

Motivating Employees Using E-HRM Tools - A Managerial Challenge

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Abstract. *This study examines the effects of electronic Human Resource Management (e-HRM) tools on employee motivation, addressing a significant gap in the literature. Utilizing a quantitative approach, data were collected from 71 participants across various industries using a modified Minnesota Satisfaction Questionnaire. The analysis employed Spearman's correlation matrix to explore the relationships between seven e-HRM tools and intrinsic and extrinsic motivational factors. Results revealed significant positive correlations ($p < 0.01$) between e-HRM usage, and motivational dimensions, such as accomplishment, creativity, work conditions, and career opportunities. These findings support the hypothesis that e-HRM tools enhance employee motivation. The research underscores the importance of investing in technology, employee training, and establishing continuous feedback mechanisms to maximize the benefits of e-HRM. Despite the study's limitations, including sample size and cross-sectional design, it provides valuable insights for HR professionals and organizational leaders seeking to foster a motivated workforce in the context of the ongoing technological revolution (Industry 4.0). Further research is recommended to validate these results across diverse contexts and enhance the understanding of e-HRM's role in employee motivation.*

Keywords: e-HRM, employee motivation, employee satisfaction, e-Learning.

Introduction

The last fifty years' technological advancements have undeniably impacted society, the economy, and various industries. Human Resource Management (HRM) represents an area where technology drives anticipated developments and less-studied effects.

This article presents the research findings regarding employees' perceptions of the motivational effect of using e-HRM in the workplace. Such a study proves valuable by equipping managers and HR specialists with tools and methods that facilitate easy and accurate application, identify to what extent e-HRM tools can be utilized to enhance employee motivation at work, this

being a means by which the organization ensures the attainment of three fundamental objectives: survival, prosperity, and efficiency.

The opportunity for our study is conclusive for at least two reasons. The first one is that e-HRM is a relatively new phenomenon, part of the ongoing industrial revolution (Industry 4.0). The second one is that the studies that have addressed the influence of e-HRM on employee motivation are few. Those that have already taken place are limited in scope, cross-sectional in nature, and constrained (geographically, temporally, and demographically), making it difficult for them to be deemed generally relevant to the field.

Literature review

Since the 1990s, with the integration of information and communication technologies (ICT), human resource management (HRM) has undergone significant transformations. Digitalization of HR processes has led to the emergence of e-HRM, revolutionizing how human resources are managed. These events have fundamentally transformed HR practices, offering organizations the instruments necessary to optimize processes and reduce inefficiencies. Hence, e-HRM aims to consolidate HR functions such as recruitment, training, performance appraisal and compensation management through digital tools (Amalia, 2024; Nikpour & Semushkina, 2021).

The evolution of e-HRM came from the growing necessity of efficiency in HR practices. By digitizing and automating basic HR processes, organizations manage to allocate resources effectively and by that, facilitating HR departments to move focus from traditional administrative roles to more strategic activities (Amalia, 2024; Nikpour & Semushkina, 2021). Contemporary e-HRM systems incorporate various digital tools, including cloud computing and artificial intelligence to enhance employee engagement and facilitate data-driven decision-making (Nikpour & Semushkina, 2021; Feng & Hui, 2024). Moreover, these systems support the individualization of HR solutions, thus addressing specific organizational needs and fostering a competitive advantage in a growing dynamic labor market (Amalia, 2024; Feng & Hui, 2024).

The benefits brought by the implementation of e-HRM are evident (efficiency and cost reduction, accessibility and flexibility, improved decision making and enhanced recruitment (Strohmeier, 2007). However, there are also drawbacks such as: risks concerning data security, initial complexity and costs, resistance to change, and risks related to the protection of employee personal information (Holland et al., 2012), with the balance strongly favoring the benefits.

We observe that the introduction of information systems has allowed for the automation of administrative processes, the handling of repetitive tasks, and a shift of HR management towards more strategic, high-value-added activities. Therefore, during this period, HRM has increasingly focused on relational and transformational aspects, such as employee motivation, satisfaction and engagement, leadership development, change management, diversity and inclusion, employee health and well-being, and corporate social responsibility and organizational citizenship.

The advent of e-HRM is also accompanied by an evolution in the strategies for employee motivation. Historical perspectives on work motivation were predominantly extrinsically driven, based in survival needs (Rahmani, 2022). However, modern HRM adopts a more nuanced understanding that acknowledges both intrinsic and extrinsic motivation factors. This shift accentuates a comprehensive benefits structure, that includes competitive salaries, professional development opportunities and a healthy workplace environment which nurtures employee satisfaction and engagement (Camilleri, 2019; Camilleri et al., 2023). Such an approach is essential

for promoting a culture that values performance recognition and acknowledges individual contributions (Camilleri, 2019).

Moreover, recent studies indicate that adopting e-HRM can significantly foster employee motivation by providing access to relevant information and personalized HR services. Digital technologies are reshaping the motivational landscape, highlighting the role of intrinsic factors such as autonomy, purpose and belonging in enhancing higher levels of employee satisfaction and engagement (Al-Kazlah & Badkook, 2022; Dabić et al., 2023). In this context, modern HRM practices increasingly focus on creating work environments that value creativity and collaboration, factors that are essential for sustaining motivation in the digital economy (Boutmaghzoute & Moustaghfir, 2021). Furthermore, besides from a positive impact over employee engagement and satisfaction levels, the wise usage of digital tools can also lead to superior work performance (Garengo, et al., 2022; Ghazy & Fedorova, 2022).

Methodology

The present research aims to identify and evaluate the relationship between the usage of e-HRM tools and employees' perceived level of motivation, from companies that implemented these tools.

For this purpose and within the framework of existing literature and organizational norms, we defined our research's features, understanding there are 7 e-HRM tools, widely used: *e-Learning*, *social interaction (Intranet)*, *self-assessment*, *data updates*, *personal requests*, *holiday scheduling*, *document release*. Furthermore, through the development of this research, we will consider these 7 features as **independent variables**.

Regarding the motivation aspect, for the purpose of this research, we understand the concept in its classification as *intrinsic* and *extrinsic* motivation and will interpret them as **dependent variables**. With respect to the intrinsic motivation dimension, there are 7 factors that determine it: abilities usage, accomplishment, creativity, autonomy, moral values, responsibility and appreciation. On the other hand, extrinsic motivation is determined by 8 factors: company's policies, authority, work colleagues, technical supervision, human supervision, work conditions, career opportunities and work dynamics.

The above-mentioned variables are highlighted in Table 1.

Table 1. Research's Independent and Dependent Variables

Independent Variables	Dependent Variables
7 e-HRM tools: ● <i>e-Learning</i> ● <i>social interaction (Intranet)</i> ● <i>self-assessment</i> ● <i>data updates</i> ● <i>personal requests</i> ● <i>holiday scheduling</i> ● <i>document release</i>	Intrinsic motivation factors: ● abilities usage ● accomplishment ● creativity ● autonomy ● moral values ● responsibility ● appreciation

	Extrinsic motivation factors: ● company's policies ● authority ● work colleagues ● technical supervision ● human supervision ● work conditions ● career opportunities ● work dynamics
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Source: Authors' own research.

The current paper intends to research the employees' perception regarding the e-HRM tools' influence over the intrinsic and extrinsic motivational factors. For this purpose, we tested the following null hypothesis:

H₀: There is no significant correlation between the usage of e-HRM tools and the motivational factors in the workplace

In concordance with the null hypothesis method, we searched in our database for evidence to reject the hypothesis.

Our research was based on quantitative methods, and we used the questionnaire as the tool to collect data. We selected an adapted version of the Minnesota Satisfaction Questionnaire (MSQ), a tool developed by the University of Minnesota designed to measure the employees' level of satisfaction in respect to their work. It is one of the most used and acknowledged questionnaires to measure work satisfaction as practiced has shown that it can be used in a variety of organizational contexts. As literature has proved the relationship between work motivation and work satisfaction, we confidently adapted and used this tool in our research. For instance, one of the used items was *How satisfied are you with the recognition you receive for your work?* - question that primarily targets extrinsic factors that contribute to job satisfaction, particularly the acknowledgment of an employee's efforts, which is crucial for promoting morale and performance in the workplace (Moloele & Moeti, 2024).

Our departure point was the questionnaire's short version with 20 items, and we adapted it into an easy to respond questionnaire so that we can build a database regarding the measurement of employees' perception regarding the e-HRM's tools influence over motivational factors. The questionnaire's sentences were appreciated by the respondents on a Likert scale, where 1 was total disagreement and 5 total agreements. Data was collected from employees from various industries and companies, however assuring a large representativity. Tivian platform was used to collect the answers, and the statistical analysis was performed with the help of SPSS (Statistical Package for the Social Sciences). In the end, data from a total of 71 fully answered questionnaires were analyzed.

With the help of the conducted analyses, we made sure of the reliability and validity of the used measurement tool (Cronbach's test) and demonstrated that most variables do not follow a normal distribution (normality tests: Kolmogorov-Smirnov and Shapiro-Wilk), which indicated that we needed to consider non-parametric statistical methods for further analyses.

To test our research hypothesis, we used the Spearman matrix. The choice of this matrix is supported by the fact that, unlike Pearson's correlation coefficient, which requires a linear relationship and normal distribution of data, Spearman's correlation is based on data ranks, and is used when variables do not meet these assumptions. Moreover, Spearman's method is more robust to outliers and provides a more appropriate analysis for ordinal data, such as the Likert scale responses commonly employed in the MSQ (Moloele & Moeti, 2024). Therefore, this technique is preferred in analyzing the complex dynamics of job satisfaction, facilitating nuanced insights while addressing potential data limitations.

First, we computed Spearman's correlation matrix for all 7 variables of the intrinsic motivation dimension, factors that were named in our analysis Int_1 up to Int_7. This matrix offers the correlation coefficients for all the variable pairs, together with their associated significance values (p-values), as highlighted in Table 2.

Table 2. The Spearman correlation matrix for the set of intrinsic factors

Correlations			Int 1	Int 2	Int 3	Int 4	Int 5	Int 6	Int 7
Spearman's Rho	Int_1	Correlation Coefficient	1.000	.688**	.649**	.503**	.468**	.543**	.476**
		Sig. (2-tailed)	.	.000	.000	.000	.000	.000	.000
		N	71	71	71	71	71	71	71
	Int_2	Correlation Coefficient	.688**	1.000	.539**	.581**	.487**	.508**	.351**
		Sig. (2-tailed)	.000	.	.000	.000	.000	.000	.003
		N	71	71	71	71	71	71	71
	Int_3	Correlation Coefficient	.649**	.539**	1.000	.656**	.778**	.708**	.584**
		Sig. (2-tailed)	.000	.000	.	.000	.000	.000	.000
		N	71	71	71	71	71	71	71
	Int_4	Correlation Coefficient	.503**	.581**	.656**	1.000	.588**	.591**	.448**
		Sig. (2-tailed)	.000	.000	.000	.	.000	.000	.000
		N	71	71	71	71	71	71	71
	Int_5	Correlation Coefficient	.468**	.487**	.778**	.588**	1.000	.598**	.561**
		Sig. (2-tailed)	.000	.000	.000	.000	.	.000	.000
		N	71	71	71	71	71	71	71
	Int_6	Correlation Coefficient	.543**	.508**	.708**	.591**	.598**	1.000	.598**
		Sig. (2-tailed)	.000	.000	.000	.000	.000	.	.000
		N	71	71	71	71	71	71	71
	Int_7	Correlation Coefficient	.476**	.351**	.584**	.448**	.561**	.598**	1.000
		Sig. (2-tailed)	.000	.003	.000	.000	.000	.000	.
		N	71	71	71	71	71	71	71

** . Correlation is significant at the 0.01 level (2-tailed).

Source: Authors own research.

The analysis evidence that all correlations are positive and significant at the 0.01 level, indicating a strong relationship between variables. The strongest correlation is between the pairs Int_3-Int_5 ($r = 0.778$) and Int_3-Int_6 ($r = 0.708$). On the other hand, the variable Int_3 shows the strongest correlations with other variables, suggesting a potential central or common factor among them.

The results highlight the presence of close relationships between the analyzed variables. Since all correlations are significant and positive, it means that these variables tend to decrease or

increase together. For further analyses, factor analysis was considered to explore the relationships between the variables more into detail.

Secondly, we computed Spearman's correlation matrix for all 8 variables of the extrinsic motivation dimension, factors that were named in our analysis Ext_1 up to Ext_8. In this case as well, all correlations are positive and significant at the 0.01 level, indicating a strong relationship between variables. The results are highlighted in Table 3.

Table 3. The Spearman correlation matrix for the set of extrinsic factors

Correlations			Ext_1	Ext_2	Ext_3	Ext_4	Ext_5	Ext_6	Ext_7	Ext_8
Spearman's Rho	Ext_1	Correlation Coefficient	1.000	.553**	.620**	.587**	.535**	.637**	.529**	.553**
		Sig. (2-tailed)	.	.000	.000	.000	.000	.000	.000	.000
		N	71	71	71	71	71	71	71	71
	Ext_2	Correlation Coefficient	.553**	1.000	.609**	.578**	.562**	.556**	.617**	.575**
		Sig. (2-tailed)	.000	.	.000	.000	.000	.000	.000	.000
		N	71	71	71	71	71	71	71	71
	Ext_3	Correlation Coefficient	.620**	.609**	1.000	.754**	.646**	.724**	.550**	.675**
		Sig. (2-tailed)	.000	.000	.	.000	.000	.000	.000	.000
		N	71	71	71	71	71	71	71	71
	Ext_4	Correlation Coefficient	.587**	.578**	.754**	1.000	.719**	.654**	.641**	.685**
		Sig. (2-tailed)	.000	.000	.000	.	.000	.000	.000	.000
		N	71	71	71	71	71	71	71	71
	Ext_5	Correlation Coefficient	.535**	.562**	.646**	.719**	1.000	.814**	.678**	.706**
		Sig. (2-tailed)	.000	.000	.000	.000	.	.000	.000	.000
		N	71	71	71	71	71	71	71	71
	Ext_6	Correlation Coefficient	.637**	.556**	.724**	.654**	.814**	1.000	.664**	.698**
		Sig. (2-tailed)	.000	.000	.000	.000	.000	.	.000	.000
		N	71	71	71	71	71	71	71	71
	Ext_7	Correlation Coefficient	.529**	.617**	.550**	.641**	.678**	.664**	1.000	.727**
		Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.	.000
		N	71	71	71	71	71	71	71	71
	Ext_8	Correlation Coefficient	.553**	.575**	.675**	.685**	.706**	.698**	.727**	1.000
		Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.
		N	71	71	71	71	71	71	71	71

**. Correlation is significant at the 0.01 level (2-tailed).

Source: Authors' own research.

Analyzing the Spearman correlation matrixes highlighted above, we can conclude the existence of significant correlations between all pairs of variables. The strongest correlations demonstrate that the respective variables are closely connected, reflecting shared dimensions or

common factors. Additionally, moderate and strong correlations also indicate statistically significant interdependence, however less pronounced, which may suggest the presence of underlying common factors.

Based on the results obtained from the statistical analysis of the collected data (reliability tests, normality tests, Spearman correlations and factor analysis), we can state we found sufficient evidence to reject the null hypothesis H_0 , which claimed that there is no significant correlation between the usage of e-HRM tools and the motivational factors in the workplace. This evidence permits us to accept the influence of e-HRM tools on employee motivation and to further suggest managerial actions based on this reality.

Results and discussions

The relevance of researching the influence of e-HRM usage on employees' motivation is appropriate as e-HRM is a relatively new phenomenon, emerging as part of the ongoing industrial revolution (Industry 4.0). Papers addressing this topic are still relatively few and those that exist tend to be limited in scope, geographically, temporally, or demographically constrained, hence making it challenging to generalize their findings to a wider field.

Research Limitations

While our research yields valuable insights, it also has its limitations that we need to take into account.

First of all, the study was conducted on a small sample of respondents, making it nonrepresentative at regional or national level. However, our efforts to select a diverse and relevant sample, the number of participants and the variety of organizations involved could not fully capture neither the complexity, nor the diversity of the national business environment.

Secondly, as it is a cross-sectional study, our research reflects perceptions at a specific moment in time, without capturing long-term trends or developments. Such methodologies lack the ability to capture the changes and dynamics that occur over time.

Additionally, cultural and geographic differences, which are difficult to capture in a small-scale study like the present one, may influence how e-HRM is perceived and implemented, making it difficult to apply the conclusions to other business contexts.

Moreover, another limitation can be the complexity of variables. Employee motivation is influenced by a wide range of internal and external factors such as, technological, cultural, economic, social and psychological. This research paper mainly focused on the influence of e-HRM tools on employee motivation, without exploring all these factors in detail. Motivation itself is a complex concept affected by individual factors, organizational factors and contextual factors. Additionally, there is an inherent risk of reverse causality in the relationships analyzed where enhanced employee motivation could also lead to an increased utilization or perceived effectiveness of e-HRM tools rather than vice versa. Without robust temporal analysis, it is challenging to definitively assert the direction of causation.

Another significant limitation that we consider is the self-reported data. As the information was collected through a questionnaire, then it might be inevitable that the response to yield errors and subjectivity. Self-reporting is shadowed by factors like the desire to present a positive image, misunderstandings regarding questionnaire items or lack of honesty.

Finally, our analysis may overlook external environmental factors such as: economic conditions, industry trends and competitive pressures, which can significantly influence both

organizational and employee performance. These factors could affect the implementation and effectiveness of e-HRM.

Recommendations

Even though the research's limitations, it provides results and conclusions that can be valuable for future research and even more importantly, for managerial actions and decisions. Based on these paper's findings, we can formulate several recommendations for HR professionals, companies and fellow researchers seeking to enhance employee motivation through e-HRM systems.

We first recommend an investment in technology. Having in mind Moore's Law, IT technology undergoes significant growth approximately every two years, a pace that is now being surpassed by the emergence of artificial intelligence. To keep up with this fast-paced evolution, organizations must continuously invest in modern and integrated e-HRM solutions, that cover all aspects of human resource management, from recruitment and selection to career management and performance evaluation.

Secondly, as employees are the ones who create added value within an organization, while machines replicate and amplify that value, companies should prioritize the training and development of their labor force to ensure they maximize the potential of e-HRM tools while fostering growth and innovation. Develop a training curriculum that includes both technical aspects of the e-HRM tools and their implications for HR practices. Schedule regular training sessions and webinars, complemented by easily accessible online resources and user guides. Ensure continuous education with updates on system enhancements and best practices to foster confidence and competence in using e-HRM tools (Novianti & Irawanto, 2021).

Additionally, we suggest the implementation of internal communication and collaboration platforms that can significantly improve relationships between employees and HR departments, increasing trust, engagement, satisfaction and in the end motivation levels. Promote collaboration between HR and other departments to ensure e-HRM tools are utilized effectively across the organization and schedule cross-departmental meetings to discuss and develop unified strategies that optimize e-HRM tool usage. Foster an environment where different functions view HR as a partner in performance enhancement rather than merely a support function (Francis et al., 2014).

Finally, yet equally important, our last recommendation would be the development of a system for continuous evaluation and feedback. That would be essential for monitoring employee progress and adapting motivation and development strategies. Constant feedback mechanisms ensure alignment between organizational goals and employee objectives, fostering a culture of growth and transparency.

In the end, by addressing these issues, organizations worldwide can better use the potential of e-HRM systems to drive employee motivation and achieve long-term success.

Conclusion

In summary, our study illustrates the significant impact of e-HRM tools, on employee motivation in modern organizational settings. As a relatively novel element, e-HRM tools offer innovative pathways to enhance intrinsic and extrinsic motivational factors. Our findings reveal clear correlations, indicating that such tools, when implemented effectively, contribute positively to various motivational dimensions, including creativity, autonomy, work conditions, and career opportunities.

We identified strong associations between the use of e-HRM and intrinsic motivational factors, such as the use of abilities and personal achievement, as well as extrinsic factors such as

workplace dynamics and career progression. The correlations suggest that e-HRM tools not only streamline administrative processes but also empower employees through increased access to information and self-management capabilities.

While our study yields forceful information, we recognize the limitations given by sample size, cultural disparities, and cross-sectional design. These factors underscore the need for further longitudinal studies across diverse contexts to validate and enrich our understanding of e-HRM's role in employee motivation.

In the coming years, organizations must integrate advanced e-HRM systems, invest in employee training, and establish robust feedback mechanisms. In doing so, companies can harness the full potential of digital HR management, aligning strategic HR initiatives with overall business objectives to foster a motivated, engaged and high-performing workforce. Through proactive adoption and continuous development of e-HRM technologies, HR professionals can sustain organizational growth and innovation in the evolving digital landscape.

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