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Abstract: Information technology (IT) became a vital part of our modern-day activities. In contemporary years, the usage of IT in expediting the human resource management (HRM) activities augmented considerably. E-HRM has the ability to develop managerial competency and influence the role of human resources (HR) as a strategic business partner. E-HRM is essential for firms because of its encouraging effect on staff productivity. Speedy technical modifications revolved E-HRM into a substantial theoretical and professional agenda. This study delivers an exploration into the contemporary level of improvements of the theoretical knowledge connected to E-HRM. Numerous features of E-HRM, specifically descriptions of E-HRM, the academic perceptions around E-HRM, the role of E-HRM, the numerous categories of E-HRM, the requirements for effective E-HRM etc. are scrutinized. It will contribute into HRM literature and regulate the effectiveness of E-HRM and its practices. This research would support the scholars and the practitioners to have the comprehensive portrait of the modern matters linked to E-HRM. The articles concluded by delivering some suggestions for future studies.

Keywords: *HRM; management; human; resource.*

1. Introduction and Background of the Study

For long period of time, establishments gradually embraced e-HRM to attain managerial and tactical remunerations (Kovach, Hughes, Fagan, & Maggitti, 2002; Marler & Parry, 2015; Strohmeier, 2009). E-HRM assured to offer expense reductions, facility developments, and reshuffle the HR experts to be more tactical (Ruël, Bondarouk, & Van der Velde, 2007). Similarly, the contemporary period of digitalization carried exceptional deviations in the world. The crucial modifications supported by IT improved how enterprises perform their dealings. It led to transformations in management proceedings and techniques. There was a time when the whole job in an enterprise was completed manually. Presently, enterprises are attempting to give all energies to digitalize all its maneuvers and HRM is no exemption to this (Lather & Kaur, 2019).

At present, E-HRM is the essence in numerous enterprises. It appears to propose the opportunity of creating HR experts more effective by releasing them from some of their extra monotonous tasks and allowing them to focus on the strategic features of their tasks. It is in line with the often -heard statement that ‘‘employees are our ultimate fundamental asset’’. It reinforces the entitlement of high-ranking HR experts to be a member of the board of directors (Voermans & Veldhoven, 2007).

Similarly, numerous business activities are going online due to the development of IT. Nowadays, the idea of smart work gets priority over the traditional concept of hard work. Electronic Human Resource Management (E-HRM) is also a discovery of IT (Marler and Boudreau, 2017; Seddighi and Yoon 2018). Before, HR activities were done by the HR staffs. However, in the present supervisors in various enterprises execute these responsibilities. E-HRM activities could be completed distantly or virtually. The victory of E-HRM essentially depends on actual collaborations between individuals and technology (Gueutal & Stone, 2005; Blom et. al., 2019; Siam & Alhaderi, 2019).

On the other hand, because of the development of IT, the HR department is under tremendous pressure to be more efficient and effective. In fact, the state-of-the-art developments in IT had a substantial effect on HR procedures (Lengnick-Hall & Mortiz, 2003). E-HRM schemes have several advantages for enterprises (i.e. improving excellence of HR practices, expense lessening, superior HR facilities etc.) (Bondarouk & Ruel, 2009; Iqbal et al. 2019).

Moreover, in the age of global networking, digital potentials stimulate the old-fashioned methods of providing HRM services. Also, the enterprises at present are becoming intensely reliant on IT (Lippert & Michael Swiercz, 2005; Troshani, Jerram, & Hill, 2011). The two imperative assets in enterprises, employees and information may ominously control the outcome of an enterprise and the commercial accomplishments involves the administration of both (Martinsons, 1994; Teo, Lim, & Fedric, 2007). According to Teo et al. (2007), as E-HRM associates, these two assets, appropriate utilization of the scheme may motivate the enterprises to a superior accomplishment (Chakraborty & Mansor, 2013).

Likewise, many scholars claim that internet-based IT is a type of technology that will predictably alter the method in which firms are organized (Bower & Christensen, 1995; Brynjolfsson & Hitt, 2000). Similarly, many scholars state that E-HRM will convert how HRM is practiced in enterprises, moving it from being predominantly managerial to being more strategically appropriate (Lepak & Snell, 1998; Shrivastava & Shaw, 2003; Marler & Parry, 2016).

On the contrary, with superior computerization of managerial jobs and quick entree to data, decision-making is reorganized so that those execute HRM jobs, may efficiently emphasis on challenging as well as job wise serious duties. As a result, tasks in HRM are upskilled due to the novel scientific improvements (Brynjolfsson & Hitt, 2000; Marler & Liang, 2012). However, as per a different point of view, when E-HRM is accepted, how it is installed in an organization is the outcome of strategic judgement and administrative intent (Broderick & Boudreau, 1992; Marler, 2009; Martin & Reddington, 2010; Ruel, Bondarouk, & Looise, 2004).

Besides, IT, particularly the World Wide Web (W.W.W.), has facilitated to amend HR procedures (i.e. HR scheduling, staffing, selection, motivation, and payment etc.). To be precise, many big enterprises practice Web-based recruiting schemes, and applied online training policies. These methods facilitated HR specialists to deliver superior service to all patrons (i.e., candidates, staffs, administrators etc.). These modifications assisted them to emphasis on HR strategy and become real associates in the enterprises (Gueutal & Stone, 2005, Stone & Dulebohn, 2013).

Also, modern E-HRM methods consequently have the prospective to create IT conceivable for HR specialists to produce information and statistics on HR issues that create it convenient to function now and assist to make strategic decisions for the future (Lawler et al., 2004; Lengnick-Hall and Moritz, 2003; Tansley et al. 2014).

In addition, there is a rise in the number, functionality and level of superiority of IT that is utilized for HRM (Sierra-Cedar, 2019; Watson, 2014). It was testified that E-HRM is commonly utilized throughout Europe as two-thirds of all enterprises have embraced E-HRM. The global industry for E-HRM is mounting. It may rise from USD 14.50 billion in 2017 to USD 22.51 billion by 2022 and projected at a compound annual progression rate of 9.2 % (Research and Markets, 2017). The growing significance of E-HRM industry sector is also confirmed by buyout actions of main software business companies (i.e. SAP, Oracle and IBM), whose individual attainments totaled over 1 billion US$ (CB Insight, 2013; Reuters, 2014). Among the researchers, the growing prominence of E-HRM is confirmed by numerous calls for investigation and the publication of special issues in HR or IS journals such as the Journal of Strategic Information Systems (Grant and Newell, 2013; Parry and Strohmeier, 2014), the Journal of Employee Relations (Parry and Strohmeier, 2014).

2. Research Methodology

Picking an appropriate research method is the central phase to any research project. This research embraces a qualitative research method. It was conducted utilizing archival study technique (Ventresca & Mohr, 2002) where the scholars examined the information based on secondary resources. Because E-HRM study is nurtured by numerous disciplines, we systematically explored for appropriate journal articles in HRM, Organizational Behavior, Management, IT etc. research areas. The principal data source was a databank exploration on ISI Web of Science, Scopus, Emerald, Pro Quest, ABI/Inform, Science Direct etc. In this circumstance, the research commences by a literature review of conceptualization of E-HRM and prominence of the E-HRM systems. Successively, there are the discoveries from secondary data. The paper finishes with conclusion, limitation of the study and some suggestions for the future research.

3. What Is E-HRM?

As numerous scholars conducted research linked to E-HRM. It is noticeable that there are switchable terms utilized to refer to E-HRM, for example Human Resource Information System (HRIS), HR intranet, Web-based HR; and HR portals etc. Definitions of E-HRM is plentiful (Johnson et al., 2016). Some scholars claimed about internet or web-based networks as a scheme of E-HRM (Ruel, Bondarouk, & Looise, 2004). Usually, E-HRM is a business policy to align staff manners with strategic sets by consuming cohesive technologies (Marler and Fisher, 2013; Marler, 2009; Panos and Bellou, 2016).

More precisely, Johnson et al. (2016) outline E-HRM as the operation and supply of HR functionality supported by a HRIS (Human Resources Information System), which attaches staffs, candidates, administrators,

and the choices they create. Furthermore, Bondarouk and Ruël (2009) state that E-HRM has a strategic drive as it devotes to make value in the enterprises for directed staffs and administration (Chakraborty & Mansor, 2013)

On the other hand, E-HRM is not just an IT instrument to execute HRM functions; it is a means to incorporate numerous HRM and IT undertakings within enterprises to try to progress staffs' working environment and the performance of the institute (Bondarouk and Ruël, 2013; Johnson et al., 2016; Obeidat, 2016; Panos and Bellou, 2016).

Although some scholars desire to use the term E-HRM over HRIS (Ruel, et al., 2004; Strohmeier, 2007), numerous researchers approved that a line may not be drawn between IT-based information system for HR and internet based HR applications as these two are essentially doing parallel tasks (Ruel, Magalhaes, & Chiemeke, 2011). Subsequently, for the sake of this research, we adopt E-HRM comprises all diverse types of information system (i.e. internet, intranet, enterprise resource planning etc.) that are supporting the HRM procedures and strategies (i.e. staffing, training, payment etc.) (Iqbal et. al., 2017).

3.1. E-HRM and Traditional HRM:

The universal demographic progress, the departure of baby boomers' group (Frank et al. 2004) and altering principles, standards and social configurations of Generation Y encourage companies to come up with novel methods for handling their employees. Additional interrelated factors to amend the HRM in firms consist of the financial recession, inadequacy of a range of skill profiles of the graduates and novel methods of how individuals want to maintain their professional and family life (Gueutal 2009). Indeed, these tendencies simply worsen the challenges in numerous companies that long grieved due to insufficiency of competent staffs. Talent readiness became a boiling theme as globalization augmented (Dolan 2004). The subsequent hiring challenge for companies titled war for talents (Chambers et al. 1998). On the other hand, progresses in IT and the availability of the Internet may propose novel means to invite and hire talent and to shape company's HR activities. Therefore, E-HRM may offer a company a significant edge in a rough market for skills by creating a healthier talent administration ability (Laumer et. al., 2010).

Besides, Bissola and Imperatori (2010) contended that E-HRM develops traditional HRM procedures. Study recommends that E-HRM advances HR service excellence (Bondarouk et al., 2016; Iqbal et al., 2018). E-HRM results from a move of customary labor-concentrated practices to IT- supported ones in which staffs, utilizing HRM software rather than HRM team, execute a bulk of HR functions (Parry and Tyson, 2011). It signifies a move to strategic and unified method of HRM (Bondarouk et al., 2017a).

On the contrary, in the old HRM method, HR unit staffs fundamentally provide almost all HR activities, while E-HRM empowers the company to provide HR facilities through IT, permitting companies to include line supervisors in HR events to a larger magnitude and release HR experts from managerial burden to emphasis on strategic accomplishments (Bondarouk et al., 2017a, 2017b; Marler and Fisher, 2013). The crucial modifications carried by E-HRM may have substantial effects that go far outside operational competences and prolong to personal and transformational results (Lengnick-Hall and Moritz, 2003), by assisting employees personal and professional lives as well as by augmenting technical integrity (Bissola and Imperatori, 2014, Iqbal et. al. 2019).

3.2. Types of E-HRM:

There are fundamentally three categories of E-HRM practices. The particulars of the same are as following:

3.2.1. Operational E-HRM:

It is one of the elementary stages of E-HRM activity associated with the operational functions of HR sector, like payment and earnings of the staffs, preserving the data base of the current and potential staffs of the company. If this activity is made electronic, it will undoubtedly protect the time and efforts of the HR staffs and may save costs too (Srihari & Kar, 2019).

3.2.2. Relational E-HRM:

It is an alternative significant activity of HR unit and if administered electronically, the functions like training of fresh and current staffs, employment procedures and maintaining the appropriate path of the performance of staffs may turn out to be stress-free. This may deliver a competitive authority to a frim over the other comparable firms (Srihari & Kar, 2019).

3.2.3. Transformational E-HRM:

The strategic construction and execution of the same in the arena of HRM is a significant task of the HR unit. At the primary level, an extraordinary budget is required in instigating software and preparing all the staffs for the same is a monotonous job. Nevertheless, once connected, it may undoubtedly amend the aspect of strategic alignment of HR unit forever. (Srihari & Kar, 2019)

3.3. Evolution of E-HRM

Before the execution of automatic schemes, the HR unit utilized labor-intensive document maintaining and reporting methods that were normally awkward as well as time and energy consuming. The semimanual structures were a main portion of HRM throughout the 20th century. During the period of 1960s and 1970s, mainframe supercomputer schemes were utilized to computerize HR data maintenance. As a result, it began to reduce the managerial load in the field. During 1980s software was invented to assist HR activities (i.e. candidate tracing, evaluation of employees, planning and development etc.). These schemes were called HRIS (Kavanagh, Gueutal, & Tannenbaum, 1990, Stone & Dulebohn, 2013)

Similarly, these innovative HRIS assisted HR planning, and supported enterprises to utilize the aptitudes and skills in their employees. Nevertheless, the unique HRIS utilized computers, and it needed broad backing from IT specialists. Therefore, HR specialists were reliant on IT professionals to accomplish the scheme, manage enquiries, and cultivate required reports.

Furthermore, during the end of 1980s micro-computers appeared to be leading forms of technology. HR records were kept on principal servers attached to local area networks (LAN) or wide area networks (WAN). This variation indicated that HR experts and others in the firm could enter these structures from their office. Also, records devoted to HR were established for both mainframe and client server platforms. For instance, PeopleSoft version 1 was out during end of 1980s, and signified the initial whole set of HR functions that ran on client–server architecture.

Also, the 1990s observed a progression in combined HRIS that accomplished multiple HR activities and delivered more refined management structures. These schemes were either self-sufficient or portion of enterprise resource planning (ERP) software sets that combined HR and institutional records within one comprehensive institution-wide scheme (Stone & Dulebohn, 2013).

The following improvement in the advancement of HRIS was that enterprises started to utilize intranets to collect, save, and distribute data. These innovative intranets were protected so that simply approved employees could enter the scheme utilizing a PIN. The utilization of intranet schemes facilitated companies to deliver inner stakeholders (e.g., staffs and supervisors) admission to data. Therefore, self-service methods provided stakeholders the capacity to accomplish HR procedures. For example, staffs could enter the scheme to modernize their accounts, make registration for welfares, apply for new jobs, and supervisors might utilize the schemes to create reports or cultivate HR tactics (Marler & Dulebohn, 2005).

In addition, around middle of 1990s, the World Wide Web (W.W.W) appeared as a way of assisting two-way communication with the development of the Internet. Around the end of 1990s, the relocation to Web-empowered schemes began, and enterprises commenced creating HR software that could be well-matched with the Internet. At beginning of 2000s, this innovative software facilitated the control of all HR information so that employees might access it through the Internet at any time or anywhere. Enterprises commenced utilizing Internet to contact with both in-house and outer patrons (e.g., job candidates, staffs, supervisors etc.). For example, these schemes facilitated firms to cultivate online hiring schemes that might be utilized to appeal candidates from anyplace in the globe, and permit them to submit job application. During this period of time, these schemes turned out to be identified as E-HRM as they supported HR functions through the Internet (Lengnick-Hall & Mortiz, 2003). Although, HRIS delivered inner support for HR specialists, E-HRM systems delivered admission to both in-house and outer patrons (e.g., job candidates, staffs, supervisors, HR experts, trade associates etc.) (Stone & Dulebohn, 2013).

3.4. Functions of E-HRM

3.4.1. E-Recruitment:

Scholars identified e-recruiting as utilizing the Internet to appeal candidates and empower them to submit application for jobs through Internet (Braddy, Meade, & Kroustalis, 2006; Dineen & Noe, 2009). E-recruiting necessitates that candidate have the opportunity to utilize a PC / laptop or smart device to route websites to know about jobs and to upload a CV. Study pointed out that e-recruiting may vividly cut hiring phases and expenses. (Cober, Brown, Blumenthal, Doverspike, & Levy, 2000)

However, apart from developing proficiency, e-recruiting may furthermore aid to progress hiring results (i.e. candidates' awareness of the company and their purpose to request for a career with the company) (Allen, Mahto, & Otondo, 2007). Enterprises face significant interface scheme attentions when executing e-recruiting (Chapman, Uggerslev, Carroll, Piasentin, & Jones, 2005; Cober, Brown, Levy, Cober & Keeping, 2003; Zusman & Landis, 2002).

Moreover, hiring websites may be an essential method for candidates to decide their administrative fit. Employee-company fit is vital as it may effect staff gratification, loyalty, absenteeism and performance (Kristof-Brown, Zimmerman, & Johnson, 2005). A commendably planned website may support prospective candidates to decide fit and may decrease the number of low-quality candidates that a company desires to ponder. (Dineen & Noe, 2009; Johnson et. al. 2017)

3.4.2. E-Selection:

It signifies a part of E-HRM where IT plays a vital role. E-selection schemes collect job candidates' awareness, talents, and aptitudes utilizing numerous types of assessments (e.g., cognitive ability check, presentation skills check etc.). Moreover, they aid firms to find the most capable individual for a job (Stone, Lukaszewski, Stone-Romero, & Johnson, 2013). In addition, the technology must not direct to disparity inferences about candidates' established IT skills. Study on e-selection has scrutinized the efficiency of electronic employment interviews. Employment interviews permit one to assemble data about such variables as the communication and social abilities of the candidates. Nonetheless face-to-face interviews are expensive. Therefore, enterprises are nowadays exhausting video conferencing as well as collaborative voice-response methods to organize interviews. (Chapman & Rowe, 2002, Johnson et. al. 2017)

3.4.3. E-learning:

It denotes to all the agendas of training and teaching, where IT-based schemes are utilized to make and disseminate knowledge (Parry, 2011). E-learning covers numerous activities for learning such as IT-based learning, virtual classes and virtual teamwork. (Gueutal and Stone, 2005)

Besides, companies at present utilize a range of technologies to provide training to staffs. These e-learning procedures range from simply delivering training resources online to utilizing a range of progressive technologies to provide course materials and support apprentices' participation in the learning procedure. Though, initial investigators recommended that e-learning can be substandard to face-to-face (FtF) education, meta-analytic study established that sound designed online training may be as real as FtF training. Nonetheless, it is not as modest as duplicating a classroom arrangement online. As an alternative, inventors should consider pupils' features, teachers' features, announcements, and IT structure to make e-learning successful. (Johnson & Brown, 2017, Rahman et. al. 2017).

3.4.4. E-benefits:

E-HRM was widely utilized in the zone of e-benefits. At present, companies offer staffs, the chance to enter and amend their benefits on the workstations or Internet at any time and from anywhere. These schemes are frequently termed as employee self-service (ESS) benefit schemes as staffs may enter their information in an E-HRM and may amend their benefits without depending on HR (i.e., pension package, end of service benefits etc.) (Marler & Dulebohn, 2005). Study discovered that ESS may diminish the expenses of welfares activities by more than 90% (Hunter Group, 1999). Yet, to recognize these funds, employees ought to be capable to efficiently utilize computers to detect their records and to create alterations to their benefits package. (Johnson et. al. 2017)

3.5. The Roles of E-HRM

Ulrich (1997) presented an extensively recognized types of HRM roles (i.e. Caldwell, 2003; Guest and King, 2004; Marler, 2009; Voermans and Van Veldhoven, 2007), merging the strategic vs functional emphasis and the stress located on employee vs method. The roles recognized are the "managerial specialist," the "staff winner," the "alteration manager," and the "strategic mate". Assumed, though, those HR functions are challenging and coinciding, HR units incline to accept a role that has a preference to one of the roles recommended by Ulrich (1997) and not a specific role only. (Lepak and Snell, 1998; Martin and Reddington, 2010; Voermans and Van Veldhoven, 2007, Panos & Bellou, 2016)

In addition, scholars settled that HRM roles influence on the degree and path of E-HRM results (Parry and Tyson, 2011; Ruël et al., 2004; Strohmeier, 2009, Panos & Bellou, 2016). For instance, the roles of alteration manager and strategic mate are expected to confidently connect to the assumption of a progressive E-HRM structure with transformational results (Gardner et al., 2003; Lengnick-Hall and Moritz, 2003; Lepak and Snell, 1998; Marler, 2009). Though, an HR sector that performs like a staff winner inclines to state an undesirable response against E-HRM acceptance and propose operational results (Lepak and Snell, 1998; Voermans and Van Veldhoven, 2007; Martin and Reddington, 2010). Eventually, the HR specialist is projected to reveal operational as well as relational results (Olivas-Lujan etal.,2007; Ruël et al.,2007, Panos & Bellou, 2016).

3.6. The Goals of E-HRM

3.6.1. Operational Goals:

The notion of E-HRM refining effectiveness or decreasing expenses sustained by some scholars (Ruel et al., 2004; Marler, 2009). Operational feedbacks were recommended as a real effect of E-HRM. Hendrickson (2003) suggested that there could be augmented productivity through permitting extra dealings to happen with less static reactions in procedures like payroll. This is comparable to Martin et al.'s (2008) 'transactional' effects of E-HRM.

Further, experiential examination reinforced the presence of improved effectiveness through E-HRM, by decreasing HR workforce, aggregating the rapidity of procedures, decreasing expenses and freeing employees from managerial duty (Ruel *et al.*, 2004; Ruta, 2005; Strohmeier, 2007). Definitely, Ruel *et al.* (2004) discovered

that the vital results of E-HRM were a decline of expenditures and of the managerial load of HR experts (Parry & Tyson, 2011).

3.6.2. Relational Goals:

Relational effects of E-HRM may offer staffs and supervisors with distant entrance to HR data and escalate their aptitude to attach with other portions of the firm. As a result, they may execute HR functions themselves. This notion is associated with Ruel *et al.*'s (2004) recommendation that E-HRM may be utilized to progress HRM facilities including assisting supervisors and staffs.

Likewise, indication for developments to HR activities through augmented correctness of information record or by streamlining methods delivered by Gardner *et al.* (2003) as well as by Bondarouk *et al.* (2009), who discovered that E-HRM use was confidently correlated to observations of common HRM efficiency in supervisors and staffs. Equally, Payne *et al.* (2009) established that feedbacks to virtual appraisal management schemes were more encouraging than those to a manual style of the same scheme (Parry & Tyson, 2011).

3.6.3. Transformational Goals:

The *transformational* goal permits individuals to connect through geographical borders and share data, thus playing a key role in assisting online groups and network firms. Ruel *et al.* (2004) proposed that E-HRM has the ability to alter the HR activities by enlightening the strategic alignment of HRM. A strategic HR activity is one in which HRM is connected to the strategic administration procedure of the trade (Wright and McMahan, 1992, Parry & Tyson, 2011).

3.7. The Importance of E-HRM.

Practically all HR procedures may be completed by utilizing E-HRM, which may assist the firms in numerous methods (Ruel et al., 2004). For example, as an effect of E-HRM the computerization of responsibilities and procedures shrink the use of resources (i.e. monetary, materials, employees etc.). Decline in HR expenses; to utilize fewer stationeries and to help supervisors in HR procedures are a few of the instances of decrease of resource usages. As per Hendrickson (2003), E-HRM paybacks a firm in their HR procedures by aggregating the competence and efficacy as well as by offering self-service HRM (e.g. online training, virtual hiring etc.). Moreover, E-HRM provides information and front-end online presentations, which may allocate portion of HR records to staffs and supervisors (Ruel et al., 2011). Hence, staffs may enter and moderate information by themselves which build more correctness of information in addition to protect time and expenses. Some scholars stated some essential evidences of E-HRM that are efficient HR decision making, supporting a firm's character (Sadri & Chatterjee, 2003), decreasing HR expenses, speedy HR services, decrease data mistakes plus develop the tracing and management of HR functions (Lengnick-Hall & Moritz, 2003, Chakraborty & Mansor, 2013)

Besides, Aggarwal and Kapoor (2012) revealed that E-HRM not merely aids the administration and HR unit but also supports the staffs in a number of means. E-HRM is capable to escalate the decision making proficiency for the management of a firm. It aids the HR unit to own of lone data base of all staffs in the firm. E-HRM removes the manual methods that are relaxed and possess a greater probability of mistakes triggered by human element. In several firms, it allows the staffs attend training program via the Internet to grow their abilities and propensities. Consequently, it inspires staffs to take initiatives on the foundation of data acquired in E-HRM scheme (Chakraborty & Mansor, 2013).

Similarly, the prominence of E-HRM may be seen everywhere. For instance, supporting in gathering, keeping and making facts and figures for reports, streamlining and speeding the procedures and supervising the existing information, decreasing labor expenditures for HR sector, and delivering data to the administration on time, based on which it is conceivable to create excellent strategic decisions associated to HR (Aggarwal & Kapoor, 2012).

Likewise, research revealed that E-HRM is absolutely correlated to HRM value construction (Ruel and Kaap, 2012; Bondarouk and Ruel, 2013). The practice of E-HRM removed the accountability from the HR employees to line managers (Ruël et al., 2004). Thus, E-HRM permits the HRM scheme to surge its value and to improve its efficiency inside the firms (Obeidat, 2015).

On the other hand, some scholars (Bondarouk and Ruel, 2013) categorize the tactical welfares of E-HRM into seven groups:

- The group of HR metrics to aid tactical decision-making (Hussain, Wallace and Cornelius 2007; Bondarouk and Ruel 2009; Parry and Tyson 2011);
- The computerization of repetitive HR functions (Brown 2002; Parry, Tyson, Selbie and Leighton 2007);
- The corporate branding and enlightening the corporate reputation (Lawler and Mohrman 2003; Martin, Reddington and Alexander 2008; Parry and Tyson 2011);
- Releasing HR staffs from managerial loads and letting them to accept strategic functions (Ruel et al. 2004; Shrivastava and Shaw 2004; Martin et al. 2008);

- Endorsement of supervisors through the training and development skills to perform HR functions (Parry and Tyson 2011);
- Refining knowledge administration by e-selection, e-appraisal management (Martin et al. 2008)
- Converting HR experts from routine manual duties to strategic associates (Bell, Lee and Yeung 2006; Voermans and Van Veldhoven 2007; Haines and Lafleur 2008; Keegan and Francis 2008).

3.8. Factors Influencing Adoption of E-HRM

3.8.1. Organizational Factors:

These are the factors that signify organizational features, which effect acceptance of E-HRM. Yang et al. (2007) indicated that acceptance may be inclined in firms that are centralized as higher authority may take adoption decision regardless of opposition from inferior level supervisors or staffs. Company size and organizational structure (i.e. skilled employees) are essential elements in fruitful implementation of E-HRM (Troshani et al., 2011, Chakraborty & Mansor, 2013)

Additionally, as per Hendrickson (2003) all E-HRM categories were not generated in the same way as the use of E-HRM relies significantly on the size of the company. It may be clarified with an instance; a main E-HRM such as PeopleSoft may be fixed by a firm comprising 25 staffs, nevertheless the massive expenditure could be challenging to validate. Likewise, a huge conglomerate might generate a databank package merely to enter and execute the tasks essential to function, however it could be uncontrollable. Consequently, it is obvious that real E-HRM obliges an equilibrium concerning mechanical and acute data requirements of the HR department as per the firm's size (Hendrickson, 2003). Subsequently, big firms commenced to use E-HRMs of all three categories, titling operational E-HRM, relational E-HRM and transformational E-HRM. However, minor and middle firm merely commenced to use operational and relational E-HRM as these two E-HRMs do not execute HR functions with a strategic appeal hence are less expensive (Ruel et al., 2011). On the other hand, the upper administration backing is necessary to adopt E-HRM. According to Yang et al. (2007) the CEO's boldness and concentration to E-HRM is imperative to adopt it. Moreover, commitment of employees is as well desirable to adopt E-HRM (Teo et al. 2007, Chakraborty & Mansor, 2013).

3.8.2. Technological Factors:

These factors emphasis on the method, where technical issues may affect acceptance of E-HRM (Yang et al., 2007). Advantages of accepting E-HRM comprise better service excellence, proficiency, and trustworthiness (Oliveira & Martins, 2010).

Likewise, as per Oliveira & Martins (2010), IT inclination is relied on firm's technology structure and HR. E-HRM may become a fundamental fragment if the company has set-ups and mechanical abilities. These elements permit the technical capability of a firm to accept E-HRM (Oliveira & Martins, 2010). On the contrary, as firms with higher technology inclination are in a superior situation to accept E-HRM, firms without durable technology structure as well as extensive IT proficiency cannot be interested to accept E-HRM. Many scholars acknowledged technical inclination as a major factor that effect acceptance of E-HRM (Kwon & Zmud, 1987; Oliveira & Martins, 2010).

3.8.3. Environmental Factors:

These factors refer to the area where firm execute their trade. It comprises business features, law, and supportive structure (Oliveira & Martins, 2010; Troshani et al., 2011). As per Rogers (2003) to be able to accept innovation, data about them should be presented to potential adopters. Government may encourage firms to adopt technology by increasing consciousness, training, financing etc. (Troshani et al., 2011).

Similarly, companies recognized that they may not be reasonable if they may not manage their HR efficiently (Teo et al., 2007). Hence, this necessity motivates the firms to utilize E-HRM because it may support to create up-to-date judgement as well as well-organized HR procedures.

Additionally, Ruel et al. (2004) acknowledged six environmental features that effect E-HRM execution; these are competition, scientific growth, HRM state of art, job market, social improvements and legal environment. Moreover, it is indicated that in a multinational company, the E-HRM is effected by features such as organizational and host-country environment (Dowling, Festing, & Engle, 2008; Festing & Eidems, 2011). Additionally, when a firm goes global, it is important to maintain an equilibrium among international environment and local fundamentals of the firm (Chakraborty & Mansor, 2013).

3.8.4. National culture:

It is the combination of shared principles and morals that differentiate individuals of one race from another race (Hofstede, 1980). It is also integrated in several HRM prototypes as a key feature effecting the creation of HRM activities (e.g. Jackson and Schuler, 1995; Aycan, 2005). Tayeb (1995) recommend that whereas the 'what' query in HRM could be common, the 'how' query is depended on culture. For example, staff training, and

development may be common, however the level of confidence on virtual learning vs. customary training procedures is expected to be affected by national culture (Panayotopoulou et al., 2010).

3.8.5. Economy:

Alternative feature probably associated with the acceptance of E-HRM is the nation's monetary condition (Strohmeier and Kabst, 2009). Consequently, Gross Domestic Product (GDP) per capita would be reflected, when the firms of a given nation considering to accept E-HRM. GDP is not merely a significant indicator of the over-all platform of improvement of a country, nonetheless it too establishes a recognized indicator of IT acceptance of the country (Chinn and Fairlie, 2007).

3.8.6. Internet penetration:

The acceptance of E-HRM is anticipated to be interconnected to the magnitude of dissemination of the Internet in the country. Because E-HRM is executing HR functions consuming the Internet or Intranet (Lengnick-Halland Moritz,2003), the degree of consumption of the Internet in the country appears appropriate to research of E-HRM. A suitable quantity describing this consumption is the Internet penetration pointer (Internet World Statistics, 2007, Panayotopoulou et al., 2010).

3.9. Key Success Factors of E-HRM

The research advocates numerous success features for E-HRM schemes, comprising of strategic visualization, execution group configuration, amendment management, higher administration backing, communication, cooperation, preparation, and the scheme itself (Stone, 2012). Bondarouk (2011) advises that effective execution may make E-HRM scheme more trustworthy. As per Burbach and Royle (2014) the fundamental success features for E-HRM execution are shortened in the following list:

- Creation of task squad, usage of task winners and task administration (Belardo and Kavanagh, 2012);
- Cooperation among IT and HR units (Belardo and Kavanagh, 2012);
- Modification administration and dealing with opposition to modification (Al- Mashari et al., 2006; Stone, 2012);
- Abundant capitals (time, monetary and HR etc.) (Belardo and Kavanagh, 2012; Stone, 2012);
- Corporate principles and beliefs (Lippert and Swiercz, 2005; Sheu et al., 2004);
- Adequate preparation of the firms (Stone, 2012);
- Efficient correspondences and patron participation (Burbach and Dundon, 2005; Stone, 2012);
- Linguistic support (Heikkila¨ and Smale, 2011);
- Continuous training (Belardo and Kavanagh, 2012; Stone, 2012);
- Managerial fit and promptness (Zhu et al., 2010);
- Top management backing (Stone, 2012);
- Compassionate business policy as well as strategic orientation of commerce, HR and IT policies (Bondarouk and Looise, 2009);
- Trade practice re-engineering (Stone, 2012);
- Observation and assessment of execution (Stone, 2012);
- Analysis and troubleshooting of scheme (Ngai et al., 2008);
- Well-suited IT schemes (Burbach, 2011);
- Excellence of scheme, facility and data (Chien and Tsaur, 2007)
- Customer approval and user-friendliness of scheme (Stone, 2012; Venkatesh et al., 2003);
- Corporate citizenship approach (Yoon, 2009); and
- Confidence and safeguarding secrecy and safety (Stanton and Stam, 2003).

3.10. E-HRM & Value Creation

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 and 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).

3.11. Challenges of E-HRM

3.11.1. Political Dimension:

Firms are affected by factors such as government resolutions that necessitate HR experts to face challenges (Bondarouka et al., 2009). It happens due to the fact that numerous patrons are engaged in converting common HR scheme to E-HRM scheme (Wright and Dyer, 2000, Rahman and Mordi, 2017).

3.11.2. Economical Dimension:

Firms execute E-HRM to decrease the expenditures, as less number of employees is required. Besides, it shrinks the expensive training periods as the firms may execute the meetings on virtual rather than physical school / office room based training (Ruel et al., 2004). To execute E-HRM, firms should ensure that it has sufficient capitals and competences (Olivas-Luján et al., 2007). The more a firm has resources, the more it is possible for the firm to implement novel technology. Consequently, Lau and Hooper (2008) suggest that financial plan is one the focal elements to execute E-HRM scheme effectively as it necessities gigantic setup expenses. Panayotopoulou et al. (2007) too claimed that the preliminary investments for E-HRM is the core blockade for firm.

3.11.3. Social Dimension:

IT effects the firm to alter HR functions. For instance, E-HRM scheme shift the approach of hiring and selection, training and advancement, payment policies etc. (Salas et al.,2012). The data advocates that IT alters the communal collaboration in the firms (Stone and Lukaszewski, 2009) or has the ability to effect corporate culture.

3.11.4. Technological Dimension:

To escalate the proficiency of HR units and its activities, E-HRM plays a substantial role (Voermans and van Veldhoven, 2007) in accomplishing the organizational achievements. The execution of IT in HRM escalates the efficiency, promptness and effectiveness of the sector. The ambition is to curtail total budget and increase output of the general activities of the HR sector (Marler and Fisher, 2013). HR sector should pay attention on recruiting proficient IT administrators who possess needed proficiency to administer technical services (i.e. technical structure, software growth, staffs' technical training etc.) (Yusliza and Ramayah, 2012). To promote efficiency, due to the progresses in IT, firms might construct a centralized data base (Belizón et al., 2016). Moreover, as the firms adopt E-HRM; staffs face difficulties to be familiar to these technical modifications that might disturb their productivity or performance (Armstrong, 2016, Rahman and Mordi, 2017).

3.11.5. Legal Dimension:

HR administrators are accountable for legal matters to administer their regular tasks (Aylott, 2014). For example, it is necessary for firms to articulate discrimination strategies that do not contradict with the laws of the nation and made it accessible to the staffs by online / offline technology. Firms must ensure that they are obeying appropriate service rules and regulations in handling the general activities. For instance, the employment announcements must be in line with the service rules and regulations of the nation (Aylott, 2014, Rahman and Mordi, 2017).

3.11.6. Environmental Dimension

As per Werner and DeSimone (2009), handling environmental issues are challenging matters in E-HRM. According to Fernandez et al. (2003) apart from values, key environmental topics contain worldwide heating, weather variation and green house fumes production. These days, the firms should take care of the ecological

matters to be a respectable corporate citizen as well as to appeal the devotion of consumers and be modest in the market. Armstrong (2016) claimed the execution of ecological administration strategy support a company to curtail contamination and protect resources (Leonidou et al., 2013) and aid to reduce ecological threats (Ruël et al., 2004). On the other hand, the outdoor patrons expect upper outcome within a tiny time structure, while, to attain advantages from recently developed E-HRM requires a long time (Strohmier, 2009). Consequently, peripheral stakeholders might not be attracted in developing the eco-friendly E-HRM scheme (Rahman and Mordi, 2017).

3.11.7. Organizational Dimension

The HR unit is a fundamental portion of a firm that has a link with the other units of the said firm. Hence, any alteration in the HR unit will impact additional modifications in the other units within the firm (Abbas and Asghar, 2010). Administrative concern(s) is the most thought-provoking element that firms consider in executing E-HRM (Ruël et al., 2004, Rahman and Mordi, 2017).

3.11.8. Strategic Human Resources and E-HRM:

HR adapts more strategic when the HR activities change from being predominantly managerial to being 'more strategic'. The expression 'being more strategic' decreases the HR activities to assist the firm's peripheral corporate policy (Lepak and Snell 1998; Snell, Stueber and Lepak 2001; Lengnick-HallandMoritz 2003; Ruel, Bondarouk and Looise 2004; Parry 2006). Additionally, the crucial excuse, and the reliable result of executing E-HRM system, is lessening expenses with tiny indication of HR performing a strategic role (Shrivastava and Shaw 2004; Lengnick-Hall and Moritz 2003; Ruel et al. 2004). Expenses reduction is accomplished by computerization or subcontracting of HR activities. Strictly, the projected result of excluding managerial duties is to possess extra period for the HR staffs to dedicate to tactical activities (Marler, 2009).

3.12. Technology Attitude and E-HRM

With the help of E-HRM, data about HR strategy is distributed within the company. Consequently, staffs are more conscious of what procedures and standards are accepted to assess and compensate them. Hence, they sense they are impartially judged. By broadcasting the HR strategy in the Internet, staffs not merely become conscious of the HR unit's activities but also practice the facility more openly (Bissola and Imperatori, 2014).

On the other hand, individuals have diverse mental feedbacks when faced with IT-based schemes. Several employees sense relaxed, perceive benefits in utilizing E-HRM and consequently are happy to perform in an IT-based atmosphere, although others sense unhappy and unsatisfied (Parasuraman, 2000). There is a signal that when destructive moods succeed, employees could escape from IT, though they are conscious of the paybacks of utilizing it (Meuter et al., 2000).

3.13. E-HRM and Perceived Employee Productivity

Proliferations in outputs are repeatedly the dominant drive for firms to use IT (Swierczek and Shrestha, 2003; Black and Lynch, 2001; Brynjolfsson and Yang, 1996; Jalava and Pohjola, 2007; Qutaishat et al., 2012; Subriadi et al., 2013). Firms finance in E-HRM schemes to ensure real usage of their staffs and, thus, to augment staff output (Datta et al., 2005; Liao et al., 2009). Definitely, various HRM units have amplified their use of IT (Scudder and Kucic, 1991; Lempinen and Rajala, 2014), containing E-HRM, to lift staff productivity (CedarCrestone, 2014, Iqbal et al., 2019).

Likewise, E-HRM schemes provide staffs prospects to augment their proficiencies and contribute to the firm's accomplishments (Bissola and Imperatori, 2013; Bondarouk and Ruël, 2013; Marler and Fisher, 2013; Panos and Bellou, 2016). It similarly escalates efficiency through computerization and swapping low-value managerial jobs with extraordinary value-added jobs (Marler and Parry, 2016). It means, non-HRM staffs may execute several repetitive HRM activities themselves, such as updating their own data and recording for training prospects, without bothering a HR member.

Additionally, study indicates that the use of E-HRM systems may develop employee efficiency (Lengnick-Hall and Moritz, 2003; Foster, 2009). In contrast to old HRM methods, E-HRM may aid to modernize HRM functions; quick HR procedures; develop correspondences; decrease the quantity of HR staffs; generate and allocate some HR information more precisely and promptly. These benefits may support to escalate staff efficiency (Foster, 2010; CedarCrestone, 2010, 2014; Lengnick-Hall and Moritz, 2003; Marler and Parry, 2016; Martin et al., 2008; Parry, 2011). Generally, E-HRM, by surging transparency over HR strategies, can support to superior staff output. Truly, enlightening staff output is one of the focal causes why firms inaugurate E-HRM (CedarCrestone, 2008, Iqbal et al., 2019).

3.14. E-HRM and Human Computer Interaction

From studying the investigation on HRIS, it is vibrant that concepts from IT and Human Computer Interaction (HCI) may improve significance to the research on E-HRM. Generally talking, the HCI field concentrates on the

affiliation among an employee and a computer. Several scholars stated that this affiliation is significant and more multifaceted than with other customary apparatuses, like a hammer (Card, Newell, & Moran, 1983; Nass & Moon, 2000). IT carries with them numerous abilities through which an employee will connect in same methods that they might connect with other employees (Marakas, Johnson, & Palmer, 2000; Nass & Moon, 2000). Consequently, the HCI arena emphases on various themes like employee-focused project, community computing, mental and community reactions to computers etc. Many of the study on E-HRM has concentrated on the effectiveness of IT on the HR and the influence of IT use on the HR activities rather than on the structure of these schemes and the collaboration among them and the users (e.g. candidates, staffs, supervisors etc.). The structure and usage of E-HRM may influence the sorts of persons who apply for employments, how they are nominated, how staffs are appraised, how payments judgements are prepared, how staffs respond to HR strategies, how staffs are administrated etc. Thus, HCI may radically influence the efficiency and accomplishments of a E-HRM system. For instance, Dulebohn and Johnson (2013) cultivated a structure for developing decision support schemes for HRM. An essential element of this is the selection of information to the decision making method. As scholars revealed through the classic HCI research of the Minnesota Experiments (Dickson, Senn, & Chervany, 1977), how one displays information may have an intense influence on how one creates decisions (Johnson et al., 2016).

Similarly, an ill planned employment website and virtual submission may effect in applicants eradicating themselves from the employment method (Allen et al., 2004), which may cause a firm to lose a brilliant staff or for an applicant to lose the chance to get a position. Moreover, the pin pointing the solidest applicants may improve employment results and corporate image. However, studies discovered that the medium utilized during assortment may affect applicant feedbacks and HR administrator decisions (Chapman, Uggerslev, & Webster, 2003; Silvester & Anderson 2003). Investigation claimed that IT constructs genuine assortment assessments (Lievens & Thornton, 2005).

On the other hand, alternative zone where HCI may notify scholars on planning and executing E-HRM is in staff benefits. Staff benefits are mounting in prominence to firms due to their costs and governmental rules. Consequently, firms are searching for techniques to deliver anticipated benefits through preserving costs down. Moreover, many firms are shifting from distinct pension policies to distinct contribution policies, like 401K. Hence, staffs are progressively accountable for administering their own pension policies, many of whom have slight understanding of monetary policy. As a result, the role of interface structure and decision support schemes may aid staffs to create more efficient virtual financing resolutions (Looney, Akbulut, & Poston, 2008, Johnson et al., 2016).

3.15. Human Resource Management – New Challenges in the Computer Era

The novel millennium is motivated by the globalization and technical developments. Developments of information and communication technologies (ICT) prepared the earth as lone linked scheme. Novel period carries fresh complications. HRM at present face new challenge, constructing innovative prototypes for attainment of universal movement, proficiency and effectiveness. IT altered the earth in various cases and by numerous means. In the information era, the arrival of Personal Computers (PCs) and the Internet only reinforced these modifications. Nowadays, numerous firms may not survive without utilizing PCs. Consequently, HR as a central unit of the firms have not by-passed that approach - new equipment has a substantial influence on the procedures of this arena (Popescu, 2016).

Besides, if we consider the impact of IT on HRM, IT is perceived as presenting fresh opportunities in a fast moving atmosphere. The role of HR is shifting, the HR experts converted as advisors, designers, specialists and decision makers. Similarly, HR units should handle with a progressively higher bulk of records which obstructs their all other functions. In this backdrop, it is indicated that the crucial role of IT uses, proficient management of all staff's information, of the Internet and Intranet and all other equipment have high influence on HRM (Popescu, 2016).

4. Conclusion

Human resources are regarded as the utmost exclusive resource in any firm; consequently, they require vigilant management. The "war for talent" is still on. It has been observed that almost one third of all firms are incompetent to fill unoccupied employment positions with appropriate applicants. Reacting to these challenges, HRM is projected to alter itself. The aim of HRM is to ensure that a firm has the accurate amount of employees with the essential knowledge, talents, aptitudes and competencies, in the accurate place, at the correct time, at a reasonable budget. To fulfill the demands of current knowledge–based economy, it is virtually an obligation for firms to exploit the productivity of their staffs, an aim to which e- HRM might be of assistance.

In addition, E-HRM delivers novel phenomenon for the firms. This allows the administrators and applicants to acquire the particulars concerning HR operations and to identify accurate candidate at exact time. Regardless of demographic sketch of applicant each job hunter may certainly access the job and be a part of the employment procedure.

On the other hand, the research shows that the particular functions of E-HRM are not stress-free to accept for the staffs but along with suitable preparations they may control these creativities and may receive advantages in the long run. E-HRM also plays an essential role as the foundation of strategic HR operation.

Eventually, the outcomes of this article are beneficial for the companies as they can integrate E-HRM, bearing in mind the comparative significance of the features of E-HRM and therefore, escalate their effectiveness. The outcomes are also expedient for scholars. Firms from emerging and industrialized nations may extract rewards by crafting E-HRM schemes in a method that assists their workflow.

4.1. Limitation of the Study

Although the paper created worthwhile data both for practitioners and scholars, it still possesses numerous limitations. For instance, this study is centered on secondary data, that is, data originally collected for a discrete objective dissimilar from this study. The E-HRM schemes is modified and founded on the specific firm's necessities and differ across firms and nations. Consequently, it is challenging to generalize the conclusion of this research. Besides, this research is exploratory in nature. The outcomes ought to be empirically tested.

4.2. Future Research

A constant effort from the scholars is required as the theme of E-HRM is still relatively in beginning phase (Bondarouk et al., 2017; Johnson et al., 2016; Marler and Parry, 2016). Technological and HRM successes of E-HRM activities are not identical in the multifaceted corporate life. We inspire more exploration to incorporate outcomes of IT and HRM research. We inspire more effort on E-HRM, precisely comprise evolving technologies such as Artificial Intelligence (Abubakar et al., 2019; Tursunbayeva et al., 2018). Topics such as work stress, role vagueness or overwork, enhancement of jobs, etc. will continue to decide the research plan for HRM and technology.

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