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e-HRM adoption and employee outcomes: An empirical study of productivity, satisfaction and engagement in selected agritech companies

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ABSTRACT

Electronic Human Resource Management (e-HRM) has emerged as an important component of digital transformation, enabling organizations to perform human resource activities through technology-enabled systems. The effectiveness of e-HRM, however, depends not only on technological implementation but also on its relationship with employees and their work-related outcomes. The present study examined the relationship between e-HRM adoption and employee outcomes, particularly employee productivity, satisfaction, and engagement, in selected agritech companies. The study was conducted among 100 employees from four selected agritech companies, namely Dhenoo, AgroStar, Syngenta, and BAYER, with 25 respondents selected from each company. Primary data were collected through a structured questionnaire and analysed using descriptive statistics, correlation analysis, and regression analysis. The findings indicated a strong positive relationship between e-HRM adoption and employee outcomes, with a correlation coefficient of 0.725. Regression analysis further indicated that e-HRM adoption explained approximately 52.5% of the variation in employee outcomes ($R^2 = 0.525$). The relationship was statistically significant ($p < 0.001$). The study highlights the importance of user-friendly digital HR systems, employee support, training, and continuous improvement in supporting favourable employee outcomes in the agritech sector.

Keywords: E-HRM, E-HRM adoption, Employee outcomes, Employee productivity, Employee satisfaction, Employee engagement

1. Introduction

The rapid advancement of information and communication technologies has transformed the way organizations manage resources, communicate with employees, and perform business activities. Human Resource Management (HRM) has also undergone significant changes with the increasing integration of digital technologies into HR practices. This transformation has made digital HRM an important component of modern organizational management. (Strohmeier, 2007) [1]

Electronic Human Resource Management (e-HRM) is an important component of digital HRM that involves the use of web-based technologies and electronic systems to support HR policies, practices, and services. It can be applied to activities such as employee information management, recruitment, training, performance management, attendance, payroll, communication, and employee self-service. (Ruël *et al.*, 2004) [2]

The adoption of e-HRM can improve the accessibility, speed, efficiency, and quality of HR services. Employees can access HR-related information and perform routine activities through digital platforms with reduced dependence on manual processes. Consequently, e-HRM has the potential to improve employee experiences and contribute to favourable work-related outcomes. (Parry *et al.*, 2011) [3]

Employee outcomes are important indicators of effective human resource management. Employee productivity reflects the efficiency with which employees perform their responsibilities, while employee satisfaction represents their evaluation of their work experience. Employee engagement reflects employees' involvement, enthusiasm, and commitment towards their work and organization. Effective digital HR practices may contribute positively to these outcomes by improving HR service delivery and employee support. (Marler *et al.*, 2013) [4]

The successful implementation of e-HRM depends not only on technological infrastructure but also on employees' acceptance and effective utilization of digital HR systems. Employees' perceptions regarding the usefulness, accessibility, reliability, and ease of use of e-HRM tools can influence their willingness to use these systems. Therefore, examining employee-level outcomes is important for understanding the actual benefits associated with e-HRM adoption. (Theres *et al.*, 2024) [5]

Previous studies have reported that e-HRM can contribute to improved organizational and employee-related outcomes. However, the benefits of e-HRM may vary depending on organizational characteristics, techno

logical infrastructure, employee readiness, and the manner in which digital HR systems are implemented. Thus, sector-specific studies are necessary to understand the relationship between e-HRM adoption and employee outcomes. (Marler & Fisher, 2013; Furtmueller, 2017) [6, 4]

The agritech sector provides an important context for examining this relationship because these organizations operate in a technology-driven and innovation-oriented environment. Agritech companies depend on employees with diverse technical, managerial, and operational skills. Effective communication, continuous learning, employee engagement, and efficient workforce management are therefore important for organizational growth. (Strohmeier, 2007) [1]

In such a dynamic environment, e-HRM tools can support employees by providing faster access to HR information and services, simplifying routine HR activities, and facilitating communication with HR departments. These benefits may contribute to employee productivity, satisfaction, and engagement. However, the actual relationship between e-HRM and employee outcomes depends on how employees perceive and utilize these systems. (Bondarouk *et al.*, 2009) [7]

Although considerable research has been conducted on e-HRM adoption and its organizational consequences, relatively limited attention has been given to employee outcomes within the agritech sector. In particular, there is a need to examine the combined relationship between e-HRM adoption and employee productivity, satisfaction, and engagement from employees' perspective. (Priyashantha *et al.*, 2023) [8]

Therefore, the present study focuses on examining the relationship between e-HRM adoption and employee outcomes in selected agritech companies. The study specifically considers employee productivity, satisfaction, and engagement as important outcomes associated with the adoption and utilization of e-HRM tools. (Bondarouk *et al.*, 2017) [6]

The study was conducted among 100 employees from four selected agritech companies, namely Dhenoo, AgroStar, Syngenta, and BAYER, with 25 respondents selected from each company. The study provides useful insights into the relationship between e-HRM adoption and employee-related outcomes and highlights the relevance of digital HR practices in the agritech sector. (Marler *et al.*, 2013) [4]

2. Materials and Methods

2.1 Research design

The present study was conducted using a descriptive and analytical research design to examine the relationship between e-HRM adoption and employee outcomes, particularly productivity, satisfaction, and engagement. The study focused on employees working in selected agritech companies and examined their perceptions regarding the use and effectiveness of e-HRM tools.

2.2 Study area and selection of companies

The study was conducted among employees of four selected agritech companies, namely Dhenoo, AgroStar, Syngenta, and BAYER. These organizations were selected to obtain employee-level responses from different agritech organizational settings and to examine the relationship between e-HRM adoption and employee outcomes within the sector.

2.3 Sample size and sampling

A total of 100 employees were included in the study. An equal number of 25 respondents was considered from each of the four selected agritech companies, resulting in a balanced sample of 100 respondents. The respondents represented employees who had experience with or exposure to e-HRM-related practices in their respective organizations.

2.4 Data collection

Primary data were collected through a structured questionnaire administered to employees of the selected agritech companies. The questionnaire included statements related to e-HRM adoption and em-

ployee outcomes. The employee outcome component focused on three major dimensions: productivity, satisfaction, and engagement. Responses were recorded using a five-point Likert scale ranging from Strongly Disagree to Strongly Agree.

2.5 Variables considered for the study

For the present study, e-HRM adoption was considered the independent variable, while employee outcomes were considered the dependent variable. Employee outcomes comprised employee productivity, employee satisfaction, and employee engagement. The study therefore examined whether greater adoption and utilization of e-HRM tools were associated with more favourable employee outcomes.

2.6 Data analysis

The collected data were systematically classified, tabulated, and analysed using appropriate statistical techniques. Frequency and percentage were used to summarize the responses obtained from employees. Mean and standard deviation were used wherever applicable to understand the overall tendency and variation in employee perceptions.

Correlation analysis was used to determine the strength and direction of the relationship between e-HRM adoption and employee outcomes. Simple linear regression analysis was further used to examine the predictive contribution of e-HRM adoption towards employee outcomes. The statistical analysis was conducted using a 5 per cent level of significance.

2.7 Statistical model

The simple linear regression model used to examine the relationship between e-HRM adoption and employee outcomes was represented as:

$$\text{Employee Outcomes} = a + b (\text{e-HRM Adoption}) + e$$

Where, **a** = Intercept **b** = Regression coefficient (slope) **e** = Error term
The coefficient of determination (R^2) was used to determine the proportion of variation in employee outcomes explained by e-HRM adoption.

2.8 Hypothesis

H₀: There is no significant correlation between e-HRM implementation and employee productivity, satisfaction and engagement.

H₁: There is a significant correlation between e-HRM implementation and employee productivity, satisfaction and engagement.

3. Results and Discussion

3.1 Employees' perception of e-HRM adoption and employee outcomes

The analysis of employee responses indicated an overall favourable perception towards the use of e-HRM tools and their relationship with employee-related outcomes. The responses considered employee productivity, satisfaction, and engagement as the major dimensions of employee outcomes. The findings suggest that digital HR practices have become an important part of employees' interaction with HR-related activities in the selected agritech companies.

The favourable perception of employees may be associated with the ability of e-HRM systems to simplify routine HR activities, improve access to HR information, reduce administrative delays, and facilitate communication between employees and HR departments. When employees can access HR services and information more conveniently, the time and effort required for routine HR activities may be reduced. This may contribute to a more supportive work environment and favourable perceptions of productivity and satisfaction.

The employee outcome statements recorded mean scores ranging from 3.64 to 3.85. The highest mean score was observed for the statement that e-HRM tools facilitate efficient completion of HR-related tasks (3.85), followed by employee satisfaction with HR services delivered through e-HRM systems (3.72). The statement related to higher employee engagement recorded a mean score of 3.70, while improvement in overall employee experience recorded 3.67. The lowest mean score was recorded for improvement in employee productiv-

ity (3.64). The standard deviation values ranged from 0.948 to 1.129, indicating variation in employee responses.

Table 1. Employees' Perception Regarding Employee Outcomes

Sr. No.	Employee Outcome Statement	Mean Score	Standard Deviation
1	Implementation of e-HRM systems has improved employee productivity in your company.	3.64	0.948
2	Employees are satisfied with the HR services delivered through e-HRM systems in your company.	3.72	0.965
3	Implementation of e-HRM has improved the overall employee experience in your company.	3.67	1.129
4	e-HRM systems contribute to higher employee engagement in organizational activities in your company.	3.70	1.078
5	e-HRM tools facilitate efficient completion of HR-related tasks in your company.	3.85	0.957

3.2 Correlation between e-HRM adoption and employee outcomes

The relationship between e-HRM adoption and employee outcomes was examined using correlation analysis. The results showed a correlation coefficient of $r = 0.725$ between e-HRM adoption and employee outcomes. This indicates a strong positive relationship between the two variables.

The result suggests that higher levels of e-HRM adoption and utilization are associated with more favourable employee outcomes.

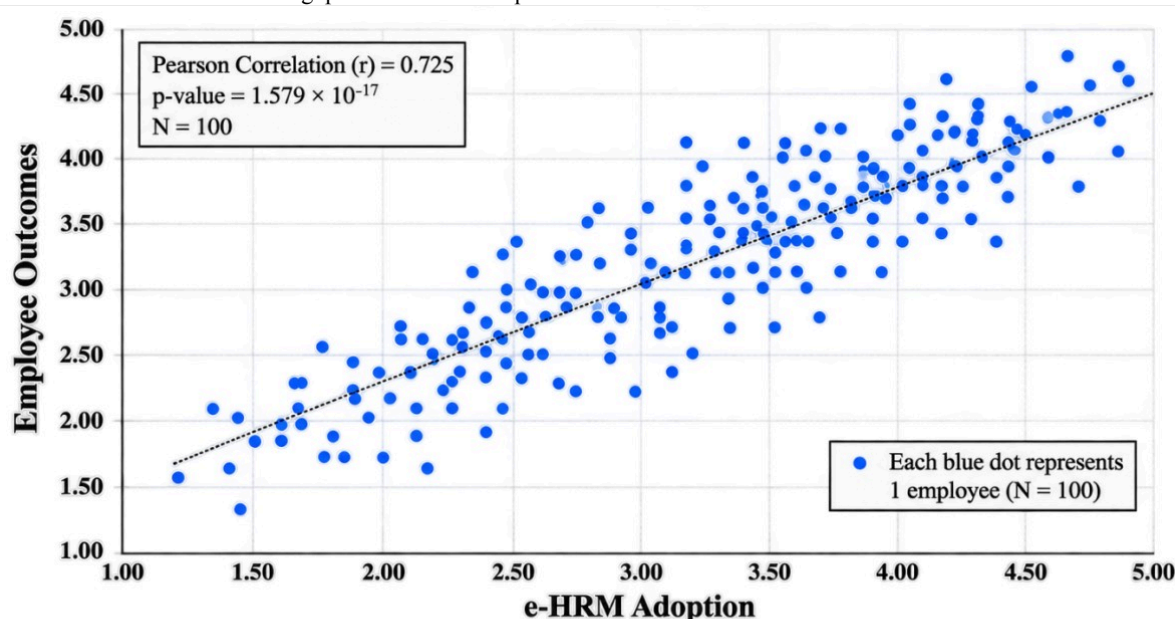
The positive relationship indicates that effective use of e-HRM tools may be associated with employee productivity, satisfaction, and engagement. Digital HR systems can simplify routine HR procedures, provide timely access to employee information, reduce dependence on manual processes, and facilitate communication. These factors may contribute to a more convenient and efficient employee experience.

The correlation was statistically significant, with a p -value of 1.579×10^{-17} , which was substantially lower than the 0.05 level of significance. Therefore, the null hypothesis stating that there is no significant correlation between e-HRM implementation and employee productivity, satisfaction, and engagement was rejected, and the alternative hypothesis was supported.

Table 2. Correlation between e-HRM Adoption and Employee Outcomes

Variables	e-HRM Adoption	Employee Outcomes
e-HRM Adoption	1.000	0.725
Employee Outcomes	0.725*	1.000
p -value	—	1.579×10^{-17}
N	100	100

*The correlation coefficient ($r = 0.725$) indicates a strong positive relationship between e-HRM adoption and employee outcomes. The relationship is statistically significant at the 5% level ($p < 0.001$).



Note: The scatter plot shows a strong positive relationship between e-HRM Adoption and Employee Outcomes. As e-HRM adoption increases, employee outcomes tend to improve.

Figure 1. Scatter Plot Showing the Relationship between e-HRM Adoption and Employee Outcomes

3.3 Regression analysis of e-HRM adoption and employee outcomes

Simple linear regression analysis was conducted to further examine the predictive relationship between e-HRM adoption and employee outcomes. The regression analysis produced an R^2 value of 0.525, indicating that approximately 52.50 per cent of the variation in employee outcomes was explained by e-HRM adoption in the regression model. The slope coefficient was positive ($B = 0.618$), indicating a positive predictive relationship between e-HRM adoption and employee outcomes.

The regression model was statistically significant, with a p -value of 1.579×10^{-17} ($p < 0.001$), which was considerably below the 0.05 sig-

nificance level. The findings indicate that e-HRM adoption was significantly associated with employee outcomes in the selected agritech companies.

The relatively high explanatory power of the model indicates that e-HRM adoption was an important factor associated with employee outcomes in the selected agritech companies. However, the remaining variation in employee outcomes indicates that other organizational and individual factors may also influence productivity, satisfaction, and engagement. Therefore, the findings should be interpreted as an association rather than as evidence that e-HRM adoption alone determines employee outcomes.

Table 3. Regression Analysis of e-HRM Adoption and Employee Outcomes

Model	R	R ²	R ² (%)	Regression Coefficient (B)	Intercept	p-value
e-HRM Adoption → Employee Outcomes	0.725	0.525	52.50	0.618	1.488	< 0.001

3.4 Discussion

The findings of the present study demonstrate that e-HRM adoption is positively associated with employee outcomes in the selected agritech companies. The correlation coefficient of **0.725** indicates a strong positive relationship, suggesting that employees reporting higher levels of e-HRM adoption also tended to report more favourable outcomes related to productivity, satisfaction, and engagement.

The findings are consistent with the broader view that e-HRM extends beyond administrative automation and can be associated with employee-related benefits. When digital HR systems are accessible, efficient, and easy to use, employees may experience improved HR service delivery and greater convenience in managing HR-related activities. Such features can support positive employee experiences and may be associated with productivity, satisfaction, and engagement (Marler *et al.*, 2013; Parry *et al.*, 2011) [4, 3].

The findings also highlight the importance of effective utilization of e-HRM rather than the mere availability of digital HR technology. Employee acceptance, accessibility, ease of use, and appropriate support can influence how employees interact with digital HR systems. This is in line with earlier research emphasizing the importance of user acceptance and effective utilization in digital HRM (Theres *et al.*, 2024) [5].

The regression results further support the observed relationship, with e-HRM adoption explaining 52.5 per cent of the variation in employee outcomes. The positive regression coefficient indicates that higher e-HRM adoption was associated with more favourable employee outcomes. Similar research has highlighted the relevance of e-HRM adoption for employee and organizational outcomes, although the magnitude of benefits can vary according to organizational and implementation conditions (Bondarouk *et al.*, 2017) [6].

Overall, the findings indicate that e-HRM adoption is meaningfully associated with employee productivity, satisfaction, and engagement in the selected agritech companies. The results emphasize that organizations should focus not only on implementing digital HR technologies but also on ensuring their accessibility, employee support, training, effective utilization, and continuous improvement.

4. Conclusion

The present study examined the relationship between e-HRM adoption and employee outcomes, particularly employee productivity, satisfaction, and engagement, in selected agritech companies. The findings indicated that employees generally perceived e-HRM tools favourably and recognized their usefulness in supporting HR-related activities and the overall employee experience.

The correlation analysis revealed a strong positive relationship between e-HRM adoption and employee outcomes, with a Pearson correlation coefficient of $r = 0.725$. The relationship was statistically significant ($p < 0.001$), indicating that higher levels of e-HRM adoption were associated with more favourable employee outcomes. Regression analysis further showed that e-HRM adoption explained approximately **52.5 per cent** of the variation in employee outcomes ($R^2 = 0.525$), with a positive regression coefficient ($B = 0.618$).

The findings suggest that e-HRM adoption is meaningfully associated with employee productivity, satisfaction, and engagement. However, employee outcomes may also be influenced by other organizational

and individual factors. Therefore, e-HRM adoption should be considered as one important factor associated with employee outcomes rather than the sole determinant.

For agritech organizations operating in technology-driven and rapidly changing environments, attention to employee-oriented digital HR practices is important. User-friendly systems, accessibility, employee training, technical support, and continuous feedback may help organizations make effective use of e-HRM systems and support favourable employee experiences.

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Competing Interests

The authors declare that there are no competing interests.

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