

Artificial Intelligence (AI) Adoption and Recruitment and Employee Performance Management in Cross River State, Nigeria

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Abstract

The study ascertained the correlation between the adoption of Artificial Intelligence (AI) and recruitment as well as employee performance management in organizations within Cross River State, Nigeria. It was guided by two research objectives and two null hypotheses. The study adopted a descriptive survey research design. The population of the study comprised 6,313 staff from selected public and private organizations in Cross River State, specifically University of Calabar and Cross River State Civil Service Commission (public organizations), as well as Lafarge Africa Plc and Airtel Nigeria (private organizations). A sample size of 200 respondents was selected using purposive and accidental sampling techniques. The instrument used for the collection of data was a questionnaire titled “Artificial Intelligence and Human Resource Management Questionnaire (AIHRMQ), with a reliability coefficient that ranged from 0.81 to 0.86, obtained using the Cronbach Alpha. Data collected were analyzed using simple regression, at 0.05 significant level. The results of the analyses indicated, among others, that there is no significant relationship between AI adoption and recruitment processes. The study recommended, among others, that organizations in Cross River State should

integrate AI-driven tools into their human resource practices to improve recruitment processes and strengthen performance management systems.

Keywords: artificial intelligence, recruitment, employee performance management, human resource management, organizational efficiency

Introduction

Human Resource Management (HRM) plays a critical role in enhancing organizational effectiveness, particularly in an era characterized by rapid technological advancement and digital transformation. Organizations across the globe are increasingly integrating innovative technologies to improve efficiency, decision-making, and overall workforce management. In this regard, the adoption of Artificial Intelligence (AI) has emerged as a transformative tool in modern HR practices, influencing how organizations recruit, manage, and evaluate their employees. AI can be viewed as a function of intelligent systems that enhance decision-making processes, thereby reshaping traditional HR operations. Consequently, AI in HRM has been conceptualized and defined in various ways, reflecting its expanding role in optimizing organizational performance and workforce management (Igwebuike & Ettan, 2019).

Artificial Intelligence refers to the simulation of human intelligence in machines programmed to think, learn, and perform tasks that typically require human cognition. In the context of HRM, AI encompasses tools such as automated recruitment systems, predictive analytics, chatbots, and performance management software. These tools are designed to streamline HR processes, reduce bias, and improve efficiency in managing human capital (Stone et al., 2020). Therefore, AI adoption in HRM can be seen as an organizational innovation process aimed at improving recruitment quality, enhancing employee performance, and ensuring effective utilization of human resources. Its ultimate goal is to improve organizational productivity and competitiveness in an increasingly digital economy (Minbaeva, 2021).

AI-driven HRM represents both a proactive and strategic approach to workforce management and a corrective mechanism for addressing inefficiencies inherent in traditional HR systems. It enables organizations to automate repetitive tasks while allowing HR professionals to focus on strategic functions such as talent development and employee engagement. According to Offem et al. (2018), effective management practices including those supported by technology can significantly improve organizational outcomes and employee productivity. However, despite the potential benefits of AI, its adoption in many developing regions remains uneven, raising concerns about its accessibility and effectiveness.

Recruitment is one of the core functions of HRM where AI has shown significant promise. AI-powered recruitment tools can screen resumes, conduct initial interviews, and identify the best candidates based on predefined criteria, thereby improving the speed and quality of hiring decisions (Upadhyay & Khandelwal, 2018). Nevertheless, in many organizations, especially in developing economies, recruitment processes are still largely manual, which limits the impact of AI adoption. Employees and HR managers often rely on traditional recruitment methods due to lack of technological infrastructure, expertise, or organizational readiness. This situation is evident in many organizations in Cross River State, where the adoption of AI in recruitment remains relatively low. Studies have shown that limited technological adoption in HR processes can hinder organizational efficiency and reduce competitiveness (Ogunbameru, 2015).

In contrast, employee performance management has witnessed relatively higher integration of AI technologies. AI-driven performance management systems enable organizations to track employee productivity, provide real-time feedback, and support data-driven appraisal systems. These systems enhance transparency, reduce bias, and improve the overall effectiveness of performance evaluation (Jiang et al., 2022). The ability of AI to analyze large datasets and generate actionable insights makes it a valuable tool in improving employee performance and organizational outcomes. As noted by Rodgers (2020), AI systems are capable of learning from data and making intelligent predictions, thereby supporting informed decision-making in organizational settings.

The application of AI in HRM is closely linked to broader technological advancements, including big data analytics, machine learning, and digital platforms. These technologies enable organizations to process large volumes of employee data and derive meaningful insights for strategic planning and decision-making (Duan et al., 2019). However, despite these advancements, the adoption of AI in HRM is not without challenges. Issues such as high implementation costs, lack of technical expertise, and resistance to change continue to limit its widespread adoption, particularly in developing regions (Ditria et al., 2022).

Globally, organizations are increasingly leveraging AI to enhance HR functions and achieve competitive advantage. However, empirical evidence suggests that the impact of AI adoption varies across different HR functions and organizational contexts. While some studies have reported significant improvements in employee performance management, others have found limited impact on recruitment processes due to low adoption levels and structural constraints (Chen et al., 2020). This variation underscores the need for context-specific studies to better understand how AI influences HR practices in different environments.

In Nigeria, and particularly in Cross River State, the adoption of AI in HRM is still evolving. While some organizations have begun integrating AI-driven tools into their operations, many others are yet to fully embrace these technologies. This uneven adoption creates a gap in understanding the actual relationship between AI and HRM outcomes, especially in recruitment and performance management. Empirical studies in similar contexts have highlighted the growing importance of AI in improving organizational efficiency and employee productivity (Javaid et al., 2022). However, there is still a need for localized research to provide evidence-based insights into its effectiveness.

Recent empirical studies have demonstrated that AI adoption is positively associated with improved organizational performance and employee outcomes. For instance, a study by Zhang et al. (2023) found that AI-driven systems significantly enhance performance evaluation and employee productivity. Similarly, Shen et al. (2020) reported that digital technologies, including AI, improve decision-making and operational efficiency in organizations. However, other studies have indicated that the impact of AI on recruitment remains limited in contexts where adoption is still in its early stages (Li et al., 2024).

Given these mixed findings, it becomes necessary to examine the relationship between AI adoption and key HRM functions within specific contexts. This study, therefore, seeks to provide empirical evidence on the relationship between Artificial Intelligence adoption and recruitment as well as employee performance management in organizations in Cross River State, Nigeria. By doing so, the study aims to bridge the existing knowledge gap and contribute to the growing body of literature on AI in HRM, particularly in developing economies.

Purpose of the study

The main purpose of this study is to assess the relationship between the adoption of Artificial Intelligence (AI) and Recruitment and Employee Performance Management in Cross River State, Nigeria. Specifically, this study seeks:

1. To examine the relationship between AI adoption and recruitment processes in organizations in Cross River State.
2. To determine the relationship between the adoption of AI and employee performance management in organizations in Cross River State.

Hypotheses

Ho1: AI adoption has no significant relationship to recruitment processes in organizations in Cross River State.

Ho2: AI adoption has no significant relationship to employee performance management in organizations in Cross River State.

Methodology

The study employed a descriptive survey research design. In achieving the aim of this research, two research objectives were formulated and two null hypotheses were developed. The population of the study comprised 6,313 staff from selected public and private organizations in Cross River State; specifically, University of Calabar and Cross River State Civil Service Commission (public organizations), and Lafarge Africa Plc and Airtel Nigeria (private organizations). A sample size of 200 respondents was selected using purposive and accidental sampling techniques.

The instrument used for data collection was a structured questionnaire titled Artificial Intelligence and Human Resource Management Questionnaire (AIHRMQ). The instrument was divided into four sections: Sections A, B, C, and D. Section A elicited respondents' demographic information such as gender, age, educational qualification, and organizational type. Section B measured the extent of Artificial Intelligence (AI) adoption in organizations and consisted of 10 items. Section C measured recruitment processes and contained 8 items, while Section D measured employee performance management and also consisted of 8 items. The questionnaire items were developed by the researchers based on the objectives of the study and relevant literature reviewed.

To ensure the validity of the instrument, face and content validity were established through expert review. The instrument was given to three experts in Public Administration, Measurement and Evaluation, and Human Resource Management in the University of Calabar, who examined the items for clarity, relevance, appropriateness, and adequacy in measuring the variables under study. Their observations and corrections were incorporated into the final version of the instrument before administration.

The instrument adopted a four-point Likert scale response format of Strongly Agree (SA), Agree (A), Disagree (D), and Strongly Disagree (SD), weighted 4, 3, 2, and 1 respectively for positively worded items; while the scoring was reversed for negatively worded items. The total scores obtained from respondents reflected their level of agreement with the statements relating to AI adoption, recruitment processes, and employee performance management.

To ensure the reliability of the instrument, a pilot test was conducted using respondents outside the study sample. Data obtained from the pilot study were analyzed using

Cronbach's Alpha reliability method, and the reliability coefficients ranged from 0.81 to 0.86, indicating that the instrument possessed high internal consistency and was suitable for the study.

The researchers first employed purposive sampling to deliberately select the four organizations, namely: University of Calabar, Cross River State Civil Service Commission (public organizations), Lafarge Africa Plc and Airtel Nigeria (private organizations) based on their relevance to the study and their engagement in structured human resource management practices. The researchers then used accidental (convenience) sampling within these organizations to select respondents who were readily available and willing to participate at the time of data collection. This process continued across the selected organizations until the required sample size of 200 respondents was obtained from the population of 6,313 staff. The researchers, with the assistance of trained research assistants, administered the instrument directly to the respondents. Data collected were coded and analyzed using inferential statistics, specifically using simple linear regression, at 0.05 significant level.

Presentation of results

Ho1: There is no significant relationship between Artificial Intelligence (AI) adoption and recruitment processes in organizations in Cross River State.

The result of the analysis is shown in Table 1.

Table 1: Simple regression analysis of relationship between AI adoption and recruitment processes in organizations in Cross River State (N = 200)

Source of variation	SS	Df	MS	F	p-value
Regression	98.624	1	98.624		
Residual	1340.776	198	6.772	1.482	.225
Total	1439.400	199			

*Significant at .05 level, $R = .259$; $R^2 = .067$; Adj. $R^2 = .062$

To analyse the data from Ho1, simple regression analysis was used. The analysis revealed that the adjusted R^2 is 0.062, indicating that 6.2% of the variance in recruitment processes is explained by Artificial Intelligence (AI) adoption in organizations in Cross River State. However, the F-value of 1.482 is not significant at 1 and 198 degrees of freedom, as the

p-value of .225 is greater than .05. This implies that there is no significant relationship between AI adoption and recruitment processes in organizations in Cross River State. Therefore, the null hypothesis was accepted, indicating that AI adoption does not significantly influence recruitment processes in the study area.

Ho2: There is no significant relationship between Artificial Intelligence (AI) adoption and employee performance management in organizations in Cross River State.

The result of the analysis is shown in Table 2.

Table 2: Simple regression analysis of relationship between AI adoption and employee performance management in organizations in Cross River State (N = 200)

Source of variation	SS	Df	MS	F	p-value
Regression	162.318	1	162.318		
Residual	1402.082	198	7.081	22.947*	.000
Total	1564.400	199			

*Significant at .05 level, $R = .321$; $R^2 = .103$; Adj. $R^2 = .099$

To analyse the data from Ho2, simple regression analysis was used. The analysis revealed that the adjusted R^2 is 0.099, indicating that 9.9% of the variance in employee performance management is explained by Artificial Intelligence (AI) adoption in organizations in Cross River State. The F-value of 22.947 is significant at 1 and 198 degrees of freedom, as the p-value of .000 is less than .05. This implies that there is a significant relationship between AI adoption and employee performance management in organizations in Cross River State. Therefore, the null hypothesis was rejected, indicating that AI adoption significantly influences employee performance management.

Discussion of the findings

Results on Table 1 revealed that there is no significant relationship between Artificial Intelligence (AI) adoption and recruitment processes in organizations in Cross River State. This finding suggests that AI tools have not yet been fully integrated into recruitment practices within the studied organizations, thereby limiting their influence on hiring decisions and talent acquisition outcomes. This result is consistent with the position of Ogunbameru (2015), who observed that many organizations in developing economies still rely heavily on traditional human resource practices due to limited technological infrastructure and inadequate digital competence among HR personnel. Similarly, Ditria et al. (2022) noted that despite the potential of AI in improving organizational processes,

high implementation costs and lack of technical expertise often hinder its effective adoption, particularly in developing regions. Furthermore, Chen et al. (2020) argued that although digital technologies are transforming human resource management globally, their impact on recruitment remains limited in contexts where organizations have not fully embraced automation. This explains why the relationship between AI adoption and recruitment processes in the present study was found to be statistically insignificant.

Results on Table 2 indicated that there is a significant relationship between Artificial Intelligence (AI) adoption and employee performance management in organizations in Cross River State. This finding implies that AI tools are increasingly being utilized in performance evaluation, employee monitoring, and productivity tracking within organizations. This result aligns with Jiang et al. (2022), who noted that AI-driven systems enhance performance management by enabling real-time feedback, improving transparency, and supporting data-driven decision-making in organizations. In the same vein, Rodgers (2020) emphasized that AI-based analytics improve organizational decision-making by providing accurate insights into employee performance trends. Similarly, Javaid et al. (2022) reported that AI adoption enhances organizational efficiency by improving monitoring systems and strengthening human resource decision-making processes. These findings support the present study, which confirms that AI adoption significantly influences employee performance management in organizations in Cross River State.

Conclusion

Based on the findings of the study, it was concluded that Artificial Intelligence (AI) adoption has a mixed influence on human resource management practices in Cross River State. While AI has not yet significantly transformed recruitment processes due to low levels of adoption and implementation challenges, it has a significant positive relationship with employee performance management. This indicates that AI is more effectively utilized in performance-related functions than in recruitment activities within the studied organizations.

Recommendations

1. Organizations in Cross River State should increase investment in Artificial Intelligence technologies and ensure their integration into recruitment processes to improve efficiency, reduce bias, and enhance talent acquisition outcomes.
2. Human resource managers and policymakers should strengthen the use of AI-driven tools in employee performance management systems to enhance productivity

tracking, improve feedback mechanisms, and support data-driven decision-making in organizations.

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