Electronic human resource management (e-HRM) configuration for organizational success: inclusion of employee outcomes as contextual variables

Musa Nyathi
University of South Africa, Pretoria, South Africa, and
Ray Kekwaletswe
University of the Witwatersrand, Johannesburg, South Africa

Abstract

Purpose – The purpose of this paper is to examine whether employee outcomes of employee performance and job satisfaction mediate and enhance the effect of e-HRM usage on organizational performance.

Design/methodology/approach – Data were collected through a survey involving 35 organizations using e-HRM systems. A partially mixed sequential dominant status explanatory design was used for the study. A stratified convenience sampling technique was used for the quantitative phase of the study. A purposive sampling technique was employed for the qualitative phase. A structural equation modelling technique with the use of the process macro approach was used to analyse collected data.

Findings – There is a positive relationship between e-HRM usage and employee outcomes. Employee performance and job satisfaction mediate the effect of e-HRM usage on organizational performance. Employee performance and job satisfaction are contextual variables that characterize effective e-HRM configurations.

Practical implications – Organizations should invest in employee outcomes in order to maximize the potential of e-HRM. The e-HRM configurations characterized by a multiplicity of dimensions are more likely to add to organizational value creation. The deployment of e-HRM systems should be preceded by high levels of employee performance and job satisfaction, for organizational success.

Originality/value – The study contributes to a growing body of knowledge on dimensions, which characterize effective e-HRM configurations, yielding organizational success. Employee performance and job satisfaction should be added to the characteristics of effective e-HRM configurations.

Keywords Organizational performance, e-HRM usage, Employee performance, Job satisfaction, e-HRM configuration

Paper type Research paper

1. Introduction

The implementation of electronic-human resource management (e-HRM) in organizations is premised on the phenomenon achieving intended organizational success. Empirical findings however point to a combination of intended and unintended outcomes resulting from such implementation. It is still unclear how e-HRM use can only create intended value for organizations. A number of studies have been conducted to establish the value created through e-HRM use (Parry and Tyson, 2011; Strohmeier and Kabst, 2014; Obeidat, 2016). Research findings have this far, been inconclusive. Electronic-HRM use has been found to

increase and decrease efficiency, empower and disempower employees, reduce and increase headcount (Parry and Tyson, 2011; Wijayadne, 2021). Such contradictions are detrimental to the implementation of e-HRM systems in organizations considering the investment that goes with operationalizing the phenomenon.

This mixed picture is partly due to the complexity of e-HRM. The phenomenon is a combination of multiple dimensions rather than a function of a single dimension (Martin-Alcazar *et al.*, 2005). There is now consensus on the inadequacy of a universal type of e-HRM system but several contextual types of e-HRM, giving rise to desired organizational success (Strohmeier and Kabst, 2014; Galanaki *et al.*, 2019; Martini *et al.*, 2020). "Electronic HRM usage is only one aspect generating HR value; contextual facilitating factors are of great importance as well" (Ruel and Kaap, 2012, p. 277). These contextual factors or dimensions range from organizational size, competition in international markets, complexity of information technology (I.T.), age and level of education of employees, and degree of HR function involvement in strategy formulation and execution (Ruel and Kaap, 2012; Galanaki *et al.*, 2019; Martini *et al.*, 2020).

In a cross-national analysis, Galalanaki *et al.* (2019) posit that e-HRM systems in developing countries are clustered as "non-usage" with the following characteristics: smaller organizational size, low involvement of the HR function in strategy mapping, low adoption rate of e-HRM and low e-HRM outsourcing. In developed economies, e-HRM systems are clustered as "integrated" with the following characteristics: big organizational size, high involvement of the HR function in strategy formulation and execution, and high adoption rate of I.T.

In line with Galanaki *et al.* (2019) proposition that organizational size, strategic involvement of the HR function and competing in international markets contribute more to determining the actual type of e-HRM configuration, this study seeks to investigate the role of employee performance and job satisfaction as part of a wider package of variables that characterize successful e-HRM configurations. The research question being investigated is: Do employee performance and job satisfaction constitute contextual dimensions that characterize successful e-HRM configurations? This is done by exploring the extent to which employee outcomes play a mediating role in explaining the full potential effect of e-HRM use on organizational performance.

2. Literature review
2.1 Introduction
The last three decades have witnessed limited success for the "tried and tested" business strategies in helping organizations achieve sustainable competitive advantage. In despair, human capital has generated interest amongst academics and practitioners as an alternative option to achieving competitiveness. Strategic Human Resource Management (SHRM) practitioners contend that the dynamic and distinctive capabilities of organizations that reside in human capital could serve as the basis for competitive advantage. This occurs if there is vertical fit between the HR strategy and business strategy, as well as horizontal fit between HR strategies and other functional strategies (Armstrong, 2008). The positive impact of SHRM on organizational performance has been confirmed by a number of studies (Bondarouk and Ruel, 2013; Obeidat, 2016). SHRM focuses on HR practices and systems to get organizational performance outcomes (Marler and Fisher, 2013). The HR practices influence organizational effectiveness through individual behaviour (Tawk, 2021).

Organizations do not start from nowhere when they step out onto e-HRM path. HRM practices are a start. Successful adoption and implementation of e-HRM is dependent on HRM practices that remove obstacles to IT use. It is HRM practices that equip employees with skills, knowledge and attitudes to use e-HRM systems. HRM policies create opportunities for

employees to work on newly introduced e-HRM systems (Lepak *et al.*, 2006; Bondarouk and Ruel, 2009). SHRM and e-HRM both focus on the same organizational outcomes such as organizational performance, strategic alignment and competitive advantage.

A strong HRM system is a value creating factor (Wahyudi and Park, 2014). Electronic HRM is a tool that increases the strategic role of the HR function (Bondarouk and Ruel, 2009; L'Ecuyer and Raymond, 2023). It improves the HR function's strategic effectiveness (Marler and Fisher, 2013; L'Ecuyer and Raymond, 2023).

A number of cross-nationally differing influences on e-HRM systems seems to influence their adoption, utilization and even success. The age and level of education of employees have been noted as relevant for e-HRM utilization (Zhang, 2005; Strohmeier and Kabst, 2009; Galanaki *et al.*, 2019). Young employees have encountered basic IT education, and therefore do not resist e-HRM adoption and use out of anxiety and fear of failure. Higher levels of education have been observed to predict IT perceived usefulness and IT enjoyment (Zhang, 2005; Strohmeier and Kabst, 2009). "Old and/or less educated employees will simply anticipate individual adoption problems, and afraid of failure, refrain from adoption" (Strohmeier and Kabst, 2009, p. 487). There is however still no unanimity on the list of dimensions that characterize effective e-HRM configurations.

2.2 Conceptual development and hypotheses
2.2.1 e-HRM use. It is a "set of 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 and Parry, 2016, p. 2234). It is the use of IT to implement HRM best practices in order to achieve organizational effectiveness (Bondarouk *et al.*, 2017).

2.2.2 Employee performance. Employee performance is a multidimensional and complex construct that refers to "the total expected value to the organization of the discrete behavioural episodes that an individual carries out over a standard period of time" (Motowidlo, 2003: 39). There are two key implications of this definition. Firstly, this definition implies that employee performance is behaviour indexed or a "property of behaviour" (Motowidlo, 2003). A second implication is that the property of behaviour to which performance refers and is its expected value to the organization (Robbins *et al.*, 2017). The success of e-HRM use can be measured by its impact on individual employee performance.

2.2.3 Job satisfaction. Job satisfaction refers to the recognition, income, promotion and the achievement of other goals that lead to a feeling of fulfilment. It is about the attitudes, beliefs and feelings employees have about their work (Armstrong, 2008). Job satisfaction leads to an increased utilization of IT, resulting in improved employee performance (Goodhue and Thompson, 1995). In this study, it is treated as a mediating variable with the potential of enhancing the effects of e-HRM use on organizational performance.

2.2.4 Organizational performance. Organizational performance is a conglomerate of financial outcomes (e.g. profit or market value), organizational outcomes (e.g. productivity or customer satisfaction) and human resource outcomes (job satisfaction or commitment) (Bethke-Langenegger *et al.*, 2011; Roman *et al.*, 2012).

2.2.5 e-HRM use and organizational performance. Electronic HRM use enhances organizational performance by improving cost efficiencies and HRM processes (Marler and Fisher, 2013). When viewed as a way of performing HR administrative tasks, e-HRM use could lead to lower HR staff headcount as generic labour is substituted by IT. The phenomenon thus has the capacity of streamlining the transactional HR processes culminating in increased efficiency and effectiveness (Bondarouk *et al.*, 2017).

Literature shows that e-HRM supports a strategic orientation of the HR function (Marler and Fisher, 2013). As time is freed, HR professionals find time to embark on strategic activities such as strategic planning, talent management and knowledge management for competitive alignment of organizations. These activities help organizations move into new markets by providing managers with better information for effective decision-making (Parry and Tyson, 2011). This study hypothesises that in organizations employing e-HRM, the phenomenon has the propensity to engineer organizational performance gains. It is assumed that this relationship obtains in developing economies as well.

2.2.6 e-HRM use and employee performance. A number of theoretical propositions have been cited in literature, explaining how e-HRM use translates itself into employee performance gains. For the purposes of this study, the moderate determinism theoretical proposition is used. The moderate determinism approach states that technology largely explains individual and organizational performance (Strohmeier, 2009). However, there are a number of contingent factors, which mediate the effect of e-HRM use on performance. These factors are organizational size, human usage of technology and technology itself (Parry and Tyson, 2011).

Employing e-HRM in big organizations could result in cost reductions as economies of scale are realized, whereas if the same system were applied in small organizations, cost reductions may not be realized. Size is a clear determinant of first, whether an organization has e-HRM at all, and second, whether it adopts certain e-HRM applications (Bondarouk and Ruel, 2009; Strohmeier and Kabst, 2009; Parry and Tyson, 2011). A different set of organizational consequences would also result from different e-HRM usage. Adequate and well-versed usage of IT could result in intended organizational performance consequences being realized. Inappropriate and underutilization of the same IT could give different organizational outcomes. The usefulness and easiness of use of e-HRM applications determine human usage of technology (Voermans and Van Veldhoven, 2007; Ruel and van der Kaap, 2012; Marler and Fisher, 2013). Electronic-HRM usage was also established to be a strong predictor of the creation of a strategic role for the HRM function (Wahyudi and Park, 2014). The approach assumes that if IT is widely and heavily utilized due to user positive attitudes, individual and organizational performance gains would result.

In organizations where the HRM strategy is vertically and horizontally aligned, employees' actual roles are likely to be closer to the expected roles (Armstrong, 2008). Where employees feel their expectations are met, they reciprocate by increasing their work effort resulting in higher job performance and commitment. SHRM therefore has a direct and positive impact on employee performance.

Early literature outside the SHRM field, posited that there were mediating variables linking IT use and employee performance. This literature produced three IT – performance link models; the Utilization approach (1975), Task-Technology Fit (TTF) (1995) and the Technology-to-Performance Chain (TPC) (1995) models. The utilization approach assumes that if IT is widely and heavily utilized due to user positive attitudes, individual performance should improve. Increased utilization of an information system should lead to positive performance impacts. The critique of the model has focused on the existence and use of an involuntary information system. An involuntary system could be widely and heavily used, not out of interest but out of lack of options. The utilization of such a system would not lead to increased performance.

The TTF model (1995) states that if IT provides "features and support that fit the requirements of a task, performance impacts will result" (Goodhue and Thompson, 1995: 214). In this regard, the TTF thus determines performance. However, the fit alone will not give increased performance as increased performance is out of utilization of a system in the first place. The third model, the TPC model integrates the utilization and TTF models. Utilization and TTF models independently explain an improvement in job performance, whereas TTF

and utilization models combined, significantly explain employee effectiveness, productivity and performance (Goodhue and Thompson, 1995).

The latest literature is based on the ALM model/Task model (2003). The model divides jobs into two categories: the routine and non-routine tasks. "Routine jobs have a higher probability of being automated whereas non-routine jobs are more difficult for technology to absorb" (Melian-Gonzalez and Bulchand-Gidumal, 2017, p. 2160). Computers have substituted workers who perform tasks that can be reduced to programmed rules. There is bound to be heavy investment in sectors that employ routine labour as computers substitute blue collar jobs. Increased employee performance results (Autor *et al.*, 2003). The first hypothesis therefore is:

> *H1.* Employee performance mediates the effect of e-HRM use on organizational performance (path ab).

2.2.7 e-HRM use and job satisfaction. A number of theoretical propositions explain how e-HRM use translates into job satisfaction. For the purposes of this study, the Job Characteristics Model (JCM) is used to explain the effect of e-HRM use on job satisfaction. The JCM states that when a task is significant, identifiable, autonomous, possesses skill variety and provides feedback, employees are likely to experience increased intrinsic motivation (Hackman and Oldham, 1975). The five job characteristics contribute to the motivational potential of any job. These job characteristics prompt three psychological states in individual employees (meaningfulness of work, responsibility for outcomes of the work and knowledge of actual results of work activities). These critical psychological states, moderated by knowledge and skill, growth need strength, and context satisfaction produce positive personal outcomes such as high internal work motivation, and high general satisfaction. Job autonomy and challenging work help create a sense of mastery, which in turn may trigger a positive cycle of self-development, contributing to increased satisfaction. IT use therefore strengthens the positive effect of job characteristics of skills variety, autonomy and feedback on one hand and job satisfaction on the other (Bravo *et al.*, 2016).

Bravo *et al.* (2016) postulated two views about the impact of IT on individual employees. Firstly, there is automating technology. This technology robs jobs of enriching elements. It deskills jobs to produce employee dissatisfaction, alienation and reduced motivation. Secondly, there is IT that liberates people, removes monotony and enriches jobs. Such IT removes repetitive tasks from work, leading to job satisfaction.

If costs reduction and automation of administrative processes are communicated as pivotal reasons for e-HRM implementation, fears of lay-offs could set in with negative consequences on job satisfaction levels. If e-HRM applications are difficult to use, job satisfaction will drop. If employees perceive acquisition of IT competences as challenging, demotivation sets in and ultimately job satisfaction levels drop (Tafti *et al.*, 2007; Sykes *et al.*, 2014). Electronic HRM applications may affect employees' work habits leading to either an increase or decrease in job satisfaction. Learning new routines and practices create more work and additional stress leading to job dissatisfaction (Tafti *et al.*, 2007; Sykes *et al.*, 2014). Consequently, this study hypothesises as follows:

> *H2.* Job satisfaction mediates the effect of e-HRM use on organizational performance (path de).

In view of the above hypotheses, employee performance and job satisfaction should jointly enhance the effect of e-HRM use on organizational performance. The third hypothesis is;

> *H3.* Employee performance and job satisfaction in serial, mediate the effect of e-HRM use on organizational performance through employee performance and job satisfaction in serial (path afe).

A research model for this study is presented in Figure 1. Electronic-HRM use is depicted as impacting directly and indirectly on organizational performance. A moderate determinism approach was adopted to explain the role of employee outcomes in the e-HRM use and organizational performance relationship.

3. Method
3.1 Research design
A partially mixed sequential dominant status explanatory design was used for the study. The study is QUAN-qual, entailing conducting a quantitative study first and then a separate qualitative phase later on. The quantitative data is the primary database. The aim of quantitative phase of the study is to identify the predictive power of e-HRM use on employee performance and job satisfaction and ultimately on organizational performance. A cross-sectional survey research was used to collect quantitative data. The aim of the qualitative phase was to learn from unexpected quantitative results. Semi-structured interviews were used to collect qualitative data.

3.2 Sampling for the quantitative study
The study focused on 35 organizations from 12 sectors, using e-HRM systems, as a population of interest. The inclusion criteria for selecting participating organizations for the study were that;

(1) The organization should have a minimum of 100 employees, and

(2) It should have implemented e-HRM system(s) for at least three years, at the time of determining the sample size.

The inclusion criteria were informed by the resource demands of e-HRM systems (Strohmeier and Kabst, 2014; Galanaki *et al.*, 2019). At least three years were deemed long enough a period, for e-HRM systems to be embedded within organizations (Parry and Tyson, 2011; Bondarouk and Ruel, 2013). Individuals of interest from these organizations were all staff using the e-HRM systems: the HR professionals, line managers and IT specialists. A stratified convenience sampling technique was used to draw 510 respondents from the 35 organizations. The choice of a sampling design was motivated by the participants' availability and the method's primary emphasis on generalizability of findings for large samples. Convenience sampling is also affordable, easy and the respondents/participants are readily available (Bhardwaj, 2019).

Data were collected through a structured questionnaire. Likert type scales were chosen. The instrument was pilot tested on 15 respondents from the HR, functional and
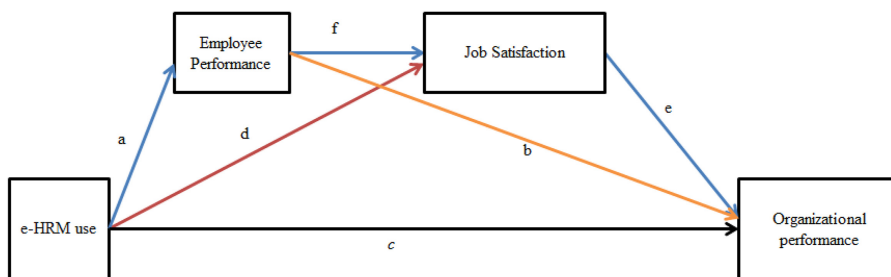
Source(s): Author's own work

IT departments. A drop and pick up method was used to administer the questionnaire. A high response of 325 valid responses was received, representing a 64% response rate (Bryman and Bell, 2011).

3.3 Sampling for the qualitative study procedures
A non-probability sampling procedure was used for the qualitative study. Stratified purposive sampling was used to choose 12 participants from the 12 sectors. The participants should have been those who participated in the quantitative study. A semi-structured interview guide was used to collect qualitative data.

3.4 Measures
Measures of e-HRM use, organizational performance, employee performance and job satisfaction were necessary to evaluate the hypotheses.

3.4.1 e-HRM use scale. The 6-item e-HRM use instrument makes use of the 5-point Likert scales anchored with strongly agree and strongly disagree. It was developed from validated research instrument used by Wahyudi and Park (2014). The instrument has two dimensions: perceived ease of use and system usefulness. In this study, it is treated as an independent variable, implemented to bring forth a wide range of business process improvements. **The items include: "I have the necessary knowledge to use e-HRM systems."**

3.4.2 Employee performance. A 9-item job performance scale makes use of the 5-point Likert scales anchored with strongly agree and strongly disagree (Goodman and Svyantek, 1999). The scale has three dimensions: contextual performance, task performance and conscientiousness. **The items include: "I help other employees with their work when the work load increases."**

3.4.3 Job satisfaction scale. A 6-item Minnesota Satisfaction Questionnaire (MSQ): short form scale, incorporating 5-point Likert scales with "strongly satisfied" and "strongly dissatisfied" anchors was used (Weiss *et al.*, 1967). The questionnaire consists of two dimensions: intrinsic job satisfaction and extrinsic job satisfaction. **The items include: "I have the chance to do different things from time to time."**

3.4.4 Organizational performance. A 9-item organizational performance scale was developed. The items were originally developed by Parry and Tyson (2011), Bondarouk and Ruel (2013) and Panos and Bellou (2016). It is divided into three dimensions: operational, relational and transformational consequences. **The items include: "Employees are saving on time spent doing routine tasks."** The construct is treated as a dependent variable in this study. It is anchored with "strongly satisfied" and "strongly dissatisfied" (see Table 1).

4. Results
4.1 Presentation of quantitative results
4.1.1 Demographic profile of respondents. The demographic profile of respondents is shown in Table 2. The females constitute the majority (50.5%), with males constituting (49.5%). In terms of age, 40.3% of the respondents were in the 41–50 years age group. On tenure, 38.8% of the respondents had 6–10 years' experience. In terms of work positions, 65.8% of respondents were human resource professionals.

4.1.2 Descriptive statistics. The results of the inter-correlations and the descriptive statistics are presented in Table 3. The results show positive correlations between e-HRM use and organizational performance ($r = 0.547$, $p < 0.01$); e-HRM and employee performance ($r = 0.226$, $p < 0.01$); e-HRM and job satisfaction ($r = 0.178$, $p < 0.01$), employee performance

Construct	Number of items	Questions	Factor loadings
e-HRM use	6	I have the necessary knowledge to use e-HRM systems	0.93
		Use of e-HRM systems do not require a lot of mental effort	0.78
		The e-HRM systems are clear and understandable	0.71
Employee performance	9	I help other employees with their work when the work load increases	0.86
		I assist others with their duties	0.91
		I make innovative suggestions to improve the overall quality of the department	0.75
Job satisfaction	6	I have the chance to work alone on the job	0.91
		I have the chance to do different things from time to time	0.89
		I have the chance to do things for other people	0.88
Organizational performance	9	There is standardization of HR process	0.77
		Employees are saving on time spent doing routine tasks	0.91
		There is improved HR service to employees	0.88
		e-HRM allows HR staff to redirect time onto strategic initiatives	0.82

Source(s): Author's own work

Table 1.
Measures of variables
(Sample items)

and job satisfaction ($r = 0.275$, $p < 0.01$), and job satisfaction and Organizational performance ($r = 0.587$, $p < 0.01$).

4.1.3 Factor analysis. The exploratory factor analysis (EFA), principal axis factoring with Promax rotation was conducted to examine the underlying pattern of e-HRM use, employee performance, job satisfaction and *organizational performance* data. The EFA analysis of e-HRM use revealed two latent factors (Perceived Ease of Use and System Usefulness). They are meaningful as they cumulatively explain 71.8% of the variance. Confirmatory factor analysis (CFA) was conducted to confirm the constructs obtained using EFA. The Joreskog and Sorbom's goodness-of-fit indices were used to evaluate the CFA. The results showed a good fit (CFI = 1.00; RMSEA = 0.041; SRMR = 0.026; GFI = 099; X^2/df = 1.55; NFI = 0.99).

The EFA analysis of employee performance revealed three latent factors: contextual performance, task performance and conscientiousness. The three factors are meaningful as they explain 42.11%, 25.14 and 15.63% of the variance respectively – a cumulative total of 82.88%. The Goodness-of-fit indices showed a good fit (CFI = 0.99, RMSEA = 0.039, SRMR = 0.04, GFI = 0.98, NFI = 0.98).

Concerning job satisfaction, two latent factors (intrinsic job satisfaction and extrinsic job satisfaction) emanated from this EFA exercise. The two factors are meaningful as they explain a cumulative total of 85.34%. CFA was conducted to confirm the constructs obtained using EFA. The model results showed a good fit (CFI = 1.00; RMSEA = 0.045; SRMR = 0.03; GFI = 099; X^2/df = 1.66; NFI = 0.98).

EFA was also used identify latent factors of organizational performance. Three latent factors (Operational, Transactional and Transformational outcomes) emanated from an EFA analysis. The three factors are meaningful they cumulatively explain 70.31% of the variance. The model results showed a good fit (CFI = 1.00; RMSEA = 0.033; SRMR = 0.027; GFI = 098; X^2/df = 1.35; NFI = 0.99).

No	Demographic item	Category	Frequency	%
1	Gender	Female	164	50.5
		Male	161	49.5
2	Age	18–30	42	12.9
		31–40	103	31.7
		41–50	131	40.3
		51–60	47	14.5
		Above 60	2	0.6
3	Experience	Below 2 years	15	4.6
		2–5 years	37	11.4
		6–10 years	126	38.8
		11–15 years	76	23.4
		16–20 years	48	14.8
		Above 20 years	23	7.1
4	Sector employed in	Technology	26	8
		Tertiary Education	31	9.5
		Banking	27	8.3
		Beverages	52	16
		Mining	49	15.1
		Insurance	11	3.4
		Agriculture	23	7.1
		Retail	7	2.2
		Agro-Industrial	22	6.8
		Food	23	7.1
		Building	36	11.1
		Industrial	18	5.5
5	Position	Information Technology	38	11.7
		Line Management	73	22.5
		HR professionals	214	65.8

Table 2.
Demographic profiles
of respondents

Source(s): Author's own work

	Variable	Mean	SD	1	2	3	4	5	6
1	Age	45 years	0.911						
2	Experience (Tenure)	13 years	1.216	0.830^{**}					
3	Position			-0.246^{**}	-0.195^{**}				
4	Organizational performance	4.26	0.482	0.109	0.028	-0.097			
5	Job Satisfaction	3.83	0.557	0.054	0.018	-0.055	0.587^{**}		
6	e-HRM use	4.43	0.520	0.110^{*}	0.041	-0.151^{**}	0.547^{**}	0.226^{**}	
7	Employee Performance	4.06	0.446	0.187^{**}	0.171^{**}	-0.119^{*}	0.304^{**}	0.275^{**}	0.178^{**}

Table 3.
Means, standard
deviations and
correlations for
variables under study

Note(s): **. Correlation is significant at the 0.01 level (2-tailed)
*. Correlation is significant at the 0.05 level (2-tailed)
$N = 325$
Source(s): Author's own work

4.1.4 Assessing the measurement model. To validate the measurement models, a number of tests were carried out. Cronbach's alpha statistic for the five scales ranged from 0.7 to 0.9, exceeding the recommended value of 0.70. The factor loading of all items exceeded the

recommended value of 0.50. Composite reliability values, which depict the degree to which the instrument measures the concept that it is intended to measure, ranged from 0.81 to 0.94, exceeding the recommended value of 0.70. The average variance extracted (AVE) which reflects the overall amount of variance in the indicators accounted for by the latent construct were in the range of 0.60–0.79 which exceeded the recommended value of 0.50 (Canatay *et al.*, 2022).

Discriminant validity was also tested. According to Canatay *et al.* (2022), the square root of AVE values (discriminant values) should be greater than the highest correlations with any other construct. The square root of every AVE value belonging to each latent construct is much larger than any correlation among any pair of latent constructs. The discriminant validity values range from 0.77 to 0.89. In total, the measurement model demonstrated adequate validity and reliability as shown in Table 4. Harman one-factor analysis, a post hoc procedure was conducted after data collection to check whether a single factor is accountable for variance in the data (Mishra, 2016). The first factor captured only 43.518% of the variance in data. Thus, no single factor emerged and the first factor did not capture most of the variance (50% > 43.5%). Therefore, these results suggested that common method bias is not an issue in this study.

4.1.5 Assessing the structural model. After validating the measurement model, hypotheses were tested using a PROCESS macro in SPSS. The lower level confidence interval (LLCI) and upper level confidence interval (ULCI) of the regression coefficients were calculated based on 10,000 iterations in a bootstrapping model and 95% level of confidence. If the confidence interval (95%) spans "0", then a mediation hypothesis is insignificant. If it does not, the mediation hypothesis is significant.

H1. Employee performance mediates the relationship between e-HRM use and organizational performance (ab).

The direct effect of e-HRM on organizational performance is positive and statistically significant ($\beta = 0.4073$, $p < 0.01$) in Table 5. The effect of e-HRM use on employee performance is also positive and significant ($\beta = 0.1639$, $p < 0.01$). The effect of employee performance on organizational performance is positive and significant ($\beta = 0.1058$, $p < 0.05$). The indirect effect of e-HRM use on organizational performance is positive and statistically significant ($\beta = 0.0173$). Zero falls outside of the calculated confidence interval of 0.0015–0.0398, in Table 5. The mediation effects model identifies successful partial mediation linked to employee performance. Hypothesis 2 is therefore accepted.

Construct	AVE ≥ 0.50	CR ≥ 0.70	$\alpha \geq 0.7$	DV	R	Loadings > 0.50
e-HRM use	0.60	0.81	0.8	0.77	0.50	
Minimum						0.53
Maximum						0.93
Employee performance	0.73	0.83	0.8	0.85	0.49	
Minimum						0.75
Maximum						0.98
Job satisfaction	0.79	0.90	0.7	0.89	0.07	
Minimum						0.70
Maximum						0.97
Organizational performance	0.69	090	0.9	0.83	0.50	
Minimum						0.70
Maximum						0.96
Source(s): Author's own work						

Table 4.
Scales' internal
consistencies

Path	Coeff	p	LLCI	ULCI	Decision
e-HRM → e-HRM macro	0.4073	0.0000	0.3328	0.4818	Supported
e-HRM → EP	0.1639	0.0012	0.0650	0.2628	Supported
e-HRM → JS	0.1900	0.0007	0.0806	0.2994	Supported
EP → JS	0.2748	0.0000	0.1557	0.3939	Supported
EP → OP	0.1058	0.0119	0.0235	0.1880	Supported
JS → OP	0.4289	0.0000	0.3555	0.5022	Supported
R-sq	0.5346	0.0000			

Indirect effects of e-HRM use on organizational performance				
	Effect	BootSE	BootLLCI	BootULCI
Total	0.1181	0.0275	0.0681	0.1756
Ind1	0.0173	0.0099	0.0015	0.0398
Ind2	0.0815	0.0245	0.0359	0.1321
Ind3	0.0193	0.0077	0.0062	0.0358

Note(s): Key: (OP: Organizational performance; EP: Employee performance; JS: Job satisfaction)
Indirect effect key
Ind1 e-HRM use → employee performance → Organizational performance
Ind2 e-HRM use → job satisfaction → Organizational performance
Ind3 e-HRM use → employee performance → job satisfaction → Organizational performance
Source(s): Author's own work

Table 5.
Path coefficients and
hypothesis testing

H2. Job satisfaction mediates the relationship between e-HRM use and organizational performance.

The effect of e-HRM use on job satisfaction is positive and statistically significant ($\beta = 0.1900$, $p < 0.01$). The effect of job satisfaction on organizational performance is also positive and significant ($\beta = 0.4289$, $p < 0.01$) in Table 5. The indirect effect of e-HRM use on *organizational performance* is positive and statistically significant ($\beta = 0.0815$). Zero falls outside of the calculated confidence interval of 0.0359–0.1321, in Table 5. The mediation effects model identifies successful partial mediation linked to job satisfaction. Hypothesis 2 is therefore accepted.

H3. Employee performance and job satisfaction in serial mediate the relationship between e-HRM use and organizational performance.

The effect of employee performance on job satisfaction is positive and statistically significant ($\beta = 0.2748$, $p < 0.01$) in Table 5. The indirect effect of the path (e-HRM use → employee performance → job satisfaction → organizational performance) is positive and statistically significant ($\beta = 0.0193$). Zero falls outside of the calculated 95% confidence interval of 0.0062–0.0358, in Table 5. The mediation effects model identifies successful partial mediation linked to employee performance and job satisfaction in serial. Hypothesis 3 is therefore accepted.

4.2 Presentation of qualitative results

This phase looked at the unexpected results from the quantitative phase. The low indirect effect of e-HRM use on organizational performance through employee performance was considered an unexpected and surprising outcome. Electronic-HRM is adopted to first enhance employee performance and subsequently organizational performance (Parry and Tyson, 2011; Isaac *et al.*, 2017). The MAXQDA Analytics Pro 2020 (Release 20.2.2) software was used to aid the analysis of qualitative data. The software was used for referencing direct

quotes of interviewees. For example, a quote from participant coded as P8bu is shown as (P8bu) after the quote. The location (position) of the quote in the transcribed text is indicated by the line number, for example (Pos.9).

4.2.1 The low effect of e-HRM on employee performance. The effect of e-HRM use on employee performance was expected to be high. The prime purpose of introducing e-HRM is to achieve a series of intended outcomes of which employee performance improvement is paramount (Parry and Tyson, 2011; Isaac *et al.*, 2017). This view was shared by the eleven participants too. One participant had a different view. "*The labour relations are currently poor as a result of the worsening economic environment. Salaries are very low. Workers are not happy. I don't think information technology implementation could raise it*" (P8bu, Pos. 3).

Interdependency issues were the dominant theme cited for the low effect of e-HRM use on employee performance. Participants pointed to the interrelated dimensions of e-HRM that spark trade-offs during implementation. These dimensions were: communication, demotivated e-HRM actors, sabotage, power distribution and training. Three participants cited failure to communicate the reasons for introducing e-HRM as the source of the surprising result. Failure to communicate a change effort causes "fear of the unknown". Employees would try to manage this fear by sabotaging the system so that no successful change takes place. In instances where change was communicated, this would signal the design of new power structures and subsequently a new form of power distribution. New forms of power distribution are by their nature, forms of change. If they are not managed well, those losing power sabotage the system and invariably affect employee performance negatively.

Four participants cited lack of training of e-HRM actors on system use as the reason for the low effect. A lack of training on how a system ought to be used would see system misuse and unintended consequences result. This leads to more time being consumed in executing tasks. This frustrates employees leading to demotivation. Low motivation levels within e-HRM actors would negatively affect employee performance. One participant commented "*It could also be that employees were not conversant with the system. As a result, the positives that were envisaged have not been realized due to lack of intended use.*" (P9r, Pos. 5).

4.2.2 Effect of employee performance on organizational performance. The majority of participants (83%) expected a positive and significant effect of employee performance on organizational performance. The majority of participants (60%) suggested the toxic labour relations climate as behind this low effect. "*Employees in most organizations are demotivated by the current economic challenges. I think they would not respond positively to e-HRM implementation.*" (P3m, Pos. 16). All participants cited managerial issues as explaining this low effect. The factors said to contribute to this were: demotivated e-HRM actors, absence of consultation and training. These factors have blunted the predictive power of employee performance on organizational performance. "*Management has not addressed the causes of employee low morale at work. I think where management has; employee performance has had a big effect on organizational goals*" (P9r, Pos. 14).

5. Discussion of findings
The core question that guided this study was: Do employee performance and job satisfaction variables individually and jointly, significantly enhance the effect of e-HRM use on organizational performance such that they qualify to be dimensions of e-HRM configurations that enhance organizational performance?

5.1 Employee performance mediates the relationship between e-HRM use and organizational performance
The results of the mediation analyses show that the indirect effect of e-HRM use on organizational performance is positive and statistically significant. Hypothesis 1 is

therefore accepted. There is successful partial mediation. This is one of the gaps that this research sought to fill. What it establishes is that employee performance mediates the relationship between e-HRM use and organizational performance. The implication of the finding is that management should deploy employee performance enhancing HRM practices in order to attain enhanced organizational performance from e-HRM use. High employee performance is a dimension that characterizes e-HRM configurations that enhances the attainment of organizational success.

5.2 Job satisfaction mediates the relationship between e-HRM use and organizational performance

The results of mediation analysis show that the indirect effect of e-HRM use on organizational performance is positive and statistically significant. The mediation effects model identifies successful partial mediation linked to job satisfaction. A new addition to the current body of knowledge is the significance of job satisfaction as a mediator. This study represents a first attempt to explore mediation effects in this link. Bondarouk *et al.* (2017) alluded to the need for exploring such a role. Management should deploy those HRM practices that promote employee satisfaction. In addition, job satisfaction is a dimension that characterizes effective e-HRM configurations.

5.3 Employee performance and job satisfaction in serial, mediate the relationship between e-HRM use and organizational performance

The indirect effect of e-HRM use on organizational performance is positive and statistically significant. The third hypothesis is therefore accepted. The mediation effects model identifies mediation linked to employee performance and job satisfaction in serial. There is evidence of successful partial mediation. There is no literature that explores such joint mediation in serial. The role of actors has so far not been examined as playing a meaningful role in explaining organizational performance. A new addition to the current body of knowledge is the role of employee performance and job satisfaction as mediators in serial. The implication of this finding is that the two variables interact to create a complementary partial mediating effect. Employee performance and job satisfaction act as independent mediators, each playing a role in explaining the effect of e-HRM use towards organizational performance. Job satisfaction however plays a greater role (with an indirect effect of 0.0815) than employee performance does (with an indirect effect of 0.0173). Management should therefore positively manipulate the two variables through the deployment of relevant HRM practices, to create desired organizational outcomes. The two employee outcomes jointly qualify as dimensions that characterize effective e-HRM configurations.

6. Theoretical and practical contribution
6.1 Theoretical implications
The findings of this study raise a number of important theoretical implications. First, the study provides support to the hypothesised positive relationship between e-HRM use and organizational performance (Bondarouk and Ruel, 2013; Marler and Fisher, 2013; Bondarouk *et al.*, 2017; Galanaki *et al.*, 2019). Increased use of e-HRM leads to improved organizational performance. Second, the findings also support the positive effect of e-HRM use on individual employee performance (Sykes *et al.*, 2014; Rajan and Baral, 2015). Electronic HRM is an active tool in aiding employees to interact more easily among themselves, in their units and organizations leading to improved learning, productivity and work performance. "Electronizing" jobs simplifies work processes and improves information flows, resulting in a positive effect on employee performance. Third, the

findings suggest that e-HRM use contributes positively to employee job satisfaction. The findings are in support of previous studies which found the phenomenon impacting positively on job satisfaction (Morris and Venkatesh, 2010; Sykes *et al.*, 2014). Use of e-HRM should be complemented by the implementation of a number of HR practices meant to motivate employees. Fourth, the findings suggest that employee performance and job satisfaction, independently and jointly play mediating roles in the e-HRM use and organizational performance link. This study represents a first attempt to explore mediation effects in this link. Employee outcomes (employee performance and job satisfaction), subject to complementary HR interventions, contribute to a maximization of intended organizational performance.

The study further supports the relevance of the Task model in enhancing job performance. The deployment of IT increases the involvement of employees in decision-making and levels of commitment, and with that the ease of managing change. IT also affords managers the opportunity to give employees new opportunities to perform, learn and grow. This practice has an effect of motivating staff (Ghazzawi and Accoumeh, 2014; Yuliaty, 2017).

The relevance of Job Characteristics Model is also validated. The use of IT removes repetitive tasks in addition to liberating employees. Ultimately, employees are motivated by good jobs that demand skill variety. IT also allows employees to get feedback on how well they are performing given tasks. Lastly, the use of e-HRM enables HR personnel to be more autonomous. e-HRM helps employees to manage information, access it directly and update it to suit their needs. This increases motivation of staff too (Bondarouk *et al.*, 2017; Morris and Venkatesh, 2010).

6.2 Practical implications

The findings of this study have some implications for practice too. The results indicate that e-HRM use leads to the attainment of strategic organizational outcomes. The phenomenon leads to organizational efficiency and productivity gains. The HR function becomes a strategic partner, helping organizations to take strategic initiatives and to focus on tasks that provide increased value. As such, HRM technology has elevated the function to deserve a seat in the boardroom. Electronic HRM use should be deployed to complement other HRM practices in order to achieve organizational excellence. Practitioners are encouraged to adopt e-HRM alongside other HR practices to improve organizational performance. Furthermore, HRM practitioners should expect employee performance and job satisfaction improvements as a result of e-HRM use. The HR function needs to monitor the commitment and motivation of employees during the e-HRM system implementation process. A productive and satisfied workforce enhances the attainment of intended organizational performance.

7. Limitations

Notwithstanding the successfully attainment of the study's objectives, the findings should be treated with caution for a number of reasons. First, the study sample is largely skewed in favour of HR professionals. Maier *et al.* (2013) also encountered a skewed distribution of participants' work experiences in their study, with no effect on findings. Second, the study was cross-sectional, and as such, it suffers from the well-documented "Neyman bias". Cross-sectional studies tend to fail to capture processes that take time to manifest. As such, causality cannot be deduced. Ascertaining the direction of the effect would require a longitudinal research setting. Ruel and van der Kaap (2012, p. 278) confirm this, stating that "the cross-sectional nature of our study reduces a full and in-depth understanding of the

relationship between e-HRM usage and HRM value creation". Lastly, this study has looked at the mediating effects of employee performance and job satisfaction in explaining the e-HRM – organizational performance link. The setting for this study was a developing country. There is need for replication of the study in a developed country setting for purposes of population validity.

8. Future research direction

Future research with a "balanced" sample of e-HRM actors is recommended in future research. A longitudinal study is also recommended to eliminate the Neyman bias as well as determine causality between e-HRM use and organizational performance. A study that explores organizational culture and organizational politics as additional possible mediating variables should advance theory development as well as provide more practical implications. This allows for the assessment of the impact of e-HRM on both individual- and organizational-level outcomes.

9. Conclusion

The study proposes the adoption of employee performance and job satisfaction as contextual factors that explain successful e-HRM configurations. The presence of high employee performance and employee job satisfaction mediates the effect of e-HRM use to improved organizational performance. Organizational size, strategic involvement of the HR function, competition in international markets, high levels employee performance and job satisfaction constitute a bouquet of variables that characterize successful e-HRM configurations.

References

Armstrong, M. (2008), *Strategic Human Resource Management, A Guide to Action*, Kogan Page, London.

Autor, D., Levy, F. and Murnane, R.J. (2003), *The Skill Content of Recent Technological Change: An Empirical Exploration*, Oxford University Press, Oxford.

Bethke-Langenegger, P., Mahler, P. and Staffelbach, B. (2011), "Effectiveness of talent management strategies", *European Journal of International Management*, Vol. 5 No. 5, pp. 524-539.

Bhardwaj, P. (2019), "Types of sampling in research", *Journal of the Practice of Cardiovascular Sciences*, Vol. 5 No. 3, pp. 157-175.

Bondarouk, T.V., Parry, E. and Furtmueller, E. (2017), "Electronic HRM: four decades of research on adoption and consequences", *The International Journal of Human Resource Management*, Vol. 28 No. 1, pp. 98-131.

Bondarouk, T.V. and Ruël, H.J.M. (2009), "Electronic human resource management: challenges in the digital era", *The International Journal of Human Resource Management*, Vol. 20 No. 3, pp. 505-514.

Bondarouk, T. and Ruël, H. (2013), "The strategic value of e-HRM: results from an exploratory study in a governmental organization", *The International Journal of Human Resource Management*, Vol. 24, pp. 391-414.

Bravo, E., Santana, M. and Rodon, J. (2016), "Automating and informating: roles to examine technology's impact on performance", *Behaviour and Information Technology*, Vol. 3 No. 7, pp. 7-17.

Bryman, A. and Bell, E. (2011), *Business Research Methods*, 3rd ed., Oxford University Press, Oxford.

Canatay, A., Emegwa, T., Lyboit, L. and Loch, K. (2022), "Reliability assessment in SEM models with composites and factors: a modern perspective", *Data Analysis Perspectives Journal*, Vol. 13 No. 1, pp. 1-6.

Galanaki, E., Lazazzara, A. and Parry, E. (2019), "A cross-national analysis of E-HRM configurations: integrating the information technology and HRM perspectives", in Lazazzara, A., Nacamulli, R., Rossignoli, C. and Za, S. (Eds), *Organizing for Digital Innovation. Lecture Notes in Information Systems and Organisation*, Springer, Cham, Vol. 27.

Ghazzawi, K. and Accoumeh, A. (2014), "Critical success factors of the e-recruitment system", *Journal of Human Resources Management and Labor Studies*, Vol. 2 No. 2, pp. 159-170.

Goodhue, D.L. and Thompson, R.L. (1995), "Task-technology fit and individual performance", *MIS Quarterly*, Vol. 19 No. 2, pp. 213-236.

Goodman, S.A. and Svyantek, D.J. (1999), "Person–organization fit and contextual performance: do shared values matter", *Journal of Vocational Behavior*, Vol. 55 No. 2, pp. 254-275.

Hackman, J.R. and Oldham, G.R. (1975), "Development of the job diagnostic survey", *Journal of Applied Psychology*, Vol. 60 No. 2, pp. 159-170.

Isaac, O., Abdullah, Z., Ramayah, T. and Mutahar, A.M. (2017), "Internet usage, user satisfaction, task-technology fit, and performance impact among public sector employees in Yemen", *The International Journal of Information and Learning Technology*, Vol. 34 No. 3, pp. 210-241.

L'Ecuyer, F. and Raymond, L. (2023), "Enabling the HR function of industrial SMEs through the strategic alignment of e-HRM: a configurational analysis", *Journal of Small Business and Entrepreneurship*, Vol. 35 No. 3, pp. 450-482.

Lepak, D.P, Liao, H., Chung, Y. and Harden, E.E. (2006), "Aconceptual review of human resource management systems in strategic human resource management research", *Research in Personnel and Human Resource Management*, Vol. 25, pp. 217-271.

Maier, C., Laumer, S., Eckhardt, A. and Weitzel, T. (2013), "Analyzing the impact of HRIS implementations on HR personnel's job satisfaction and turnover intention", *The Journal of Strategic Information Systems*, Vol. 22 No. 3, pp. 193-207.

Marler, J.H. and Fisher, S.L. (2013), "An evidence-based review of e-HRM and strategic human resource management", *Human Resource Management Review*, Vol. 23 No. 1, pp. 18-36.

Marler, J.H. and Parry, E. (2016), "Human resource management, strategic involvement and e-HRM technology", *The International Journal of Human Resource Management*, Vol. 27 No. 19, pp. 2233-2253.

Martin-Alcazar, F., Romero-Fernandez, P. and Gardey, G.Z. (2005), "Strategic human resource management: integrating the universalistic, contingent, configurational and contextual perspectives", *The International Journal of Human Resource Management*, Vol. 16 No. 5, pp. 633-659.

Martini, M., Cavenago, D. and Marafioti, E. (2020), "Exploring types, drivers and outcomes of social e-HRM", *Employee Relations: The International Journal*, Vol. 43 No. 3, pp. 788-806.

Melian-Gonzalez, S. and Bulchand-Gidumal, J. (2017), "Information technology and front office employees' performance", *International Journal of Contemporary Hospitality Management*, Vol. 29 No. 8, pp. 2159-2177.

Mishra, M. (2016), "Confirmatory factor analysis (CFA) as an analytical technique to assess measurement error in survey research: a review", *Paradigm*, Vol. 20 No. 2, pp. 97-112.

Morris, M.G. and Venkatesh, V. (2010), "Job characteristics and job satisfaction: understanding the role of enterprise resource planning system implementation", *MIS Quarterly*, Vol. 34 No. 1, pp. 143-161.

Motowidlo, J.S. (2003), "Job performance: handbook of psychology", *Industrial and Organizational Psychology*, Vol. 12, pp. 39-55.

Obeidat, S.M. (2016), "The link between e-HRM use and HRM effectiveness: an empirical study", *Personnel Review*, Vol. 45 No. 6, pp. 1281-1301.

Panos, S. and Bellou, V. (2016), "Maximizing e-HRM outcomes: a moderated mediation path", *Management Decision*, Vol. 54 No. 5, pp. 1088-1109.

Parry, E. and Tyson, S. (2011), "Desired goals and actual outcomes of e-HRM", *Human Resource Management Journal*, Vol. 21 No. 3, pp. 335-354.

Rajan, C.A. and Baral, R. (2015), "Adoption of ERP system: an empirical study of factors influencing the usage of ERP and its impact on end user", *IIMB Management Review*, Vol. 27 No. 2, pp. 105-117.

Robbins, S.P., Judge, T.A. and Campbell, T.T. (2017), *Organisational Behaviour*, 2nd ed., Pearson, Harlow.

Roman, D.J., Piana, J., Leal, M.A., de Mello, N.R. and Erdmann, R.H. (2012), "Organizational competitiveness factors", *Brazilian Business Review*, Vol. 9 No. 1, pp. 25-42.

Ruël, H. and van der Kaap, H. (2012), "E-HRM usage and value creation. Does a facilitating context matter?", *German Journal of Research in Human Resource Management*, Vol. 26 No. 3, pp. 260-281.

Strohmeier, S. (2009), "Concepts of e-HRM consequences: a categorization, review and suggestion", *The International Journal of Human Resource Management*, Vol. 20 No. 3, pp. 528-543.

Strohmeier, S. and Kabst, R. (2009), "Organizational adoption of e-HRM in Europe: An empirical exploration of major adoption factors", *Journal of Managerial Psychology*, Vol. 24 No. 6, pp. 482-501.

Strohmeier, S. and Kabst, R. (2014), "Configurations of e-HRM - an empirical exploration", *Employee Relations*, Vol. 36 No. 4, pp. 333-353.

Sykes, T.A., Venkatesh, V. and Johnson, J.L. (2014), "Enterprise system implementation and employee job performance: understanding the role of advice networks", *MIS Quarterly*, Vol. 38 No. 1, pp. 51-72.

Tafti, A., Mithas, S. and Krishnan, M.S. (2007), "Information technology and the autonomy – control duality: toward a theory", *Information Technology Management*, Vol. 8, pp. 147-166.

Tawk, C. (2021), "Effects of high performance work practices on employee performance: a review article", *Journal of Human Resource and Sustainability Studies*, Vol. 9 No. 3, pp. 397-412.

Voermans, M. and Van Veldhoven, M. (2007), "Attitude towards E-HRM: an empirical study at Philips", *Personnel Review*, Vol. 36 No. 6, pp. 887-902.

Wahyudi, E. and Park, S. (2014), "Unveiling the value creation process of electronic human resource management: an Indonesian case", *Public Personnel Management*, Vol. 43 No. 1, pp. 83-114.

Weiss, D.J., Dawis, R.V., England, G.W. and Lofquist, L.H. (1967), *Manual for the Minnesota Satisfaction Questionnaire*, University of Minnesota, Minneapolis, MN.

Wijayadne, D. (2021), "Increased Employee productivity with the application of e-HRM", *Review of Management and Entrepreneurship*, Vol. 3 No. 2, pp. 151-164.

Yuliaty, F. (2017), "Employee empowering through information technology and creativity in organizations", *International Journal of Economic Perspectives*, Vol. 11 No. 3, pp. 54-59.

Zhang, Y. (2005), "Age, gender, and Internet attitudes amongst employees in the business world", *Computers in Human Behaviour*, Vol. 21 No. 1, pp. 1-10.

Corresponding author

Musa Nyathi can be contacted at: mnyathi2000@gmail.com