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Factors influencing electronic human resource management implementation in public organisations in an emerging economy: An empirical study

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Purpose: Governments in developing countries are riddled with operational inefficiencies. Many have turned to electronic service delivery to address these operational problems. With coronavirus disease 2019 (COVID-19) pandemic, the push for digitalisation has only got stronger. We use the technology acceptance model (TAM) and innovation diffusion model (IDM) to investigate the factors that influence the implementation of electronic human resource management (e-HRM) in selected public organisations in an emerging economy.

Design/methodology/approach: Data were collected from key informants composed of human resource (HR) officers, supervisors, line managers and sections of employees in selected public sector organisations. The data were analysed using hierarchical regression techniques.

Findings/results: The various dimensions of TAM and IDM were found to contribute to the implementation of e-HRM in public organisations significantly. Specifically, perceived simplicity of usage, perceived usefulness, self-efficacy, compatibility and facilitating conditions showed significant positive effects on e-HRM implementation intentions. Furthermore, compatibility and perceived ease of use significantly predicted perceived usefulness of e-HRM.

Practical implications: The influence of the dimensions of TAM and IDM in e-HRM implementation intentions in public institutions in this study dictates that governments in developing nations need to pay attention to both technology features and employee's technology capabilities to ensure smooth digitalisation of government business.

Originality/value: The integration of TAM and IDM in assessing e-HRM implementation in a developing nation enriches e-government and HR management literature.

Keywords: e-HRM; technology acceptance model; innovation diffusion model; public organisation; implementation.

Introduction

The operational and functional activities of organisations have been revolutionised over past decades as a consequence of ongoing digitalisation initiatives, and the human resource (HR) department is no exception. Human resource activities such as recruiting, training, compensation just to mention a few have been reoriented with the support of technology and data analytics (Galanaki, Lazazzara, & Parry, 2019; Iqbal, Ahmad, Allen, & Raziq, 2018). The digitalisation of HR activities and the introduction of automation have given rise to the term electronic human resource management (e-HRM). Electronic human resource management, according to Johnson, Alahi and Fei-Fei (2016), is the application and transmission of HR services provided by the human resource information system (HRIS) that connects employees, applicants, managers and external stakeholders. Also, Marler and Parry (2016) considered e-HRM as the configuration of computer hardware and infrastructure, software and electronic networking resources that allow proposed or actual HRM activities to work effectively. Similarly, Ruël, Bondarouk and Van Der Velde (2007) captured e-HRM as a method of implementing HRM strategies, policies and practices in organisations through the deliberate and direct support of and utilisation of both online and offline technology-based channels. Inasmuch as there is no universally accepted definition for e-HRM, the underlying factor of e-HRM is rooted in the utilisation of technology to accomplish HR-related tasks. Electronic human resource management is targeted at automating certain functional activities of HR – the adoption of an artificial intelligent system coupled with data analytics has transformed talent recruitment and retention processes (Qamar, Agrawal, Samad, &

Jabbour, 2021; Tambe, Cappelli, & Yakubovich, 2019). The adoption of e-HRM is a firm-level strategy with the sole objective of aligning employee behaviour with strategic choices by using flexible and integrated technologies (Bondarouk & Ruel, 2009; Panos & Bellou, 2016).

A strong case has been made over the years for the adoption of e-HRM systems. Proponents of the e-HRM system argue that it has the potential to improve client services, optimise organisational HRM cost and promote efficiency and productivity (Iqbal et al., 2018; Poisat & Mey, 2017). However, the degree of adoption and implementation differ from organisations and jurisdictions. In addition, there are disparities in the rate of acceptance between private and public sector entities (Bondarouk, Parry, & Furtmueller, 2017). This, therefore, limits researchers' insights into factors that contribute to the implementation of e-HRM across diverse regions, industries and sectors. The majority of studies in the extant literature attempt to unearth the influencers of e-HRM adoption in private enterprises, with few (Bondarouk & Ruël, 2013; Wahyudi & Park, 2014) focusing on public sector organisations. Also, the bulk of literature output on e-HRM has been in industrialised or developed economies. A paper that clearly stands out, treating e-HRM in a third world context is that of Rahman, Mordi and Nwagbara (2018). The authors investigated the factors influencing the implementation of e-HRM in government organisations in developing economies, and discovered low e-HRM penetration and paucity of literature evidence in these countries. They suggested that the rationale for the scare literature on the subject in developing countries may be rooted in the low rate of adoption of technologies in these regions. Although their paper made some contributions by highlighting contributory factors to e-HRM adoption, it lacks empirical rigor. And this is a gap in the literature that needs to be filled to inform e-HRM uptake.

This study adds to the body of knowledge by empirically examining the factors that influence the implementation of e-HRM in public institutions, especially in developing regions such as those in Africa. The context of sub-Saharan Africa is relevant because in recent times, public institutions have been undergoing digital transformation in every aspect of operations to ensure effective and efficient performance. The adoption of digital technology and tools to facilitate e-HRM is at the early stages in African countries compared to their counterparts in developed economies (Sungwa, 2021). The unique characteristics of the socio-political environment and complex nature of public institutions in Africa make it different from entities in other jurisdictions. Therefore, it would be challenging to generalise findings from such studies in the African context (Onyango & Ondiek, 2021). Accordingly, the research question that this study addresses is: what factors influence the implementation of e-HRM in government organisations in developing nations? Gaining insights into factors influencing and enhancing e-HRM implementation in government organisations in Africa would contribute to the literature significantly. The remainder of the study is arranged as follows: Second section presents the literature review, theoretical background and hypotheses; third section details research methodology; fourth section reports the empirical results and fifth section concludes the article and discusses avenues for further research.

Literature review
Electronic human resource management
Definitions

Human resource practitioners have been using Information Systems (IS) for HR tasks since the early 1980s as a result of the rising use of IS in businesses(Voermans & Van Veldhoven, 2007). Electronic human resource management encompasses all applications connected to labour force planning, supply and demand forecasting, staffing information, applicant tracking, training and development information, wage management, labour/employee relations, promotion-related information and so on (Bamel, Bamel, Sahay, &Thite, 2014). Electronic human resource management, when viewed as a strategic resource, enriches HR-related strategy development and decision-making. Johnson et al. (2016) posit e-HRM as the application and transmission of HR services using a HRIS that connects employees, candidates, managers and external stakeholders. Marler and Parry (2016) further argued is the configuration of computer hardware and architecture, software and electronic networking resources that allow proposed or actual HRM operations.

The common notion that amalgamates these definitions emphasises several important characteristics of e-HRM. To begin, e-HRM employs information technology in two ways: firstly, it is required to typically connect spatially separate actors and enable interactions between them, regardless of whether they are working in the same room or in different continents. Thus, technology serves as a medium for connection and integration. Secondly, technology aids actors partially, and in some cases, it totally automates HR tasks (Iqbal et al., 2018). By emphasising the concept of interaction and networking, the sharing of HR activities by at least two actors stresses the concept of interaction and networking. Individual and collective actors are included because e-HRM is a multi-layered system; in addition to individual players, there are collective actors such as groups, organisational units and even entire organisations that interact to execute HR operations (Strohmeier, 2007).

In sum, e-HRM can simply be referred to as the use of information technology to connect and support people as they collaborate on HR tasks. Thus, e-HRM entails the coordination of human and technological components to meet an organisation's HR objectives and goals (Lengnick-Hall & Moritz, 2003). The lack of unanimity in defining e-HRM might be because of the many dimensions of information technology (Orlikowski & Scott, 2008).

Types of electronic human resource management

Inasmuch as there is no consensus on the definition of e-HRM, Lepak and Snell (1998) made some clear distinction

between the various e-HRM systems. Electronic human resource management is classified into three categories: operational, relational and transformational e-HRM. All basic administrative procedures such as payroll, personnel data administration, departmental record maintenance and other functional tasks of the HR department are included in operational e-HRM (Reilly, 2018). For example, automation of operational HR activities optimises resource allocation and further mitigates the risk of errors (Tambe et al., 2019). The automation of this basic administrative service has the potential to improve the productivity of HR practices. Automating administrative activities has improved the processing speed of HR-related data resulting in enhancing people management decision-making (Poisat & Mey, 2017; Ruël, Bondarouk, & Looise, 2004).

The relational dimension of e-HRM plays a strategic role in aligning talents and employees towards achieving organisational strategic goals. Within this dimension, HR practices are mostly focused on the tools that support basic business processes and operations such as e-recruiting and selection, e-learning/training and e-performance. In furtherance, relational e-HRM would provide critical data and information to employees and managers working remotely (Bondarouk & Ruël, 2009; Poisat & Mey, 2017). The current crisis of coronavirus disease 2019 (COVID-19) makes a case for relational e-HRM in organisations if key performance indicators and productivity would be attained. By adopting relational e-HRM, organisations can communicate and exchange real-time information with internal and external stakeholders, thereby enriching stakeholder engagement (Galanaki et al., 2019).

The third pillar, transformational e-HRM, is concerned with HR management strategic activities such as change management methods in organisations, re-orientation in terms of strategy, management of strategic expertise and knowledge management on a strategic level (Ruël et al., 2004). Summarily, transformational e-HRM attempts to align HR management activities with strategic and corporate level goals of an organisation. Human resource functions are aligned to organisational objectives through the reconfiguration and realignment of talent management practices and policies to ensure that management has access to critical data to make an evidence-based decision when necessary (Parry & Tyson, 2011).

Electronic human resource management in public organisations

With the acceptance and usage of technology in recent decades, organisations' functional and operational activities have been transformed. To stay competitive and relevant, companies have matched their business practices and trends with changing technological advances (Steen & Nauta, 2020). Technological adoption provides organisations the requisite toolkit effectively. Furthermore, technology adoption practically has an impact on every aspect of business and

society. Technological innovation and adoption, for example, have changed the way people buy and use goods and services (Ampadu et al., 2022; Avornyo, Fang, Antwi, Aboagye, & Boadi, 2019). Financial, marketing, operations/production and HR management functions have all been affected in organisational contexts (Hosain, 2017; Poba-Nzaou, Uwizeyemunugu, Gaha, & Laberge, 2020).

The digitalisation drive has transcended the corridors of private organisations into public institutions over the past decades. Bondarouk and Ruël (2009) acknowledged the adoption of the e-HRM system in public institutions through their study that examined the effectiveness of e-HRM in a public entity. By analysing data collected from line managers and employees of governmental organisations, their study reveals that there is an association between e-HRM application and observed efficacy of HRM. However, studies have indicated that firms are not able to convincingly enjoy the strategic benefits associated with e-HRM. The satisfactory level of the application of e-HRM differs between the line manager/supervisor and employees (Ruël & Bondarouk, 2012). The inability of firms to enjoy the benefits of e-HRM can be ascribed to the implementation process.

A cross-sectional study undertaken in 23 European countries indicates e-HRM as a common practice in both private and public sector organisations (Ruël & Bondarouk, 2012). The article further revealed factors such as organisation's size, nature of organisational work and configuration of HRs as enablers of e-HRM's adoption. However, there are adoption disparities across diverse organisations in different European countries (Bondarouk et al., 2017; Gueutal, Strohmeier, & Kabst, 2009). These studies show that even in matured public sector management, the adoption and implementation of e-HRM differ. Therefore, the need to further investigate what factors work in a different continent with unique socio-economic conditions is commendable instead of generalising findings from the first world to the developing world.

Promising attempts are beginning to trickle in; for instance, Rahman et al. (2018) examined e-HRM in government organisations in Bangladesh using qualitative case study techniques. Their study is one example amongst a handful of papers examining the phenomena in a developing economy. The dearth of literature on e-HRM in public organisations is attributed to a low degree of technology adoption in such regions. However, in their study, it is seen that e-HRM has been adopted in recent times to automate administrative tasks and activities. The presumption for the adoption of such technology rests with the perceived benefits and promise of transparency it offers. Their study acknowledges that the adoption of e-HRM is at the early stage of the technology adoption cycle. Synthesis of the body of literature on e-HRM indicates that researchers have paid limited attention to e-HRM in public/government organisations, particularly in developing economies (Gueutal et al., 2009; Hosain, 2017; Mashrafi, 2020; Ruël & Bondarouk, 2012).

Electronic human resource management implementation in public organisations

Technology-infused HRM practices are based on the notion that the utilisation of information technology would affect organisational communication, efficiency and performance (Lin, 2011). The underlying phenomenon for the utilisation in HRM processes and practices is based on its ability to automate administrative task and further have significant consequence on HRM decision-making. The adoption of e-HRM is in its promise to decouple complex tasks involved in functional activities of HRM. In this regard, the duty and responsibilities of HRM teams are enhanced to adapt to these new technologies and its impact on its activities (Marler & Fisher, 2013; Marler & Liang, 2012). This perspective, however, competes with an alternate view. In this alternative perspective, managerial strategic choice plays the primary role and choices are made concerning how technology best serves the organisation in achieving strategic objectives (Barley, 1986). From this perspective, when e-HRM is adopted and how it is deployed is the result of strategic decision-making and managerial intent (Broderick & Boudreau, 1992; Marler, 2009; Martin & Reddington, 2010; Ruel, Bondarouk, & Looise, 2004).

Implementing e-HRM presents businesses with a variety of benefits and obstacles. Because most functional operations are automated, the implementation of e-HRM resulted in a reduction in the cost of HR functions. The reduction of expenses resulting from the automation of administrative and other activities is inextricably linked to the decrease of activity execution times and bureaucratic practices (Bondarouk & Ruël, 2013; Ben Moussa & El Arbi, 2020). Although some experts contend that resource reallocation does not result in considerable cost savings, it is undeniable that the implementation of e-HRM helped in the achievement and maintenance of a firm's competitive edge. The use of technology has decreased the length of time spent on everyday tasks. This has a favourable impact on the HR department and the firm as a whole.

The majority of slack time earned as a consequence of reduced everyday duties is spent on other enjoyable pursuits. The goal and motive behind e-HRM adoption are to increase work efficiency, efficacy and standardisation. It also serves as an intermediary in the restructuring of the entire organisation's procedures (Fenech, Baguant, & Ivanov, 2019; Nagendra & Deshpande, 2014; Obeidat, 2016; Zubielqui, Fryges, & Jones, 2019). As various authors have explained, the acceptance of e-HRM is motivated by the desire to improve a company's overall performance.

According to a survey conducted by Rahman et al. (2018), the majority of government organisations in Bangladesh are deploying e-HRM systems to evaluate their HR functions, and the system's usage is assessed to be high or moderate. According to the discovery of the latter study, e-HRM enables an organisation to recruit and select the appropriate and talented individuals for the job and consequently improve organisation's performance. The integration of information system and HR activities provides this capable workforce with additional training – increasing their knowledge, skills and commitment to the organisation (Masum, Bhuiyan, & Azam, 2013). In addition, a study conducted by Poisat and Mey (2017) and Blom, Du Plessis and Kazeroony (2019) supports the assertion that government organisations over the period have been transitioning into a digital era of HR activities. However, the discharge of e-HRM systems reduced the reliance of employees on HR personnel in the short and long run. The enactment and discharge of e-HRM are influenced by the perceived benefits organisations stand to gain.

Also, the implementation of e-HRM is influenced by normative forces. Furthermore, the discharge of e-HRM is facilitated and hindered by a series of ex-ante and ex-parte factors. Implementing an HR portal is a difficult task that requires companies manage both transition for employees and technical issues for the project installation team. Although technological installation issues can be significant, the human issues associated with organisational change cannot (and frequently are) be disregarded throughout the HR portal deployment phase. Employees must adjust to a new relationship with HR, accept interacting with a computer rather than a person and, for some, employ new technology (Ruta, 2005).

Another threat to the e-HRM system is employee security and privacy concerns. Employees are concerned that other employees may have access to their personal information, private data or payroll system and may be able to change it, lowering their trust in the organisation (Joseph & Ezzedeen, 2011). Because of the investment cost and the question of control at work, implementing e-HRM programs is seen as political. According to Oswal and Narayanappa (2015), the introduction of technology into organisations may foster power games and political influence over decision-making processes. Furthermore, for a new e-HRM system to be accepted and used within the organisation, both managers and employees must be engaged with it. Managers have complained that adopting e-HRM is not a good use of their time, and some continue to utilise old offline systems, resulting in difficulties in motivating managers and staff to utilise e-HRM systems (Parry & Tyson, 2011). This example emphasises the need of persuading employees to alter their ideas about the significance of implementing e-HRM to avoid delays and realise the benefits that come with it (Parry & Tyson, 2011). Addressing these implementation challenges would impact the outcome and implementation of the e-HRM system, especially in public organisations.

Theoretical perspective

There has been a plethora of theoretical perspectives used to investigate the adoption and implementation of e-HRM in previous studies. The firm's resource-based perspective (Parry & Tyson, 2011), theory of dynamic capacity (Bondarouk & Ruël, 2013), theory of contingency (Marler & Parry, 2016),

theories of innovation diffusion (Bondarouk, Schilling, & Ruël, 2016) and adaptive structuration theory (Bondarouk et al., 2016) have all been used in existing e-HRM research (Bissola & Imperatori, 2014; Marler & Fisher, 2013). We take an exploratory approach based on IS research findings. We are especially interested in the connections amongst e-HRM, the efficiency of labour and the standard of service. The importance of the latter concept cannot be overstated.

In this study, we integrated some dimensions of the technology acceptance model (TAM) (Davis, Bagozzi, & Warshaw, 1989) and extended in research done by Venkatesh and Davis (2000) and some dimensions of innovation diffusion theory proposed by Rogers (2003). The core mandate of these theoretical models is to provide insight into the factors that shape an individual's behaviour and intention to adopt specific technologies. Several factors influence the adoption of e-HRM, which have been categorised as organisational factors, human factors and technological aspects. The activities and size of a company have an impact on the decision to accept or not embrace technology. In comparison with small businesses, large firms with sufficient resources can adopt new methods of managing human capital (Berber, Đorđević, & Milanović, 2018; Lazazzara & Galanaki, 2018). Additionally, firms with strong IT skills establish policies and mechanisms to enable the integration and use of e-HRM systems and portals. The adoption of these theoretical models offers a robust theoretical lens to examine the diverse factors that impact the adoption and application of e-HRM systems and portals. Using the model of technological acceptance, the study provides a nuanced knowledge of the factors that impact e-HRM adoption at the individual and firm-level (Villarreal et al., 2021).

The relevance of perceived usability and usage intention in the framework of social influence and cognitive instrumental processes is investigated using the expanded technology adoption model used in this study. The protracted model of technological acceptance is a revised version of the original TAM developed by Venkatesh and Davis (2000). Technology acceptance model theorises that the perceived usefulness and simplicity of usage and compatibility influence the behavioural intention of individuals. The perceived utility is also influenced by the simplicity of usage, according to TAM, because the easier a system is to utilise, the better value it can be (Venkatesh & Davis, 2000; Zhou et al., 2019).

In addition, individual self-efficacy (Antwi, Ren, Owusu-Ansah, Mensah, & Aboagye, 2021) in the usage of technology plays a key role in the adoption of specific technologies. This is because self-efficacy dampens anxiety (Belle, Antwi, Ntim, Affum-Osei, & Ren, 2021). The TAM is a well-known model that has been utilised in a variety of research on technological acceptance. In the TAM, behavioural intention to utilise determines technological adoption and actual use (Soneka & Phiri, 2019). Attitude towards usage has direct and indirect consequences of perceived simplicity of use and perceived usefulness, which influence behavioural intention.

The attitude towards use is influenced by both simplicity of usage and perceived usefulness, with perceived simplicity of usage having an undeviating effect on perceived usefulness (Kamal, Shafiq, & Kakria, 2020; Manis & Choi, 2019).

Incorporating the TAM and innovation diffusion model (IDM) aids in examining the factors that have an impact on the application of e-HRM in public institutions. This provides a comprehensive view of the underlying factors that lead to e-HRM implementation success (Rogers, 2010). The innovation diffusion theory rests on the tenet that innovations in organisations are communicated through many channels. The innovation diffusion theory has five (5) characteristics, namely relative advantage, compatibility, complexity, trainability and observables. However, according to the research study, relative advantage, compatibility and complexity dimensions are related to technology adoption (Agarwal & Prasad, 1998; Al-Rahmi et al., 2019).

Relative advantage shares some similarities with the perceived usefulness dimension of the TAM. The rate at which an invention is thought to be in keeping with established values, prior experiences and potential adopters' requirements is known as compatibility (Min, So, & Jeong, 2019). If a social system's ideals and norms are incompatible with innovation, potential adopters will reject to accept it. The IDM is akin to the TAM in that it emphasises that a person's decision to accept new technology is influenced by psychological and social factors (Yuen, Cai, Qi, & Wang, 2021). According to some academics, the TAM components are essentially a subset of the perceived innovation features and, when combined, could offer a model that is even more powerful than either model alone. Fakhoury and Aubert (2017), for example, used the original TAM in conjunction with the IDT's compatibility construct to assess and explain the factors influencing the adoption of e-HRM in public enterprises, particularly in emerging economies. The study adopts the model used in a study conducted by Sharifzadeh, Damalas, Abdollahzadeh and Ahmadi-Gorgi (2017).

Hypotheses

To address the research question of the study, examining the factors that influence the adoption and implementation of e-HRM in a public organisation, the study investigates the following hypotheses. The facilitation conditions and perceived self-efficacy of individuals would influence the behaviour intention of individuals in public sector organisations and agencies to adopt and implement e-HRM systems and portals. Based on theoretical background, hypotheses 1–5 are formulated:

> H1: Perceived simplicity of usage has a positive effect on behavioural intention to use e-HRM.
>
> H2: Perceived usefulness has a positive effect on behavioural intention to use e-HRM.
>
> H3: Compatibility has a positive effect on behavioural intention to use e-HRM.
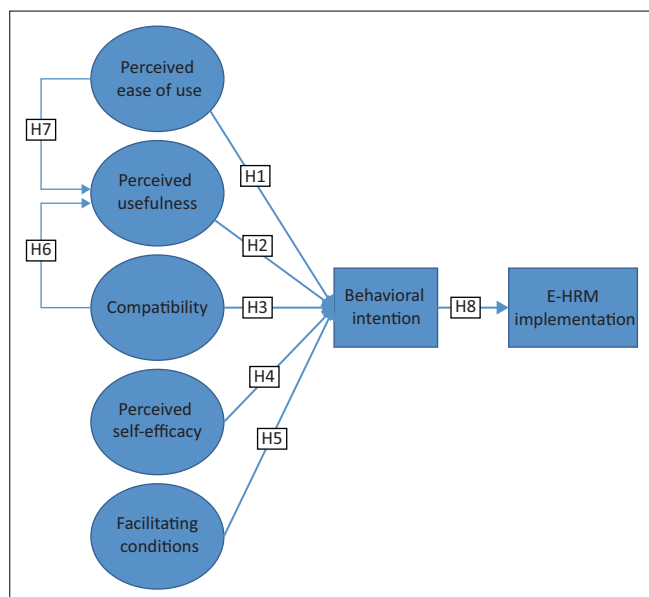
E-HRM, electronic human resource management.

FIGURE 1: Conceptual framework.

H4: Perceived Self–efficacy has a positive effect on behaviour intention to use e-HRM.

H5: Facilitating conditions has a positive effect on behaviour intention to use e-HRM.

In furtherance, compatibility and perceived ease of use are theorised to impact the perceived usefulness of e-HRM:

H6: Compatibility has a positive effect on the perceived usefulness of e-HRM systems.

H7: Perceived simplicity of usage has a positive on the perceived usefulness of e-HRM systems.

The behavioural intention of public sector employees would influence the discharge of e-HRM systems and portals. When individuals have a positive mental attitude towards particular technology, it increases the degree of adoption and implementation. The study hypothesised that the behavioural intention of employees would have a positive impact on e-HRM implementation:

H8: Behavioural intention of employees towards e-HRM systems has a positive and direct effect on e-HRM implementation.

Methodology
Methods and data

Data acquired from a field survey are used to examine the hypothesised relationship in the conceptual model. A field survey is conducted to gather key informants in the HR service in public sector landscape. Key informants are carefully chosen from a variety of entities within the public sector. To collect data, a new dataset was created based on a list of HR practitioners/professionals provided by several government entities for the study. The list includes the majority of the country's most well-known HR professionals and practitioners. Because there is no easily available source of secondary data to address research concerns, primary data

are acquired from field surveys (Lazazzara & Galanaki, 2018; Pahos & Galanaki, 2019).

Instrument development and measures

The data gathering instrument for the survey is a questionnaire. The data gathering instrument was created following management literature recommendations. The questionnaire is clear and devoid of any ambiguity (Heimeriks & Duysters, 2007). The questionnaire is separated into two sections: the first focuses on the respondent's profile and background, whilst the second focuses on the constructs under study. The questionnaire consists of statements that are rated on a seven-point scale. At least three indicators were used to measure each latent variable. Measurement items were adapted from management literature to establish content validity. Because some of the variables were self-created, they were subjected to rigorous validity and reliability testing (Henseler, Ringle, & Sarstedt, 2015). The issue of common method bias is handled in the research instrument by shuffling the questionnaire in a way that makes it impossible for the responder to predict the expected results of the study (Krishnan, Martin, & Noorderhaven, 2006). In addition, the Harman single factor test is used to see if there are any signs of common method bias (Aguirre-Urreta & Hu, 2019).

The study adapts dimensions of TAM and IDM as the theoretical lens to investigate the factors that influence the implementation of e-HRM systems in selected public institutions in a developing country like Ghana. The benefits of using these theories are well-documented in the IS and innovation management literature (Fakhoury & Aubert, 2017; Rogers, 2003; Venkatesh & Davis, 2000). The measurement items for perceived simplicity of usage, perceived usefulness, individual self–efficacy, behavioural intention to use technology and actual behaviour to implement e-HRM are selected from scales developed by Venkatesh and Davis (2000) and as utilised in a study conducted by Sharifzadeh et al. (2017).

In addition, measurement items for compatibility and facilitation condition are adopted from studies conducted by Sharifzadeh et al. (2017). This study utilised the IDM proposed by Rogers (2002) as the underlying theory in the development of measurement scales.

Measures

Perceive Ease of Use measures the degree of ease in utilising new technologies. The measures are measured on a 7-Likert scale. The measurement item in total comprises seven (7) statements. Examples of items are (1) adjustment to the e-HRM systems is easy for me, (2) understanding the operational requirement for the e-HRM system is easy for me, (3) it is ease as an individual to gain requisite skills to operate e-HRM and (4) overall learning to use the e-HRM system is easy. Perceived usefulness tracks employee perception about the usefulness of a particular technological

system. Measurement items for this variable include: (1) using e-HRM systems has the potential to improve organisational performance, (2) using e-HRM systems has the potential to improve employee satisfaction, (3) utilising the e-HRM portal reduces error and mitigates risks in organisations, (4) automating HR functions helps reduce job task attrition rate and (5) the service quality for internal stakeholder is improved with the implementation of e-HRM systems.

Compatibility measures how it is suitable in aligning organisation HR and technological system. The variable is measured with five measurement items: examples are (1) utilising e-HRM is compatible with most aspect of HR practices; (2) utilising e-HRM fits well into organisational HR processes and practice; (3) using the e-HRM portal provides the requisite control of operation HR activities and (4) the usage of automated HR systems is compatible with evolving technological trends in the organisational environment.

Perceived Self – Efficacy is measured using variables from the extant literature. In total, four measurement items were used. Examples are (1) I have the ability to provide technical advice regarding the usage of e-HRM, (2) I have sufficient skills and knowledge to operate the e-HRM portal independently, (3) I am confident in my ability to use the e-HRM system and (4) I can complete my job successfully with the usage of the e-HRM system.

Facilitating conditions measured the conditions that facilitate implementation of e-HRM systems and technologies. Measurement items for these variables are selected from the general management literature. Examples include: (1) our organisation has dedicated staff to assist in the transition process to e-HRM, (2) our organisation organises specialised workshops and training sessions to equip personnel with needed skills, (3) technical guidelines and documentation are available for staff and (4) our organisation has consultant on roll to assist in the development of technological competence of personnel.

Behavioural Intention measures the propensity to implement e-HRM systems and portal in an organisation. Examples of measurement items are (1) I intend to use e-HRM in the discharge of my HR activities, (2) I will always use the e-HRM portal and (3) overall using e-HRM will enhance productivity at workplace.

Electronic human resource management Implementation is measured with three (3) measurement items. Examples are (1) the implementation of e-HRM has the potential to impact organisational productivity, (2) I will recommend the implementation and utilisation of e-HRM portal and systems and (3) our organisation will ensure the integration and continuous improvement of e-HRM systems.

Sample and data collection

Employees of public sector organisations were the study's target group. A purposive sampling strategy is used to identify and select informants for the field survey from this demographic. Line managers, HR department personnel and other supervisory personnel were recognised as important informants. Contact with identifiable individuals is begun from the list via electronic mails. A pilot test is conducted to determine the concept understudy's initial validity and reliability. Human resource practitioners and academic specialists in HR management will receive the questionnaire. These individuals were given some sort of incentive to keep them motivated while doing their job as questionnaire assessors. This method is a must for dealing with frequent method bias (Krishnan et al., 2006). Furthermore, the discussion with the key informant during the pretest implies that social desirability bias may have an impact on the outcome's validity.

Cronbach's alpha is used to improve the instrument's validity and reliability using preliminary statistics. Alpha is used to improve the instrument's validity and reliability using preliminary statistics. This email is intended to gain their attention and obtain their permission to run a questionnaire. In addition, the study's purpose and goal are explained. For the field survey, 250 people were contacted in total (Emrouznejad, Parker, & Tavares, 2008). After data collection, a pace of response of 68% was obtained, resulting in 170 respondents. These participants were assured complete anonymity during the survey period, which ensured a greater response rate. The survey's key informants came from a variety of industries and contexts. Respondents represented a vast scope of organisational structures, systems and ages.

Analysis and result
Profile of respondents

A total of 170 respondents were gathered from various organisations for the study. These experts are well-versed in HR management and related technologies and possess extensive expertise in a variety of industries. In the field and practice of HR management, the respondent displayed a significant degree of expertise. Table 1 shows the profile information of the respondents.

Descriptive statistics

Table 2 shows the distribution and characteristics of the data. This section emphasises the mean, standard deviation and excess kurtosis. The minimum and maximum data points are also presented, in addition to the skewness of the data.

Measurement model assessment

Exploratory factor analysis is a traditional measurement method for evaluating both seen and hidden variables. It facilitates the investigation of observable and latent variable structural equivalence (Aluja, Blanch, Martí-Guiu, & Blanco, 2017). Exploratory factor analyses are used to assess structural validity. The principal component approach with varimax rotation was utilised to explicitly extract four factors

TABLE 1: Profile of respondents.

Respondent information	Frequency
Gender	
Male	111
Female	59
Respondents age (in years)	
18–25	-
26–30	28
31–35	58
36–40	15
41–45	21
46–50	31
> 50	17
Educational background	
Doctorate degree	5
Master's degree	86
Bachelor's degree	79
High school diploma	-
Work experience (in years)	
< 5	14
6–10	58
11–15	24
16–20	31
> 20	43

(N = 170). These variables were responsible for 28.27% of the variance. The initial Kaiser–Meyer Olkin (KMO) sample adequacy measure and the Bartlett test of sphericity are also performed. The findings reveal that the structural model passes the Bartlett test of sphericity (Approx: Chi-square 101.032, df 248, sig. 00) and has a KMO. The measurement items satisfied the accepted threshold for factor loading (Haenlein & Kaplan, 2004; Hair, Sarstedt, Hopkins, & Kuppelwieser, 2014).

Furthermore, Cronbach's alpha and average variance extraction methodologies are utilised to determine the reliability and validity of measurement items. The alpha value and average variance extracted value for each of the constructs under examination were both appropriate. The results of these tests pave the way to learn more about the subject of the interaction between various latent factors, such as the impact of technological acceptability and IDMs on the implementation of an e-HRM system. The factor loadings, alpha value and average variance extracted value are illustrated in Table 3.

From the exploratory factor analysis, it can be seen that each indicator met the threshold of 0.5 and above. Indicating the indicators can predict or measure the latent variables under study. To be evaluated as having a high ability to measure the proposed construct, indicators should have an outer model loading value of 0.5 or higher (Hair et al., 2014). When the results of such a test are examined, each indicator has an average value of 0.7 or above, indicating that the model is valid.

Correlation analysis

The outcome of the correlation and hierarchical regression analysis was undertaken to examine the effect of the

TABLE 2: Descriptive statistics.

Constructs	Mean	Min	Max	Standard deviation	Excess kurtosis	Skewness
Perceived usefulness (PU)						
PU1	4.521	1.000	7.000	0.7488	0.836	-0.251
PU2	4.920	1.000	7.000	0.8014	0.991	-0.474
PU3	4.975	1.000	7.000	0.8668	0.697	-0.933
PU4	5.029	1.000	7.000	0.7689	1.095	0.139
PU5	4.847	1.000	7.000	0.7699	0.177	-1.166
PU6	4.982	1.000	7.000	0.8142	0.172	-1.538
Perceived ease of use (PEU)	4.838					-1.272
PEU1	4.521	1.000	7.000	0.7274	2.004	-1.356
PEU2	4.339	1.000	7.000	0.7986	2.389	-1.415
PEU3	4.456	1.000	7.000	0.7712	3.699	-1.303
PEU4	4.339	1.000	7.000	0.8828	3.636	-1.122
PEU5	4.425	1.000	7.000	0.6885	2.795	-1.437
PEU6	5.275	1.000	7.000	0.7910	3.304	1.272
PEU7	5.199	1.000	7.000	0.7884	2.243	-1.251
Compatibility (CP)						
CP1	4.521	1.000	7.000	0.7274	3.023	-0.698
CP2	4.339	1.000	7.000	0.7598	2.701	-0.999
CP3	4.456	2.000	7.000	0.7288	2.911	-0.267
CP4	4.339	1.000	7.000	0.7615	2.186	-0.919
CP5	4.425	1.000	7.000	0.8288	1.065	-1.383
Facilitating conditions (FC)	4.609					
FC1	4.364	1.000	7.000	0.6929	1.829	-1.284
FC2	4.636	1.000	7.000	0.7650	1.230	-0.912
FC3	4.368	1.000	6.000	0.7376	0.449	0.662
FC4	4.450	2.000	7.000	0.6248	2.231	-0.762
FC5	4.476	1.000	5.000	0.5879	1.344	-1.018
Perceived self-efficacy (PSE)						
PSE1	4.472	1.000	7.000	1.1381	3.283	-0.766
PSE2	4.571	1.000	7.000	1.1899	1.812	-0.362
PSE3	4.331	1.000	7.000	1.1889	2.413	-0.683
PSE4		2.000	7.000	1.3192	1.577	-0.200
Behavioural intention to use (BIU)						
BIU1	4.431	1.000	7.000	1.383	1.818	-0.268
BIU2	5.333	1.000	7.000	1.018	1.753	0.324
BIU3	4.335	1.000	7.000	1.284	2.940	-1.098
Usage Behaviour (UB)						
UB1	4.319	1.000	7.000	0.912	2.310	0.879
UB2	5.342	1.000	6.000	0.893	2.218	-0.873
UB3	5.892	1.000	7.000	0.832	1.934	-1.734

dimensions of the TAM and IDM on the implementation of e-HRM systems in public sector organisations as presented in Tables 4 and 5. In addition, the position of internal marketing as a moderator is established. The findings of the correlation test show that there is no multicollinearity in the data. The outcome of the correlation test indicates that there is a positive relationship amongst perceived usefulness, ease of use, individual self-efficacy and e-HRM implementation.

Hierarchical regression analysis is conducted to examine the relationship between independent variables and the success of e-HRM. From the outcome of the regression analysis, it can be inferred that mutual trust had a significant relationship with alliance performance as indicated by its t-statistics across all three models. The regression outcome reports the regression coefficient and

t-statistics value that is in parentheses. The outcome of the regression analysis indicates that there is a positive and direct relationship between the constructs examined except for compatibility and perceived usefulness. The models examined had an overall R^2 value of 0.543, 0.457 and 0.764 for behavioural intention, perceived usefulness and usage behaviour, respectively. In addition, the empirical outcome supports seven out of eight hypotheses stated. H1, H2, H3, H4, H5, H7 and H8 are supported by the empirical outcome.

Discussion

The study examined the factors that influence the implementation of e-HRM in public sector organisations in a developing country. Using the TAM and IDM (Davis et al., 1989; Rogers, 2003), the study evaluated eight (8) hypotheses. The findings of the study support the key theoretical notions espoused in TAM that perceived usefulness is influenced by the perceived simplicity of usage as opposed to the compatibility dimension of innovation diffusion. The finding that perceived simplicity of usage has a direct effect on perceived usefulness supports the research evidence in the information system literature (Kamal et al., 2020; Manis & Choi, 2019). Compatibility is observed when individuals' perceived innovations are coherent with previous values and experiences. From the findings, it can be argued that either the adoption of technology and digitalisation tools is new to public sector organisations in sub-Saharan Africa or there is the presence of a culture of resistance. Also, this finding is in contradiction with studies that argue the relevance of compatibility in the adoption of new technologies (Agarwal & Prasad, 1998; Al-Rahmi et al., 2019). So, even though compatibility might contribute to the implementation of e-HRM in the private sector, the case may differ in public sector institutions in a developing economy as evidenced in this study.

The outcome indicates that the dimensions of the TAM are as relevant in the public sector as they are in the private sector in understanding the factors that contribute to the implementation of e-HRM in developing countries. Inasmuch as diverse dimensions of the TAM contribute to the behavioural intention and the subsequent implementation of e-HRM, the perceived simplicity of usage of the e-HRM system plays a significant role in its implementation. When individuals possess the requisite skills and knowledge about certain technologies, it becomes easy to adopt and implement organisation-wide. The technology self-efficacy of an employee cannot be underestimated if the implementation of new technologies and innovation shows smooth transition through an organisation such as a public enterprise.

The extent to which technologies conform to individual previous experience, value contributes to the adoption and implementation of e-HRM. Although the compatibility

TABLE 3: Measurement model.

Constructs	Factor score	Alpha	Composite reliability	Average variance extracted
Perceived usefulness (PF)				
PF1	0.594	0.769	0.789	0.876
PF2	0.752			
PF3	0.707			
PF4	0.710			
PF5	0.731			
PF6	0.594			
Perceived ease of use (PEU)				
PEU1	0.747	0.658	0.729	0.764
PEU2	0.788			
PEU3	0.825			
PEU4	0.761			
PEU5	0.740			
PEU6	0.772			
PEU7	0.765			
Compatibility (CP)				
CP1	0.666	0.873	0.809	0.835
CP2	0.716			
CP3	0.711			
CP4	0.677			
CP5	0.832			
Facilitating conditions (FC)				
FC1	0.676	0.567	0.738	0.721
FC2	0.680			
FC3	0.724			
FC4	0.617			
FC5	0.763			
Perceived self-efficacy (PSE)				
PSE1	0.751	0.616	0.718	0.728
PSE2	0.780			
PSE3	0.772			
PSE4	0.685			
Behavioural intention to use (BIU)				
BIU1	0.640	0.849	0.783	0.798
BIU2	0.761			
BIU3	0.750			
Usage behaviour (UB)				
UB1	0.789	0.769	0.785	0.874
UB2	0.812			
UB3	0.769			

TABLE 4: Correlation outcome.

Variables	1	2	3	4	5	6	7
1. Usage behaviour	-						
2. Behaviour intention	0.139						
3. Compatibility	0.326	0.238					
4. Facilitating conditions	0.215	-0.295*	-0.442				
5. Perceived usefulness	0.438	0.467	0.335	-0.524	-0.089*		
6. Perceived ease of use	0.570	0.299*	0.217	-0.425	0.149**		
7. Individual self-efficacy	0.383	0.345	-0.526	0.224**	-0.259	-0.521	-

$p < 0.10$, *, $p < 0.05$, **, $p < 0.01$, ***, $p < 0.001$ (two-tailed test).

TABLE 5: Regression outcome.

Variables	Model 1 (Behavioural intention)		Model II (Perceived usefulness)		Model III (Usage behaviour)	
	Beta	*t*-statistics	Beta	*t*-statistics	Beta	*t*-statistics
Perceived simplicity of usage	0.583	12.138***	-	-	-	-
Perceived usefulness	0.647	9.165***	-	-	-	-
Self-efficacy	0.328	2.369*	-	-	-	-
Compatibility	0.228	1.912	-	-	-	-
Facilitating conditions	0.321	6.851***	-	-	-	-
Compatibility	-	-	0.347	1.087	-	-
Perceived ease of use	-	-	0.586	8.542**	-	-
Behavioural intention	-	-	-	-	0.642	11.879***
R^2	0.543	-	0.457	-	0.764	-

dimension did not affect the perceived usefulness of the e-HRM system, it had a direct impact on the behavioural intention of employees to adopt e-HRM systems. This offers a strong indication of the utility of the IDM in e-HRM adoption and implementation in a developing economy. In addition, facilitation conditions measure an individual's belief that there is sufficient organisational and technical infrastructure to support the use of the system. This has a positive impact on the behavioural intention of an employee. Therefore, it is prudent public sector organisations provide the necessary platform and environment needed to develop relevant skills. In addition, organisations should readily make available experts coupled with a training program to develop the technological capabilities of their workforce or human capital.

The behavioural intention of an employee towards the usage of the e-HRM system has a positive and direct impact on e-HRM system usage. And, these findings support the extant literature deploying the TAM as well as the IDM in studying IS' adoption and use across spheres of endeavour (Kamal et al., 2020; Manis & Choi, 2019; Ruta, 2005). The study's findings contribute to the body of literature on e-HRM system implementation by offering insights into the role of both individual and organisational factors. It further contributes to the TAM and IDM by elaborating on the dimensions that are relevant to the implementation of e-HRM in a public institution in a developing economy. The findings offer empirical support to augment findings found in previous studies that use a qualitative approach.

Conclusion

The study investigates the factors that influence the implementation of e-HRM in public institutions. The study's findings add to the existing body of knowledge by identifying the dimensions of the TAM and IDM that affect the implementation of e-HRM systems. The study outcome reveals that perceived usefulness is affected directed by the perceived simplicity of usage of the e-HRM system. Inasmuch as the study makes some contribution to theory and practice in the area of TAM and IDM, some shortcomings need to be addressed in future studies.

Longitudinal studies should be conducted in the future to determine the effect of time on the performance of these constructs. Because e-HRM is still in its infancy in underdeveloped countries like Ghana, it will be interesting to see how it develops over time. It would be fascinating to compare the antecedents of e-HRM adoption and usage in different developing economies.

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