts and resources to digitalize all maneuvers and HRM departments are not out of this reform (Lather & Kaur, 2019). EHRM seems to offer the opportunity to the HR professionals more effective through releasing them from the additional day-to-day monotonous jobs and allowing them to concentrate more on the strategic tasks.

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Currently, numerous organizational activities are being performed online with the development of IT. EHRM is also an innovation of IT (Seddighi & Yoon 2018; Marler & Boudreau, 2017). Previously, many HRM functions were performed by the HRM departmental employees. At present, supervisors in diverse organizations are executing many of those tasks. EHRM activities can be performed distantly or virtually. However, the triumph of EHRM fundamentally relies on real collaborations between employees and technology (Blom et al., 2019; Siam & Alhaderi, 2019; Gueutal & Stone, 2005). On the contrary, due to the development of IT, the HRM departments are under incredible pressure to be more competent and successful. As a matter of fact, high-tech developments in IT have substantial impacts on HRM procedures (Hoq, 2021; Lengnick-Hall & Mortiz, 2003). Organizations currently are becoming extremely dependent on IT (Troshani et al., 2011; Lippert & Swiercz, 2005). The two vital resources in organizations: employees and information can strongly control the success of an organization (Teo et al., 2007). According to them (Teo et al., 2007), since EHRM links two vital assets, proper utilization of such assets may induce the organizations to a superior achievement (Chakraborty & Mansor, 2013).

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A number of scholars claim that IT based technology inevitably will alter the method in which present organizations are being operated (Brynjolfsson & Hitt, 2000; Bower & Christensen, 1995). Accordingly, numerous HRM scholars state that EHRM will convert the manner in which HRM practices are being performed at the present organizations, turning them from being primarily managerial to more strategic (Marler & Parry, 2016; Shrivastava & Shaw, 2003; Lepak & Snell, 1998). With advanced automation of managerial jobs and quick entry of data, decision-making has become quicker in executing HRM jobs. As a result, tasks in HRM are up-skilled due to the new scientific improvements (Marler & Liang, 2012; Brynjolfsson & Hitt, 2000). However, considering a different point of view, with the acceptance of EHRM, how it can be installed in an organization is the result of strategic judgment and managerial intention (Martin & Reddington, 2010; Marler, 2009; Ruel et al., 2004; Broderick & Boudreau, 1992). In addition to the developments in automation and IT, mainly the World Wide Web (w.w.w.), has facilitated to improve HRM procedures such as staffing, selection, motivation and payment). More precisely, a lot of big business organizations perform Web-based recruiting and online training. Such adoption facilitated HR professionals to deliver better service to all involved stakeholders (such as, candidates, recruiters and administrators). Those modifications aid to concentrate more on strategic HRM practices and happen to genuine associates at the organizations (Stone & Dulebohn, 2013; Gueutal & Stone, 2005).

Modern EHRM practices ultimately have the potential to make IT feasible for HR experts regarding the processing of information and statistics. Such processing makes it convenient to function and assist in taking strategic decisions (Tansley et al. 2014; Lawler et al., 2004; Lengnick-Hall & Moritz, 2003). There is an increase in the figure, functionality and level of superiority of IT that is used for HRM functions (Sierra-Cedar, 2019; Watson, 2014). It has been identified that EHRM to be frequently utilized throughout Europe while two-thirds of all organizations have established EHRM practices (Hoq, 2021). As a result, the global business for providing and supporting EHRM practices to organizations is rising. It industry is expected to rise from USD 14.50 billion in 2017 to USD 22.51 billion by 2022 with an annual compound progression rate of 9.2 % (Research and Markets, 2019). The growing significance of EHRM industry has also been established by buyout actions of major software business companies such

as SAP, Oracle and IBM, with an total revenue of more than USD 1 billion (Reuters, 2014; CB Insight, 2013). Among the academicians, the increasing popularity of EHRM has been confirmed by numerous calls for investigation and research publication of special issues in HRM or IS related journals such as the Journal of Strategic Information Systems and Computers in Human Behavior (Parry & Strohmeier, 2014; Grant & Newell, 2013); and the Journal of Employee Relations (Parry & Strohmeier, 2014).

2. Research method

Adopting a proper research method is the core central stage of any research study. For this review paper, the author adopted the systematic literature survey conducting a frequent search. Since the studies on EHRM practices is quite nurtured, the author systematically explored for appropriate journal articles focusing particularly on EHRM or IT based research areas. The major data source was a database created by exploring the published sources from Web of Science (former ISI), Scopus as well as Google Scholar. In this perspective, this research begins with a survey of existing literature conceptualization of EHRM practices and prominence of the EHRM systems. I collected 136 such papers and reviewed them.

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Based on the findings of literature review, the paper finishes with several arguments, benefits & challenges, implications and study limitations. Therefore, although this is basically a theoretical paper, the HR academicians and HR practitioners can be benefitted from this paper with latest findings and action based recommendations.

3. Literature review

3.1 EHRM: Concept and definitions

The research base on EHRM is quite rich as numerous scholars conducted research investigations associated with EHRM. It is visible that there are replicable terms used to indicate EHRM such as, Human Resource Information System (HRIS), HR intranet, Web-based HR and HR portals etc. We can observe numerous definitions regarding EHRM (Hoq, 2021; Johnson et al., 2016). Several scholars claimed about Internet or Web-based networks as the components of EHRM (Ruel et al., 2004). Typically, EHRM is a managerial policy to align basic HRM functions in a strategic manner with the aid of technologies (Panos & Bellou, 2016; Marler & Fisher, 2013; Marler, 2009). More specifically, Johnson et al. (2016) define EHRM as the process and supply of HR functionality supported by a Human Resources Information System (HRIS) that attaches employees, job candidates and managers. In addition, Bondarouk & Ruël (2009) state that EHRM has a strategic drive as it contributes to create value at the organizations directing the employees and management (Chakraborty & Mansor, 2013)

However, EHRM is not just an IT-based tool to implement HRM functions, rather it is a mean to integrate numerous HRM and IT activities within organizations to speed up the progress of employee working environment and the job performance (Johnson et al., 2016; Obeidat, 2016; Panos & Bellou, 2016; Bondarouk & Ruël, 2013). Although several academicians wish to apply the term “EHRM” over “HRIS” (Ruel et al., 2004; Strohmeier, 2007), many researchers accepted that a line should not be drawn between IT-based information system for HR and Internet-based HRM applications since these two terms are basically conducting parallel tasks (Ruel et al., 2011). Consequently, for this paper, the author assumed that EHRM includes all different types

of information system (such as, Internet, Intranet, Enterprise Resource Planning) that can support the HRM actions and strategies such as staffing, training, compensation etc. (Iqbal et. al., 2017).

3.2 Types of EHRM

There are basically three types of EHRM practices (Hoq, 2021; Srihari & Kar, 2019) as briefly identified below:

Operational EHRM: Operational EHRM is one of the basic types of EHRM practices connected with the operational level functions of HRM departments such as payment & earnings of the employees and recording the information of the existing & potential employees. Since, such activities are performed electronically, it undeniably saves time and efforts of the HR professionals staffs that can be invested in other strategic HR activities such as HR planning, decision making and job analysis. Further, it can save the operational expenses (Srihari & Kar, 2019).

Relational EHRM: Relational EHRM is another noteworthy activity of HR component that also can be performed electronically. If the functions such as training new and existing employees can be conducted maintaining the appropriate path of the employee performance procedures, employees can become free of stress, motivated and efficient. Such initiatives may deliver a competitive ability to an organization over the other similar firms (Srihari & Kar, 2019).

Transformational EHRM: The strategic formulation and implementation in the arena of HRM is an important task of the HRM departments. At the initial level, a huge budget is essential in installing software and training the employees. However, once imitated and connected, it can align the aspect of technical and strategic HR units that can release the HR employees from repetitive and monotonous jobs (Srihari & Kar, 2019).

3.3 Functions of EHRM

In general, EHRM is the electronization or automation of the general HRM functions using the IT and computer programs. The important functions of EHRM have been briefly indicated below.

E-job analysis: Internet based job analysis or electronic job analysis (e-job analysis) is a type of software that assists the HR professionals to conduct job analysis functions and procedures based on the available information online sources. E-job analysis, therefore, commonly refers to obtaining information from diverse stakeholders through online survey tools. Such software offers a methodical result commonly known as job description for each and every job to be filled that was surveyed through online opinion poll. Subsequently, those job descriptions are used as the sources of job evaluation (Tesi, 2010).

E-recruitment & selection: E-recruitment is the utilization of the Internet to make the job advertisements and encourage the candidates to submit their applications electronically (Hosain, 2017; Dineen & Noe, 2009). E-recruitment encourages the job candidates to utilize a desktop/ laptop/smart device to access the organizational websites to learn about the advertised jobs and upload their CVs. Studies indicated that e-recruitment can substantially cut hiring phases and reduce recruitment expenses both for the organization and the job candidates (Muqaddim &

Hosain; 2021; Rahman & Hosain, 2021; Hosain, 2017). Apart from developing efficiency, e-recruitment may further assist to progress hiring outcomes (such as, job candidates' knowledge regarding the hiring organization and their rationale to apply for the job) (Hoq, 2021; Allen et al., 2007). Organizations enjoy significant attentions while conducting and executing e-recruitment process (Chapman et al., 2005; Cober et al., 2003; Zusman & Landis, 2002). Furthermore, hiring websites can be used as essential tools for the job candidates to determine their organizational fit. Employee-organization fit is imperative since it may affect employee gratification, devotion, absenteeism and performance (Kristof-Brown et al., 2005). An efficiently designed website may hold up forthcoming candidates to determine job fit decreasing the chances of incompetent candidates that an organization desires to get rid of (Johnson et. al. 2017; Dineen & Noe, 2009)

E-selection identifies, on the hand, job candidates' knowledge, competencies and aptitudes using a number of varied assessments (such as, cognitive ability tests, presentation skills tests, tests of special skills). Furthermore, e-selection tools assist the hiring organizations to discover the most competent candidate(s) for specific job(s) (Hosain, 2017; Stone et al., 2013). Previous studies on e-selection has emphasized on the efficiency of electronic or online job interviews. Such online job interviews allow collecting relevant information regarding the important job-related competencies such as communication and social capabilities of the candidates. Face-to-face interviews are expensive and cannot be conducted all the time due to several restrictions such as distance between the interviewer and interviewee or present Covid-19 outbreak. Keeping consistency with requirements, many organizations are now conducting video conferencing as well as shared voice-response techniques (such as, zoom meetings or Google met) to organize selection interviews (Johnson et. al. 2017; Chapman & Rowe, 2002).

E-learning: E-learning indicates all the teaching and training resources and tools blended with IT-based schemes that are utilized to create and disseminate knowledge (Parry, 2006). E-learning covers abundant activities for learning such as IT-based learning, virtual classes and virtual teamwork. (Hoq, 2021; Gueutal & Stone, 2005). Organizations at present exploit a variety of tools and techniques to offer training to their employees. Such e-learning consists of just delivering training materials online to using a range of advanced technologies to offer training materials and support learners' involvement in the learning process. Although, early researchers opined that e-learning cannot be substituted by face-to-face learning, meta-analytic investigations established that properly designed online training can be as effective real as face-to-face training. However, it is not as easy as duplicating a classroom management online. As an alternative, the trainers require to consider learners' individual characteristics, trainers' individual characteristics, learning facilities available and IT facilities (such as, speed of Internet and availability of devices) to make e-learning successful (Johnson & Brown, 2017; Rahman et. al., 2017).

E-compensation and benefit: In general, compensation and benefit indicates the general employee reward package an employee is supposed to receive in exchange of his/her contributions towards the organization. Such a package might include both direct pay (such as, salary & bonus) and indirect pay (such as, different types of benefits). E-compensation & benefit scheme is a software package that is developed and maintained by an organization and is accessible through the organizational Intranet as well as through the external Internet where an employee can be able to access to his/her individual salary account through provided user name

and password. Therefore, e-compensation & benefit system is a formal HRM tool by which the employees can observe their compensation & benefit records according to their respective responsibilities, job designation and performance (Rahman & Hosain, 2021; Hosain, 2017). On the other hand, HR managers can also be able to control the cost of compensation generating a win-win situation both for employers and employees.

HRIS and e-communication: The primary idea of human resource information system (HRIS) was initially developed in 1960s which is presently extended its weight not only in managerial arena but also predominantly in production and strategic fields (Kovach et al., 2002; Kossek et al., 1994; Broderick & Boudreau, 1992). Managers, particularly at larger geographically distant organizations frequently come across challenges to deal with the personnel spread in various regions, countries, cultures and also political systems. In such situations, manual/conventional HR practices are completely ineffective (Beckers & Bsat, 2002). Over the last decades, organizations are successfully utilizing HRIS to handle their workforce distantly (Ngai & Wat, 2006). Many organizations now-a-days consider HRIS as a key element of operational and strategic functions. Organizations these days are developing and maintaining their own IT infrastructure that can aid achieving the goals in a sensible and timely manner resulting in effective strategic decisions (Sadiq et al., 2012). A few studies have so far been conducted exploring factors affecting the adoption of HRIS in emerging economies, specifically on banking (Liu, 2010; Siegel, 2009) and educational (Hosain, 2016; Ozen & Kusku, 2009) sectors.

On the other hand, e-communication can be defined as the official intra-organizational correspondents to harmonize dissimilar aspects of decision-making functions and changes (Casico, 2006). In this significant function, HRIS involves an essential responsibility to fetch, gather and process all the pertinent information from the diverse stakeholders as well as deliver such information to them when necessary (Hosain et al., 2020; Hosain & Arefin, 2020; Arefin & Hosain, 2019; Mayfield et al., 2003).

E-personal profile: An electronic profile or e-profile indicates the maintenance of employees' individual information electronically. Such individual information are usually stored in online organizational databases that can be retrieved or accessed at anytime if required. Muqaddin & Hosain (2021) and Arefin & Hosain (2019) argue that such e-profiles of the employees can save time, effort and expenditure of searching employee information that can increase operational efficiency and performance of organizations.

E-performance appraisal: Performance appraisal or performance evaluation is the process of evaluating the individual employee or departmental performance in a regular basis to develop future performance and to boost-up forthcoming career succession. Performance appraisal is conducted benchmarking with a set of specific task to recognize and review the current performance against pre-set standard (Hosain, 2016). According to Rosemond & Ernesticia (2011), employees are required to be pre-informed specifically what is expected from them within the appraisal period, the process of measurement and how the outcome (satisfactory or unsatisfactory) will be rewarded (or punished).

Employee performance need is to be assessed regularly focusing on probable identification of training and development necessary with the support of formal and prearranged format. An effective performance assessment format can form the bottom for a victorious analysis of

monetary rewards and career succession. Appraising performance with the help of online resources and monitoring tools can be defined as e-performance appraisal (Hosain, 2017). A well-equipped, resourceful and practical e-performance appraisal scheme can provide personal performance records such as due appraisal date, performance scores, measurement scales and so on (Hosain, 2017).

3.4 EHRM goals

The goals or objectives of EHRM can broadly be divided in to three categories as describe below:

Operational goals: some scholars (Ruel et al., 2004; Marler, 2009) argue that EHRM can refine the usefulness or decrease the operational expenses of an organization. In such cases, operational feedbacks are suggested to obtain in order to receive the real benefits of EHRM. Hendrickson (2003) recommended EHRM productivity can further be improved through allowing additional dealings to happen with less dynamic functions like payroll management. This is similar to Martin et al.'s (2008) "transactional" effects of EHRM.

Moreover, empirical studies emphasized the existence of enhanced success through EHRM, by declining HR workforce, accelerating the speed of actions, declining costs and releasing the HR professionals from the burden of monotonous duties (Strohmeier, 2007; Ruta, 2005; Ruel et al., 2004). Ruel et al. (2004) revealed that the most visible outcome of EHRM practices is the decline of operational expenses and release of the managerial workload of HR employees (Hoq, 2021; Parry & Tyson, 2011).

Relational goals: Relational impacts of EHRM practices may provide offer employees and supervisors from a distance to enter to HR database and speed-up their ability to connect with other departments of the organization. This statement can be connected with the suggestion of Ruel et al. (2004) that EHRM might be utilized to develop HRM conveniences including aiding the supervisors and the ordinary employees.

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Similarly, suggestions to develop the HR activities through amplified precision of information documentation or by reorganization methods by Gardner et al. (2003) and Bondarouk et al. (2009), who exposed that the utilization of EHRM is definitely connected to explanation of ordinary HRM effectiveness in the performances of the supervisors and staffs. Likewise, Payne et al. (2009) proposed that feedbacks to virtual evaluation management schemes are further effective than those of manual style connected to the similar method (Hoq, 2021; Parry & Tyson, 2011).

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Transformational goals: The transformational goals of EHRM allow employees to connect and share information through dispersed geographical borders, thus playing a major role in aiding online groups and networks of employees. Ruel et al. (2004) argue that EHRM has the capability to amend the HRM functions by offering the strategic alignment. A strategic HR action is the one in which HRM is associated with the strategic management process of the organization (Parry & Tyson, 2011; Wright & McMahan, 1992).

3.5 Benefits of EHRM

Basically, most of the HRM actions can be concluded by utilizing EHRM that may help the organizations in several ways (Ruel et al., 2004). As an example, EHRM can reduce the automation of everyday jobs and actions that minimize the utilization of tangible and intangible resources thereby declining the expenses of HRM departments. Utilization of less stationeries and to assist supervisors in HRM procedures are the few such instances minimum resource utilization. According to Hendrickson (2003), EHRM paybacks an organization in its HRM procedures by leveraging the capability and efficiency as well as by offering self-service HRM options such as online training and virtual hiring. In addition, EHRM offers information and frontline online presentations that may assign portion of HR records to employees and supervisors (Ruel et al., 2011). Therefore, employees can enter and modify their information by themselves ensuring more accuracy of information while saving time and costs. Several scholars affirmed a few necessary evidences of EHRM that are competent in making HR-based decisions and sustaining an organization's unique characteristics (Sadri & Chatterjee, 2003), declining HR expenses, speeding-up HR services, reducing the chances of mistakes and developing the tracing & managing HR functions (Chakraborty & Mansor, 2013; Lengnick-Hall & Moritz, 2003).

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Furthermore, Aggarwal & Kapoor (2012) discovered that EHRM not only assists the management and HR unit but also offer the staffs a number of services. EHRM is able to accelerate the decision making skill for the management. It helps the HRM departments to own the database of all the employees. EHRM removes the manual methods that are lazy and can have a superior possibility of making mistakes triggered by human facet. In some organizations, EHRM permits the employees to join the training programs via Internet to develop their competencies and propensities. Accordingly, it encourages the employees to take initiatives on the basis of data acquired through EHRM scheme (Chakraborty & Mansor, 2013). The benefits of EHRM can be observed in every organization. As for instance, collecting data, keeping the facts & figures for making reports, streamlining & speeding the actions, supervising the obtainable information, declining expenses of HRM departments sector, delivering data to the administration timely are some notable advantages based on which it is possible to generate outstanding strategic decisions connected to HRM (Aggarwal & Kapoor, 2012).

Previous research findings exposed that EHRM is enormously connected to HRM value creation (Bondarouk & Ruel; 2013; Ruel & Kaap, 2012). The performance of EHRM removed many responsibilities from the HR professionals to supervisors or line managers (Ruël et al., 2004). Therefore, EHRM allows the HRM systems to surge its value and to develop efficiency within the organizations (Obeidat, 2016). Some prominent HR scholars have categorized the strategic benefits of EHRM into the following points:

- Collection of HR metrics to assist strategic decision-making (Parry & Tyson, 2011; Bondarouk & Ruel, 2009; Hussain et al., 2007)

- Automation of recurring HRM functions (Parry et al., 2007; Brown, 2002)

- Branding and enlightening the organizational status (Martin et al., 2011; Reddington & Alexander, 2008; Lawler & Mohrman, 2003)

- Releasing the HR professionals from administrative workloads and allowing them to perform strategic functions (Martin et al., 2008; Ruel et al., 2004; Shrivastava & Shaw, 2004)

- Endorsing the supervisors through training and development skills to carry out operational (not strategic) HRM functions (Parry & Tyson, 2011)

- Refining knowledge management by various EHRM practices (Martin et al., 2008) ; and

- Releasing HRM professionals from repetitive, routine and manual duties to strategic decision-making process (Haines & Lafleur, 2008; Keegan & Francis, 2008; Voermans & Van-Veldhoven 2007; Bell et al., 2006).

3.6 Factors affecting EHRM adoption

A number of factors influence the adoption of EHRM practices at organizations. The major ones have been identified below:

Organizational factors: There are several factors that can be indicated as organizational characteristical factors in adopting E-HRM. Yang et al. (2007) argue that acceptance may be prone in organizations that practice centralized authority since higher authority can take any decision apart from the opposition from mid-level managers or supervisors. Organizational size and structure are indispensable elements in successful implementation of EHRM (Chakraborty & Mansor, 2013; Troshani et al., 2011). Additionally, Hendrickson (2003) pointed that all EHRM practices cannot be not be generated in the similar manner as the use of EHRM depends considerably on the size of the organization. For an instance; a popular EHRM software such as PeopleSoft can be installed by an organization with 25 employees although the enormous operating expenses can be challenging. Similarly, a vast corporation may produce a databank just to access and perform the responsibilities necessary to perform although it can be difficult to control.

Accordingly, it is understandable that EHRM necessitates a symmetry regarding mechanical and delicate data required by the HRM departments considering the size of the organization (Hendrickson, 2003). Consequently, larger organizations started to adopt and utilize all the three categories of EHRM: operational, relational and transformational. However, smaller and middle sized organizations have just begun to employ operational and relational E-HRM practices since these two EHRMs do not perform HRM functions with a strategic application being less expensive (Ruel et al., 2011). On the contrary, the top level management support is also essential to embrace EHRM. According to Yang et al. (2007), the CEO's courage and awareness towards EHRM is vital to accept it. Furthermore, dedication of employees as well is desirable in adopting EHRM (Chakraborty & Mansor, 2013; Teo et al. 2007).

Technological factors: Technological factors stress on the technical issues that might influence the approval of EHRM (Yang et al., 2007). Benefits of embracing EHRM practices include superior service quality, expertise and reliability (Oliveira & Martins, 2010). Similarly, according to Oliveira & Martins (2010), IT proclivity is dependent on organizations' technology configuration and HR efficiency. EHRM may turn into a basic section if the organization has

superior set-ups and technical capabilities. These basics allow the mechanical capacity of an organization to acknowledge EHRM (Oliveira & Martins, 2010). On the other hand, since organizations with advanced technology proclivity are in a better position to embrace EHRM, organizations without robust technology structure as well as widespread IT expertise cannot be concerned to adopt EHRM. Many experts accepted that technical proficiency is a vital factor that influences the acceptance of EHRM (Oliveira & Martins, 2010).

Environmental factors: Environmental factors indicate to the areas where an organization implements its business. It includes business characteristics, legal framework and accommodating compositions (Troshani et al., 2011; Oliveira & Martins, 2010). According to Rogers (2003), in order to be able to admit modernization, data regarding them needs to be accessible to possible adopters. Government agencies can encourage the organizations to assume technology by escalating awareness, guidance and financing (Troshani et al., 2011). Likewise, many HR professionals admit that EHRM practices may not be logical if those practices cannot manage their HR professionally (Teo et al., 2007). Therefore, such requirement motivates the organizations to use EHRM as it may hold to generate advanced judgment as well as disciplined HRM actions.

In addition, Ruel et al. (2004) approved six environmental elements that influence EHRM implementation. Those elements are competition, scientific growth, HRM state-of-art, job market, social improvements and legal environment. It can be argued that in case of a multinational organization, EHRM adoption is influenced by features such as organizational policies and host-country environment (Festing & Eidems, 2011; Dowling et al., 2008). Furthermore, when an organization extends its operation globally, it is significant for it to maintain a balance between global environment and local fundamentals (Chakraborty & Mansor, 2013).

Local and national culture: Culture is the blend of common principles and morals that distinguish individuals of one nation from another (Hofstede, 1980). Culture is also included in numerous HRM prototypes as a major feature influencing the adoption and creation of eHRM activities (Aycan, 2005; Jackson & Schuler, 1995). Tayeb (1995) propose that while the "What" inquiry in HRM can quite common, the "How" query is mostly depended on national culture. As an example, employee training and development may be common while the level of self-confidence on virtual learning vs. traditional training measures is anticipated to be largely influenced by national culture (Panayotopoulou et al., 2010).

Economy: Another factor that is connected to the reception of EHRM is the national economic status (Strohmeier & Kabst, 2009). Accordingly, Gross Domestic Product (GDP) and per capita income would be reflected when the organizations of a particular nation consider to embrace organizational EHRM practices. GDP is not just a noteworthy pointer of the overall platform of development of a country, it also establishes a predictable display of IT acceptance of the country (Chinn & Fairlie, 2007).

Internet access rate: The acceptance of EHRM is expected to be consistent with the scale of distribution and usage rate of the Internet in the country. Since EHRM execute the HRM functions with the immense assistance of Internet or Intranet (Lengnick-Halland Moritz, 2003),

the degree of utilization of the Internet in a country appears suitable to investigate regarding EHRM. An appropriate amount unfolding such consumption is the Internet access or penetration rate (Hoq, 2021; Panayotopoulou et al., 2010).

3.7 Can EHRM create value for the organizations?

Possibly one of the prevalent challenges of contemporary HRM is to exhibit how corporate value is generated through its creativities. Considering the amount of investment in HR, creativities ought to contest with other anxieties for finance. HR specialists must apprehend the affiliation between the budget and value of their proposals (Foster, 2010). Similarly, according to Ruel and Van der Kaap (2012), the E-HRM practices considerably support the formation of proficiency and HR facility in a firm. Circumstantial features enable E-HRM practices, such as information excellence, HR strategy and HR equipment capabilities were established to be associated to HRM value formation (Wahyudi & Park, 2014).

Furthermore, one zone where HR has a chance to generate value is through the use of technology, principally the usage of internet-based schemes that facilitate the placement of HR procedures to line managers and staffs (E-HRM). Nonetheless, HR activities had varied achievements in spreading E-HRM outside simple administrative duties. Although, according to CedarCrestone (2009), process-based managerial apparatuses are utilized by more than 90% of firms, strategic HR apparatuses have inferior corporate dissemination, usually at the rate of 30 % -40 % (Foster, 2010). As per the E-HRM Value Model, the value may be generated in one of the three methods:

- HR Budget Lessening: Decreasing the budget of HR functions, either by reducing the number of HR staff or secondary expense lessening such as lesser dependence on outsourcing.
- Employee Administration: Utilizing equipment to assist employee administration through enlightening administrative responsibility, releasing HRM time to aid supervisors and delivering data that assists decision making. There is data to advocate that the improvement of an E-HRM ‘‘manager’s toolkit’’ is associated with the upper stages of efficiency.
- Strategic Ability: Delivering the firm with competences that may be retrieved by technology, for instance, emphasizing the brand of the firm by virtual staffing, refining staff gratification with HR methods, delivering durable strategic data and permitting a move in the affiliation among the firm and its staffs.

Furthermore, the eventual result of E-HRM is to assist to achieve competitive advantages. Remarkably, HR technology is expected to be effective and efficient if it supports to improve the firm’s capability to contest in its selected markets (Foster, 2010).

3.8 Barriers in adopting EHRM practices

Despite of having numerous benefits, there are certain barriers that hinder the organizations from adopting EHRM practices. However, such barriers mostly can be evident in case of smaller organizations due to the heavy initial investment required to install different software and maintenance. The following paragraphs highlight such barriers with a brief description,

Heavy initial investment required: EHRM, like any other new technology, require huge initial investment for installing, maintaining and training the employees regarding the system and software. Many medium and smaller organizations cannot afford to invest or reluctant to invest such large quantity of financial resources on new technology. However, it should be noted that although EHRM requires high initial investment, the expenses of maintaining the system reduces with time. Once the employees feel comfortable about operating the system, they also find easier ways to operate the system. The net benefit of EHRM is much higher than the expenses incurred towards it.

Cultural and social constraints: The attitude towards any change is one of the essential factors for adopting of any new technology. There are a number of social and cultural forces like gender, poverty, educational background, social status, race, age level and social exclusion that all can directly influence the adoption of EHRM practices, at least at the initial stage. While some employees have perceived uneasiness regarding the use of computers and the Internet, some seniors who are in the organizational hierarchy perceive such integrated information system as a threat decentralizing access to information by the employees. Thus, they usually oppose or at least discourage in investing a huge amount of financial resources on EHRM (Sarker et al., 2019). Since EHRM is new to many organizations in developing and underdeveloped countries, the employees require learning about the new technology for improving their skills. In order to remove or reduce such a barrier, it is essential to update the academic syllabus of secondary, higher secondary and tertiary level for generating IT-friendly, knowledgeable manpower. Business and non-business organizations should make effective collaborations with the scientists, vendors and service providers for getting the immediate benefit of IT-based employee management.

Issue of information security

HRM departments embrace several confidential, significant and sensitive information while using EHRM. Personal or individual data is the next most sought-after data after credit card information by cyber criminals in the "dark web", a part of the World Wide Web (w.w.w) requiring specific software to admit where much of the illegal actions take place (Subramaniyan et al., 2019). An EHRM database contains insightful employee information such as bank account details, birth information, social security information, addresses and much more individual information. While expert cyber criminals often are looking for such susceptible data, HRM departments have become the major targets for those masked criminals. Such data revelation can produce severe breach of laws and regulations concerning individual privacy. Thus, it is decisive for HRM departments to not only identify the privacy issue and defend their personal information, but also to execute the obligations of diverse laws and regulations connected to information security and privacy.

Constraints related to infrastructural development

Organizational infrastructure is an indispensable element of big data technology adoption. Particularly, in the developing and under-developed countries, it is the "digital divide" is a major challenge for the organizations to develop a robust physical infrastructure for EHRM. EHRM platform requires a particular online server combined with thousands of nodes with numerous processors and drives connected by a high-speed network to carry out the rigorous analytics. Sometimes, large organizations offer their services for EHRM systems in collaboration with

Google, Microsoft and Yahoo throughout the world. However, poor telecommunication infrastructure of many countries is a notable barrier in adopting EHRM and quality electronic service delivery.

4. EHRM in contemporary business world

The new millennium is full of globalization and technological developments. Such development offers new opportunities as well as challenges or organizations and individuals. HRM departments also presently face new challenges, constructing ground-breaking prototypes for the attainment of common movement, proficiency and effectiveness. IT has changed the world in a variety of cases and by numerous ways. In the present era of information, the entrance of personal computers (PCs) and the Internet merely reinforced such changes. These days, many organizations would not have survived without utilizing PCs, laptops and Internet. As a result, HRM as an important unit of organizations cannot deny or by-pass such imperative changes (Popescu & Popescu, 2016). In addition, considering the influence of IT on HRM, IT can present new opportunities in a quick moving ambiance. The role of HR is changing; the HR professionals are being turned into counselors, designers, specialists and decision makers. Likewise, HR units are required to handle an increasingly high volume of data that hamper all other strategic functions. In this background, it can be argued that the vital role of IT usage, skillful management of all employee information, utilization of Internet, Intranet & all other electronic devices can have a high impact on the proper functioning of HRM departments (Popescu & Popescu, 2016).

4.1 Strategic human resource management and EHRM

HRM departments become more strategic when the HR functions converts from being "predominantly administrative" to "more strategic". The expression of being "more strategic" reduces the conventional HRM activities to help out the organization's core strategic and policies (Bondarouk & Ruel, 2009; Lengnick-Halland & Moritz, 2003; Snell et al., 2001; Lepak & Snell, 1998). In addition, with the decisive and the consistent result of implementing EHRM system, the HR-related expenses are declining and HR professionals are performing more on the strategic roles (Ruël et al., 2004; Shrivastava & Shaw, 2004; Lengnick-Hall & Moritz, 2003). Reduced expenses can be achieved with the computerization or outsourcing of HR activities. Speaking strictly, the probable outcome of reduced administrative duties is to have additional time and effort for the HR professionals to devote to strategic actions (Marler, 2009).

4.2 Technology attitude and EHRM

With the aid of EHRM, data concerning HR strategy can be disseminated within the organization. As a result, all the employees are now further conscious of the procedures and standards that are established to evaluate and compensate them. Therefore, they have a feeling to be neutrally evaluated while the question of pay increase or promotion comes. By disseminating the HRM policies in the Internet, employees not only become aware about the HRM department's objectives activities but also perform the facilities more openly (Bissola & Imperatori, 2014).

On the other hand, employees may have dissimilar psychological feedbacks while embracing IT-based schemes. Several employees may seem relaxed in perceiving the benefits of utilizing EHRM and thus content to work in an IT-based environment while others may feel discontented

and afraid (Parasuraman, 2000). Meuter et al. (2000) argue that when disparaging moods succeed, employees can escape from the fear of using IT, although they are conscious of the paybacks of utilizing it.

4.3 E-HRM and perceived employee productivity

Proliferations in outputs are frequently the leading force for the organizations to use IT (Qutaishat et al., 2012; Jalava & Pohjola, 2007; Swierczek & Shrestha, 2003; Black & Lynch, 2001; Brynjolfsson & Yang, 1996). Organizations generally invest their resources in EHRM schemes to make sure genuine usage of their employees and thus, to enhance the employee productivity (Datta et al., 2005). Unquestionably, HRM departments have augmented with the utilization of IT (Lempinen & Rajala, 2014; Scudder & Kucic, 1991), containment of EHRM, to elevate employee productivity (Iqbal et al., 2019; CedarCrestone, 2014).

Similarly, utilization of EHRM provides employee prospects to supplement their competencies and contribute to the organizational achievements (Panos & Bellou, 2016; Bissola & Imperatori, 2013; Bondarouk & Ruël, 2013; Marler & Fisher, 2013). It also accelerates the competence through automation and exchanging low-value administrative jobs with superior value-creating jobs (Marler & Parry, 2016). In other words, non-HRM employees may perform some recurring HRM functions by themselves such as updating their own information and recording for training interests without bothering an HR personnel.

Furthermore, previous studies indicate that the utilization of EHRM systems can extend employee competence (Foster, 2009; Lengnick-Hall & Moritz, 2003). Unlike traditional manual HRM functions, EHRM can support to update HRM actions through rapid procedures; expanded correspondence; declining in the quantity of HR employees; and generating & allocating some HR information more specifically & on time. Such These advantages can support to rise employee competency (Marler & Parry, 2016; Martin et al., 2008; Parry, 2011; Foster, 2010; CedarCrestone, 2010, 2014; Lengnick-Hall and Moritz, 2003). In general, by rising transparency over the HRM strategies, EHRM can support to achieve superior employee output and proficiency. In fact, escalated employee productivity is one of the central motives to adopt EHRM (Iqbal et al., 2019; CedarCrestone, 2008).

4.4 E-HRM and human-computer interaction

In recent years, having studied HRIS, concepts of IT and Human Computer Interaction (HCI) have produced significant amount of research on EHRM. In other words, the research on HCI basically concentrates on the association among employees and computers. IT has several capabilities through which employees can be connected with same manners that they may connect with other employees (Marakas et al., 2000; Nass & Moon, 2000). Many studies on EHRM have focused on the successful relationship between IT and HRM and the influence of IT utilization on the HRM activities rather than on the arrangement of these projects and the partnership among them and their users (such as, job candidates, staffs, supervisors). The structure and utilization of e-recruitment may influence the type of candidates who apply for jobs, how they are recruited, how employees are evaluated, how compensation structure is prepared, how employees react to HR strategies, how employees are administrated etc. Therefore, HCI can fundamentally impact the competencies and actions of EHRM. For example, Dulebohn & Johnson (2013) argued a configuration for developing decision support systems

(DSS) for HRM. A vital element of DSS is the collection of information to the decision making method.

Likewise, a poorly planned recruitment website and online submission of job applications can have influence on applicants removing themselves from the employment process (Allen et al., 2004), having an organization to lose a competent job candidate or a job candidate to lose the possibility to get a job position. Many previous studies (Chapman et al., 2003; Silvester & Anderson, 2003) revealed that the system utilized during the recruitment process may influence applicant feedbacks and the decisions of recruitment HR experts. Lievens & Thornton, (2005) claim that IT constructs authentic job assessments. On the contrary, another area where HCI can be notified by scholars is planning and executing EHRM is employee benefits. Employee benefit is getting more attention of the organizational policymakers due to the increasing costs and Governmental regulations. Accordingly, organizations are looking for strategies to distribute projected benefits through declining costs. Furthermore, many organizations are shifting from diverse pension policies to diverse contribution policies (Hoq, 2021). Therefore, employees are becoming increasingly responsible for implementing their own benefit policies; many of those have minor understandings regarding monetary policy. As a result, the role of interface between HRM structure and DSS may support employees to create more resourceful virtual financing resolutions (Johnson et al., 2016; Looney et al., 2008).

5. Implications for theory and practice

The way of conducting businesses today is swiftly changing due to augmented competition, new technological development, changing nature of various stakeholders' requirements and other industry, micro and macro environmental changes. As a vital factor of production, employees play a significant role for the organizations in attaining the organizational objective and sustainable growth. The current and last decades have experienced several notable developments in this area which can be defined as a conversion from manual or conventional HRM practices to EHRM practices. EHRM is an Internet-based arrangement that is developed to implement HRM policies, practices and strategies to accomplish the organizational goals. Adopting EHRM for managing HR is a promising trend in the organizational, industrial and management domains. This research is expected to contribute to the understanding of the EHRM applications and in a contemporary perspective. Although there are ample research studies on EHRM, most of those published papers are applied researches. There is still not adequate amount of papers in existence regarding the overall aspects of EHRM in a contemporary basis. Hence, this theoretical study is expected to fill that gap at least to some extent.

Therefore, it is expected that this elaborate theoretical paper on this priority sector will be very supportive for the managers and owners of businesses to adopt and execute EHRM practices at the organizational. EHRM can be beneficial as it can save unnecessary operating expenses, augment efficiency and reduce the wastage of working hours. In addition, this paper may also be useful for the academicians, practitioners and analysts who wish to conduct further research investigations on EHRM application in the near future. On the other hand, the conclusive points can show some guided results for the top executives and organizational policymakers allowing them to intensify concentration to the EHRM applications due to its implication in improving operational efficiency in all types of organizations.

6. Limitations and future research direction

As a matter of fact, I wrote this theoretical paper solely based on reviewing the existing literature available. Therefore, the themes have been limited to the theory only without any empirical outcomes. A cross-country study or comparative analysis with definite variables comparing two or more cultural bases considering several industries might have provided a different and wider conclusion. Therefore, there is a gap that could be bridged and remains a further opportunity to conduct future analysis on this important area of management.

I propose that interested researchers should come forward to test numerous variables related to modern practices of EHRM using a larger sample size or longitudinal study (before and after the implementation of EHRM practices at the organizations).

7. Conclusion

EHRM is a web-based instrument to automate and support HRM functions and processes. The execution of EHRM is a chance to hand over the data entry process to the employees. It facilitates the usages of HR marketplace and offers more self-services to the employees. It is a superior business solution providing complete online supports in the management of entire all processes, practices, data & information essential to administer HRM functions in a contemporary organization. It is system that is well-organized, dependable, conveniently controllable and accessible to a wide cluster of diverse users. EHRM is a high-tech gateway of performing HRM functions. With the top administrative support and HRM at a strategic place towards operational efficiency, EHRM can endorse as an IT instrument in achieving sustainable organization.

Modern organizations are recognizing the significance of sustainability in terms of searching, selection and preservation of brilliant employees in order to maintain and enhance the status. In order to keep pace with the vibrant economic, social & environmental forces and satisfying both the internal and external stakeholders; organizations are trying to accomplish sustainable and long-term growth for the in the industry. Having multiple benefits, I recommended that all the organizations to adopt and use EHRM technology that promises to offer a constructive, competent and augmented performance despite of a few barriers. EHRM is a system of implementing HRM strategies, policies and practices in organizations through conscious and direct support of the complete utilization of web-based technological channels. It covers all aspects of HRM functions such as personnel management, training & development, job analysis, manpower planning, hiring process, keeping employee's personal records and performance management. Therefore EHRM is an improved method of conducting HRM functions more effectively and efficiently for the organizations.

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