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The Impact of E-HRM Usage on HRM Effectiveness: Highlighting the Roles of Top Management Support, HR Professionals, and Line Managers

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ABSTRACT

This study investigated the impact of electronic human resource management (e-HRM) implementation on the effectiveness of the HRM system. The framework of this study was guided by three theories: unified theory of acceptance and use of technology, the social exchange theory, and the leader-member exchange theory. Covariance-based structural equation modelling was used to test the proposed model and hypotheses. The sample consisted of 282 responses from the employees of two telecommunications companies in Jordan. The research findings suggest that performance expectancy had a significant positive effect on behavioural intention to use an e-HRM system, whereas effort expectancy did not. Facilitating conditions had a positive significant impact on e-HRM system usage. Top management support and the HRM role of line managers positively affected behavioural intention to use e-HRM and actual usage of e-HRM, whereas the effect of HR professionals on e-HRM usage was negative. Finally, the actual usage of e-HRM had a significant impact on HRM system effectiveness.

KEYWORDS

e-HRM, HR Professionals, HRM Effectiveness, HR Roles of Line Managers, Top Management Support

1. INTRODUCTION

Technology advancement, the Internet, and the Information Technology (IT) revolution have affected our society, economy, and education (Suramardhini, 2012). Technology has a strong influence on Human Resource Management (HRM) processes and practices and is moving them in a completely new direction (Stone & Dulebohn, 2013). As a result, HRM has witnessed great changes in the way it has been managed since the 1990s due to the introduction of web-based HRM systems and the replacement of face-to-face HRM activities with these systems (Ruël, Bondarouk, & Van Der Velde, 2007).

The extensive use of innovative IT in HRM has been fueled by the widespread implementation of enterprise resource planning (ERP) programmes in conjunction with internet-based technology that have led to the standardisation and automation of the administrative aspects of HRM functions and practices (Marler & Parry, 2015). This has encouraged organisations to increasingly adopt electronic

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HRM (e-HRM), which entails the integration of IT applications with Human Resource (HR) functions (Foster, 2009; Galve-Górriz & Castel, 2010).

Top managers' behaviours and actions affect the information system (IS) implementation outcomes in organisations. Top management support (TMS) for change management (CM) fosters the organisational receptiveness of a new system by affecting the formation of employees' skills and behaviour as well as line managers' (LMs) buy-in (Dong, Neufeld, & Higgins, 2009). Recently, Galanaki, Lazazzara, and Parry (2019) found out that the configuration of e-HRM adoption is widespread at the global level. e-HRM entails the integration of technology into HRM to implement HRM practices. Particularly, the absence of collaboration between the IT department and HR professionals results in poor reliability of HRM information and unsuccessful adoption of e-HRM systems in organisations. Strohmeier and Kabst (2009) explored the factors that influence the organizational adoption of e-HRM in 2,336 organisations across 23 European countries. Their research showed that the majority of the organisations in Europe have already implemented an e-HRM system.

Strohmeier (2007, p.20) defined e-HRM as the "Planning, implementation, and application of information technology for both networking and supporting at least two individual or collective actors in their shared performing of HR activities". Thus, technology is an essential medium for e-HRM where it connects and integrates the HRM activities and functions of various actors, regardless of their working location, and enables them to accomplish HRM activities and functions (Bondarouk & Ruël, 2009). The e-HRM system also enables the end-users' interaction through the execution of HR functions at all organisational levels (Suramardhini, 2012; Marler & Fisher, 2013). In addition to the traditional HRM practices such as recruitment and training, an e-HRM system is used for daily transactions and activities and other HR staff-related transformational functions that contribute to an organisation's strategic and value-added HR activities and give it a competitive advantage. This contribution could be realised through improved efficiency, more effective development and deployment of HR, and enhancement of the contribution to business strategy (Marler, 2009; Parry, 2011).

An e-HRM system is also defined as "a way of implementing HR strategies, policies and practices in organisations through conscious and directed support of and/ or with the full use of web-technology-based channels" (Ruël, Bondarouk, & Looise, 2004, p.281). The design phase of HRM practices and policies is considered as the main part of the HRM implementation process. Effective HRM implementation occurs when actually implemented HR practices match intended HR practices, in which LMs are the main actors. It is the realization of the desired organizational outcomes related to employee satisfaction with HRM practices (Bondarouk, Trullen, & Valverde, 2016). Under this conceptualisation, organisations may realise significant competitive advantages by digitalization HRM (Beatty & Ulrich, 2001). The goal of HRM digitalisation is to increase HRM productivity through automating HRM's transactional or managerial tasks and replacing low-value functions with more higher-value functions (Marler & Parry, 2015). For instance, through employee self-service (ESS), employees can easily access their organisation's HR applications and update their essential personal information (Gueutal, 2003). Furthermore, the implementation of Managerial Self-Service (MSS) enables managers to access several HR aspects and manage most of the HR-related tasks themselves (Gueutal, Stone, & Salas, 2005).

Theoretical arguments propose three main goals of e-HRM implementation: cost-reduction, improvement in the HR function's efficiency, and development and advancement of strategic orientation (Snell, Stueber, & Lepak, 2001; Stanton & Coovert, 2004). The implementation of an e-HRM system will improve a firm's effectiveness (Ruël et al., 2007; Marler, 2009) and the effectiveness of its HRM functions (Bondarouk & Ruël, 2009) through time-saving and strategic alignment of HR strategy with organisation strategy, which will, in turn, enable the firm to attain competitive advantage (Wright, Dunford, & Snell, 2001),

Technology diffusion has encouraged researchers to build several theoretical frameworks to explore the influence of the adoption and implementation of new innovations on organizational

performance (Davis, Bagozzi, & Warshaw, 1989), as well as the impact of web-based HR on HRM system effectiveness (Obeidat, 2016). In this context, the Unified Theory of Acceptance and Use of Technology (UTAUT) is one of the robust frameworks used to predict users' intention towards the implementation and usage of new technology (Venkatesh, Morris, Davis, & Davis, 2003). Therefore, this study adopts the UTAUT model in conjunction with Social Exchange Theory (SET) and Leader-Member Exchange (LMX) Theory to determine the nature of relationships among e-HRM system determinants, TMS, the HR role of LMs, the role of HR professionals, behavioural intention (BI) towards use of an e-HRM system, and actual e-HRM system usage, which, in turn, affects the effectiveness of the HRM system at the philosophy, policy, and practice levels. The study analyses these relationships using Covariance-Based Structural Equation Modeling (CB-SEM) with survey data collected from the employees of two telecommunications companies in Jordan. The results provide strong support for most of the proposed relationships in our integrated model.

Most of the previous HRM research has targeted developed countries (Thang & Quang, 2005) and only a few studies have focused on Middle Eastern countries like Jordan. The e-HRM in Jordan has only recently been introduced and is in its middle phases of implementation. It is projected to progress and promising innovative changes are expected to occur in IT applications that should encourage more research in this area (Al-Dmour & Shannak, 2012). The telecommunications sector in Jordan has recently attracted numerous regional and international investors, and Jordan is considered a pioneer in IT application and business innovation at the regional level (Obeidat, 2016). Jordan's telecommunications companies include *Orange Jordan*, which is part of Global Orange, *Zain Jordan*, which is owned by a regional company in Kuwait, and the *Umniah* Company (owned by Bahrain). The authors chose to study the telecommunications sector because it is one of the main sectors that invest in human capital and strives for continuous innovation. This research sheds light on these issues by analysing the factors that affect firms' decisions to digitalise their HRM. It also investigates whether such initiatives indeed affect organisational effectiveness in various areas, as detailed in our proposed model.

This paper is organized as follows: The introduction section is followed by literature review and research framework and hypotheses. After the description of the research methods and the findings of data analyses, the last part of the paper discusses the implications of findings and ends with conclusions.

2. LITERATURE REVIEW

2.1. HRM and IT

Information and communication technologies (ICTs) have changed our communication approaches, daily routine, the way we think, and business innovations (Suramardhini, 2012). Following the technology revolution, automation has led to a massive transition in the HRM function and a considerable proliferation in the businesses' use of e-HRM (Gürol, Wolff, & Berkin, 2010). The implementation of HR practices by means of ICT is an essential strategy for firms to maintain a competitive advantage (Stanton & Coovert, 2004). HRM was previously dependent on computer networks to store and retrieve information, but it has been affected by the IT functions which have enhanced the usage of e-HRM applications (Stone & Dulebohn, 2013). IT has enabled HR departments to be more cooperative and responsive to dynamic environments and employees' requirements (Strohmeier, 2007). Consequently, technology adoption has changed the strategies of HRM functions due to the increasing reliance of organisations on human capital, skills, and talents to gain a sustainable advantage (Ulrich, Younger, & Brockbank, 2008; Strohmeier, 2013).

2.2. e-HRM System

Prior to the adoption of computerised IS, HR departments used manual records until the middle of the twentieth century (Stone & Dulebohn, 2013). In the mid-1980s, HR programmes were industrialised

to facilitate HR functions, known as Human Resource Information Systems (HRIS) (Lengnick-Hall & Moritz, 2003; Stone & Dulebohn, 2013). This was followed by the use of secured internal networks (Intranet) to save and disseminate information. In the mid-1990s, digital HRM and web-page-enabled HRM systems were introduced, which led to the centralisation of HRM content and information, while helping decentralise the accomplishment of e-HRM activities through the use of MSS and ESS applications (Shimanuki, 2015). The implementation of e-HRM systems shifted most of the HR professionals' responsibility to the LMs and employees themselves (Ruël et al., 2004), and organisations began to use this new HRM software to interact with HR stakeholders (Stone & Dulebohn, 2013).

Parry and Tyson (2011) explored the desired goals and organisational outcomes of the implementation of e-HRM systems in UK organisations. Their findings showed that these firms undertook e-HRM initiatives to enhance HRM efficiency, achieve better service quality and standardisation, transfer HR tasks to managers, and direct HR professionals towards a more strategic role. Furthermore, Parry (2011) investigated the prospective use of e-HRM as a tool to raise the value of HRM functions, where HR functions were considered as resources. The study involved a large scale survey of firms in 12 countries and revealed that e-HRM implementation could support HRM systems to play a more strategic role in HR functions. Like other similar studies, (Parry, 2011) found that e-HRM adoption could enable the HRM practices to be more effective, improve HR service delivery, contribute to the organisation's strategy, and result in competitive advantage.

More recently, Khashman and Al-Ryalat (2015) explored the impact of e-HRM functions on organisational performance in the telecommunications sector in Jordan using a sample of managers. The findings revealed a positively significant impact of e-HRM components (e-selection, e-recruitment, e-training, e-appraisal, and e-compensation) on several operational performance measures, including time-saving, cost, flexibility, and service quality.

2.3. TMS and The HRM Role of LMs

Leaders and HR professionals have the ability to assess the desired changes in their organisations and the acceptance of newly implemented HRM systems based on their companies' organisational culture and the business environment (Bae & Lawler, 2000; Dobre, 2013). Successful top managers and supervisors can influence employees' behaviour and encourage them to accept and use these technologies (De Jong & Den Hartog, 2007; Liu & Batt, 2010). For example, a study by Purcell and Hutchinson (2007) explored the level of employee commitment to managers and how the employees' jobs and their satisfaction with HR services were influenced by the managers' leadership style and behaviour. The study found that managers' leadership style and behavior have a strong influence on employee attitudes and perceptions. For instance, transformational leadership is more effective than transactional leadership in driving the organisation towards change and innovation (Millar, Chen, & Waller, 2017). Managers need to make their employees aware of the strategic vision and organisational objectives for the proposed changes; this can be achieved through the creation of an appropriate organisational culture (Schien, 2004). TMS in the CM context can affect employees' competence in and satisfaction with the newly implemented system, while TMS will influence the desired implementation outcomes (Dong et al., 2009). Thus, TMS is essential for encouraging e-HRM system usage and the allocation of the required resources for the institutionalisation of the system (Marler & Fisher, 2013). TMS is also needed to reduce organisational resistance to new enterprise systems implementations (Dong et al., 2009).

LMs also play an important role in e-HRM activities as an integral element of the HRM-performance "causal chain or so-called HRM black box" that links HRM policy inputs to organizational performance outcomes. The causal chain links intended practices to actual practices which then influence employees' perceptions of HRM practices. Consequently, HRM practices could impact employee attitudes and enhance their performance in ways that are advantageous to the organization (Purcell & Hutchinson, 2007, p. 3). A recent study by Bos-Nehles and Meijerink (2018) showed

that the employees' perceptions of the HRM function and processes depend on the nature of the relationship with their LMs. However, many studies that have explored the nature and direction of the link between HRM and e-HRM actual usage have ignored the role of LMs, even though LMs are responsible for the implementation of several HRM functions (Purcell & Hutchinson, 2007). The adoption of the e-HRM system motivates HR professionals and LMs to take part in innovation and in changing the way in which HR functions are performed. It enables the devolution of HR responsibilities from HR staff to LMs (Zhang & Wang, 2006). The HR department contributes to LMs' operational application of HR practices and overall HRM effectiveness (Trullen, Stirpe, Bonache, & Valverde, 2016). Therefore, the HRM role of LMs, the devolution of HR practices, and managers' behaviour have to be a central part of any causal chain seeking to investigate the link between HRM practices and organisational performance outcomes (Purcell & Hutchinson, 2007).

Zureikat (2017) explored the extent to which several e-HRM practices and approaches (management support, degree of awareness, IT infrastructure, and the current HRM approaches adopted) affected e-HRM implementation within the banking sector in Jordan from the perspective of HR staff. The findings revealed that all these factors had a significant impact on e-HRM implementation. The most significant and strongest factor was the level of awareness of e-HRM among LMs and HR professionals, which helped support the e-HRM implementation process in Jordanian commercial banks.

2.4. HRM Effectiveness and Organisational Outcomes

Firm performance can be determined by firms' resources and their effectiveness in transforming these resources into real capabilities (Paauwe, 2009). HRM effectiveness and efficiency will lead to the enhancement of the entire organisation's performance and strategic orientation (Stanton & Coovert, 2004). The introduction of an e-HRM system is expected to improve the efficiency of HRM processes, provide better service delivery, and enhance the effectiveness of strategic orientation for HRM (Parry & Tyson, 2011).

The HRM system is composed of a "bundle of HR practices or policies oriented towards some overarching goal" (Lepak, Liao, Chung, & Harden, 2006, p.221). It is divided into three levels: HRM philosophy, HRM policy, and HRM practices (Becker & Gerhart, 1996; Lepak et al., 2006; Monks et al., 2013). This categorisation of HRM levels (HRM philosophy, HRM policy, and HRM practices) is in alignment with Ruël et al.'s (2004) e-HRM definition.

More recently, e-HRM has been defined as

"configurations of computer hardware, software and electronic networking resources that enable intended or actual HRM activities (e.g. policies, practices and services) through coordinating and controlling individual and group-level data capture and information creation and communication within and across organizational boundaries" (Marler & Parry, 2015, p. 2).

To achieve this, HRM effectiveness has to be evaluated at different HRM system levels to assess the contribution of e-HRM to HRM effectiveness (Bondarouk, Ruël, & van der Heijden, 2009). According to Bondarouk et al. (2009), previous e-HRM research has revealed that HR digitalisation will reorient HRM systems to be more strategic by freeing HR staff from daily managerial work and delegating most of HRM responsibilities to LMs and employees.

HRM *philosophy* is the first and the highest level in the HRM system, which has been defined as "the guiding principles that identify and characterise the value and treatment of employees covered within a particular HRM system" (Kepes & Delery, 2009, p. 390). The HRM system becomes effective when HRM philosophy and HRM strategy are integrated with organisational strategy, since there is a fit between HRM strategy and business strategy and these strategies complement each other (Bowen & Ostroff, 2004; Guest & Peccei, 1994). This integration is related to coherence between HRM strategy and philosophy, which is set by the top management and willingly accepted by the

LMs who participate in the decisions about HRM components (Guest & Peccei, 1994; Maatman, 2006). However, in the case of e-HRM, HRM functions and activities are planned to enable the delivery of HRM practices through web-based technologies. The expected outcomes of this process are the realisation and presence of an alignment of the e-HRM applications with business strategy. Therefore, the e-HRM system usage is expected to contribute to a better fit and alignment of the HRM philosophy and strategy with the organisation's general strategy (Maatman, 2006).

HRM *policy* is the second level in the HRM system; it comprises the guidelines and references for particular HRM functions that reflect an organisation's intention to achieve its objectives (Kepes & Delery, 2009). HRM policy is considered "an organisationally articulated proposal with theoretical and practical constructions within human relations which aims to reach the desired results" (Demo, Neiva, Nunes, & Rozzett, 2012, p. 398). Thus, HRM policy represents a reference guide for HRM propositions that supports the achievement of the organisation's goals and objectives, which, in turn, enhance the effects of the HRM system on the desired employee-organisational outcomes (Demo et al., 2012).

The use of the e-HRM system enables HRM policy to be communicated between HRM stakeholders – namely employees, HR professionals, and LMs – which leads to the appropriate desired attitude and behaviour towards the HRM system. Consequently, it is estimated that actual e-HRM usage creates a distinctive and consistent situation, which may raise consensus among HRM system key-users (Maatman, 2006).

The third and lowest level in the HRM system is HRM *practices*, which identifies HRM activities and procedures that clarify how HRM policies will be implemented and performed (Guest & Peccei, 1994; Lepak, Marrone, & Takeuchi, 2004). The central issue is the way in which HRM practices would fit with or complement each other (Kepes & Delery, 2009). HRM processes can be described as 'detailed explanations of how HRM practices are executed'. HRM practices have a more direct impact on employees' attitudes and behaviour than HRM policies have (Kepes & Delery, 2009, pp. 390–391).

The effectiveness of HRM practices and functions enhances the efficiency of the HRM system and the speed of HR staff responsiveness. The service quality, performance speed, and helpfulness of the HRM system for employees and managers are the main constructs for the measurement of HRM practices' effectiveness (Guest & Peccei, 1994). Moreover, the increase in HRM system efficiency and better service quality are synchronised with e-HRM goals, which impact the HRM clients' perceptions of the HRM practices' effectiveness (Maatman, 2006). Consequently, key HRM users (employees, LMs, and HR professionals) will impact the adoption and use of the newly implemented technology during their active usage of e-HRM (Bondarouk, Harms, & Lepak, 2015).

HRM philosophy or strategy formulation is the responsibility of top management regarding how resources are managed to support business goals. Consequently, the HRM philosophy, policy, and practices could differ significantly between the intended HRM system and what is actually carried out by LMs. There are strong connections between different types of HRM systems and employees' attitudes and behaviour (Monks et al., 2013). An empirical study by Bondarouk and Ruël (2005) focused on the contribution of the e-HRM system to HRM effectiveness. Their longitudinal study consisted of 370 Dutch organisations in 2003 and 215 in 2005. The findings showed that the only factor that significantly affected technical and strategic HRM effectiveness was the perceived quality of the e-HRM system applications. Additionally, the e-HRM system content and design correlated with HRM effectiveness. These findings are consistent with the debate surrounding the shift of focus from managing people to creating strategic contributions (strategic capabilities, human capital contribution, and firm's competitive performance) after the introduction of strategic HRM (SHRM) (Lengnick-Hall, Lengnick-Hall, Andrade, & Drake, 2009).

3. THEORY AND HYPOTHESES

Scholars argue that the existing e-HRM research stems from multi-discipline theoretical approaches (Bondarouk & Looise, 2009; Bondarouk & Ruël, 2012; Marler & Fisher, 2013). In the relevant literature, several theories have been used in the e-HRM adoption and implementation research, including the Theory of Planned Behaviour (TPB), UTAUT, the Resource-Based View, SET, CM Theory, and Contingency Theory. Meanwhile, literature has employed several research frameworks, models, and related theories to explore users' responses and perceptions of the e-HRM system, specifically in relation to the estimation of the outcomes of newly implemented IT system acceptance and actual usage (Marler & Fisher, 2013; Stone & Dulebohn, 2013; Strohmeier, 2007).

SET (Blau, 1964) is one of the underpinning theories that have been used to explain the connection between diverse organisational constructs and firm performance (Ahmed, Khuwaja, Brohi, & Othman, 2018). Ostroff and Bowen (2000) adopted the perspective that HRM practices shape the skills, attitudes, and behaviours of employees, which, in turn, affect organisational behavior and performance, resulting in structural and operational efficiencies (Wright, Gardner, Moynihan, & Allen, 2005). Moreover, Byremo (2015) discussed SET, among other theories, within the context of HRM-related electronic systems. The author argued that these systems consist of several integrated HR practices that help create more committed and skilled employees and have a positive impact on overall organisational performance. In the same context, according to Blau (1964), SET suggests that the relations among employees, managers, and the organisation are based on the reciprocity norm. From the SET perspective, LMX Theory (Dansereau, Graen, & Haga, 1975) places emphasis on the mutual relations between supervisors or managers and their subordinates (Bos-Nehles & Meijerink, 2018; Eisenberger et al., 2013). Accordingly, TMS and LMs have the opportunity to motivate and enhance employees' perceptions and behaviours to accept the changes and take part in innovation (Eisenberger et al., 2013).

The UTAUT was developed by Venkatesh et al. (2003); it is an extension of the Technology Acceptance Model (TAM) created by Davis (1989). TAM and UTAUT have been used as frameworks in various studies. It focuses on the system end-users and takes into consideration their reactions, particularly within the frame of accepting the system and practice (Dwivedi, Rana, Jeyaraj, Clement, & Williams, 2017; Taiwo & Downe, 2013; Venkatesh, Thong, & Xu, 2016; Voermans & Van Veldhoven, 2007; Williams, Rana, & Dwivedi, 2015). UTAUT central constructs were used for the antecedents of e-HRM in several previous researches, which were also adopted in this research: *Performance Expectancy* (PE), which is the perception of the usefulness of the new system; *Effort Expectancy* (EE), which refers to simplicity; *Social Influence* (SI), which consists of subjective norms, *Facilitating Conditions* (FC), which implies compatibility. These determinants (PE, EE and SI) impact the users' behavioural intention (BI) towards using a new system. Meanwhile, FC and BI affect the actual system usage (SU). Conceptually, the users will be motivated to use and benefit from the new system if they are satisfied with the system features and quality. The individuals' BI depends on the perceptions of the system's usefulness (Fisher & Howell, 2004) and will determine the usage of the new system.

Recently, Obeidat (2016) empirically examined the potential consequences of e-HRM usage in the Jordan Telecom Group (JTG) - *Orange Jordan*. Her study was based on UTAUT with a sample of 450 staff who used e-HRM. The findings showed a strong relationship between e-HRM SU and HRM effectiveness at policy and practice levels.

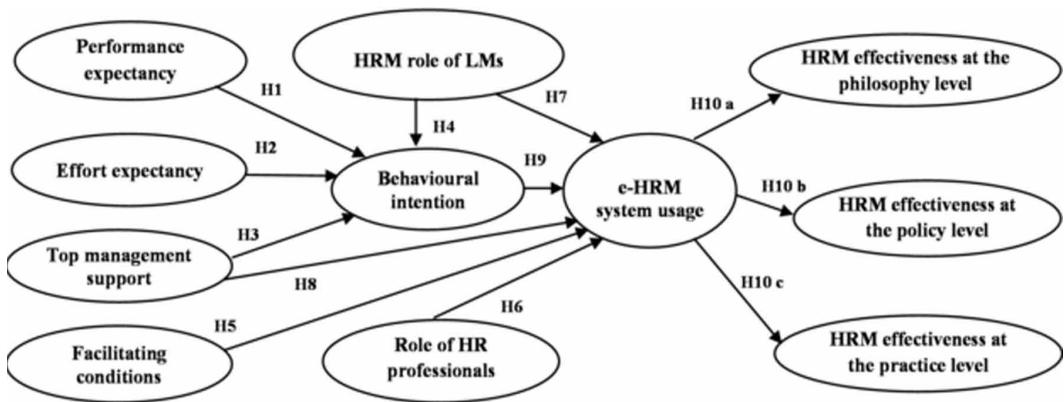
UTAUT, SET, and LMX are used as theoretical frameworks in this study. This study extends the UTAUT model to test a proposed model predicting the effectiveness of the e-HRM system. It integrates several SET and LMX variables (TMS, the HRM role of LMs, and the role of HR professionals) with HRM determinants (PE, EE, and FC) to predict employees' behavioural intentions towards e-HRM SU and their actual usage of this system.

SET (Blau, 1964) explains how social relationships influence individuals' behaviour and how they interact with dimensions of individual attributes of human capital to yield performance improvements.

Based on SET perspective, HRM implementation can be considered as a social process that depends on the social exchange relationships between HRM actors. These social reciprocal relationships and interactions, as viewed through the lens of LMX Theory, will contribute to employees' exposure to a larger set of HRM practices and enable them to have a high quality relationship with their LMs (especially when LMs feel supported by the HR professionals), thus helping improve their commitment to the organization (Bos-Nehles & Meijerink, 2018).

Thus, based on prior research and drawing theoretical support from Venkatesh et al. (2003, 2012), the theoretical framework in this study is depicted in Fig. 1. In the proposed model, the relationships between HR determinants (PE, EE) and HRM effectiveness is mediated by BI and actual e-HRM

Figure 1. The research model



SU (Bondarouk & Brewster, 2016; Bondarouk & Ruël, 2012; Maatman, 2006; Obeidat, 2016). In addition, as shown in Fig. 1, the HR role of LMs and TMS are posited to impact both BI and SU, while the role of the HR professional and FC directly affect e-HRM SU. Consequently, e-HRM SU will affect the effectiveness of the HRM system.

UTAUT suggests that several determinants such as PE, EE, and SI predict the users' BI to accept the use of IT (Venkatesh et al., 2003, 2102). The first determinant, PE, is the extent to which an employee perceives that e-HRM SU will be helpful to acquire benefits in job performance (Maatman, 2006). PE is the most dominant predictor for BI of system usage (Heikkilä & Smale, 2011). Moreover, the findings of Taiwo and Downe (2013) confirmed the expectation of Venkatesh et al. (2003) that the correlation between PE and BI is significant, whereas other links are somewhat weak but still significant. Hence, the following hypothesis is posited:

H1: PE has a direct positive impact on the user's BI towards using the e-HRM system.

EE is based on perceived ease of use (Davis, 1989). It is the extent to which the users believe that dealing with the newly offered system will not require significant efforts (Venkatesh et al., 2003). Thus, EE refers to the perceived level of ease related to e-HRM system usage (Maatman, 2006; Obeidat, 2016; Voermans & Van Veldhoven, 2007). and will impact users' BI towards the implemented e-HRM system. Therefore:

H2: EE has a direct positive impact on the user's BI towards using the e-HRM system.

Another factor that affects BI is TMS. Successful management relies on the ability of managers to influence the employees' behaviour towards innovations and the organisation's goals. Managers motivate employees to contribute efficiently to innovations and influence their attitude towards newly implemented technology (De Jong & Den Hartog, 2007). TMS plays a key role in HRM performance and shapes employees' attitudes. According to SET, that HRM implementation is influenced by the social exchange relationships between managers and employees (Bos-Nehles & Meijerink, 2018). SI is the degree to which the employees perceive that important people think that they should use the new IT system (Venkatesh et al., 2003). Where SI, which is one of the UTAUT constructs, is embedded in TMS and the HR roles of LMs. Therefore, managers' behaviour has a significant influence on employee perceptions (Purcell & Hutchinson, 2007). SI also has a positive impact on individuals' BI to use technology (Venkatesh et al., 2003); thus, the perceived support predicts a positive behaviour towards e-HRM usage (Voermans & Van Veldhoven, 2007). Consequently, the following hypothesis is formulated:

H3: TMS has a direct positive impact on the employees' BI towards using the e-HRM system.

LMs play a vital role in HRM implementation; they influence employees' perceptions and satisfaction with HR services (Purcell & Hutchinson, 2007). LMs implement e-HRM practices in an effective manner and use these practices to select, appraise, and reward their subordinates (Trullen et al., 2016). LMs are responsible for HRM responsibilities that used to be those of the HR professionals (Ruël et al., 2004). LMs perform devolved HRM practices with direct and indirect support from the HR department (Roehling et al., 2005).

Similarly, through e-HRM applications, the HR staff can play an advisory role for LMs and employees. As part of their important role in implementing HRM practices, LMs influence employees' perceptions of HRM, which, in turn, affect employees' attitudes and behaviours (Bos-Nehles & Meijerink, 2018). Thus:

H4: The HR role of LMs has a direct positive impact on the users' BI towards the e-HRM system.

Based on previous research, UTAUT constructs have been considered effective factors for evaluating the user acceptance of new technology (Taiwo & Downe, 2013). UTAUT argues that FC deals with the extent to which employees believe that the technical infrastructure is convenient to support the use of the system. FC influences users' BI and actual system usage (Venkatesh et al., 2003). Thus, FC is related to the accessibility of suitable tools to facilitate the use of the e-HRM system. Based on the discussion above, the following hypothesis is proposed:

H5: FC has a direct positive impact on e-HRM system usage (SU).

The implementation of e-HRM systems has led to a fundamental redistribution of HRM responsibilities and functions, which used to be accomplished by HR managers. Most of the activities previously executed by HR specialists can be accomplished through the e-HRM system by managers and employees themselves (Ruël et al., 2004). As administrative experts, some of the key roles played by *HR Professionals* include making HRM practices more effective and efficient by, for example, reengineering organizational processes, understanding the demands of their employees by using effective communication, providing them with the required resources, and motivating them, among others (Bae & Lawler, 2000; Dobre, 2013). The decentralisation of the e-HRM system enables HRM functions and activities to be accomplished by different stakeholders with continuous encouragement from the HR staff (Vanhala & Ahteela, 2011). Thus, the following is posited:

H6: The role of HR professionals has a direct impact on e-HRM SU.

In addition to TMS and the role of HR professionals, LMs also play an important role in HRM implementation. LMs play a key role in the implementation of HRM practices, since they are the main implementers of these practices at the organizational level (Bos-Nehles & Meijerink, 2018). The e-HRM SU transfers most of the traditional HRM responsibilities from the HR professionals to the LMs and to the employees (Ruël et al., 2004) via ESS and MSS applications (Lengnick-Hall & Moritz, 2003). Therefore, e-HRM system facilitates the execution of daily and regular HRM functions including training, appraisal, rewards, and compensation (Parry, 2011). The main advantage of e-HRM, according to Bondarouk and Brewster (2016), is that “advanced and technologically complicated e-HRM will offer just-in-time personnel information that enables real-time insight for HRM” (p. 2659). Thus, the adoption of the e-HRM system enables LMs to handle the devolution of HR responsibilities (Zhang & Wang, 2006). Accordingly, HR professionals enhance LMs’ abilities by affording LMs the opportunity and the motivation to participate in the implementation of HRM practices (Trullen et al., 2016).

SET and LMX suggest that employees are deeply influenced by LMs’ behaviour and performance. LMs’ activities have a strong impact on employees’ BI towards the e-HRM system (Purcell & Hutchinson, 2007). LMs’ motivation to implement HRM practices has an impact on employees’ perceptions of HRM quality and effectiveness (Bos-Nehles & Meijerink, 2018). Therefore, the following hypothesis is proposed:

H7: The HRM role of LMs has a direct positive impact on e-HRM SU.

According to SET, HRM implementation is a social process that involves social exchange relationships between HRM actors (Bos-Nehles & Meijerink, 2018). TMS encourages the use of a newly implemented HRM system as an alternative to a previous HRM system (Bos-nehles & Bondarouk, 2017). The new system provides support to all HR end-users including employees, LMs, top management, job applicants, and different business partners (Stone & Dulebohn, 2013). Venkatesh et al. (2003) argued that the intention to use the technology will affect the level of acceptance and usage of the new system. TMS can influence employees’ BI intentions towards using an HRM system and their actual e-HRM SU. Thus, since employees’ perceptions of HRM practices depend on the reciprocal social relationships that they have with their managers (Bos-Nehles & Meijerink, 2018), the employees’ perceptions of management support predict their attitude towards e-HRM usage (Voermans & Van Veldhoven, 2007). Therefore, the following hypothesis is posited:

H8: TMS has a direct positive impact on e-HRM SU.

BI is a vital factor that influences the employees’ usage of e-HRM systems. BI influences the total use of the IT system and its related applications. This direct relation and interaction were initially established and verified by Venkatesh et al. (2003) and were subsequently applied in other research. Obeidat (2016) found that BI mediates the relation between factors that predict the use of e-HRM system and the e-HRM system’s actual use.

BI towards using an IT system is the main determinant of e-HRM adoption and use. UTAUT was developed to distinguish between the *intention to use* and the *actual usage* of the IT-based system (Venkatesh et al., 2003). It is argued that BI to use the IT system will affect the acceptance and actual use of e-HRM system (Heikkilä & Smale, 2011). However, Venkatesh et al. (2003) found that the four constructs of UTAUT explained about 56% of the variance in BI towards using technology and around 40% of the variance in actual technology usage. Later on, Venkatesh, Thong, & Xu, (2012) tested the expanded UTAUT2 model in the context of the customer acceptance and the use of new technology

that integrates new constructs. They found that the extensions proposed in UTAUT2 explained 74% of the variance in users' BI towards using technology and 52% of the variance in technology usage. Accordingly, the following hypothesis is proposed:

H9: BI towards using the e-HRM system has a direct positive impact on e-HRM SU.

e-HRM has enabled the transmission of digitalized HR information and served as a method of executing HR plans, policy, and practices in an organization (Gani & Anjum, 2017). The literature suggests that e-HRM as an innovation can be turned into strategic capability and enable organisations to achieve the outcomes of strategic HRM (Marler & Fisher, 2013). Consequently, the actual usage of the e-HRM system could increase the value of HRM function and contribute to the competitive advantage of the firm (Parry, 2011). HRM functions can be digitalised within the e-HRM system, where e-HRM practices can act as mechanisms that support the organization to meet the intended goals (Findıklı & Bayarçelik, 2015; Omran & Anan, 2018). However, simply owning high-quality human capital resources is not sufficient to improve performance; instead, superior outcomes can be achieved by supporting these resources with HRM practices that are capable of creating the proper levels of motivation and opportunities (Delery & Roumpi, 2017).

Previous research has provided empirical evidence that e-HRM leads to HRM effectiveness and helps create value within organisations at both micro and macro levels (i.e., Maatman, 2006; Ruël et al., 2007; Ruël & Kaap, 2012; Obeidat, 2016). Indeed, an e-HRM system has become a necessity within organisations as its implementation is expected to produce distinctive outcomes, better HRM functions, and better alignment of HRM strategy with organizational policy (Maatman, 2006; Bondarouk & Ruël, 2012; Marler & Fisher, 2013). This is in line with a study on the *contribution of e-HRM to HRM effectiveness*, which was conducted in the Netherlands by Ruël et al. (2007), who found that e-HRM usage through ESS has a significant influence on the strategic and technical effectiveness of HRM.

Thus, it is important that the link between e-HRM and HRM effectiveness be explored (Ruël et al., 2007), especially from the SET and LMX perspectives by focusing on the roles of TMS and LMs in e-HRM application. The HRM role of LMs has been redefined in business organisations, making LMs responsible for primary HRM functions (Azmi & Mushtaq, 2015). The digital context of HRM practices provides higher quality of HRM data and enables all stakeholders to have a strong HRM ownership (Bondarouk & Brewster, 2016). To explore the influences of e-HRM usage on the effectiveness of the HRM system, the following hypothesis is formulated:

H10: The e-HRM SU has a direct positive impact on the effectiveness of HRM system at the philosophy, policy, and practice levels.

At the philosophy level, the HRM strategy should be integrated with the organisation's strategy (Lepak et al., 2004). The actual usage of e-HRM systems is anticipated to contribute to the perceived effectiveness of HRM philosophy, which can be operationalised depending on the assessment of the main factors: the fit and integration between HRM strategy or philosophy and business strategy; the complementary relationship between HRM philosophy and business strategy, and the LMs' involvement in the HRM decision-making components (Maatman, 2006). In addition, HRM philosophy plays a vital role in shaping HRM policy and practices that influence employees' perceptions of the implemented HRM system (Monks et al., 2013).

e-HRM plays a crucial role in improving efficiency and effectiveness within the HR department and allows HR professionals to become strategic partners in carrying out organizational objectives. Thus, e-HRM can be used to empower managers and employees to perform some of the HR functions. This reduces the administrative tasks that the HR department needs to perform, enabling it to focus on the strategic elements of HRM and decrease its staffing levels (Deshwal, 2015). Hence,

the effectiveness of the HRM system at the philosophy level is related to the good alignment and synchronisation of HRM strategy with business strategy. Thus, the following hypothesis is proposed:

H10a: e-HRM SU has a direct positive impact on the effectiveness of the HRM system at the philosophy level.

At the policy level, the effectiveness of the HRM system should focus on the distinctiveness and consistency of HRM policy and programmes. Policy integration deals with the content of HR strategy and with the extent of the coherence of the resulting policies. A strong HRM system will produce a strong organisational climate, which will result in a common understanding among individuals of behaviours that are acceptable and worthy of reward (Bowen & Ostroff, 2004).

As discussed earlier, e-HRM implementation leads to an extensive decentralisation of the execution of HR activities by transferring responsibilities to LMs and employees. Consequently, a combination of centralisation of policies and decentralisation of the execution of these policies is a significant relational consequence of e-HRM (Ruël et al., 2004).

e-HRM implementation not only involves the framing of policies, but more broadly, it can be used to implement certain policies to reap greater benefits (Gani & Anjum, 2018). For example, the e-HRM system helps make personnel management policy criteria more transparent, improving employees' perception of fairness, and eventually increasing trust in the HR department. The usage of the e-HRM system also results in the communication of more information related to HRM policy within the company, allowing employees to be more aware of the rules and criteria used by the company to evaluate and reward them. As a result, the employees are able to experience the HR department's services more directly (Bissola & Imperatori, 2014). This argument forms the premise for the following hypothesis:

H10b: e-HRM SU has a direct positive impact on the effectiveness of HRM system at the policy level.

On the other hand, effectiveness **at the practice level** should focus on how different HR practices are implemented (Bowen & Ostroff, 2004; Maatman, 2006; Demo et al., 2012). This entails an assessment of how quick the HRM system is responding to employee needs and of the quality of the HRM services (Ruël et al., 2007). Recently, Bondarouk, Harms, & Lepak (2017) found that the improved HRM service quality is an outcome of e-HRM implementation. They argued that the main drivers of the quality of HRM services constitute the strength of both e-HRM and HRM. However, the employees' perception of whether the e-HRM system is of high quality, is well designed, and is properly implemented will affect the users' acceptance and use of the HRM system (Martin & Reddington, 2010). e-HRM usage can indeed enable the HR functions to provide better services to managers and employees by simplifying processes, facilitating communication, providing accurate data, and improving managers and employees' perceptions of HRM services (Bondarouk et al., 2015). e-HRM also leads to standardized procedures, which can help ensure that an organization remains compliant with HR requirements, resulting in more accurate decision-making (Deshwal, 2015). Based on these arguments, we propose:

H10c: e-HRM SU has a direct positive impact on the effectiveness of the HRM system at the practice level.

4. RESEARCH METHOD

4.1. Sampling and Data Collection

The target population of this study consists of all employees who use the e-HRM system in the telecommunications sector in Jordan. Based on the annual reports of the three companies, the total number of employees using the e-HRM system was determined to be about 2,500; 350 employees were deemed to represent a suitable sample for this research based on Sekaran and Bougie (2016). Using stratified random sampling, 350 questionnaires were distributed and 282 valid responses were obtained, which correspond to a response rate of over 80%. This sample size met the conditions required for the proposed model and CB-SEM. We chose to use CB-SEM because it enables a more complex and comprehensive analysis than other methods, where CB-SEM models usually have a full or partial mediator. CB-SEM not only facilitates the verification of relations between multiple variables but also helps reduce error (Hair, Hult, Ringle, & Sarstedt, 2014).

4.2. Survey Instrument Measures

This study used multi-item scales, which were developed and adapted from surveys used in the e-HRM and HRM effectiveness literature. The survey instrument was tested and refined according to the feedback of academics in the business field. The Appendix shows the instrument, which consists of 66 items that measure the six constructs of UTAUT, the roles of three stakeholder groups (TMS, HR professionals, and HR role of LMs), and the effectiveness of HRM system at the philosophy, policy, and practice levels. A 7-point Likert-type scale was used to offer greater accuracy, where 1= completely disagree and 7= completely agree.

The e-HRM determinants –PE, EE, FC, BI, and e-HRM SU – were derived from the UTAUT Questionnaire developed by Venkatesh et al. (2003) and adapted by Maatman (2006). The scales assess the extent to which e-HRM determinants affect the actual e-HRM SU.

The role of the HR professionals was measured using scale items that Maatman (2006) adapted from Sanders and Van der Ven (2004) and Ulrich (1997). The HRM role of LMs scale items relied on the literature from different sources (e.g., Paauwe, 2009; Purcell & Hutchinson, 2007). Additionally, the TMS items were adapted from Avolio and Bass (2004) and Sila (2010). The items related to the measurement of the perceived effectiveness of HRM functions were adapted from Maatman (2006). The scales capture the effectiveness of the HRM system at the philosophy, policy, and practice levels from employees' perceptions.

5. DATA ANALYSIS

The authors employed CB-SEM with Amos 24 to examine the proposed framework and hypotheses. CB-SEM is a confirmatory approach to SEM which analyses models with multi-layer equations, allows for observed and latent variables, and controls for measurement error while assessing the relationships (Bagozzi & Yi, 2012; Kline, 2011; Gefen, Rigdon, & Straub, 2011; Yuan & Bentler, 1998). CB-SEM is advantageous for studies that are grounded upon well-established theory. Because our suggested model is theory-driven, CB-SEM is very appropriate for this study (Gefen et al., 2011). The authors conducted data analysis in line with Anderson and Gerbing (1988), who advocated a two-step approach. In the initial stage, the authors performed a *confirmatory factor analysis* (CFA) to assess the psychometric properties of the scales (measurement model) used in this study. The structural relationships and the suggested hypotheses were assessed in the second stage. The sections below describe each stage in detail.

5.1. Measurement Model

In order to assess the psychometric properties of the measurement model, the authors examined several measures including composite reliability, convergent validity, and discriminate validity. CFA

was conducted to assess the tenability of the measurement model and to assess the above-mentioned measures. Prior to conducting CFA, the authors inspected the items' skewness and kurtosis to assess normality.

The result indicated that all the items did not exceed Kline's (2011, 2016) standard for acceptable skewness (< 3) and kurtosis (< 10), indicating that the data distribution is not an issue in this study. CFA was examined next; the authors analysed all measures in a single CFA model using Amos 24. Following Hu and Bentler (1999), various fit standards were employed to verify the tenability of the measurement model including the ratio of the χ^2 to the degrees of freedom ($\chi^2/\text{d.f.}$), comparative fit index (CFI), standardised root mean square residual (SRMR), and root mean square error of approximation (RMSEA). These indices offer rigorous signs of the fitness of a model. The acceptable fit is established for a model demonstrating $\chi^2/\text{d.f.}$ of less than 3, CFI of more than 0.90, SRMR of less than 0.8, and RMSEA of less than 0.08 (Hu & Bentler, 1999).

During CFA, some items were dropped due to large residual covariance. The dropped items are shown in the Appendix with a * mark. However, the CFA results provided evidence of good model fit ($\chi^2 = 2077.568$; $\text{d.f.} = 1247$; $\chi^2/\text{d.f.} = 1.666$; $\text{CFI} = 0.91$; $\text{RMSEA} = 0.04$). Next, the authors checked the reliability, convergent validity, and discriminant validity of each scale in the model.

5.1.1. Reliability

Reliability or internal consistency assesses the constancy of respondents' answers to a scale. Reliability was assessed through Cronbach's alpha and composite reliability, which are well-known criteria for this purpose. A block of items is considered homogenous if Cronbach's alpha is larger than 0.7 (Nunnally, 1978). Nunnally (1978) further maintained that permitted alpha values can be somewhat lower for new scales. A similar conclusion of internal consistency can be reached if the composite reliability value is also larger than 0.7 (Jöreskog, 1971).

As shown in Table 1, the obtained alpha values ranged from 0.59 to 0.86, with only two values less than 0.7. The effectiveness of the HRM system at the philosophy level (PH) had an alpha value of 0.59. PH is indeed a new tested scale, even in the literature and thus the alpha value of 0.59 could be acceptable. EE had an alpha value of 0.68, which is slightly lower than the threshold value of 0.7. However, because Cronbach's alpha usually produces very low values as the internal consistency is assessed based on unweighted items (Jöreskog, 1971; Hair, Risher, Sarstedt, & Ringle, 2018), the authors additionally used composite reliability, which assesses scale reliability based on unstandardised items estimates. The obtained composite reliability ranged from 0.78 to 0.89 which is well above the threshold value of 0.70. This suggests a reasonable level of internal consistency for our scales.

5.1.2. Convergent Validity

Convergent validity examines the extent to which individual items reflecting the same theoretical concept are interrelated in reality. Anderson and Gerbing (1988) maintained that convergent validity is established in CFA when an individual item's loading is twice as high as its standard error. Moreover, an individual item's loading should weight sufficiently and significantly on its postulated construct. The CFA results, as presented in Table 1, indicate that the items' loadings and their standard errors met the conditions specified above. Items' loadings were more than twice their standard error and loaded significantly on their proposed construct, suggesting that our scales had a reasonable level of convergent validity.

5.1.3. Discriminant Validity

Discriminant validity examines the extent to which set of related items uniquely measures a particular construct and does not measure any other constructs in a model. Segars (1997) suggested that discriminant validity during CFA can be assessed by comparing two nested models in which the covariance between two factors is fixed at unity in one model. However, the author maintained that fixing the correlation between factors at zero is a much more rigorous approach to support discriminant

Table 1. Reliability and convergent validity

Construct	Composite reliability (Jöreskog's rho)	Cronbach's alpha(α)	Item name	Standardised estimate	S.E.	P-value
PE	0.82	0.68	PE1	0.60	0.81	***
			PE2	0.68	0.14	***
			PE3	0.66	0.17	***
EE	0.88	0.79	EE1	0.69	0.06	***
			EE3	0.79	0.09	***
			EE4	0.77	0.08	***
SI	0.84	0.74	SI1	0.60	0.15	***
			SI2	0.65	0.08	***
			SI3	0.60	0.07	***
			SI4	0.63	0.07	***
FC	0.85	0.76	FC2	0.66	0.08	***
			FC3	0.67	0.10	***
			FC4	0.63	0.10	***
			FC5	0.66	0.09	***
BI	0.88	0.81	BI1	0.70	0.71	***
			BI2	0.75	0.08	***
			BI3	0.77	0.07	***
			BI4	0.66	0.08	***
SU	0.87	0.80	SU2	0.67	0.78	***
			SU4	0.75	0.08	***
			SU5	0.69	0.08	***
			SU6	0.70	0.07	***
TMS	0.85	0.78	TMs2	0.59	0.08	***
			TMs4	0.64	0.09	***
			TMs5	0.63	0.08	***
			TMs6	0.67	0.09	***
HR	0.85	0.77	HR1	0.65	0.08	***
			HR2	0.69	0.11	***
			HR3	0.67	0.11	***
			HR4	0.69	0.12	***
LMs	0.81	0.71	LMs1	0.43	0.11	***
			LMs2	0.50	0.20	***
			LMs4	0.62	0.25	***
			LMs5	0.65	0.26	***
PH	0.78	0.59	PH1	0.45	0.07	***
			PH2	0.51	0.07	***
			PH3	0.62	0.18	***
			PH4	0.63	0.18	***
PO	0.89	0.86	PO1	0.61	0.08	***
			PO2	0.67	0.10	***
			PO3	0.67	0.10	***
			PO5	0.69	0.10	***
			PO6	0.69	0.10	***
			PO7	0.63	0.10	***
			PO8	0.63	0.10	***
			PO9	0.59	0.10	***
			PO10	0.63	0.10	***
PR	0.88	0.84	PR1	0.70	0.08	***
			PR2	0.66	0.08	***
			PR3	0.67	0.08	***
			PR4	0.72	0.07	***
			PR5	0.72	0.08	***
			PR6	0.66	0.09	***

PE: performance expectancy; **EE:** effort expectancy; **SI:** social influence; **FC:** facilitating condition; **BI:** behavioural intention; **SU:** system usage; **TMS:** top management support; **HR:** the role of HR professional; **LMs:** the HRM role of line managers; **PH:** the effectiveness of the HRM system at the philosophy level; **PO:** the effectiveness of the HRM system at the policy level; **PR:** the effectiveness of the HRM system at the practice level.

Table 2. Discriminant validity: chi-square differences between fixed and free models

	PE	EE	SI	FC	BI	SU	TMS	HR	LMs	PH	PO	PR
PE												
EE	110.22											
SI	120.21	196.1										
FC	105.8	137.98	177.82									
BI	124.87	149.03	168.67	177.57								
SU	68.183	131.25	130.45	152.61	214.94							
TMS	10.26*	61.913	35.992	27.143	67.371	93.123						
HR	4.689*	27.146	24.922	22.512	21.867	23.152	137.37					
LMs	38.298	87.694	73.041	80.947	90.013	98.601	73.603	62.578				
PH	9.454*	44.613	30.442	43.609	39.396	43.52	42.903	22.984	133.65			
PO	28.301	78.873	55.185	73.345	63.301	73.315	58.087	31.347	183.46	166.64		
PR	40.156	90.853	60.381	66.465	84.36	99.94	67.43	34.439	164.18	138.27	382.15	

validity because even a minor correlation between two factors will suggest a lack of discriminant validity. A significant χ^2 difference offers an empirical basis on which to infer discriminant validity. Fixing the correlations at zero, the authors verified all 66 pairwise combinations among the 12 constructs. As shown in Table 2, all the χ^2 differences were significant at the 0.001 level, with only three values significant at the 0.05 level, indicated by the * mark. Accordingly, the authors concluded that the discriminant validity is satisfactory in the measurement model.

5.1.4. Common Method Bias (CMB)

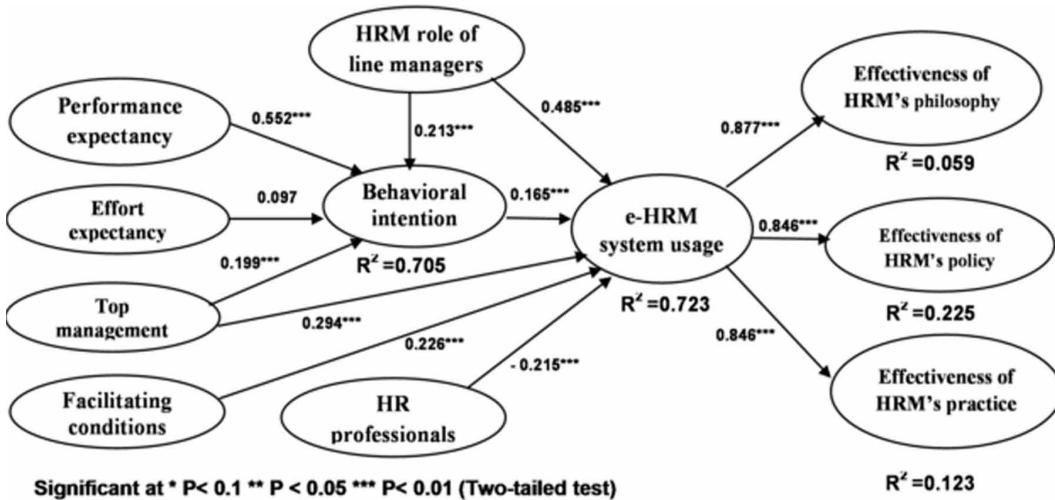
The threat of CMB to research validity is common in cross-sectional research that uses perceptual data collected from a single source (Malhotra, Kim, & Patil, 2006; Williams, Hartman, & Cavazotte, 2010; Podsakoff, MacKenzie, & Podsakoff, 2012). The authors used a common method latent factor to examine for possible CMB (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Comparing standardised items loading between models, with and without common method factor, revealed that the differences were minor and below the suggested threshold of 0.2. For further confirmation, the authors employed the stringent test including a correlation-based marker variable technique suggested by Lindell and Whitney (2001). As recommended in this technique, the correlations of the constructs of interest against a non-ideal marker variable were assessed. The smallest correlation coefficient ($r = 0.146$) was used to adjust the correlations of the substantive variables. The result indicated that only three out of 66 significant correlations became non-significant when adjusted for CMB, suggesting no bias in our conclusions.

5.2. Structural Model

Once the psychometric properties of the measured model were found to be satisfactory, the authors inspected the structural model to examine the suggested hypotheses. The results are shown in Fig. 2. The direct effect hypotheses (H1 to H10) were evaluated by estimating the significance of the relationships in the structural model.

In structural path analysis, the presence of multicollinearity would distort the empirical results. Therefore, the authors tested this issue prior to conducting data analysis by estimating the variance inflation factor (VIF). All estimated VIFs were below the threshold value of 5, except the SI factor. Methodologists recommend removing one of the extremely correlated variables or merging them with

Figure 2. The model results



another variable (Kline, 2011). The authors decided to remove SI from the model instead of merging it with the highly correlated variables because the latter solution does not make sense in this study. Moreover, LMs, HR professionals, and top management have a significant role in SI processes in the workplace; thus, SI is implicitly embedded in the model.

Next, squared multiple correlation (SMC) were used to assess the predictive validity of the model. The SMC of the BI indicated that 70.5% of the variance in BI was explained by PE, EE, the HRM role of LMs, and TMS. The SMC of the e-HRM SU indicated that 72.3% of the variance in SU was explained by BI, FC, the HR role of LMs, TMS, and the role of HR professionals. e-HRM SU explained about 5.9%, 22.5%, and 12.3% of the variance in PH, PO, and PR, respectively. The overall model demonstrated good model fit ($\chi^2 = 1844.128$; d.f. = 1083; $\chi^2/d.f. = 1.703$; CFI = 0.91; RMSEA = 0.04; SRMR = 0.05), suggesting that the data fit our structural model.

5.2.1. Direct Effect Hypotheses

The authors estimated the standardised estimation coefficient and its significance level for each path in the model in order to test the proposed hypotheses. The results (presented in Table 3) indicate that PE (path coefficient = 0.552, $p < 0.000$), TMS (path coefficient = 0.199, $p < 0.01$), and the HRM role of LMs (path coefficient = 0.213, $p < 0.01$), each has significantly positive effects on BI, providing support for hypotheses H1, H3, and H4. Contrary to our expectations, EE has a non-significant effect on BI (path coefficient = 0.097, $p > 0.05$). Thus, H2 is not supported. The results also indicates that FC (path coefficient = 0.226, $p < 0.000$), the HRM role of LMs (path coefficient = 0.485, $p < 0.000$), and TMS (path coefficient = 0.294, $p < 0.000$) each had significant positive effects on e-HRM SU, providing empirical support for hypotheses H5, H7, and H8. Surprisingly, the effect of HR professionals had a significantly negative effect on e-HRM system usage (path coefficient = -0.215, $p < 0.01$), which is contrary to the prediction of hypothesis H6. Therefore, hypothesis H6 is not supported. BI is a significant positive predictor of e-HRM SU (path coefficient = 0.165, $p < 0.01$), providing support for hypothesis H9. Finally, the effects of e-HRM SU on PH (path coefficient = 0.877, $p < 0.000$), PO (path coefficient = 0.846, $p < 0.000$), and PR (path coefficient = 0.846, $p < 0.000$) are significantly positive. Accordingly, hypotheses H10a, H10b, and H10c are supported.

Table 3. The estimation of direct effects

Hypotheses	Exploratory Variables	Criterion Variables	Estimate	S.E.	C.R.	P-value
H1	PE	BI	0.552	0.213	5.478	0.000
H2	EE	BI	0.097	0.106	0.964	0.335
H3	TMS	BI	0.199	0.096	2.953	0.003
H4	LMs	BI	0.213	0.23	2.603	0.009
H5	FC	SU	0.226	0.075	3.419	0.000
H6	HR	SU	-0.215	0.084	-3.164	0.002
H7	LMs	SU	0.485	0.238	5.183	0.000
H8	TMS	SU	0.294	0.093	4.064	0.000
H9	BI	SU	0.165	0.057	2.625	0.009
H10a	SU	PH	0.877	0.077	8.03	0.000
H10b	SU	PO	0.846	0.069	8.499	0.000
H10c	SU	PR	0.846	0.073	9.355	0.000

5.2.2. Mediation Analysis

The authors performed a simple mediation analysis to estimate the indirect effects of LMs on PH, PR, and PO using a bootstrapping strategy (Preacher & Hayes, 2008). The results in Table 4 indicate that the indirect effects of the HRM role of LMs on PH (path coefficient= 0.812, $p < 0.05$), PO (path coefficient= 0.897, $p < 0.05$), and PR (path coefficient= 0.771, $p < 0.05$) are significantly positive. Moreover, all indirect paths have a 95% confidence interval that does not include zero. Because the direct effect of the HRM role of LMs is significant with the presence of e-HRM SU, the authors concluded that e-HRM SU partially mediates the effect of the HRM role of LMs on PH, PR, and PO (Baron & Kenny, 1986).

6. DISCUSSION AND STUDY IMPLICATIONS

This research extends the debate on the contribution of the e-HRM system usage on the effectiveness of the HRM system at the philosophy, policy, and practice levels. An empirical test of our theoretical model based on UTAUT, SET, and LMX Theory provided new insights into this research domain. This study's findings suggest that the integration of UTAUT with other e-HRM implementation-related constructs such as TMS and the roles of HR professionals and LMs can enhance our understanding of BI towards e-HRM system usage and their subsequent effects on e-HRM outcomes.

In addition to the significant direct impact of e-HRM usage on the three effectiveness measures, our findings reveal that the relationship between the HR role of LMs and HRM effectiveness is

Table 4. The estimation of indirect effects

Indirect Effects	Bootstrap Estimate	Bootstrap Standard Errors	P-value	Lower	Upper
LMs->SU->PH	0.812	0.228	0.01	0.532	1.265
LMs->SU->PO	0.897	0.24	0.01	0.605	1.371
LMs->SU->PR	0.771	0.226	0.01	0.495	1.227

mediated through e-HRM system usage. The outcomes of e-HRM system implementation such as better service quality and standardisation should lead to an improvement of HRM practices that are implemented by LMs and carried out by employees themselves. This supports the recent findings of Bos-Nehles and Meijerink, (2018), who contended that employees' perceptions of HRM applications are influenced by the nature of the relationships with their managers and the organisational environment. Future research should also investigate these relationships from the perspectives of different stakeholders (Lengnick-Hall et al., 2009).

6.1. Managerial implications

The study's findings offer clear insight for practitioners. The study was implemented in Jordan's telecommunications sector, as telecoms companies are in a progressive stage of transforming their HR duties. The authors examined the use of e-HRM applications and discovered that these applications served as vital tools, enabling telecoms to better manage their HRM service quality. One of the main findings is that exchange relationships will enhance employees' perceptions of HRM functions and encourage e-HRM SU. The authors investigated the role of TMS and LMs and found that these variables have a significant effect on employees' BI towards e-HRM systems and their actual usage, which, in turn, leads to a more effective HRM system within the organisation.

The significant negative role of HR professionals on e-HRM usage suggests that employees may have a negative perception about the monitoring role of the HR staff. This poses a challenge to the HR experts as it requires that they improve the image and the nature of the services offered by the HR department. Accordingly, the HR staff should receive training and education to improve their knowledge, functional skills, and ability to perform HR activities.

It is important, however, that the content of HRM policy and practices be evaluated before the implementation of the e-HRM system to meet the expectations and demands of end-users. The HRM policy must be distinctive and consistent, and there should be a consensus among all users. This will enhance end-user satisfaction and the perceived efficiency and effectiveness of the HRM system. The implementation of the e-HRM system affects the responsibilities of all HRM users and the way different HRM practices are performed. Therefore, a better understanding of the interactions among the e-HRM stakeholders leads to a successful implementation. e-HRM is shifting traditional HRM techniques to a more strategic approach, which contributes to the firm's performance based on e-HRM goals and business orientation. From a practical standpoint, implementing competitive strategies through technological applications and employee engagement leads to an alignment of valuable resources with business goals.

6.2. Research and Theory Implications

Many researchers have replicated the UTAUT model and have adapted the model to determine the factors that affect various IT systems implementation and their effects on organisational outcomes (Venkatesh et al., 2012). This study's findings contribute to theory development by providing significant support for most of the proposed hypotheses. They also support the argument that the integration of UTAUT with SET and LMX Theory produces a robust framework for such analyses. Specifically, the authors examined new constructs (TMS and the HRM role of LMs) that influence BI, which had significant effects on employees' perceptions and attitudes towards the use of e-HRM system. PE has a strong significant effect on employees' BI, whereas EE has a non-significant effect. In summary, the main constructs that explained the variance in BI are *PE*, *TMS* and the *HR role of LMs*. In addition to BI and FC, TMS, and the HR role of LMs accounted for the variance in e-HRM SU. Thus, the findings showed empirical support for the role of top management and LMs on both BI and the use of the e-HRM system. These two factors incorporated in UTAUT as SET and LMX constructs emphasize the importance of the interaction between the e-HRM stakeholders.

The significant relationships between e-HRM system actual usage and the effectiveness of HRM system at the philosophy, policy, and practice levels are supported from end-users' perspectives. This

is one of our main contributions to theory development. As Bos-Nehles and Meijerink (2018) suggest, such extended models that provide a comprehensive picture of e-HRM by exploring e-HRM's context, configuration, and consequences are scant. This study's findings indicate the significant positive effect of e-HRM SU on the HRM system effectiveness at the philosophy level through the well-fitting and complementary relationship between HRM philosophy and business strategy. Moreover, at the HRM policy level, e-HRM had a strong influence on the distinctiveness and consistency of and consensus about HRM policy. Additionally, e-HRM had a significantly positive influence on employees' perceptions of HRM practices regarding the quality of HRM services and real-time response to HRM needs.

This study supports the findings of previous HRM research that considers the value of e-HRM system implementation for the organisation (Marler & Fisher, 2013; Obeidat, 2016) and the enhancement of HRM effectiveness (Ruël et al., 2007; Bondarouk & Ruël, 2012) as the main consequences of e-HRM. Despite the fact that studies in e-HRM literature have explored the relationship between the factors predicting BI towards e-HRM and its actual use, to our knowledge, this study is the first to examine the mediating role of the e-HRM system between the HRM role of LMs and the HRM system effectiveness at the philosophy, policy, and practice levels. The findings are also in line with previous research which revealed that e-HRM usage enhances the HRM system implementation process (Ruël et al., 2007; Obeidat, 2016) and increases HR information responsiveness to users' needs (Strohmeier, 2007).

Venkatesh et al.'s (2012) study expanded on UTAUT in terms of consumer acceptance and use of new technology context. The extensions proposed in UTAUT2 produced improvement in variance explained in BI (about 74%) and in technology use (about 52%), in comparison to Venkatesh et al.'s (2003) initial findings that the four constructs of accounted for 56% and 40% of the variance, respectively. The proposed model in this study incorporated three new constructs into UTAUT – the *HRM role of LMs*, *TMS*, and the *role of HR professionals*. The findings indicated that UTAUT with the new constructs explained 70.5% of the variance in BI. Moreover, a substantial improvement in the variance in e-HRM SU – 72.3% – is explained by BI, FC, and the new constructs. This advocates the importance of the new constructs in assessing the validity of an expanded UTAUT in an end-user context and integrating these with SET and LMX Theory in an organisational context.

This study's findings are in line with those of Venkatesh et al. (2003) who showed that the BI to use IT is the main predictor of actual system use. The authors have responded to Venkatesh et al.'s (2012) call to explore more factors predicting BI and SU. However, no support was found for the hypothesised relationship between EE and BI. This is perhaps because most people today are more adept at using smart applications and may suggest a decrease in the importance of this factor. The negative relationship between the role of HR staff and e-HRM SU from the employees' perspectives should alert HR staff to review the image of and employees' attitudes towards the HR department. The optimal use of the e-HRM system will enable HR staff to legitimise HRM functions by delivering visible, fair, agreeable, and trusted HRM practices to all employees.

6.3 Research Limitations

The main limitation of this research is related to the limited sample size; a larger sample will produce more accurate results, but it is more difficult to obtain. This study is also based on cross-sectional data, though longitudinal data are required to establish casual relationships between constructs. Even though this study offered empirical evidence in the e-HRM context, it was limited to two companies; since the third telecommunication company *Zain* adopted a policy not to participate in any surveys, the authors could not obtain data from this company, which may have affected the generalisability of the study's findings.

Another limitation is that the study's targeted group is employees who have different levels of awareness and perception of HRM policy and practices. However, previous researchers revealed that

different stakeholder groups (employees, LMs, and HR staff) may have different standpoints regarding their experiences of e-HRM functions.

7. CONCLUSION

In spite of the above limitations, our study provided fresh and important insights into the roles of TMS, HR professionals, and LMs in shaping behavioural intention to use e-HRM and actual e-HRM usage, which, in turn, contributed to HRM system effectiveness at the philosophy, policy, and practice levels. The role of e-HRM role within organisations has ultimately changed from using basic functions related to the daily routine and traditional transactional HRM practices to handling more advanced transformational activities. Even though this study explored e-HRM in the telecommunications sector in Jordan, the results will benefit other similar businesses as well. There is a need to focus more on the ICT aspects related to HRM function. There is room for researchers to explore and conduct in-depth investigations related to e-HRM applications and their effectiveness in different business services or industries. The authors call for further empirical research to replicate this work and build upon the findings to study the strategic value of e-HRM. Finally, the authors encourage future researchers to explore the differences between different stakeholders' perceptions of e-HRM function and practices and of their impacts on the effectiveness of HRM system at philosophy, policy, and practice levels.

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APPENDIX

Figure 3a. Questionnaire: Using the e-HRM system in Jordan's telecommunications sector

The Role of HR staff (HR)		
35	HR1	The HR staff encourage the use of e-HRM system services
36	HR2	HR staff participate in the development of HRM processes
37	HR3	HR staff spend their time on operational HRM activities instead of routine work
38	HR4	HRM staff actively participate in the implementation of e-HRM processes
39*	HR5	e-HRM tools are essential to the role of HR practitioners to become more strategic
40*	HR6	HR professionals, with the help of e-HRM tools, can play more of an advisory role to line management
The HR role of Line managers (LMs)		
41	LMs1	Line managers implement e-HRM practices the way they should effectively
42	LMs2	The devolution of HR responsibilities to line managers conducted through e-HRM is well documented
43*	LMs3	The line managers use various e-HRM practices to select, train, develop, coach, appraise, reward and manage their subordinates
44	LMs4	The line managers and HR managers usually work closely together to ensure the e-HRM usefulness
45	LMs5	I feel satisfied with my supervisor appraisal that is conducted using the e-HRM system
46	LMs6	My supervisor informs us through the e-HRM system when we perform well and keeps me up-to-date
The Perceived effectiveness of the HRM system at the philosophy level (PH)		
47	PH1	There is a clear fit between HRM and business strategy
48	PH2	There is a clear fit between business and HR strategy
49	PH3	HR and business strategy are complementary
The Perceived effectiveness of the HRM system at policy level (PO)		
50	PO1	The policies of the HR department are clear
51	PO2	The policies of the HR department are easy to comprehend
52	PO3	The policies of the HR department are credible
Consistency of HRM's Policy		
53*	PO4	The consequences of my HR actions are clearly visible on a timely schedule
54	PO5	The HR department does what it says it does
55	PO6	The HR department is consistent in its operations
Consensus about HRM's Policy		
56	PO7	There is an agreement about HR policies among HRM decision-makers
57	PO8	The HR department treats all employees equally
58	PO9	The HR practices seem fair
The perceived effectiveness of the HRM system at practices level (PR)		
Responsiveness		
59	PR1	I am updated about HR transactions immediately when they are important for me
60	PR2	When I need advice on HR issues, the HR department helps me quickly
61	PR3	When I am in need of HR services, I receive prompt service from the HR department
Service Quality		
62	PR4	The HR services are performed correctly the first time
63	PR5	The HR department is willing and ready to provide service
64	PR6	The HR service is easily accessible
Helpfulness		
65*	PR7	HRM staff are helpful to managers when dealing with HR matters
66*	PR8	HRM staff are helpful to employees in regard to their rights, entitlements and needs

Figure 3b. Questionnaire: Using the e-HRM system in Jordan's telecommunications sector

Performance Expectancy (PE)		
1	PE1	I find using the e-HRM system useful for carrying out job-related tasks
2	PE2	Using the e-HRM system enables me to accomplish job-related tasks more quickly
3	PE3	Using the e-HRM system increases my productivity
4*	PE4	If I use the e-HRM system, I will increase my chances of getting a raise
Effort Expectancy (EE)		
5	EE1	My interaction (working) with the e-HRM technology would be clear and understandable
6*	EE2	It is easy for me to become skilful at using the e-HRM system
7	EE3	I would find the e-HRM system services easy to use
8	EE4	Learning how to operate/use the system is easy for me
Social Influence (SI)		
9	SI1	People who influence my behaviour think that I should use e-HRM system services
10	SI2	People who are important to me think that I should use e-HRM system services
11	SI3	The HR staff are helpful in relation to the use of e-HRM system services
12	SI4	The managers/ HR encourage the use of e-HRM system services
Facilitating Condition (FC)		
13*	FC1	I have the knowledge necessary to use e-HRM system services
14	FC2	I have the necessary resources to use e-HRM technology, computer and Internet
15	FC3	I think that the e-HRM system fits well with the way I like to work
16	FC4	All the contents of the e-HRM system service are easy to read and understand
17	FC5	A specific person (group) is available for assistance with e-HRM technology difficulties
Behavioural Intention (BI)		
18	BI1	I intend to continue using the e-HRM system in the near future
19	BI2	I will always try to use the e-HRM system service in the near future
20	BI3	I plan to continue to use the e-HRM system service frequently in the near future
21	BI4	Using the system is a good idea
e-HRM System Usage (SU)		
22*	SU1	I use e-HRM technology for performing HR self-service
23	SU2	I have used e-HRM technology for several years
24*	SU3	I use the e-HRM system for (salary statement, leave approval, promotion, training, communication, application ...)
25	SU4	I appreciate that the following HR activities are provided through using e-HRM: Payroll, appraisal, communication.....
26	SU5	Fewer errors occur when employees use e-HRM tools
27	SU6	The use of e-HRM tools has led to the automation of routine HR work
Top Management Support (TMS)		
28*	TMS1	The top management encourages the use of e-HRM system services
29	TMS2	The strategic plan emphasises the usefulness of the e-HRM usage
30*	TMS3	The top management considers the adoption of the e-HRM system as strategically important
31	TMS4	The top management is likely to invest funds in the e-HRM system
32	TMS5	The top management has allocated adequate resources for e-HRM implementation
33	TMS6	The top management knows the advantages of e-HRM and they are enthusiastic to implement the system
34	TMS7	The top management has a clear vision for e-HRM goals

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