THE INFLUENCE OF AI TECHNOLOGY ON EMPLOYEE ENGAGEMENT

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ABSTRACT

The research background is based on the phenomenon of decreased employee performance and the challenges associated with adapting to the company's ongoing digital transformation. The use of Artificial Intelligence (AI)-based technology in human resource management is expected to enhance the effectiveness of internal communication, appraisal transparency, and employee engagement within the organization. This study aims to analyze the influence of the use of the AI HR Chatbot, technology adaptation, and AI-based performance appraisal systems on employee engagement, with internal communication effectiveness serving as an intervening variable among employees at the Bank Banten Head Office. The research method employed is a quantitative approach, with data collected through questionnaires distributed to employees at the Bank Banten Head Office. Data analysis was conducted using the path analysis technique to examine both direct and indirect relationships between variables. The results show that the use of the AI HR Chatbot, technology adaptation, and AI-based performance appraisal systems have a positive and significant effect on employee engagement, both directly and through internal communication effectiveness as a mediating variable. Internal communication effectiveness is proven to strengthen the relationship between AI-based technology and the level of employee engagement. The conclusion of this study confirms the importance of integrating AI technology into human resource management systems, supported by effective internal communication, to enhance emotional attachment, motivation, and employee performance. The practical implication of this research highlights the need for a human-centered digitalization strategy and transparent communication policies to ensure the optimal implementation of AI in the workplace.

KEYWORDS	AI HR Chatbot, Technology Adaptation, AI Performance Appraisal System, Internal Communication Effectiveness, Employee Engagement13.

INTRODUCTION

The development of digital technology has brought significant changes across various organizational sectors, including in Human Resource Management (HRM) (Stone et al., 2020; Dastin, 2018). One form of this transformation is the utilization of Artificial Intelligence (AI) in HR processes, known as AI Human Resource Technology (AI HR) (Kuhn & Preen, 2021; Parry et al., 2019). This technology enables HR activities to be conducted more quickly, efficiently, accurately, and in a standardized manner through automated systems such as HR chatbots, e-performance appraisals, predictive analytics for retention, and digital employee self-service (Davenport et al., 2020; Luger, 2020). This digital transformation not only aims to increase administrative efficiency but also has the potential to influence employees' psychological aspects, one of which is employee engagement (Matsuo, 2020; Li & Zhao, 2021).

Employee engagement is an important indicator for organizations because it is directly connected to productivity, loyalty, performance quality, and employee retention (Abdelwahed & Doghan, 2023; Achmada & Soetjipto, 2022; Mansor et al., 2023; Ngozi & Edwinah, 2022; Osman et al., 2022; Setyadi & Sartika, 2023). Engaged employees generally show emotional connection, commitment, and active participation in their work. In the context of the highly competitive banking industry, employee engagement is a strategic factor that determines organizational sustainability. Therefore, organizations must identify factors that enhance employee engagement, including the use of AI technology in HR systems (Alzeiby et al., 2025; Moreno-Cabezali, 2025; Priya et al., 2024; Rožman et al., 2023; Veshne & Jamnani, 2024).

In the current digital era, digital culture has become an integral part of rapid technological development and plays an essential role in promoting self-development while facilitating human adaptation to dynamic change (Karman et al., 2023; Karneli et al., 2024; Kuhuparuw, 2025; Narenji Thani et al., 2022; Rojak, 2025). This transformation not only impacts individuals but also compels organizations to evolve, including Human Capital Management (HCM) within companies. HCM must understand, adopt, and implement digital technologies in managing human resources—ranging from AI-based recruitment and online training to employee data analytics—in order to create a responsive, efficient, and relevant work ecosystem that meets the demands of the modern era.

Bank Banten, as a regional financial institution, has implemented AI-based technology to support its internal HR processes, such as chatbots for personnel services, e-performance appraisal systems, and digital HR portals. This innovation is part of the company's digital transformation strategy aimed at improving operational effectiveness and the quality of its relationship with employees. However, the extent to which this technology can enhance employee engagement still requires empirical evidence through scientific research.

Several previous studies indicate that the application of digital technology in HR affects employee engagement, although results vary depending on organizational context, level of technology adoption, and internal communication culture. For example, research by Jain and Sharma (2021) found that AI HR increases perceived organizational support, thereby encouraging engagement. Conversely, Lee (2020) reported that HR digitalization can diminish engagement when employees feel that human interaction is being reduced in the work process.

While earlier studies have explored the general relationship between digitalization and employee engagement, this research introduces a new perspective by focusing on the mediation effect of internal communication effectiveness in the context of a regional banking institution in Indonesia. Specifically, this study examines how the implementation of three AI-based HR tools—AI HR Chatbot, AI-based Performance Appraisal System, and Technology Adaptation—affects employee engagement, both directly and through improvements in internal communication processes. This integrated model, tested within the unique organizational culture and digital transformation framework of Bank Banten, provides a more nuanced understanding by addressing the gap in research that often examines AI impacts in isolation or within multinational corporations. The findings offer empirical evidence from a regional bank undergoing digital transition. Furthermore, the study emphasizes the necessity of a human-centered digitalization strategy, highlighting that the success of AI implementation in HR depends on its ability to foster transparent, accessible, and responsive communication, thereby bridging the gap between technological efficiency and human psychological needs.

Based on this phenomenon, this study was conducted to analyze the influence of AI HR on employee engagement at Bank Banten and to test the role of internal communication as a mediating variable. This research is expected to contribute both theoretically and practically to the development of technology-based HR models in the banking sector in Indonesia.

RESEARCH METHOD

This study uses a quantitative approach with a survey method to analyze the influence of AI HR technology on employee engagement among Bank Banten employees[35]. The research was conducted in 2025 with a population of all permanent Bank Banten employees who have used AI-based HR systems in internal work processes[36]. The sampling technique used was purposive sampling with the following criteria: (1) active employees with a minimum of 1 year of service, (2) have used AI HR systems such as HR chatbot, e-performance appraisal, or HR self-service system, and (3) are willing to be research respondents[37]. The number of samples obtained was 100 respondents[38].

The research instrument was a Likert scale 1–5 based questionnaire measuring three main variables[39]:

1. AI HR Technology (indicators: automation, system usability, perceived usefulness, efficiency) [40]
2. Internal Communication (indicators: clarity, accessibility, feedback flow, responsiveness) [41]
3. Employee Engagement (indicators: vigor, dedication, absorption based on the Utrecht Work Engagement Scale) [42]

Validity and reliability tests were performed using Confirmatory Factor Analysis (CFA) and Cronbach's Alpha, with a minimum reliability value of $\alpha > 0.70$[43]. Data analysis was performed using multiple regression technique and mediation testing using the Baron & Kenny (1986) model, as well as the Sobel Test to confirm the significance of the role of the internal communication variable as a mediator[44].

The research hypotheses tested are[45]:

1. H1: AI HR Technology has a positive and significant influence on employee engagement46.
2. H2: AI HR Technology has a positive and significant influence on internal communication effectiveness47.
3. H3: Internal communication has a positive and significant influence on employee engagement48.
4. H4: Internal communication mediates the relationship between AI HR and employee engagement49.

RESULT AND DISCUSSION

The following are the research results and discussion regarding the relationship between the use of AI HR Chatbot, technology adaptation, and AI-based performance appraisal systems on internal communication effectiveness and employee engagement at Bank Banten Head Office51515151.

Descriptive Statistics of Research Variables

Table 1 presents the descriptive statistics for the variables Internal Communication Effectiveness and Employee Engagement.

Table 1. Descriptive Statistics of Research Variables

Statistics	Internal Communication Effectiveness	Employee Engagement
N	114	114
Mean	0.000	0.000
Median	0.111	0.016
Min	-2.069	-3.711
Max	1.628	1.812
Standard Deviation	0.710	0.939
Excess Kurtosis	0.045	1.026
Skewness	-0.526	-0.693

Source: Processed Primary Data by the Researcher, 2025

Explanation of Descriptive Statistics Results: 55Based on Table 1, the sample size (N) used for both variables (Internal Communication Effectiveness and Employee Engagement) is 11456. Both variables show a Mean value of 0.00057. The Standard Deviation value for Internal Communication Effectiveness is 0.710 and for Employee Engagement is 0.93958. The Employee Engagement value has a larger data dispersion compared to Internal Communication Effectiveness59.

Composite Reliability (Reliability Test)

Table 2 presents the composite reliability test results for all research variables, which include Cronbach's Alpha, ρ_A (rho_A), Composite Reliability, and AVE (Average Variance Extracted)61.

Table 2. Composite Reliability

Variable	Cronbach's Alpha	ρA	Composite Reliability	AVE
Technology Adaptation	0.847	0.883	0.884	0.458
Internal Communication	0.763	0.803	0.823	0.340

Effectiveness				
Employee Engagement	0.798	0.653	0.777	0.300
Use of AI Chatbot	0.672	0.741	0.759	0.270
AI Performance Appraisal System	0.626	0.744	0.711	0.253

Source: Processed Primary Data by the Researcher, 2025

Explanation of Reliability Test Results: 63The Technology Adaptation variable shows the highest level of reliability with a Composite Reliability value of 0.884 and Cronbach's Alpha of 0.84764. The Internal Communication Effectiveness variable has a Composite Reliability value of 0.82365. The Employee Engagement variable has a Composite Reliability value of 0.77766. The Use of AI Chatbot and AI Performance Appraisal System variables have Composite Reliability values of 0.759 and 0.711, respectively67. All variables show a Composite Reliability value above 0.70, which generally indicates a good level of consistency and reliability in the measured constructs68. However, the AVE (Average Variance Extracted) value for all variables is below 0.50, with the highest value in Technology Adaptation (0.458)69. This may require further consideration regarding the convergent validity of the measurement model70

CONCLUSION

This study confirms that the use of AI technology in human resource management, such as AI HR Chatbot, AI-based performance appraisal system, and technology adaptation, has been proven to have a positive and significant impact on employee engagement at Bank Banten, both directly and through the effectiveness of internal communication as a mediating variable. These findings indicate that AI technology can improve the efficiency of internal services, clarify communication flows, and create a more transparent work experience, thereby encouraging emotional engagement, motivation, and employee commitment. However, the study also indicates the need for a human-centered digitalization strategy so that AI integration does not reduce the quality of social interactions and continues to support the creation of an adaptive and productive work environment. Therefore, the implementation of AI in HR must be accompanied by clear communication policies, user-friendly systems, and organizational support to maximize benefits for both employees and the company.

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