The Integration of Information Technology to Facilitate HRM Functions: The Case of the Health Care Sector (Biomedicine Group)

Christina Arfara[*], George Tsivos, Irene Samanta, Panagiotis Kyriazopoulos

Piraeus University of Applied Sciences, Greece

ABSTRACT

By this paper we aim to explore the effect of information technology on HRM functions, examining the absorption of the e-HRM system by employees in the new working context. The research is a case study in a group of companies, the "Biomedicine Group" in Greece, specialized in the health care sector. Quantitative research was conducted with a stratified sample consisting of 200 employees out of 2000 doctors, nurses and administrative employees.

The study found that the e-HRM system had a positive impact on organizational outcomes, enhancing HRM functions. Moreover, it demonstrates both the usage of the e-HRM system by employees and the usefulness of these systems. The integration and use of an e-HRM system increases employees' satisfaction, facilitating their work and advancing their capabilities. Managers through especially designed and implemented training programs can promote employees' sense of qualification and capability within the context of the organization.

Keywords: Human resource management, e-HRM, Information technology integration

Introduction

In every modern organization, human resource management (HRM) is vital in order to achieve results and adding value through multiple and valuable activities that give life to the most cited expression of recent years that human capital is the strongest resource of modern organizations. The effect of information technology (IT) in HRM is important and indisputable, like any other field of human activity over the last 30 years (Kavanagh, Gueutal & Tannenbaum, 1990; Lawler

& Boudreau, 2009; Walker, 1982). IT multiplies the effects of HRM, creating new and more enhanced features and greater efficiency, thereby increasing the added value and the beneficial effects on the overall functioning of the organization.

The private health care sector employs more than 25,000 people and through partnerships maintains more than 30,000 jobs, at a time when a considerable amount of scientific potential is being driven by migration and health care systems are trying hard to maintain their viability and not block access to help for patients based on financial reasons. According to the literature, the integration of e-HRM and IT systems helps organizations improve their administrative processes and contributes to the upgrading of the role of HRM to enable the best use and development of their most powerful resource, their people (Bondarouk &Ruël, 2010; Varma, 2010). Considering research on the integration of IT in the HRM of the private health care sector – and in particular of the Biomedicine Group, one of the largest organizations in Greece, which has many awards and prizes –can be considered to be significant.

The scope of this research was to explore and document the benefits that IT can provide in the context of the HRM of organizations, particularly in those engaged in health services. The research encompassed the objectives within the Biomedicine Group, that is: a) an exploration of the impact of IT on HRM functions and b) an exploration of the degree of acceptance of e-HRM system among the employees.

Literature Review
The added value of human resource management (HRM)

In the contemporary globalized entrepreneurship and organizational reality, intellectual capital is perhaps the only resource for obtaining and maintaining competitive advantage, as access to any other resource (raw materials, financial capital, equipment, etc.) through technology may be accomplished in a short timeframe and with appropriate actions for all companies. Only then can human resources, through better and more efficient management (increasing efficiency, enhancing engagement, improved knowledge and skills), provide rare, non-replicable and sustainable competitive advantage for an organization.

In the 1980s, the term strategic HRM (SHRM) was first used to describe the importance of the HRM strategy in an corporation, contributing to reaching its objectives. Strategic HRM is focused upon human capital and the organization's success is directly related to HR policies and practices (Armstrong, 2006).

It is therefore an organizational function that links HRM functions with the aims and objectives of the organization to improve both its effectiveness and efficiency and ultimately ensure its superior position against other organizations. It is thus clear that HRM in an organization produces added value, dynamically operating at three distinct levels.

At the strategic level, HRM contributes to the acquisition of a superior position by the organization through the management of its human resources. According to the prevailing view, they are the most important and usable capital of organizations in contemporary reality. As the link between the organization's strategy and human resource strategy, HRM contributes significantly to the implementation of the former, not only ensuring that it is understood by all employees, but also that they can fully support it, considering their skills requirements, abilities, skills and commitment (Parry, 2011; Parry & Tyson, 2011; Sareen, 2014; Schalk et al.,2012).

The second level is purely operational. Here, HRM develops the design, practices and techniques employed to carry out the assignments the organization has undertaken. At this level, HRM generates added value by ensuring a HRM framework, which allows it to operate in its field efficiently – in particular, more so than its competitors. Through the use of all available technological solutions and the implementation of best practices, HRM seeks to recruit the intellectual capital that will staff the organization's structures. This level is the one that distinguishes the historical development of HRM from simple personnel administration to the integrated approach as we know it today (Mishra &Akman, 2010; Sanayei & Mirzaei, 2008).

Finally, the third and last level is that of purely administrative functions. This carries the characteristics of small-HRM (micro-HRM), where in HRM adds value through the efficient and continuous operation of quality. Although it is considered to relate to low-level management, its importance for an organization should not be overlooked, because it is at this level that most of the work and activities take place. The effective functioning of HRM at this level provides added value to the organization as it provides the basis and the data for the design of strategies and operations executed at the above levels, while establishing a model of the organization that guarantees a safe and pleasant working environment and the compliance of the organization with all kinds of legal requirements (Mehrjoo & Noursina, 2013; Ruël &van Kaap, 2012; Schalk et al., 2012).

The impact of information technology (IT) on human resource management (HRM)

The effect of IT on HRM is important and indisputable, as in any other field of human activity over the last 30 years. IT and its application multiplies the effects of HRM, improving or creating new and more enhanced features and efficiency, thereby increasing added value and the beneficial effects on the overall functioning of the organization.

According to Johnson and Gueutal (2011), IT is incorporated for the following reasons:

- To align HRM processes and reduce administrative costs.
- To reduce the administrative-managerial costs of HRM and compliance costs.
- To help organizations compete more effectively in recruiting talented people worldwide.

- To improve HRM services and make data access easier for supervisors and employees.
- To provide real-time measurements, which will enable appropriate decision making.
- To discover possible trends and manage employees more effectively.
- To allow HRM to be transformed and hold a key position in the broader context of the organization.

The impact of IT on HRM can generally be categorized in two different approaches (Engbersen, 2010): human resource information systems (HRIS) and e-HRM. HRIS system is something more complex. It combines all the characteristics of a hardware/software system with the policies and practices than lean upon people (Kavanagh et al., 1990).

Walker (1982), on the other hand, as cited in Kovach & Cathcart, 1999, argues that HRIS refer to pure features and functions performed by hardware/software programs and are closely related to activities that concern personnel procedures. Finally, HRIS systems can be defined as electronic systems that perform the activities of HRM, such as saving personal files, work information and educational information. In addition, there are HR management tools, such as career development planning, payroll planning, performance management and financial transaction tools in the HRM field (Lawler & Boudreau, 2009).

As shown by the above definitions, HRIS systems are specialized versions of well-known management information systems (MIS), targeted exclusively to serving the needs and performance of HRM functions. These systems originated in the 1990s and today can be either autonomous information systems or subsystems of other systems, such as the very popular enterprise resource planning (ERP) systems.

In contrast, e-HRM is the result of the "e" movement (e-mail, e-commerce, etc.) where the letter "e" denotes the implementation and application of the activity defined by the use of Internet technology. (Strohmeier, 2007). This concerns an innovative approach to HRM, which leads to major new changes (Strohmeier, 2007).The definition of e-HRM that is most used today is that of Strohmeier (2007), according to whom "e-HRM is the (planning, implementation and) application of information technology for both networking and supporting at least two individual or collective actors in their shared performing of HR activities."(p. 20). The involved members are considered to be all those who design and implement e-HRM, such as the personnel of HRM departments, the heads of other departments, executives, external consultants, etc.(Strohmeier, 2007).

Another interesting definition of e-HRM is given by Ruël et al. (2004), who define it as "a way of implementing HR strategies, policies and practices in organizations through a conscious and directed support and/or with the full use of web-technology-based channels."(p.2). E-HRM is an alternative way to put into action HRM functions. Srivastava (2010) gives an even more minimal definition, arguing that e-HRM is a tool based on the Internet designed to give strength to HRM processes. The Internet parameter is highlighted in the definition of Lepak and Snell (1998), according to which virtual HRM is "a network-based structure built on partnerships and typically

mediated by information technologies to help the organization acquire, develop, and deploy intellectual capital."(p.216). Finally, e-HRM can be considered as a term that covers not all the possible mechanisms but also the integration of HRM with technology (Bondarouk & Ruël, 2009).

As is apparent from the above review, e-HRM is not simply another step in applying HRIS, but is a different perspective to the implementation of HRM functions based on the greatest possible use of IT and the Internet. For this reason, most authors attempt comparisons between e-HRM and the traditional HRM approach and not between e-HRM and HRIS. The greatest dissimilarity between e-HRM and HRIS is that the former is addressed primarily to managers and employees outside the HRM department, while the latter is exclusively addressed to the employees of HRM departments (Ruël et al., 2004). Thus, e-HRM aims to improve HRM processes for the benefit of the organization, offering access to HRM for all employees. According to the above authors, e-HRM can be considered to be the transition from the automation of HRM functions to technical support information related to these services, or in technical terms e-HRM is the diffusion of HRIS among all the organization's employees.

Reasons for and consequences of information technology (IT) integration in human resource management (HRM)

Ruël et al. (2004) presented a model that addresses the reasons for an organization adopting thee-HRM approach. According to this model, the operation and integration of e-HRM in an organization can be performed in relation to three aspects, corresponding to the three HRM action areas proposed by Lepak and Snell (1998).The first of these is the HRM function, which involves the basic activities of HRM, such as payroll, management of staff, maintaining employees' folders, etc. Operational e-HRM may be related to the ability of the employees to update their personal data themselves.

The direct involvement of personnel in using e-HRM systems can be observed in this area, thus giving rise to the first hypothesis of this research, which concerns the relationship between acceptance and the extent of e-HRM system use by employees of the organization; here, the perceptions of the employees regarding the system are salient and according to the technology acceptance model (TAM), developed by Davis in 1989 and revised in 1993, two factors are crucial for the adoption and use of new technology, the first of which is its ease of use. Thus:

H_1: The acceptance and use of an e-HRM system by employees depends on their perceptions regarding the ease of use of the system.

The second area is relational HRM, which refers to the tools that support the core activities of HRM, such as staff training, evaluation, selection, recruitment, etc. Relational e-HRM can refer to attracting support and the recruitment and selection of candidates through an online platform or application. The second research hypothesis draws on the second crucial aspect identified in the

TAM (Davis, 1989, 1993) and concerns the relationship between acceptance and the extent of use of e-HRM systems by employees based on their perceptions of their usefulness:

H2: The acceptance and use of an e-HRM system by employees depends on their perceptions of the usefulness of the system.

The third research hypothesis is also based on the area of relational e-HRM and relates to the degree of satisfaction of end users with the integration of such systems. Qteishat (2014) argues that service quality and information quality play significant roles in the context of an organization. The end users will integrate and use systemically information systems as these satisfy their expectations and needs (Qteishat, 2014). The hypothesis is based on Qteishat's approach and is stated as follows:

H3: The integration of the e-HRM system affects the satisfaction level of the end users.

Finally, the third area concerns transformational HRM, that is to say the activities of HRM that highlight its strategic role, such as the introduction and implementation processes of organizational change, the establishment and management of an enterprise knowledge system, etc. Transformational e-HRM may be susceptible to change through a comprehensive collection of online tools that allow staff to develop in line with the strategies of the organizational options.

Having identified the three intervention areas of e-HRM in the organization, we can summarize the reasons for integrating e-HRM systems as follows: (i) to improve the strategic orientation of e-HRM; (ii) to enable cost reduction and increased efficiency; (iii) to improve customer service, facilitating the work of management and employees.

Moreover, Bondarouk and Ruël (2010), after a thorough study of the relevant literature, presented the following list of benefits that can be offered by e-HRM to organizations:

- The creation of metrics related to intellectual capital, which can support strategic decisions.
- The automation of everyday HRM tasks and replacement systems –archiving facilities.
- Improving the image of the organization.
- Releasing the employees of HRM departments from everyday operations so that they can take on more strategic initiatives.
- Improving the management of the organization's talent via e-choice/performance assessment.
- Transforming the HRM employees, freeing them from the bureaucratic processes of managers to become strategic partners of the organization.

Likewise Varma (2010) and Varma and Gopal (2011) argue the following benefits derive from the integration of e-HRM in organizations:

- Standardization of HRM processes.
- Facilitating the selection and evaluation of personnel.
- Facilitating the management of personnel files and reducing the costs (time, working) of file management.
- Accessing records independently in terms of both range and time.
- Personnel access to operations/training and development activities through the employee self-service (ESS) system, which allows them to seek available opportunities for self-improvement themselves.
- Reducing costs by using the ESS as this reduces the workload of HRM employees.

Based on the transformational aspect of e-HRM and the benefits identified through international inquiries resulting from integrating similar systems, we develop the fourth and last research hypothesis, which explores the impact of e-HRM technology on organizational outcomes (Davoudi & Fartash, 2012; Qteishat, 2014; Swaroop, 2012). This hypothesis is also based on the approach of Qteishat (2014).

H4: The use of an e-HRM system affects operational outcomes.

Finally, concerning the limitations and difficulties that an e-HRM system can generate within organizations, Oswal and Narayanappa (2014) indicate that to attain the benefits mentioned so far, the organization should pay special attention to the following factors (restrictions on the use of IT):

- The technology used must be constantly upgraded and also supported with timely new upgrades.
- The trust of employees must be ensured concerning the security and confidentiality of the personal data that the system offers.
- The protection of critical organizational information and data is required, using passwords and restricting access to non-authorized personnel.
- It is necessary to provide adequate training not only to employees but also to management so that they can ensure the effective use of the technology offered.
- It is necessary to ensure proper recording and uploading of data from the physical storage sections in the organizational system.
- Data must also be checked to avoid duplication.
- The software selected should be flexible and adaptable to changes in both the working environment and operating systems.

Research Methodology

This research comprised a case study undertaken in the Biomedicine Group of companies, one of the largest organizations in the Greek private health care sector. It constituted quantitative research employing a questionnaire: of the 300 sent out, 200 completed questionnaires were returned. Our

stratified sample consisted of 200 employees out of a total of 2000 doctors, nurses and administrative employees, representing 10% of the total workforce. The respondents belonged to all administrative levels of the group (employees, heads of department, managers) and educational levels (higher education degree, Master and PhD). The protocol used was based on two widely used questionnaires: the TAM (Davis, 1989, 1993) and the DeLone and McLean model as modified by Qteishat (2014).

From the first questionnaire, we selected questions assessing the perceptions of the usefulness of e-HRM systems (five questions in total), as well as its convenience (a total of six questions). From the second questionnaire, the items selected aimed to assess and monitor the level of satisfaction of users of the HRM system (a total of five questions) and the impact of the e-HRM system regarding organizational benefits. An additional section on "Demographic Characteristics" aimed to collect the necessary demographic data of respondents. The questionnaire contained 21 questions in total, evaluated using Likert scales. Data processing was undertaken in SPSS (17.0). The reliability test (Cronbach's alpha) presented high values: 0.867 for the total 21 items and 0.911 for19 items (when the cross-checking questions were removed).

Results

Demographic characteristics

Regarding the participants' gender, the majority (68%) were female. The predominated age group was 31-50 years old (72%), followed by the group < 30 years (20.5%) and the group > 50 years (7.5%, N = 15). The educational level was high overall, with 81.5% of participants holding a higher education degree, of which 28% were Masters or PhDs. In terms of employment category, the majority of participants were administrative staff (42%), followed by doctors (22%), nurses (20%) and other relevant occupations (16%). The last element of the demographic characteristics of the sample concerned the level of responsibility in terms of the position of the respondents. Of the 200 participants, 21% were in a position of liability (director: 8.5%; head of department: 12.5%); the remaining 79% were in other job positions without liability. These data provide a satisfactory ratio (1:5) in terms of the administrative relationship, which is expected to contribute positively to extrapolating appropriate findings and conclusions.

Main findings and hypothesis testing

Overall, the mean values of participants' responses to the survey showed perceptions of the ease of use of e-HRM systems to be quite high, especially with regard to the positive outcomes of tasks undertaken through e-HRM (mean = 3.87) and the plurality of functional options (mean = 3.85). In this context, low values were expected for the two reverse questions, namely difficulty in using e-HRM systems (mean=2.00) and requiring great mental effort (mean=2.35). In addition, the participants' responses indicate that they consider an e-HRM system very useful, predominantly in improving the quality of their work (mean=4.16) and their overall perception of the usefulness

of e-HRM systems (mean=4.13). Finally, the analysis reveals a high level of satisfaction with the e-HRM system, particularly general satisfaction (mean=3.86) and satisfying the needs of services (mean=3.77).

The results for each hypothesis are examined in greater detail in the following paragraphs.

H₁: The acceptance and use of an e-HRM system by employees depends on their perceptions regarding the ease of use of the system.

One-way analysis of variance (ANOVA) was used for each item separately in testing this hypothesis and the results confirm H₁. In particular, four out of six items related to this hypothesis (the e-HRM system is friendly; the e-HRM system offers many functional options; I consider it easy to learn how to use the e-HRM system; it is easy for me to perform my duties using the e-HRM system) appear to be of great significance (Sig.= .000). The two variables that do not appear to be of great significance (I find it difficult to use the e-HRM system; the e-HRM system requires high mental effort) move in the opposite direction, as entirely expected. As H₁ is related to the basic functions of HRM, such as payroll, updating personal files, etc., which require the direct personal involvement of the employees, it is very important that these systems are easy to use so that the integration of the information system can overcome the potential initial obstacles.

H₂: The acceptance and use of an e-HRM system by employees depends on their perceptions of the usefulness of the system.

Based on one-way ANOVA, H₂ is strongly confirmed as all items present high significance (Sig= .000) (the use of the e-HRM system improves the quality of my work; I can better control the performance of my tasks using the e-HRM system; the e-HRM system allows me to accomplish my tasks faster, etc.). H₂ concerns relational HRM and it is strongly believed that e-HRM systems have an impact on employees' task fulfilment, as well as improving their quality of work; thus, the organization can indirectly derive remarkable achievements.

H₃: The integration of an e-HRM system affects the satisfaction level of the end users.

H3 is also confirmed by one-way ANOVA. Statistically significant correlations are observed for all five items tested (I believe that the e-HRM system provides a very high level of service; the e-HRM system meets my expectations; the e-HRM system meets my requirements and needs, etc.). H₃ also concerns relational HRM. Data analysis highlighted the need for information systems to be considered by the employees as having been developed specifically to facilitate their job and not just in general, thus they can be more creative and effective.

H₄: The use of an e-HRM system affects operational outcomes.

The means of participants' responses highlight the perception that an e-HRM system has a considerable influence on organizational benefits, especially through human resource planning (mean=3.77), detection and satisfaction of the educational needs of staff (mean=3.71) and to a lesser extent through increased benefits (mean=3.02). To examine H$_4$, we used one-way ANOVA separately for each variable corresponding to the hypothesis. H$_4$ is also confirmed: all items (five in total) present high significance (Sig= .000).

Table 1: Exploration of H$_4$

H4: The use of an e-HRM system affects operational outcomes	Mean	One-way ANOVA
Item 1: e-HRM systems improve human resource planning	3.77	.000
Item 2: e-HRM systems enhance the detection and satisfaction of the educational needs of employees	3.71	.000
Item 3: e-HRM systems contribute to the development of a fairer compensation system	3.36	.000
Item 4: e-HRM systems contribute to providing to increased benefits for employees	3.02	.000
Item 5: e-HRM systems advance relationships in the context of the organization	3.26	.000

The support for H$_4$ emphasizes that e-HRM systems give prominence to employees as strategic partners of the organization, as they improve its reputation, the most talented people are recruited and they are willing to offer their services to the organization. All the above can be "translated" as providing a more effective organization.

Discussion

Human capital and IT are two driving forces in an organization that will lead to it attaining a successful and sustainable presence in the business world. IT provides a vast variety of tools that can be adopted by HRM to modernize its functions, keep pace with contemporary developments and be more creative and innovative. The findings of this study confirm the theory that e-HRM-systems add value to HRM functions and highlight HRM as a strategic partner. Also e-HRM functions operate more efficiently through the technological solutions made available, such as processes including decision making, staff evaluation and attracting and retaining the most talented people, which are significantly improved; thence, the quality of decisions is also enhanced. Another point demonstrated in the most emphatic manner is the need for proper and continuous training of staff, so that it is possible to exploit and utilize the full potential of an e-HRM system (Johnson & Gueutal, 2011; Mishra & Akman, 2010; Sanayei & Mirzaei, 2008; Varma, 2010).

The research also demonstrates that the integration of e-HRM systems increases the satisfaction of the end users in the context of their work as the work environment is improved and more possibilities are available to them (Qteishat, 2014). Finally, e-HRM systems have a direct and positive impact on organizational outcomes. This is achieved by improving the HRM functions, which in turn leads to exponential improvement in organizational results (costs and labour reduction, paperless workflow, effective time management and therefore more available time for assignments that add value, etc.). As for acceptance, the effective and extensive use of e-HRM

systems by employees depends on their perceptions of the ease of use and usefulness, thus leading to a self-fulfilling prophecy (Davoudi & Fartash, 2012; Davis, 1989; Qteishat, 2014; Ruël et al., 2004; Swaroop, 2012).

Implications

The extant literature and the findings of this research show that e-HRM systems are an essential element in modern HRM and highlight the benefits gained by their integration in organizations. An organization that prioritizes not only its survival but also its sustainability is in a sense forced to maintain up-to-date processes and to adopt and implement best practices in order to take full advantage of the opportunities afforded.

The advantages of the integration of e-HRM systems are tangible in terms of the impacts on both employees and the organization. An organization oriented to the integration of an e-HRM system requires the development of a specific communication plan and dynamic, systematic training, so that any objections raised or resistance are overcome and the employees are favourably inclined regarding the ease of use and usefulness of the e-HRM system; thus, they will ultimately be convinced that the fulfilment of their daily tasks is improved, their workflow is facilitated and their level of satisfaction is increased.

Consequently, organizations that are successful in integrating e-HRM systems (i.e. employees accept and effectively use these systems), gain competitive advantage in comparison to their competitors as they enjoy their employees' commitment and respect, leading to higher levels of productivity for the organization and thus desired outcomes.

References

Armstrong, M. (2006). *Strategic human resource management: A guide to action* (4thed.). London: Kogan Page.

Bondarouk, T., & Ruël, H. (2009).Electronic human resource management: Challenges in the digital era. *The International Journal of Human Resource Management, 20*(3), 505–514.

Bondarouk, T., & Ruël, H. (2010). The strategic value of e-HRM: Results from an exploratory study in a governmental organization. In S. Strohmeier, & A. Diederichsen, *Evidence-Based e-HRM? On the way to rigorous and relevant research.* Proceedings of the Third European Academic Workshop on Electronic Human Resource Management. Bamberg, Germany.

Davis, F. (1989). Perceived usefulness, perceived ease of use, and consumer acceptance of information technology. *MIS Quarterly, 13*(3), 319–340.

Davis, F. (1993). User acceptance of information technology: System characteristics, user perceptions and behavioral impacts. *International Journal of Man-Machine Studies,* (38), 475-487.

Davoudi, S. M., &Fartash, K. (2012). Electronic human resource management: New avenues which leads to organizational success. *Spectrum: A Journal of Multidisciplinary Research, 1*(2), 75–87.

Engbersen, M. (2010). *The enactment of e-HRM in a healthcare context. Results of a qualitative study at Medisch Spectrum Twente.* University of Twente.

Johnson, B., & Cristensen, L. (2012). *Educational research: Quantitative, qualitative and mixed research approaches.*Thousand Oaks California: Sage Publications, Inc.

Kavanagh, M., Gueutal, H., & Tannenbaum, S. (1990). *Human resource information systems.* Boston, MA: PWS-Kent.

Kovach K.A. & Cathcart C.E. Jr. (1999). Human Resource Information Systems (HRIS): Providing Business with Rapid Data Access, Information Exchange and Strategic Advantage. *Public Personnel Management, 28(2*), 275-282.

Kothari, C. (2004). *Research methodology. Methods and techniques.* New Delhi: New Age International Publishers.

Lawler, E. E., & Boudreau, J. W. (2009). *Achieving excellence in human resources management. An assessment of human resource functions.* Stanford, CA: Stanford University Press.

Lepak, D., & Snell, S. (1998). Virtual HR: Strategic human resource management in the 21st century. *Human Resource Management Review, 8*(3), 215–234.

Mehrjoo, D., & Noursina, M. (2013). The relationships between e-HRM and staff empowerment: A case study of Amir Al-Moemen in Hospital in Iran. *International Journal of Economy, Management and Social Sciences, 2*(10), 814–819.

Mishra, A., & Akman, I. (2010). Information technology in human resource management: An empirical assessment. *Public Personnel Management, 39*(3), 243–262.

Oswal, N., & Narayanappa, G. (2014). Evolution of HRM to e-HRM towards organizational effectiveness and sustainability. *International Journal of Recent Development in Engineering and Technology, 2*(4), 7–14.

Parry, E. (2011). An examination of e-HRM as a means to increase the value of the HR function. *The International Journal of Human Resource Management, 22*(5), 1146–1162.

Parry, E., & Tyson, S. (2011). Desired goals and actual outcomes of e-HRM. *Human Resource Management Review Journal, 21*(3), 335–354.

Qteishat, M. K. (2014). The impact of information system success factors, human resource staff satisfaction, and e-human resource use on organizational benefit. *International Journal of Computer Applications, 105*(2).

Ruël, H., &van Kaap, H. (2012). e-HRM usage and value creation: Does a facilitating context matter? *ZeitschriftfürPersonalforschung (German Journal of Research in Human Resource Management), 26*(3), 260–281.

Ruël, H. J. M., Bondarouk, T., & Looise, J. C. (2004). E-HRM: Innovation or irritation. An explorative empirical study in five large companies on web-based HRM. 15(3), 364-380.

Sanayei, A., & Mirzaei, A. (2008). Designing a model for evaluating the effectiveness of e-HRM (case study: Iranian organizations). *International Journal of Information Science and Technology, 6*(2), 79–98.

Sareen, P. (2014). Integration of people, process and technology. A case for e-HRM adoption. *International Journal of Application or Innovation in Engineering and Management, 3*(9), 51-56.

Schalk, R., Timmerman, V., & Heuvel, S. v. (2012). How strategic considerations influence decision making on e-HRM applications. *Human Resource Management Review*.

Srivastava, S. K. (2010). Shaping organization with e-HRM. *International Journal of Innovation, Management and Technology, 1*(1), 47–50.

Strohmeier, S. (2007). Research in e-HRM: Review and implications. *Human Resource Management Review, 17*, 19–37.

Suchitra, P. (2014). e-HRM: Conceptual implications. *International Journal of Human Resource Management and Research, 4*(2), 31–38.

Swaroop, K. R. (2012). e-HRM and how it will reduce the cost in organisation. *Asia Pacific Journal of Marketing & Management Review, 1*(4), 133–139.

Varma, S. (2010). The implications of implementing e-HRM systems in companies.*Journal of Information Systems and Communication, 2*(1), 10-29.

Varma, S., & Gopal, R. (2011). The implications of implementing electronic-human resource management (e-HRM) systems in companies. *Journal of Information Systems and Communication, 2*(1), 10–29.