

Article

# The impact of e-human resource management on employee performance: The mediating role of employee engagement in Jordanian service and public administration commission

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**Abstract:** The research aims to explore the role of Electronic Human Resources Management on employee performance through employee engagement. The present research's population included all Jordanian Service and Public Administration Commission employees. The data was collection through a questionnaire that was administered for the study Population. 262 questionnaires collected from employees working in Service and Public Administration Commission in Jordan valid for statistics. The analysis of the data was undertaken through the use of SEM (structural equation modelling). The results showed that E-HRM has a direct impact on employee performance and employee engagement. Consequently, the indication from the results was that a significant role in mediation within the effect that E-HRM had upon employee performance been played by employee engagement. The conclusion reached was that transformation of the public sector through implementation of technological HRM methods fosters employee engagement, with that being a key driver for the alignment of employee behaviors for the achievement of high levels of employee performance.

**Keywords:** electronic human resource management (E-HRMs); employee performance; employee engagement; service and public administration commission (SPAC); Jordan

## 1. Introduction

Organizations must increase their competitiveness through innovation in order to gain a competitive advantage over their rivals, as the world grows more complex, dynamic, and uncertain due to technological advancements during the globalization era (Esther et al., 2019; Kwan et al., 2019; Lestari et al., 2020). Human resources are now crucial to the survival and growth of sustainable businesses due to their ability to quickly adapt to changes in technology and the competitive nature of the global market (Haerani et al., 2020). HR professionals may decrease administrative duties, give stakeholders access to data-based information, and provide better services by utilizing technology platforms. One possible solution is to replace recruitment materials with digital files, which can save a significant amount of time and space (Jeannette et al., 2019). In fact, there has been a significant shift in HRM operations from manual behavior to automation thanks to the application of technology that has been developed to find answers for a wide range of issues that have come up (Marler and Parry, 2016).

Electronic human resource management, or E-HRM, is the term for human

resource management activities carried out through the use of technology. Because E-HRM applications can lessen unfavorable effects on the economy, society, and environment, they can help organizations enhance sustainability (Nurlina et al., 2020). Over the course of the last thirty years or so, the public sector has seen a profound transformation in the provision of numerous services and activities. Additionally, a rich environment for the introduction of fresh and creative applications and services has been established with the advent and continued development of the internet. As a result, government agencies everywhere have adopted and deployed e-services (Alabdallat, 2020; Mohammad et al., 2020). According to the UN department of Economic and Social Affairs (UNDESA, 2016), ensuring openness, improving efficiency, and cutting costs have been the overarching goals of all those e-services. Governments all over the world have put a lot of effort into creating development models that combine people, strategy, technology, and processes. They have also worked hard to create action plans that effectively outline the steps needed to successfully implement e-government in non-traditional services (Al-Hawary et al., 2020; Ruelas and Pérez, 2006).

In Jordan, e-government is increasingly regarded as a need and a means of meeting the demands of the modern world, in which digital technologies are now seen as essential to all forms of development (Alabdallat, 2020). Alnawaiseh and Almasarweh (2020) conducted an analysis of the Jordanian public sector and recommended that in order to attract and retain highly skilled and professional personnel, the public sector in the nation should focus more on GHR recruitment—a type of HRM practice. Prior research has been done on E-HRM in Jordan's private sector; see, for instance, Al-Ajlouni et al. (2019), AlHamad et al. (2022), Khashman (2022) and Malkawi (2018). The e-government initiative was housed within a grand vision that aspired to enhance government performance in areas such as service delivery and performance efficiency, time and cost savings, administrative slack resolution, getting rid of antiquated management techniques, reducing administrative corruption and nepotism, and reducing paper use in business (Olimat, 2018). There is, however, a dearth of studies in relation to E-HRM within the Jordanian public sector (Albloush et al., 2022). Therefore, this study aims to examine the role of Electronic Human Resources Management on employee performance through employee engagement.

## **2. Literature review and hypotheses development**

### **2.1. Electronic human resources management (E-HRM)**

Strategies for electronic types of human resource management (E-HRM) help make organizations more sustainable through improving innovation through consideration to the utilization of a repository of knowledge. In trying to build up the innovation within an organization, it is essential the E-HRM strategies are treated as having importance, with the repository of knowledge utilized so that organizational innovation continues to improve (Al-Alwan et al., 2022; Al-Shormana et al., 2021; Al-Bazia, 2021). It was emphasized by the researchers that the emergence and development of communication and forms of information technology and internet networks has contributed to a multitude of organizational changes, such as reduction

in the number of administrative levels, reductions in the levels of authority and number of points of decision-making, and the flattening of hierarchies (Al Kurdi et al., 2020; Alzoubi et al., 2021; Boudlaie et al., 2022), as a concept, E-HRM has appeared to naturally coincide with technological advances.

Different definitions of E-HRM can be found in the literature. Bondarouk and Ruël (2009), for example, described it as electronic support of human performance (Mukhlis et al., 2022; Strohmeier, 2007). E-HRM is defined as a way for HR strategies, practices, and policies to be implemented within enterprises through educated and directed assistance and/or full use of technology that is reliant on internet channels. According to Ramayah (2012), E-HRM refers to technological platforms that enable human resource functions to generate innovative work practices and areas that might enhance an organization's performance. The definition of E-HRM provided by Voermans and Veldhoven (2017) is the use of internet technology to provide administrative support to organizations in their human resource tasks.

In order to produce value for management and people within businesses, Bondarouk et al. (2009) defined E-HRM as the umbrella term for all the methods and implications of integrating information technology with human resource management. Various scholars have taken distinct tacks when examining E-HRM practices. While believed that e-HR practices also included e-compensation, e-learning, e-leave, e-training, e-selection, e-profile, and e-recruitment (AlHamad et al., 2022). Rastogi and Srivastav (2017) stated that e-HR practices are e-selection, e-recruitment, and e-training. The ensuing subsections go into further detail on each of the several features.

**Electronic recruitment and selection:** Using the internet to draw candidates to a company and subsequently hire them is known as electronic recruitment and selection. E-recruitment, another name for online recruiting, is the process of evaluating possible employees using websites and other online technology before conducting interviews and hiring them (Al-Bazia, 2021; Al-Hawary et al., 2022).

**Electronic training and development:** An organization's capabilities, knowledge, and skills are diagnosed by the human resources management system, which enables assistance in creating training and development plans for employees that are appropriate for the needs of the business. Additionally, the system allows for the potential redistribution of employees to positions that better suit their educational background, abilities, knowledge, and skills (Al-Rwaidan et al., 2023; Albloush et al., 2022; Mehrez et al., 2021). So, the new means of communication through information technology have afforded organisations greater flexibility in meeting their future and current needs (AlHamad et al., 2012; AlHamad et al., 2022; Pallathadka et al., 2023).

**Electronic performance appraisal:** The internet can be used to conduct an evaluation of the performance of human resources. Therefore, managers can use electronic forms to send information about performance reviews straight to the human resources department, saving paper for both the supervisor and the observer. As a result, human resources management spends less money, time, and effort managing employees. Additionally, managers can enter performance evaluation data instantly thanks to self-service apps (AlHamad et al., 2022).

**Electronic compensation systems:** The electronic types of compensation system include those that have all the salary records for those within an organisation, whether the individual is an internal employee or people on external contracts including

consultants and those who work temporarily for the organisation on an hourly rate or upon another system that the organisation follows (Alomari et al., 2019; Elshamy et al., 2017; Majdy et al., 2023; Yuliawati et al., 2021). An organization is able to develop the compensation system through the identification of the important characteristics of a job, the determination of the compensating value in relative terms through the analysis of the job and through the conversion of the job evaluation points to a wage structure through the surveying of the wage rates within the current labour market (Candy and Miller, 2003; Shamaileh et al., 2023).

## **2.2. Employee performance**

According to Sonnentag et al. (2008), employee performance is the total expected value for an organization about the discrete behavioral episodes that the concerned individual engages in throughout a typical time period. There are two key implications to that definition. First, as Motowidlo (2003) points out, “In particular, it is an aggregate property of multiple, discrete behaviors that occur over some span of time”, employee performance is an indexed behavior. The second implication of the definition is that behaviour, as the property to which performance is in reference to, is the expected value for the organisation (Hawary and Abdallah, 2023; Nyathi and Kekwaletswe, 2022).

There is a substantial relationship between E-HRM and performance. In fact, there is a considerable impact on strategic performance from e-selection, e-recruitment, e-performance management, e-compensation and benefit, e-communication and HRIS, e-learning, e-leave, and e-personal profile. Conversely, there is a negative correlation between strategic performance and traditional and virtual training, e-advertising, tracking and managing e-grievance, and green human resource management (Hosain, 2017). Al-Hmouze and Salameh (2016) found a strong beneficial impact of E-HRM on organizational performance when it was operationalized in terms of customer satisfaction, quick time to market, innovation, rapid adaption, and the human resources process. Furthermore, Al-Hawary et al. (2020) found a positive correlation between e-HRM and organizational outcomes, such as learning capability. In order to examine the impact that E-HRM has on performance, the following hypothesis is proposed for this investigation:

- H1: There is an impact of E-HRM on employee performance.

## **2.3. Employee engagement**

Employee engagement (EE) is considered to be the degree to which employees show commitment to organisational values at their workplace (Anitha, 2014). EE has been defined by Poisat (2006) as the extent to which employees have commitment towards helping their organisation whether that is in personal terms, cognitively or emotionally, i.e., doing more than what is necessary. Meanwhile, Valentine (2014) discovered that EE makes a significant contribution to the productivity and performance of an organisation, the employee retention and the outcomes for customers. So, with the engagement of employees, they can be more productive and that, in time, results in positive impacts for business (Alserhan et al., 2024; Cawe, 2006). Moreover, employees that are engaged with an organisation have been found

to be 87% less of a likelihood to leave that organisation, and that shows that engaged employees lead to significant improvements in organisational performance and productivity (Grobbelaar, 2021).

Further, it is considered significant that employees are engaged so that strategic organisational goals can be achieved (Vu, 2020). The practices of HR can have a positive impact on employee engagement. If training, career development and compensation are provided by an organisation, then there can be reciprocal actions with employees becoming more engaged (Saragih and Prasetyo, 2020). It was concluded by Karam et al. (2017) that the practice of HR would increase skills amongst employees and provide them with job resources that are sufficient so that they become more engaged.

Alfes et al. (2013) also found that a positive relationship existed between EE and HR practices. As an HRM aspect, EE has importance in that it has an essential role for ensuring an organisation has financial success. In that context, Hosseini et al. (2022) discovered there to be a relationship that was positive between EE and sustainable HR. Furthermore, Abu Rumman, Al-Abbadi and Alshwabkeh (2020) showed that the practices of HRD of employee training, employee promotion and employee empowerment have a positive impact upon EE, and it was shown that employee promotion and employee empowerment impacted most highly upon EE. In addition, Grobbelaar (2021) also found there to be a relationship that was positive between EE and E-HRM. Meanwhile, social exchange theory has stated that resources are exchanged between the organisation and employees, e.g., recognition for employees and cash incentives, and these result in positive outcomes from EE (Fletcher, 2019). Employees have greater loyalty as a result of EE, with a reduction in desire for voluntarily turnover (Hermawan et al., 2020). Based upon that understanding gleaned from the literature with regard to EE, for this study, it is proposed that:

- H2: There is an impact of E-HRM on employee Engagement.

#### **2.4. The mediating effects of employee engagement on the relationship between E-HRM and employees performance**

Three prerequisites can be regarded as having to be satisfied in order for mediation to be created, per the research of Preacher and Hayes (2004) and Baron and Kenny (1986). First off, there is a direct relationship between the dependent variable (employee performance) and the independent variable (E-HRM). The second requirement is that there must be a direct relationship between the mediating variable (employee engagement) and the independent variable (E-HRM). Employee engagement, the mediating variable in the third condition, has a direct relationship with the dependent variable, employee performance. When accounting for a mediator (employee engagement), the significant relationship between the independent variable (E-HRM) and the dependent variable (employee performance) either becomes less significant (partial mediation) or disappears entirely (full mediation); for more information, see Baron and Kenny (1986) and Preacher and Hayes (2004). Thus, the following hypothesis is proposed for this study:

- H3: Employee engagement mediates the relationship between electronic human resources management (e-recruitment and selection, e-training and development,

e-performance appraisal and e-compensation) and employee performance.

### 3. Research model

Figure 1 shows the effect of e-human resource management on employee performance.

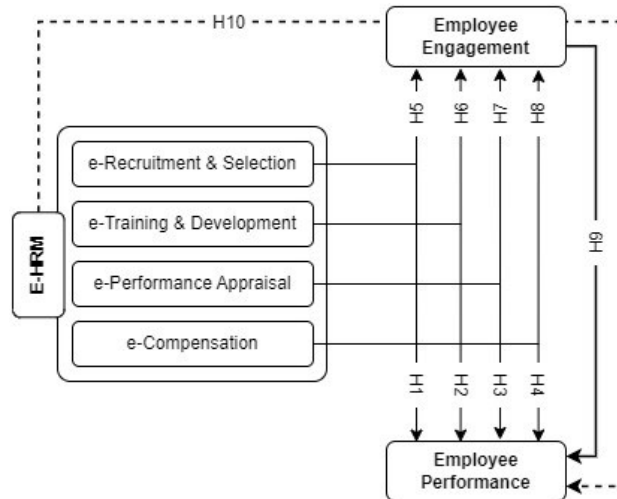


Figure 1. Research framework.

### 4. Research methodology

#### 4.1. Research design

A positivist research principle was used to investigate the impact of E-HRM on employee performance through the mediating role of engagement in Jordanian Service and Public Administration Commission. Positivism facilitates objectivity and the use of empirical information to comprehend phenomena, which is consistent with the quantitative aspect of the research (Park et al., 2020). This technique would entail conducting surveys to obtain quantitative information on variables related to E-HRM practices, employee engagement, and performance measures over a set time (Hunziker and Blankenagel, 2024). Using statistical approaches to examine this data, researchers could discover correlations, mediations, and the overall impact of E-HRM on employee performance, as well as evaluate the mediation role of employee engagement. The purpose of this research was to produce actual evidence that contributes to understanding how E-HRM practices impact employee performance, therefore guiding HRM strategy Jordanian Service and Public Administration Commission.

#### 4.2. Research participants

The present research's population included all Jordanian Service and Public Administration Commission employees. The population of the study consists 468 employees. As the study population is not large, the study included the whole population. Accordingly, the study tool was distributed to 468 employees in the Jordanian public sector to ensure superiority over the minimum responses. The responses retrieved were 262 questionnaires, which included 33 incomplete responses

that were removed from the research sample. Hence, the responses used in analyzing the impact of E-HRM on employee performance through the mediating role of engagement in Jordan's public sector were 229 responses constituting a response rate of 57.25% of the total sample. Demographic analysis of the final sample showed that it included (66.9%) males and (33.1%) females. In terms of educational level, (44.5%) participants had a bachelor's degree, (31.8%) had a diploma, and (23.7%) had postgraduate degrees. Furthermore, most of the study participants were young, with (58%) being the age group from 20 to 35, followed by (30.4%) the age group from 36 to 45, and finally (11.6%) being the age group older than 45.

### **4.3. Research instrument**

Structured surveys (questionnaires) were utilized as the major way of collecting primary data for the study. The questionnaire was translated into Arabic to ensure that respondents could appropriately evaluate its items before being returned to English through back translation (Aloudah, 2022). Furthermore, the research instrument was created using Google Forms and sent to the sample to ease data collection from 13 February 2024 to 3 May 2024. In addition to the main four sections, the questionnaire featured an informed consent form that stressed voluntary participation and information confidentiality. The first section dealt with category demographic factors, while the following sections focused on the key variables, which were measured using a five-point Likert scale.

The questionnaire assessed the degree of usage and effectiveness of computerized human resource management, i.e., the independent variable, using a set of 20 items obtained from (Raashidah and Darakhshan, 2017; Swaroop, 2012). These items constructed four first-order constructs, each with five items. E-recruitment and selection were rated based on the transparency and fairness of the procedures and sites used to compare applicants. To evaluate e-training and development, queries were made regarding the availability of digital platforms that allow employees to acquire skills relevant to their function and the quality of program offerings. Electronic performance assessment measures employees' participation in periodic electronic evaluations as well as the accuracy of systems that give managers performance analyses. E-compensation was assessed by determining the level of employee faith in the fairness of the electronic systems responsible for handling perks and incentives. Employees were asked to assess their engagement degree, the mediating variable, using a set of eight questions that comprised a first-order construct according to Schaufeli et al. (2002). Employees were also asked to assess their performance using nine elements drawn from Pradhan and Jena (2017), which created a first-order construct.

### **4.4. Analytical methods**

The impact of electronic human resource management on employee performance was investigated using structural equation modeling (SEM), with employee engagement serving as a mediator between variables in Jordan's public sector. This approach entails assessing the measurement model's reliability and validity by investigating the relationships between observable variables and their latent constructs

(Hair et al., 2020). Furthermore, SEM includes many fit indices (e.g., Chi-square, RMSEA, CFI and TLI) to assess the proposed model’s fit to quantitative data (Marsh et al., 2019). Finally, it enables the estimate of path coefficients, which describe the strength and direction of associations between variables, to identify the direct and indirect effects of E-HRM practices on employee performance.

## 5. Research results

### 5.1. Measurement model evaluation

The measurement model used in the current study was evaluated through confirmatory factor analysis (CFA). CFA provides the possibility of determining the convergent and discriminant validity of the model used, along with highlighting the reliability of this model (Collier, 2020). **Table 1** lists the results of the measurement model evaluation related to the impact of E-HRM on employee performance through the mediating role of engagement.

**Table 1.** Results of confirmatory factor analysis and descriptive analysis.

	Factors	Loadings	AVE	MSV	AVE	CR	M	SD
e-Recruitment and Selection	ERS1	0.757	0.548	0.492	0.740	0.858	3.63	0.885
	ERS2	0.703						
	ERS3	0.742						
	ERS4	0.711						
	ERS5	0.785						
e-Training and Development	ETD1	0.671	0.553	0.506	0.744	0.861	3.75	0.903
	ETD2	0.726						
	ETD3	0.791						
	ETD4	0.772						
	ETD5	0.753						
e-Performance Appraisal	EPA1	0.741	0.515	0.438	0.718	0.841	3.69	0.892
	EPA2	0.603						
	EPA3	0.795						
	EPA4	0.722						
	EPA5	0.715						
e-Compensation	ECO1	0.815	0.586	0.518	0.765	0.875	3.58	0.768
	ECO2	0.764						
	ECO3	0.824						
	ECO4	0.635						
	ECO5	0.773						
Employee Engagement	EE1	0.703	0.519	0.485	0.720	0.896	3.48	0.911
	EE2	0.757						
	EE3	0.716						
	EE4	0.739						
	EE5	0.692						
	EE6	0.657						
	EE7	0.726						
	EE8	0.766						



**Table 1.** (Continued).

	Factors	Loadings	AVE	MSV	AVE	CR	M	SD
	EP1	0.734						
	EP2	0.624						
	EP3	0.782						
	EP4	0.721						
Employee Performance	EP5	0.748	0.550	0.524	0.742	0.916	3.56	0.874
	EP6	0.801						
	EP7	0.755						
	EP8	0.762						
	EP9	0.736						

## 5.2. Descriptive statistics

The emphasis was on measures of central tendency and dispersion in descriptive statistics for electronic human resource management, employee engagement, and employee performance. The descriptive statistics in **Table 1** revealed that the aspects of electronic human resource management were of moderate to high relative importance. E-training and development ( $M = 3.75$ ,  $SD = 0.903$ ) placed the highest point, with e-performance assessment ( $M = 3.69$ ,  $SD = 0.892$ ) coming in second, both of which had a high relative importance. The other dimensions were of moderate relative importance, with e-recruitment and selection ( $M = 3.63$ ,  $SD = 0.885$ ) ranking third and e-compensation ( $M = 3.58$ ,  $SD = 0.768$ ) ranking last. On the other hand, employee engagement ( $M = 3.48$ ,  $SD = 0.911$ ) and employee performance ( $M = 3.56$ ,  $SD = 0.874$ ) were both shown to be of moderate relative importance.

## 5.3. Structural model evaluation

**Figure 2** shows the structural model used to evaluate the impact of electronic human resources management on employee performance through employee engagement, as it provides valuable insights into the relationship between variables and the results of the goodness of fit indices.

**Figure 2** showed that the chi-square value/degrees of freedom (CMIN/DF) achieved was 2.749, which is less than the threshold of 3, suggesting a satisfactory fit between the model and the data (Rahamneh et al., 2023). The comparative fit index (CFI) and Tucker-Lewis index (TLI) were 0.926 and 0.913, respectively, suggesting that the model fitted the data well with values more than 0.90 (Xia and Yang, 2019). Acceptable fit is indicated by RMSEA values less than 0.08 (Shi et al., 2020). In this study, the RMSEA value of 0.062 is below the threshold, suggesting that the model fits the data well. As a result, we may proceed to extract the direct effects, given in **Table 2**, and the indirect ones, shown in **Table 3**.

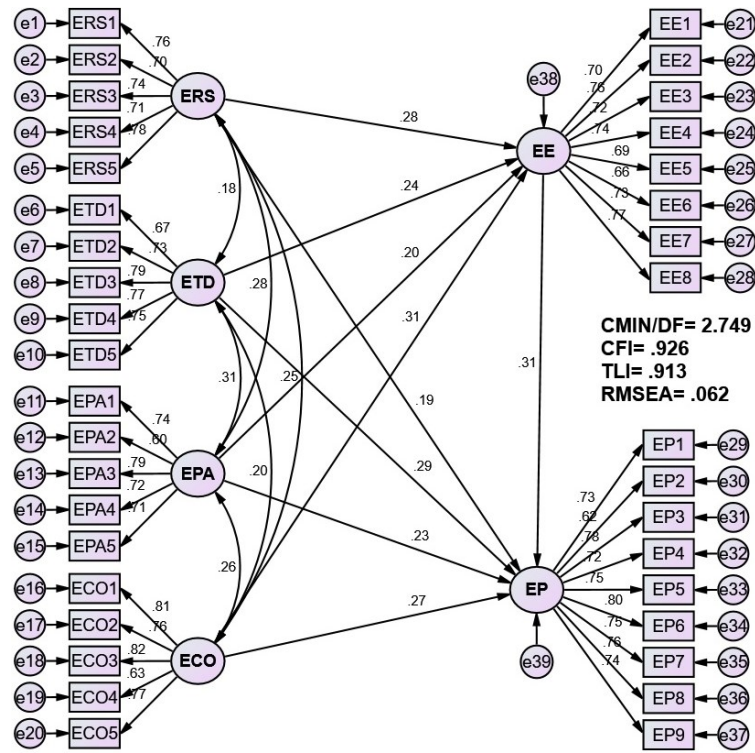


Figure 2. Structural equation model evaluation using AMOS.

Table 2. Result of path analysis for direct effects.

Predictors	Model 1 (DV: Employee performance)				Model 2 (DV: Employee engagement)			
	B	S.E.	$\beta$	T	B	S.E.	$\beta$	T
e-Recruitment and Selection	0.195	0.056	0.186	3.48*	0.299	0.066	0.281	4.53***
e-Training and Development	0.305	0.062	0.289	4.92***	0.252	0.060	0.240	4.20**
e-Performance Appraisal	0.245	0.059	0.233	4.15**	0.211	0.057	0.203	3.70**
e-Compensation	0.287	0.061	0.268	4.70***	0.318	0.065	0.306	4.89***
Employee Engagement	0.326	0.063	0.311	5.17***	-	-	-	-

Note: \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ .

Table 3. Result of path analysis for mediating effect (DV: Employee Performance).

Predictors	Direct Effect		Indirect Effect		Total Effect	
	$\beta$	T	$\beta$	T	$\beta$	T
e-Recruitment and Selection	0.186	3.48*	0.235	3.59**	0.421	6.54***
e-Training and Development	0.289	4.92***	0.221	3.88**	0.510	8.32***
e-Performance Appraisal	0.233	4.15**	0.203	3.25*	0.436	6.95***
e-Compensation	0.268	4.70***	0.187	3.14*	0.455	7.46***

Note: \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ .

Table 2 summarizes the path analysis findings, concentrating on the direct effects of various E-HRM practices on two crucial outcomes: employee performance (Model 1) and employee engagement (Model 2). In Model 1, e-recruitment and selection have a positive and substantial relate to employee performance ( $\beta = 0.186$ ,  $t = 3.48$ ,  $p < 0.05$ ). E-training and development ( $\beta = 0.289$ ,  $t = 4.92$ ,  $p < 0.001$ ), e-performance evaluation ( $\beta = 0.233$ ,  $t = 4.15$ ,  $p < 0.01$ ), and e-compensation ( $\beta = 0.268$ ,  $t = 4.70$ ,  $p$

< 0.001) all have a positive and significant influence on employee performance. Furthermore, employee engagement ( $\beta = 0.311, t = 5.17, p < 0.001$ ) has a direct and significant impact on employee performance.

Similar trends arise in Model 2, which measures the influence of E-HRM practices on employee engagement. Employee Engagement has a significant relationship with e-Recruitment and Selection ( $\beta = 0.281, t = 4.53, p < 0.001$ ), e-Training and Development ( $\beta = 0.240, t = 4.20, p < 0.01$ ), e-Performance Appraisal ( $\beta = 0.203, t = 3.70, p < 0.01$ ), and e-Compensation ( $\beta = 0.306, t = 4.89, p < 0.001$ ).

**Table 3** demonstrates the path analysis results, with a focus on Employee Engagement as a mediator in the relationship between key E-HRM practices and Employee Performance. E-recruitment and selection have a significant positive impact on employee performance ( $\beta = 0.186, T = 3.48, p < 0.05$ ). Employee engagement has a significant indirect effect ( $\beta = 0.235, T = 3.59, p < 0.01$ ) on employee performance, indicating that it mediates some of the impact of e-recruitment and selection. E-recruitment and selection have a significant impact on employee performance, as evidenced by the total effect ( $\beta = 0.421, T = 6.54, p < 0.001$ ). This includes both direct and indirect impacts.

Similar tendencies are seen in e-training and development, e-performance appraisal, and e-compensation. The following predictors had significant direct impacts on employee performance: E-training and development ( $\beta = 0.289, T = 4.92, p < 0.001$ ), e-performance appraisal ( $\beta = 0.233, T = 4.15, p < 0.01$ ), and e-compensation. The following predictors had significant indirect impacts on employee engagement: E-training and development ( $\beta = 0.221, T = 3.88, p < 0.01$ ), e-performance appraisal ( $\beta = 0.203, T = 3.25, p < 0.05$ ), and e-compensation ( $\beta = 0.187, T = 3.14, p < 0.05$ ). The combined effects of all variables are likewise significant, showing that they have a strong overall impact on employee performance.

## 6. Discussion and conclusion

The goal of electronic human resource management (ERM) is to create value for both management and employees by organizing and managing HR activities within organizations via the use of contemporary technology. Moreover, performance and employee engagement are critical components of an organization's efficacy and efficiency, particularly in the public sector. The formulation of strategies for improving the delivery of public services requires an understanding of the dynamics and interactions between those factors within the framework of the public sector. Thus, the purpose of this study is to investigate how E-HRM affects worker performance in the presence of employee engagement as a mediating variable. Empirical testing of our specific theoretical model yielded new insights into that area of social exchange theory research.

It was shown by the results that E-HRM had a level that was high to moderate. This showed that management of governmental organisations in Jordan had realized that the development of their practices of through the application of new technologies was important when: employees were selected and recruited; when capabilities of employees were developed through the designing of electronic training; when employees were helped to communicate more effectively; and when electronic forms

were built for the appraisal of performance. That result could be because of an increased awareness regarding the potential impacts that applications of E-HRM can have upon the simplification and unification of administrative processes that are related to matters of HR (Bondarouk et al., 2015; Umar et al., 2020). Employee engagement level can, however, vary depending upon the specific circumstances and context for the organization. Within this study, the employee engagement was considered to have moderate importance. That result could suggest that the Jordanian public sector, wherein financial constraints and rapid operational change are more pressing, the engagement might remain significant though is a factor that might not sit atop of organizational priorities.

Employee performance levels that fall short of expectations can be caused by a variety of circumstances, including low motivation, ambiguous expectations, a lack of resources, or inadequate training. Employee performance in this study was at a modest level. The findings that supported the first hypothesis demonstrate how E-HRM significantly impacted employee performance. According to findings made in the work of Kariznoe et al. (2012), the goal of Jordanian public organizations using E-HRM is to increase their effectiveness and efficiency in achieving goals. Our results show that E-HRM and its components have an impact on employee performance, which validates the claims made in other research (Iqbal et al., 2018; Umar et al., 2020). The results also demonstrated how E-HRM practices affect employee engagement, confirming the hypothesis that E-HRM practices indeed affect employee engagement. Therefore, the trend of public sector organizations adopting electronic HRM practices serves to improve the internal environment by encouraging employees to share information more frequently and work together more closely to achieve organizational goals.

Similarly, the results demonstrated a strong and direct relationship between employees engagement and performance. Performance and productivity will clearly increase if staff members are happy and fulfilled (Tenney et al., 2016). Engaged workers complete more work, and their will to work at their best produces superior results all around (Markos and Sridevi, 2010). The results demonstrated that employee engagement was mediating part of the influence of E-HRM on employee performance, with an indirect and significant effect on employee performance. It is suggested that rather than E-HRM having a direct impact on employee performance, the relationships between employee engagement and E-HRM are associated with gains in employee performance. Therefore, the transition of the public sector to activate modern HRM approaches does shape employee engagement, which is thought to be a major factor in uniting employee behaviors to reach organizational goals. It may be stated that the interaction of employees through and with E-HRM may be useful and positive for improvements to their performance with a raising of the efficiency of the work undertaken within the organization.

## **7. Managerial implications**

The research findings within this study have documented numerous practical and theoretical implications. In regard to theory, this study puts forward extant literature in relation to employee performance and the practice of E-HRM by way of showing

empirical evidence of the relationship between employee performance, employee engagement and E-HRM practice. As such, this study extends existing models of E-HRM and identifies that acts of employee engagement as a variable that is contingent between organisational outcomes and E-HRM. To practitioners and management working within the job performance field, the findings showed that all practices of E-HRM have to be considered when higher employee performance is the organisational goal. Likewise, e-compensation and e-development and training are best practice for the promotion of employee performance.

In order to provide efficient and effective systems for E-HRM, management has to ensure there are up-to-date and well organised infrastructure and facilities within their organisation. In addition, by way of initiatives such as digital management of records, tools for virtual collaboration, portals for ESS (employee self-service), and programs for training and development online, governmental organisations in Jordan may inspire individuals towards a fuller embrace of behaviours that are sustainable that encourage engagement and communication that is more robust and the integration of those aspects into their activities on a daily basis. In turn, that may result in increased levels of employee performance in governmental organisations in Jordan.

## **8. Limitations and directions for future research**

Through quantitative research, this study has put forward additional support for better understanding the influence that employment engagement has as a way of enacting the practices of E-HRM with respect towards the performance of employees. This study does, however, have a small number of limitations that ought to be given consideration when the crucial decision is to be made. Firstly, the empirical and theoretical analysis has been limited to Jordanian governmental organisations. The systems for E-HRM are customised for meeting the particular needs that organisations have, and they can vary considerable from country to country. As such, it is challenging to generalise the study outcome to all countries in the developing world or to even generalise to all Jordanian organisations. Secondly, most variables given consideration within the study have been measured using responses that were subjective. That approach can result in some measures being overestimated, e.g., employee performance, and that consequence comes directly from the nature of the work undertaken by the respondents. A more refined instrument could be used within future studies that is based upon a mixed method technique so that deeper insights could be acquired through more thorough investigation.

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## References

- Ahmad, A., Alshurideh, M. T., Al Kurdi, B. H., & Salloum, S. A. (2021). Factors impacts organization digital transformation and organization decision making during Covid-19 pandemic. In: *The effect of coronavirus disease (COVID-19) on business intelligence*. Springer International Publishing.
- Al Hamad, A. Q. (2016). Students' perception of implementing a Smart Learning System (SLS) based on Moodle at Fujairah College. In: *Proceedings of the 2016 13th International Conference on Remote Engineering and Virtual Instrumentation (REV)*.
- Al Kurdi, B., Alshurideh, M., & Salloum, S. A. (2020). Investigating a theoretical framework for e-learning technology acceptance. *International Journal of Electrical and Computer Engineering (IJECE)*, 10(6), 6484. <https://doi.org/10.11591/ijece.v10i6.pp6484-6496>
- Alabdallat, W. I. M. (2020). Toward a mandatory public e-services in Jordan. *Cogent Business & Management*, 7(1), 1727620. <https://doi.org/10.1080/23311975.2020.1727620>
- Al-Ajlouni, M. I., Nawafleh, S., & Alsari, H. (2019). The moderating effect of electronic-HRM on training and employee performance relationship: a moderated model. *International Journal of Management Practice*, 12(4), 511–532.
- Al-Alwan, M., Bader, D., Al-Qatawneh, M., et al. (2022). E-HRM and employee flexibility in Islamic banks in Jordan. *International Journal of Data and Network Science*, 6(3), 703–710.
- Al-Bazia, D. S. A. R. (2021). Investigating the Implementation of E-HRM as a Strategic Tool to Improve Digital Government in Jordan. *Multi-Knowledge Electronic Comprehensive Journal for Education & Science Publications (MECSJ)*, (46).
- Albloush, A., Altarawneh, I., & Alharafsheh, M., et al. (2022). The Relationship between Electronic Human Resources Management and Employees Engagement. *Journal of System and Management Sciences*, 12(5), 297–310. <https://doi.org/10.33168/JSMS.2022.0518>
- Alfes, K., Shantz, A. D., Truss, C., et al. (2013). The link between perceived human resource management practices, engagement and employee behaviour: A moderated mediation model. *The International Journal of Human Resource Management*, 24(2), 330–351. <https://doi.org/10.1080/09585192.2012.679950>
- AlHamad, A. Q., Yaacob, N., & Al-Omari, F. (2012). Applying JESS rules to personalize Learning Management System (LMS) using online quizzes. In: *Proceedings of the 2012 15th International Conference on Interactive Collaborative Learning (ICL)*. <https://doi.org/10.1109/icl.2012.6402213>
- AlHamad, A., Alshurideh, M., Alomari, K., et al. (2022). The effect of electronic human resources management on organizational health of telecommuni-cations companies in Jordan. *International Journal of Data and Network Science*, 6(2), 429–438. <https://doi.org/10.5267/j.ijdns.2021.12.011>
- Al-Hawary, S. I. S., Mohammad, A. S., Al-Syasneh, M. S., et al. (2020). Organisational learning capabilities of the commercial banks in Jordan: Do electronic human resources management practices matter? *International Journal of Learning and Intellectual Capital*, 17(3), 242. <https://doi.org/10.1504/ijlic.2020.109927>
- Al-Hawary, S. I. S., Mukhlis, H., Mahdi, O. A., et al. (2022). Determining and explaining the components of the justice-oriented Islamic community based on the teachings of Nahj al-Balaghah. *HTS Teologiese Studies/Theological Studies*, 78(4). <https://doi.org/10.4102/hts.v78i4.7835>
- Al-Hawary, S. I., & Al-Namlan, A. (2018). Impact of Electronic Human Resources Management on the Organizational Learning at the Private Hospitals in the State of Qatar. *Global Journal of Management and Business Research: A Administration and Management*, 18(7), 1–11.
- Al-Hmouze, L. H., & Salameh, H. (2016). The impact of electronic human resource management (E-HRM) application on organizational performance [Master's thesis]. Middle East University.
- Alibekova, G., Tleppeyev, A., Medeni, T. D., & Ruzanov, R. (2019). Determinants of technology commercialization ecosystem for universities in Kazakhstan. *The Journal of Asian Finance, Economics and Business*, 6(4), 271–279.
- AlMehrzy, A., Alshurideh, M., & Al Kurdi, B. (2020). Investigation of the key internal factors influencing knowledge management, employment, and organisational performance: A qualitative study of the UAE hospitality sector. *International Journal of Innovation, Creativity and Change*, 14(1), 1369–1394.
- Alnawaiseh, M. B., & Almasarweh, M. S. (2020). The relationship between GHR recruitment and employee engagement in Jordanian Public Universities. *International Journal of Scientific & Technology Research*, 9(1), 590–595.
- Alolayyan, M. N., Almomani, R. Z. Q., Al-Qudah, S. H., et al. (2023). Electronic HR Practices as a Critical Factor of Employee

- Satisfaction in Private Hospitals in Jordan. In: *The Effect of Information Technology on Business and Marketing Intelligence Systems*. Springer International Publishing.
- Alomari, K. M., AlHamad, A. Q., & Salloum, S. (2019). Prediction of the digital game rating systems based on the ESRB. *Opción: Revista de Ciencias Humanas y Sociales*, (19), 1368–1393.
- Aloudah, N. M. (2022). Qualitative research in the Arabic language. When should translations to English occur? A literature review. *Exploratory Research in Clinical and Social Pharmacy*, 6, 100153. <https://doi.org/10.1016/j.rcsop.2022.100153>
- Al-Rwaidan, R. M., Aldossary, N., Eldahamsheh, M. M., et al. (2023). The impact of cloud-based solutions on digital transformation of HR practices. *International Journal of Data and Network Science*, 7(1), 83–90. <https://doi.org/10.5267/j.ijdns.2022.12.003>
- Alserhan, H., Omar, B., Falaki, N., et al. (2024). Remote work arrangement: An investigation on the influence of team's innovative performance in multinational NGOs in Jordan. *International Journal of Data and Network Science*, 8(2), 699–708. <https://doi.org/10.5267/j.ijdns.2024.1.008>
- Al-Shormana, H., Alshawabkeh, R., Aldaihani, F., et al. (2021). Drivers of E-training Intention to Use in the private universities in Jordan. *International Journal of Data and Network Science*, 5(4), 831–836.
- Alzoubi, H. M., Alshurideh, M., & Ghazal, T. M. (2021, May). Integrating BLE beacon technology with intelligent information systems IIS for operations' performance: A managerial perspective. In: *The international conference on artificial intelligence and computer vision*. Cham: Springer International Publishing. pp. 527-538.
- Anitha, J. (2014). Determinants of employee engagement and their impact on employee performance. *International journal of productivity and performance management*, 63(3), 308–223.
- Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of personality and social psychology*, 51(6), 1173.
- Bondarouk, T., Harms, R., & Lepak, D. (2015). Does e-HRM lead to better HRM service? *The International Journal of Human Resource Management*, 28(9), 1332–1362. <https://doi.org/10.1080/09585192.2015.1118139>
- Bondarouk, T., Ruël, H., & van der Heijden, B. (2009). e-HRM effectiveness in a public sector organization: a multi-stakeholder perspective. *The International Journal of Human Resource Management*, 20(3), 578–590. <https://doi.org/10.1080/09585190802707359>
- Boudlaie, H., Boghosian, A., Chandra, T., et al. (2022). Investigating the effect of humility of Muslim leaders on the moral behaviours of followers and spirituality at work in Islamic society. *HTS Teologiese Studies/Theological Studies*, 78(1), 6.
- Candy, R. L. & Miller, J. S. (2003), *Technology: Implications for HRM*. In: Stone, D. (editor). *Advances in human performance and cognitive engineering research*. JAI Press.
- Cawe, M. (2006). *Factors contributing to employee engagement in South Africa*. University of Witwatersrand.
- Clifford, M. K. (2010). *Employee engagement: Antecedents and consequences*. Nova Southeastern University.
- Collier, J. (2020). *Applied structural equation modeling using AMOS: Basic to advanced techniques*. Routledge.
- Dhamija, P. (2012). E-recruitment: A roadmap towards e-human resource management. *Researchers World*, 3(3), 33.
- Elshamy, A. M., Abdelghany, M. A., Alhamad, A. Q., et al. (2017). Secure implementation for video streams based on fully and permutation encryption techniques. In: *Proceedings of the 2017 International Conference on Computer and Applications (ICCA)*.
- Esther, N., Huub, R., Hefin, R., et al. (2019). *An Analysis of the Contribution of e-HRM to Sustaining Business Performance*. In: *HRM 4.0 For Human-Centered Organizations*. Emerald Publishing Limited.
- Fletcher, L. (2019). How can personal development lead to increased engagement? The roles of meaningfulness and perceived line manager relations. *The International Journal of Human Resource Management*, 30(7), 1203–1226.
- Galanaki, E. (2002). The decision to recruit online: A descriptive study. *Career Development International*, 7(4), 243–251.
- Grobbelaar, A. L. (2021). *The effect of electronic human resources management on employee engagement levels across generational cohorts [Master's thesis]*. Nelson Mandela Metropolitan University.
- Haerani, S., Hakim, W., & Putra, A. H. P. K. (2020). Structural model of developing human resources performance: Empirical study of Indonesia states owned enterprises. *The Journal of Asian Finance, Economics and Business*, 7(3), 211–221. <https://doi.org/10.13106/jafeb.2020>
- Hair, J. F., Howard, M. C., & Nitzl, C. (2020). Assessing measurement model quality in PLS-SEM using confirmatory composite analysis. *Journal of Business Research*, 109, 101–110.
- Handoyo, A. W. (2017). *The Effect of Employee Engagement on Employee Performance at PT. Tirta Rejeki Dewata*

- (Indonesian). *Agora*, 5(1).
- Hawary, S. I. S., & Abdallah, F. A. (2023). The moderating effect of organisational power on the relationship between green human resources practices and achieving strategic objectives. *International Journal of Business Information Systems*, 43(2), 258–280.
- Hermawan, H., Thamrin, H. M., & Susilo, P. (2020). Organizational citizenship behavior and performance: the role of employee engagement. *The Journal of Asian Finance, Economics and Business*, 7(12), 1089–1097.
- Hosain, S. (2017). The impact of E-HRM on organizational performance: Evidence from selective service sectors of Bangladesh. *International Journal of Human Resources Management (IJHRM)*.
- Hosseini, S. A., Moghaddam, A., Damganian, H., & Shafiei Nikabadi, M. (2022). The effect of perceived corporate social responsibility and sustainable human resources on employee engagement with the moderating role of the employer brand. *Employee Responsibilities and Rights Journal*.
- Hunziker, S., & Blankenagel, M. (2024). Cross-sectional research design. In: *Research Design in Business and Management: A Practical Guide for Students and Researchers*. Springer Fachmedien Wiesbaden.
- Iqbal, N., Ahmad, M., & Allen, M. M. C. (2019). Unveiling the relationship between e-HRM, impersonal trust and employee productivity. *Management Research Review*, 42(7), 879–899. <https://doi.org/10.1108/mrr-02-2018-0094>
- Iqbal, N., Ahmad, M., M.C. Allen, M., et al. (2018). Does e-HRM improve labour productivity? A study of commercial bank workplaces in Pakistan. *Employee Relations*, 40(2), 281–297. <https://doi.org/10.1108/er-01-2017-0018>
- Jeannette, P., Jan, K., & Christian, K. T. (2019). Artificial intelligence (AI) and its implications for market knowledge in B2B marketing. *Journal of Business & Industrial Marketing*, 34(7), 1410–1419. <https://doi.org/10.1108/JBIM-10-2018-0295>
- Karam, E. P., Gardner, W. L., Gullifor, D. P., et al. (2017). Authentic Leadership and High-Performance Human Resource Practices: Implications for Work Engagement. *Research in Personnel and Human Resources Management*, 35, 103–153. <https://doi.org/10.1108/s0742-730120170000035004>
- Kariznoee, A. M. I. R., Afshani, M., & Moghadam, M. R. H. (2012). The Examine of effect of E-HRM on employee's job performance. *Advanced Research in Economic and Management Sciences (AREMS)*, 6, 275-282.
- Ketter, P. (2008). What's the Big Deal About Employee Engagement? *T AND D*, 62(1), 44.
- Khashman, A. M. (2022). The impact of electronic human resource management (E-HRM) strategies on organizational innovation by knowledge repository as mediating role. In: *Research Anthology on Human Resource Practices for the Modern Workforce*. IGI Global.
- Khashman, A. M., & Al-Ryalat, Dr. H. A. (2015). The Impact of Electronic Human Resource Management (E-HRM) Practices on Business Performance in Jordanian Telecommunications Sector: The Employees Perspective. *Journal of Management Research*, 7(3), 115. <https://doi.org/10.5296/jmr.v7i3.7462>
- Kim, M., & Kim, J. (2020). Corporate social responsibility, employee engagement, well-being and the task performance of frontline employees. *Management Decision*, 59(8), 2040–2056. <https://doi.org/10.1108/md-03-2020-0268>
- Kwan, F. P., Hermawan, L. R., & Hafizhi, N. (2019). E-hrm: Pain or gain for hrm effectiveness. *Jurnal TAM*, 10(1), 22–32.
- Lai, M. H. C. (2021). Composite reliability of multilevel data: It's about observed scores and construct meanings. *Psychological Methods*, 26(1), 90–102. <https://doi.org/10.1037/met0000287>
- Lee, J. W. (2019). Effects of technology and innovation management and total factor productivity on the economic growth of China. *Journal of Asian Finance Economics and Business*, 6(2), 63–73. <https://doi.org/10.13106/jafeb.2019.vol6.no2.63>
- Lestari, S. D., Leon, F. M., Widyastuti, S., et al. (2020). Antecedents and consequences of innovation and business strategy on performance and competitive advantage of SMEs. *The Journal of Asian Finance, Economics and Business*, 7(6), 365–378. <https://doi.org/10.13106/jafeb.2020>
- Majdy Amiruddin, M., Hamoud Alshahrani, S., Dwijendra, N. K. A., et al. (2023). Religious behaviours and commitment among Muslim healthcare workers in Malaysia. *HTS Teologiese Studies/Theological Studies*, 79(1). <https://doi.org/10.4102/hts.v79i1.8177>
- Malkawi, N. M. (2018). Using electronic human resource management for organizational excellence-case study at social security corporation-Jordan. *International Journal of Engineering Technologies and Management Research*, 5(5), 146–166. <https://doi.org/10.29121/ijetmr.v5.i5.2018.237>
- Markos, S., & Sridevi, M. S. (2010). Employee engagement: The key to improving performance. *International Journal of Business and Management*, 5(12). <https://doi.org/10.5539/ijbm.v5n12p89>
- Marler, J. H., & Parry, E. (2016). Human resource management, strategic involvement and e-HRM technology. *The International*



- Journal of Human Resource Management, 27(19), 2233–2253. <https://doi.org/10.1080/09585192.2015.1091980>
- Marsh, H. W., Guo, J., Dicke, T., et al. (2019). Confirmatory Factor Analysis (CFA), Exploratory Structural Equation Modeling (ESEM), and Set-ESEM: Optimal Balance Between Goodness of Fit and Parsimony. *Multivariate Behavioral Research*, 55(1), 102–119. <https://doi.org/10.1080/00273171.2019.1602503>
- Mehrez, A. A. A., Alshurideh, M., Kurdi, B. A., & Salloum, S. A. (2021). Internal factors affect knowledge management and firm performance: a systematic review. In: *Proceedings of the International Conference on Advanced Intelligent Systems and Informatics 2020*. Springer International Publishing. pp. 632–643.
- Mohammad, A. A., Alshura, M.S., Al-Hawary, S. I. S., et al. (2020). The influence of Internal Marketing Practices on the employees' intention to leave: A study of the private hospitals in Jordan. *International Journal of Advanced Science and Technology*, 29(5), 1174–1189.
- Motowidlo, S. J. (2003). Job performance. In: *Handbook of Psychology: Industrial and Organizational Psychology*. Wiley.
- Mukhlis, H., Al-Hawary, S. I. S., Linh, H. V., et al. (2022). Religious capital and job engagement among Malaysian Muslim nurses during the COVID-19 pandemic. *HTS Teologiese Studies/Theological Studies*, 78(1), 6.
- Nurlina, N., Situmorang, J., Akob, M., et al. (2020). Influence of e-HRM and human resources service quality on employee performance. *The Journal of Asian Finance, Economics and Business*, 7(10), 391–399
- Nyathi, M., & Kekwaletswe, R. (2022). Realizing employee and organizational performance gains through electronic human resource management use in developing countries. *African Journal of Economic and Management Studies*, 14(1), 121–134. <https://doi.org/10.1108/ajems-11-2021-0489>
- Olimat, A. (2018). Royal vision of e-government (Arabic). Available online: <https://www.ammonnews.net/article/351947> (accessed on 19 June 2024).
- Pallathadka, H., Al-Hawary, S. I. S., Muda, I., et al. (2023). The study of Islamic teachings in education: With an emphasis on behavioural gentleness. *HTS Teologiese Studies/Theological Studies*, 79(1), 8193.
- Park, Y. S., Konge, L., & Artino, A. R. (2020). The Positivism Paradigm of Research. *Academic Medicine*, 95(5), 690–694. <https://doi.org/10.1097/acm.0000000000003093>
- Parker, O., & Wright, L. (2001). Pay and employee commitment: The missing link-The company that enhances compensation conditions and practices will likely see an improvement in employee commitment. *Ivey Business Journal*, 65(3), 70–73.
- Piggot-Irvine, E. (2003). Key features of appraisal effectiveness. *International Journal of Educational Management*, 17(4), 170–178. <https://doi.org/10.1108/09513540310474392>
- Poisat, P. (2006). A critical analysis of organisational strategies for employee engagement [PhD thesis]. Nelson Mandela Metropolitan University.
- Pradhan, R. K., & Jena, L. K. (2017). Employee Performance at Workplace: Conceptual Model and Empirical Validation. *Business Perspectives and Research*, 5(1), 69–85. <https://doi.org/10.1177/2278533716671630>
- Preacher, K. J., & Hayes, A. F. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior Research Methods, Instruments, & Computers*, 36(4), 717–731. <https://doi.org/10.3758/bf03206553>
- Raashidah, G., Darakhshan, A. (2017). E-Human Resource Management (e-HRM). *International Journal of Emerging Research in Management & Technology*, 6(6), 2278–9359.
- Rahamneh, A., Alrawashdeh, S., Bawaneh, A., et al. (2023). The effect of digital supply chain on lean manufacturing: A structural equation modelling approach. *Uncertain Supply Chain Management*, 11(1), 391–402.
- Ram, P., & Prabhakar, G. V. (2011). The role of employee engagement in work-related outcomes. *Interdisciplinary Journal of Research in Business*, 1(3), 47–61.
- Ramayah, T., Ahmad, N. H., & Hong, T. S. (2012). An assessment of e-training effectiveness in multinational companies in Malaysia. *Journal of Educational Technology & Society*, 15(2), 125–137.
- Rastogi, A., & Srivastava, G. (2017). E-HRM: Emerging HR practices in private banks. *International Journal of Engineering and Management Research (IJEMR)*, 7(3), 111–116.
- Ruelas, A. L., & Arámburo, P. P. (2006). E-government: its study and development prospects (Spanish). *UNIrevista*, 1(3), 1–11.
- Rumman, A. A., Al-Abadi, L., & Alshawabkeh, R. (2020). The impact of human resource development practices on employee engagement and performance in Jordanian family restaurants. *Problems and Perspectives in Management*, 18(1), 130.
- Saks, A. M. (2006). Antecedents and consequences of employee engagement. *Journal of Managerial Psychology*, 21(7), 600–619.
- Saragih, R., & Prasetio, A. P. (2020). Effective Human Resources Practice and Employee Engagement: The Mediating Roles of Organizational Support. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.3551058>

- Schaufeli, W. B., & Bakker, A. B. (2004). Job demands, job resources, and their relationship with burnout and engagement: A multi-sample study. *Journal of Organizational Behavior*, 25(3), 293–315. <https://doi.org/10.1002/job.248>
- Schaufeli, W. B., Salanova, M., González-Romá, V. and Bakker, A. B. (2002). The measurement of engagement and burnout: A two sample confirmatory factor analytic approach. *Journal of Happiness studies*, 3(1), 71–92.
- Shamaileh, N., Eldahamsheh, M., Alneimat, S., et al. (2023). The effects of smart human resources 4.0 on employee job effectiveness: The mediating role of employee job satisfaction. *International Journal of Data and Network Science*, 7(2), 801–808. <https://doi.org/10.5267/j.ijdns.2023.1.009>
- Shi, D., Maydeu-Olivares, A., & Rosseel, Y. (2020). Assessing Fit in Ordinal Factor Analysis Models: SRMR vs. RMSEA. *Structural Equation Modeling: A Multidisciplinary Journal*, 27(1), 1–15. <https://doi.org/10.1080/10705511.2019.1611434>
- Sonnentag, S., Volmer, J., & Spychala, A. (2008). Job Performance. *The SAGE Handbook of Organizational Behavior: Volume I—Micro Approaches*. SAGE Publications Ltd.
- Strohmeier, S. (2007). Research in e-HRM: Review and implications. *Human Resource Management Review*, 17(1), 19–37. <https://doi.org/10.1016/j.hrmr.2006.11.002>
- Swaroop, K. R. (2012). E-HRM and how IT well Reduce the cost in organization. *Journal of Marketing & Management Review*, 1(4), 133–139.
- Tenney, E. R., Poole, J. M., & Diener, E. (2016). Does positivity enhance work performance?: Why, when, and what we don't know. *Research in Organizational Behavior*, 36, 27–46. <https://doi.org/10.1016/j.riob.2016.11.002>
- Umar, T. R., Yammama, B. A., & Shaibu, R. O. (2020). The implications of adopting and implementing electronic human resource management practices on job performance. *Journal of Human Resource Management*, 9(1), 96–108.
- United Nations Department of Economic and Social Affairs (UNDESA). (2016). UN E-government Survey 2016; E-government in support of sustainable. United Nations Publication.
- Valentine, S. (2014). Organizational ethics and stakeholder well-being in the business environment. IAP.
- Voermans, M., & Van Veldhoven, M. J. P. M. (2007). Attitude towards E-HRM: An empirical study at Philips. *Personnel Review*, 36(6), 887–902. <https://doi.org/10.1108/00483480710822418>
- Vu, H. M. (2020). Relationship between work-life balance, religiosity and employee engagement: A proposed moderated mediation model. *The Journal of Asian Finance, Economics and Business*, 7(10), 339–345. <https://doi.org/10.13106/jafeb.2020.vol7.n10.339>
- Wang, C. H., & Chen, H. T. (2020). Relationships among workplace incivility, work engagement and job performance. *Journal of Hospitality and Tourism Insights*. <https://doi.org/10.1108/jhti-09-2019-0105>
- Willis, D. R., Kelton, G. M., Saywell, R. M., & Kiovsky, R. D. (2004). An incentive compensation system that rewards individual and corporate productivity. *Family Medicine*, 36(4), 270–278.
- Xia, Y., & Yang, Y. (2019). RMSEA, CFI, and TLI in structural equation modeling with ordered categorical data: The story they tell depends on the estimation methods. *Behavior Research Methods*, 51, 409–428.
- Yuliawati, N. M., Ichi, I., & Kurniawan, A. (2021). The effect of E-Procurement system implementation, competence and compensation on employee performance of goods/services procurement. *ACCRUALS (Accounting Research Journal of Sutaatmadja)*, 5(01), 103–111.
- Zikmund, W. G., Babin, B. J., Carr, J. C., & Griffin, M. (2010). *Business research methods*, 8th ed. South-Western Cengage Learning.