Integration AI in E-HRM and Organizational Performance: The Roles of Effectiveness of HR Decisions and Organizational Culture

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DOI: https://doi.org/10.51244/IJRSI.2026.1306000325

Received: 22 June 2026; Accepted: 27 June 2026; Published: 09 July 2026

ABSTRACT

Objective: This study aims to analyze the influence of Integration AI in e-HRM on Organization Performance through the mediating role of Effectiveness of HR Decisions and examine the role of Organizational Culture moderation in strengthening the relationship between Integration AI in e-HRM and Effectiveness of HR Decisions. This research was developed to explain the mechanism of organizational value creation using Artificial Intelligence (AI) in the practice of electronic Human Resource Management (e-HRM).

Design/Methodology/Approach: This study uses a quantitative approach with a cross-sectional survey design. Data was collected from 200 managers and Human Resource professionals at multinational manufacturing companies in the Riau Islands, Indonesia, who have implemented AI in e-HRM practices. The research model was developed based on the integration of the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) and the Technology–Organization–Environment (TOE) Framework. Hypothesis testing was carried out using Covariance-Based Structural Equation Modeling (CB-SEM) with the help of AMOS.

Results: The results of the study show that the Integration of AI in e-HRM has a positive and significant effect on the Effectiveness of HR Decisions and Organization Performance. The effectiveness of HR Decisions has been shown to have a positive effect on Organization Performance and partially mediates the relationship between Integration AI in e-HRM and Organization Performance. In addition, Organizational Culture has been proven to strengthen the influence of AI Integration in e-HRM on the Effectiveness of HR Decisions. These findings show that AI creates organizational value through direct operational channels and strategic channels that occur through improving the quality of HR decisions.

Theoretical Implications: This study expands the application of UTAUT2 and the TOE Framework in the context of AI-enabled Human Resource Management by explaining the Effectiveness of HR Decisions as the main mechanism linking AI integration with improved organizational performance as well as identifying Organizational Culture as an organizational condition that influences the effectiveness of AI utilization.

Practical Implications: The research findings provide implications for organizations in designing HR digital transformation strategies that not only focus on the adoption of AI technology, but also on improving the quality of HR decisions and strengthening organizational cultures that support innovation, collaboration, and data utilization in decision-making.

Originality: This research offers an empirical model that explains the mechanisms of AI value creation in e-HRM through a combination of direct relationships, mediation, and moderation in one integrated conceptual framework. The study also provides empirical evidence from multinational manufacturing companies in Indonesia, which is still relatively limited in the literature on AI and Human Resource Management.

Keywords: Integration AI in e-HRM; Effectiveness of HR Decisions; Organization Performance;

Organizational Culture; Artificial Intelligence.

INTRODUCTION

The development of Artificial Intelligence (AI) has become one of the main drivers of organizational digital transformation in the era of a data-driven economy. AI's ability to process data in real-time, generate more accurate predictions, and support analytics-based decision-making has driven organizations to integrate the technology into various business functions, including human resource management. In the context of Human Resource Management (HRM), AI integration through electronic Human Resource Management (e-HRM) allows organizations to automate HR administration processes, improve the quality of workforce analysis, and generate recommendations that support strategic HR decision-making (Dwivedi et al., 2021). The use of AI in e-HRM also allows organizations to obtain faster, more accurate, and evidence-based information thereby increasing the effectiveness of human resource management (Vrontis et al., 2022).

Nonetheless, AI-based digital transformation still faces various challenges, especially in the aspect of human resources. Reports of Kementerian Komunikasi dan Informatika Kominfo (2024) shows that the digital readiness of the Indonesian workforce is still relatively low to support the use of advanced technology such as AI in the work environment. The findings are in line with White Paper Indonesia Emas 2045 which states that the level of digital literacy and skills of Indonesian human resources is still not fully able to meet the needs of the future industry that is increasingly digitized (Kadin Indonesia, 2023). This condition shows that digital transformation does not only depend on technology investment, but also on the organization's ability to integrate technology into HR management practices effectively.

At the national level, the Indonesian government has encouraged the acceleration of digital transformation through the Making Indonesia 4.0 program which places the manufacturing sector as one of the priority sectors in technology-based economic development (Portal Informasi Indonesia, 2024). However, the implementation of AI at the organizational level still faces various obstacles. The Ministry of Industry reported that the use of AI in human resource management practices in the manufacturing sector is still not optimal, so it has not been able to produce maximum productivity and efficiency increases (Kemenperin, 2023).

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The urgency of this research is getting stronger in the context of Riau Islands Province which is one of the strategic manufacturing industrial areas in Indonesia. The Riau Islands have a geographical position adjacent to Singapore, Japan, and China, making it the center of various multinational manufacturing companies integrated in the global supply chain (BKPM, 2023).

In addition, the processing industry sector is the largest contributor to the regional economy with a contribution of 28.31% to the Gross Regional Domestic Product (GDP) of Riau Islands Province (BPS Kepri, 2024). Despite this, the manufacturing sector in the region experienced a slowdown in growth from 4.21% in 2023 to 3.14% in 2024, indicating pressures on productivity, efficiency, and competitiveness amid accelerating digital transformation and global economic uncertainty (BPS Kepri, 2024). This phenomenon shows that manufacturing companies in the Riau Islands need a more strategic and data-driven approach to HR management to maintain a competitive advantage.

In line with this phenomenon, various studies show that the implementation of AI can improve operational efficiency, organizational productivity, and the quality of talent management (Pillai & Srivastava, 2023). AI also enables organizations to leverage predictive analytics to support faster, evidence-based decision-making processes (Mollah et al., 2024). Other research shows that the integration of AI in HRM practices can improve an organization's ability to identify competency needs, reduce bias in the recruitment process, and improve the effectiveness of workforce management (Al-Ayed, 2025).

Nonetheless, most previous research has still focused on the direct relationship between AI adoption and organizational performance. These studies have not been able to adequately explain the internal mechanisms that link the use of AI to improving organizational performance. In other words, there is still a theoretical gap in how the benefits of AI technology translate into real organizational value. In addition, previous research has tended to focus on the technical aspects of AI adoption and operational efficiency, while studies on the quality of HR strategic decisions as an organizational value creation mechanism are still relatively limited (Al-Ayed, 2025; Pillai & Srivastava, 2023). This gap is becoming increasingly important because the quality of HR decisions is a factor that determines the success of an organization in managing talent, developing competencies, and maintaining a competitive advantage.

Based on UTAUT2's perspective, the benefits of technology are determined not only by the existence of the technology itself, but also by the extent to which it is used to improve the quality of the decision-making process (Venkatesh et al., 2012). In the context of AI-enabled e-HRM, the strategic benefits of AI are expected to emerge through an increase in the Effectiveness of HR Decisions which further contributes to the improvement of Organization Performance. On the other hand, the TOE Framework emphasizes that the success of technology implementation is greatly influenced by the organizational factors that surround it (Tornatzky & Fleischer, 1990). Therefore, Organizational Culture is seen as an organizational factor that has the potential to strengthen the relationship between the Integration of AI in e-HRM and the Effectiveness of HR Decisions.

Based on these empirical, theoretical, and contextual gaps, this study develops a model that explains the mechanism of AI value creation through two complementary pathways, namely the operational path through the direct influence of Integration AI in e-HRM on Organization Performance and the strategic path through the mediating role of Effectiveness of HR Decisions. In addition, this study examines Organizational Culture as a boundary condition that determines the effectiveness of the use of AI in producing quality HR decisions. Using data from multinational manufacturing companies in the Riau Islands - Indonesia, this study is expected to make a theoretical and empirical contribution to the development of AI-enabled e-HRM, UTAUT2, and TOE Framework literature.

LITERATURE REVIEW

Theoretical Foundations of Integration AI in e-HRM

The development of Artificial Intelligence (AI) has become one of the main drivers of organizational digital transformation in the era of data-based industries. AI's ability to process large amounts of data, identify hidden patterns, generate accurate predictions, and provide algorithm-based recommendations has transformed various business functions, including human resource management (Dwivedi et al., 2021). In the context of Human Resource Management (HRM), the integration of AI into electronic Human Resource Management (e-HRM) allows organizations to utilize machine learning, predictive analytics, natural language processing, and intelligent automation to increase the effectiveness of various HR activities, ranging from recruitment, selection, competency development, talent management, to strategic workforce planning (Votto et al., 2021; Vrontis et al., 2022).

This transformation has changed the role of the HR function from administrative activities to a more strategic and data-driven function. If in the past e-HRM was focused on digitizing the HR administration process, then the development of AI allows e-HRM to function as a strategic decision support system that supports organizational decision-making more quickly, objectively, and accurately (Rai, 2020). Thus, Integration AI in e-HRM is not only seen as a form of technology adoption, but also as an organization's capability in utilizing intelligent technology to create sustainable business value.

This research is based on the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) developed by Venkatesh et al. (2012). UTAUT2 explained that the benefits of technology will be achieved when users see that technology is able to improve performance, make work easier, and provide relevant value in organizational activities. In the context of Integration AI in e-HRM, AI's ability to improve information

quality, speed up the analysis process, and support data-driven decision-making is expected to be a major source of organizational benefits. In other words, the success of AI implementation is determined not only by the existence of the technology itself, but by the extent to which it is able to increase the effectiveness of managerial and operational activities.

In addition to UTAUT2, this study also uses the Technology–Organization–Environment (TOE) Framework developed by Tornatzky & Fleischer (1990). The TOE Framework explains that the success of technology implementation is influenced by technological characteristics, organizational conditions, and the external environment. In the context of the implementation of AI in e-HRM, organizational factors have a very important role because they determine the extent to which technology can be accepted, utilized, and integrated into the organization's work processes. Therefore, factors such as Organizational Culture are important elements that can strengthen or weaken the benefits generated by Integration AI in e-HRM.

The combination of UTAUT2 and the TOE Framework provides a comprehensive theoretical foundation to explain how Integration AI in e-HRM creates organizational value. UTAUT2 describes the mechanism of technology benefits through increasing the effectiveness of use, while the TOE Framework describes the organizational conditions that determine the successful implementation of technology. Thus, the two theories allow the development of a research model that explains the direct and indirect influence of Integration AI in e-HRM on Organization Performance through the Effectiveness of HR Decisions and the role of Organizational Culture as a moderation factor.

Integration of AI in e-HRM and Effectiveness of HR Decisions

The quality of HR decisions is one of the strategic factors that determine the success of an organization in managing human resources as a competitive asset. Decisions related to recruitment, competency development, talent management, promotion, compensation, and workforce planning have direct implications for an organization's effectiveness in achieving business goals. Therefore, organizations increasingly need systems that can provide accurate, objective, and timely information to support the HR decision-making process.

The integration of AI in e-HRM provides new capabilities for organizations to improve the quality of HR decisions with more sophisticated data and analytics. AI enables organizations to process HR data in real-time, identify workforce behavior patterns, predict future competency needs, and provide data-driven recommendations to support more effective decisions (Votto et al., 2021). In addition, predictive analytics capabilities allow organizations to anticipate various HR problems before they occur, thereby improving the quality of the planning and decision-making process (Mollah et al., 2024).

\Previous research has shown that the use of AI in HRM contributes to improving the quality of decision-making. Khan et al. (2024) found that the use of AI-based HR analytics improves an organization's ability to produce more objective and evidence-based decisions. Al-Ayed (2025) demonstrates that AI enables organizations to reduce bias in HR decision-making processes as well as improve the accuracy of workforce evaluations.

Mahade et al. (2025) also found that the integration of AI in HRM improves the quality of strategic decisions through more comprehensive and accurate data analysis capabilities. Similar findings were reported by Martínez-Peláez et al. (2024) which shows that the use of AI improves an organization's ability to generate decisions that are more responsive to changes in the business environment.

From UTAUT2's perspective, the main benefit of technology lies in its ability to increase the effectiveness of user activities. In this context, the Integration of AI in e-HRM is expected to improve the Effectiveness of HR Decisions through the provision of more accurate, objective, and data-driven information. Thus, the higher the level of AI integration in e-HRM, the higher the organization's ability to produce effective HR decisions.

H1: Integration of AI in e-HRM has a positive effect on the Effectiveness of HR Decisions.

Effectiveness of HR Decisions dan Organization Performance

The Strategic Human Resource Management (SHRM) literature emphasizes that the source of an organization's competitive advantage comes not only from the existence of human resources, but also from the quality of decisions that govern how those human resources are recruited, developed, allocated, and retained (Khan et al., 2024; Vrontis et al., 2022). From the perspective of SHRM, HR decisions are a strategic mechanism that connects HR management practices to the achievement of organizational goals because they determine the effectiveness of the use of human capital as a source of competitive advantage that is difficult to replicate (Vrontis et al., 2022).

Effectiveness of HR Decisions reflects an organization's ability to produce HR decisions that are accurate, objective, consistent, timely, and aligned with the organization's strategic goals. Quality HR decisions enable organizations to put the right individuals in the right positions, develop competencies relevant to business needs, optimize talent management, and increase employee engagement and productivity (Khan et al., 2024). On the other hand, ineffective HR decisions can have strategic consequences in the form of increased turnover, mismatch of labor competencies, low productivity, increased operational costs, and decreased organizational ability to maintain long-term competitiveness (Al-Ayed, 2025).

Several empirical studies show that the quality of HR decisions is an important determinant for Organization Performance. Mollah et al. (2024) found that organizations that utilize HR data and analytics in the decision-making process can increase the effectiveness of workforce management and achieve higher organizational performance. The findings show that HR decisions supported by quality information will result in a more optimal allocation of human resources and have a positive impact on organizational productivity. Research Mahade et al. (2025) also shows that strategic HR decisions play a role as the main mechanism that connects the use of digital technology with the achievement of organizational outcomes. The results of the study emphasized that the success of organizations in utilizing technology is not only determined by technology itself, but also by the organization's ability to translate the information produced by technology into strategic HR decisions.

Al-Ayed (2025) shows that the quality of managerial decisions is one of the factors that explains the relationship between the implementation of Artificial Intelligence and the improvement of organizational performance. These findings indicate that organizations derive greater benefits when technology is leveraged to improve the quality of decisions compared to when technology is used only for administrative automation purposes. Thus, the higher the level of Effectiveness of HR Decisions that an organization has, the greater the organization's ability to increase productivity, operational effectiveness, innovation, and the achievement of organizational strategic goals. Based on these theoretical arguments and empirical evidence, this study argues that the Effectiveness of HR Decisions is a strategic factor that contributes to improving Organization Performance.

H2: Effectiveness of HR Decisions has a positive effect on Organization Performance.

Effectiveness of HR Decisions as a Mechanism for Strategic Value Creation

Although various studies show that Artificial Intelligence (AI) contributes to improved organizational performance, the mechanisms that explain how these benefits are created are still not fully understood. Most previous research has focused on the direct effects of AI implementation on organizational performance, such as improving operational efficiency, productivity, and business process effectiveness (Dwivedi et al., 2021; Pillai & Srivastava, 2023). However, these direct relationships have not been able to adequately explain how technology generates organizational value after implementation. Al-Ayed (2025) emphasized that the success of AI implementation is not solely determined by the existence of technology, but by the ability of organizations to utilize the information generated by the technology to support strategic decision-making processes.

In the context of Integration AI in e-HRM, AI serves as an enabler that allows organizations to collect, process, and analyze large amounts of HR data quickly and accurately. Through machine learning, predictive analytics, and intelligent automation capabilities, AI able to generate insights, predictions, and recommendations that support various HR decisions such as recruitment, talent management, competency development, workforce planning, and performance management (Khan et al., 2024; Vrontis et al., 2022). However, the information generated by AI does not automatically create an improvement in organizational performance. Strategic value only emerges when the information is translated into more accurate, objective, consistent, and timely HR decisions.

The argument is supported by research Mollah et al. (2024) who found that the benefits of digital technology in Human Resource Management are mostly realized through improving the quality of information used in the decision-making process. Organizations that can utilize HR analytics effectively tend to produce more informed decisions in workforce management that have an impact on increasing productivity and organizational performance. Similar findings were also reported by Khan et al. (2024) which shows that the use of HR analytics improves the quality of HR strategic decisions which ultimately strengthens the effectiveness of the organization.

Further, Mahade et al. (2025) shows that the relationship between AI technology and organizational outcomes takes place through managerial decision mechanisms. The study identified that AI analytics generates organizational value when system-generated recommendations are used in strategic HR decisions that support the achievement of business goals. Research results by Al-Ayed (2025) also shows that decision quality is a key pathway that explains how the implementation of AI results in improved organizational performance. These findings indicate that the Effectiveness of HR Decisions is an important mechanism that connects the analytical capabilities of AI with organizational value creation.

Thus, this study argues that the benefits of Integration AI in e-HRM on Organization Performance do not only occur through the direct influence of technology, but also through increasing the Effectiveness of HR Decisions. The higher the organization's ability to utilize AI to produce quality HR decisions, the greater the opportunity for organizations to increase productivity, operational effectiveness, talent management quality, and the achievement of organizational strategic goals.

H3: Effectiveness of HR Decisions Mediating influence Integration AI in e-HRM terhadap Organization Performance.

The Direct Influence of Integration of AI in e-HRM on Organization Performance and the Role of Organizational Culture Moderation

In addition to improving the quality of HR decisions, the integration of AI in e-HRM also has the potential to have a direct impact on Organization Performance. AI integration allows organizations to automate various HR activities, speed up work processes, reduce administrative costs, improve the accuracy of HR data management, and strengthen organizational operational efficiency. These benefits can directly increase the productivity and effectiveness of the organization. Previous research has shown that AI contributes to improving organizational performance through various operational channels. Pillai & Srivastava (2023) found that AI-enabled HRM improves organizational productivity through automation and efficiency of HR processes. Al-Ayed (2025) shows that the implementation of AI improves organizational effectiveness through improving HR service quality and managerial efficiency. J. Li & Jin (2024) found that the intensity of AI utilization was positively related to continuous improvement in organizational performance.

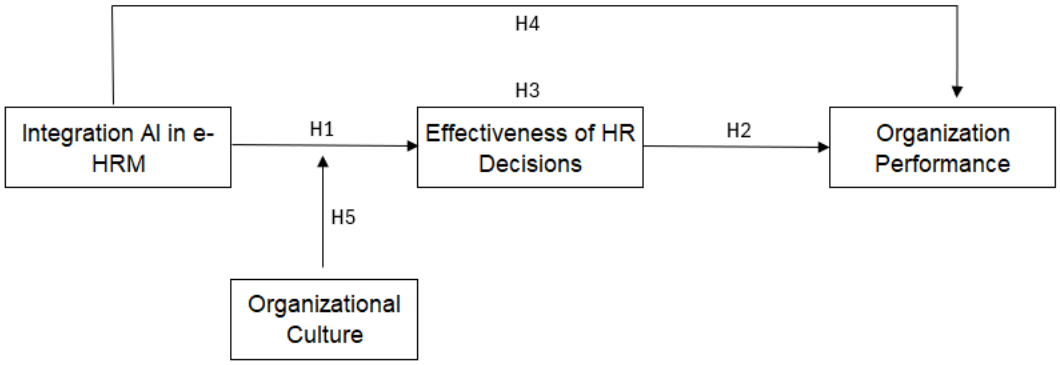
Nevertheless, the success of AI implementation is not only determined by the technology itself. The TOE Framework explains that organizational factors play an important role in determining the effectiveness of utilization of technology. One of the most important organizational factors is Organizational Culture. An organizational culture that supports innovation, learning, collaboration, and data utilization allows organizations to benefit more from AI implementation. Conversely, a culture that is resistant to change can hinder the use of technology even if the organization has adequate infrastructure.

Putritamara et al. (2023) Finding that an adaptive organizational culture contributes to the success of digital transformation. Khan et al. (2024) shows that organizations that have a learning and data-driven culture benefit more from the use of HR analytics in decision-making. Zhen et al. (2021) It also found that innovative cultures strengthen the link between digital technologies and organizational effectiveness. Based on these arguments, this study proposes that Organizational Culture strengthens the ability of Integration AI in e-HRM in improving the Effectiveness of HR Decisions.

H4: Integration of AI in e-HRM has a positive effect on Organization Performance.

H5: Organizational Culture positively moderates the influence of Integration AI in e-HRM on the Effectiveness of HR Decisions.

Figure 1. Research Model



METHODOLOGY

Research Design and Data Collection

This study uses a quantitative approach with a cross-sectional survey design to test the causal relationship between Integration AI in e-HRM, Effectiveness of HR Decisions, Organization Performance, and Organizational Culture. The quantitative approach was chosen because it allows empirical testing of relationships between constructs through statistical analysis based on Structural Equation Modeling (SEM).

The object of the research is a multinational manufacturing company operating in Riau Islands Province, Indonesia and has implemented Artificial Intelligence (AI) technology in the practice of electronic Human Resource Management (e-HRM). The focus on the manufacturing sector is based on the characteristics of industries that have a relatively high level of digital technology adoption and face the demands of increasing productivity and competitiveness in the era of digital transformation.

The research respondents consisted of Human Resource (HR) managers, HR Business Partners, HR Specialists, HR Analysts, HR Supervisors, and line managers who are involved in the HR decision-making process and have experience in using AI systems in e-HRM. The criteria were set to ensure that respondents had an adequate understanding of the implementation of AI in HR management and its impact on organizational decisions.

Primary data was collected using structured questionnaires that were distributed online and offline. All items were measured using a five-point Likert scale, ranging from 1 = strongly disagree to 5 = strongly agree. Data collection was carried out during the research period on companies that met the criteria for the implementation of AI in e-HRM practices.

Population, Sampling Techniques, and Sample Size

The research population includes all HR managers and professionals working at multinational manufacturing companies in the Riau Islands that have implemented AI in the e-HRM system. Given the number of populations that cannot be identified with certainty, this study uses purposive sampling techniques. The criteria for respondents include working in a multinational manufacturing company, using an e-HRM system that has been integrated with AI technology for at least one year and having the authority to be involved in the HR decision-making process.

The number of samples used in this study was 200 respondents. The sample size was considered adequate for Covariance-Based Structural Equation Modeling (CB-SEM) analysis. (Hair et al. (2022) explains that the sample size of between 150–400 respondents generally has met the minimum requirements for testing SEM models of medium complexity. In addition, Kline (2023) states that a sample count of at least 200 respondents is considered adequate to produce stable parameter estimation and reliable model testing in CB-SEM. Taking into account the number of latent constructs, the number of research indicators, and the complexity of the model that includes direct relationships, mediation, and moderation, the sample size of 200 respondents was considered adequate to produce valid and reliable model testing.

Operationalization of Research Variables and Instruments

This study uses four main constructs adapted from instruments that have been tested in previous research and adapted to the context of AI in e-HRM.

Table 1. Operationalization of Research Variables

Variabel	Operational Definition	Adaptation Source
Integration AI in e-HRM	The level of integration of Artificial Intelligence (AI) technology in various electronic Human Resource Management (e-HRM) practices which include compensation management, career development, talent identification, position promotion, and analytical support in the human resource decision-making process.	Al-Ayed (2025)
Effectiveness of HR Decisions	The level of effectiveness of human resource decisions is demonstrated by the accuracy, precision, quality, speed, and relevance of decisions produced through the utilization of algorithms and analytics in the practice of Human Resource Management.	Alabdali et al. (2024)
Organization Performance	The level of achievement of organizational goals is reflected through improved operational efficiency, quality of decision-making, ability to meet employee needs, and improved overall organizational reputation and performance after the implementation of AI in e-HRM.	(Chatterjee. et al (2021)
Organizational Culture	The level of achievement of organizational goals is reflected through improved operational efficiency, quality of decision-making, ability to meet employee needs, and improved overall organizational reputation and performance after the implementation of AI in e-HRM	(Zhen et al., 2021)

Al-Ayed (2025) Integration AI in e-HRM diadaptasi dari Al-Ayed (2025), Effectiveness of HR Decisions diadaptasi dari Alabdali et al. (2024), Organization Performance adapted from Chatterjee. (2021), and Organizational Culture diadaptasi from Zhen et al. (2021). All indicators were measured using a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). The process of adapting the instrument was carried out by considering the context of the implementation of AI in e-HRM practices in multinational manufacturing companies to maintain conceptual conformity with the original construct measured.

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XIII Issue VI June 2026

Data Analysis Techniques

This study used Covariance-Based Structural Equation Modeling (CB-SEM) with the help of AMOS software to test the relationships between constructs in the research model. The selection of CB-SEM is based on the objective of confirmatory research, namely testing theoretical models developed based on the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) and Technology–Organization–Environment (TOE) Framework, as well as analyzing the direct relationship, mediation, and moderation between variables simultaneously. In addition, CB-SEM is considered appropriate because it can comprehensively evaluate the quality of measurement models and structural models in a single analytical framework (Hair et al., 2022; Kline, 2023).

Data analysis is carried out through two main stages, namely measurement model evaluation and structural model evaluation. In the first stage, the measurement model is evaluated using Confirmatory Factor Analysis (CFA) to ensure that each indicator can represent the latent construct being measured. The validity of the convergence was evaluated based on the values of standardized factor loading and Average Variance Extracted (AVE), where adequate factor loading values indicate the ability of the indicator to explain the construct it represents, while the AVE value was used to assess the proportion of indicator variance that can be explained by the latent construct. The reliability of the construct is evaluated through the Composite Reliability (CR) value and Cronbach's Alpha, which indicates the level of internal consistency between the indicators in measuring the same construct. Furthermore, the validity of the discriminant is tested to ensure that each construct in the model has different characteristics and is empirically distinguishable from other constructs.

Once the measurement model meets the criteria of validity and reliability, the analysis is continued at the structural model evaluation stage. This stage aims to test the causal relationship between the variables hypothesized in the research model through the estimation of the path coefficient and the level of statistical significance. Before hypothesis testing, the goodness-of-fit model is evaluated using several indices recommended in the Structural Equation Modeling literature, including the Chi-square to freedom ratio (Chi-square/df), the Comparative Fit Index (CFI), the Tucker-Lewis Index (TLI), the Goodness-of-Fit Index (GFI), the Root Mean Square Error of Approximation (RMSEA), and Standardized Root Mean Square Residual (SRMR). The model is declared to have a good level of suitability if it meets the threshold value recommended by the (Hair. (2022) and Kline (2023), So that the results of testing the relationship between constructs can be interpreted validly and reliably.

Hypothesis Testing

Hypothesis testing was carried out through structural model evaluation by analyzing standardized path coefficient, critical ratio (CR), and probability significance (p-value) resulting from model estimation using the Maximum Likelihood Estimation (MLE) approach in AMOS. The significance of the relationship between constructs was determined based on a $p<$ value of 0.05 with a confidence level of 95%. In addition to statistical significance, the interpretation of the results also considers the direction of the relationship and the magnitude of the path coefficient to assess the strength of the influence between variables in the research model.

Testing of the direct influence hypothesis was carried out on the relationship between Integration AI in e-HRM and Effectiveness of HR Decisions (H1), Effectiveness of HR Decisions and Organization Performance (H2), as well as Integration of AI in e-HRM and Organization Performance (H4). A hypothesis is accepted if the path coefficient shows a relationship direction that is in accordance with the theoretical prediction and has an adequate level of statistical significance. This approach allows the evaluation of the contribution of each construct in explaining endogenous construct variations according to the conceptual model developed based on the UTAUT2 and TOE Framework.

To test the mediating role of Effectiveness of HR Decisions (H3), this study used a bias-corrected bootstrapping procedure with 5,000 resampling as recommended by Hair. (2022). The bootstrapping method was chosen because it does not assume a normal distribution of indirect effects and is considered the most

robust approach in mediation testing on SEM models. The mediation effect was declared significant if the 95% bias-corrected confidence interval (BC-CI) value did not include zero. In addition, this study also evaluates the nature of mediation that occurs, whether it is partial mediation or full mediation, by comparing the significance of direct and indirect pathways in structural models.

Furthermore, the moderation hypothesis (H5) test was carried out by building an interaction construct between Integration AI in e-HRM and Organizational Culture in a structural model. This test aims to evaluate whether the level of organizational culture that supports innovation, learning, collaboration, and data utilization can strengthen the relationship between Integration AI in e-HRM and Effectiveness of HR Decisions. The moderation effect is declared significant if the coefficient of the interaction construct path shows a significant value at a confidence level of 95%. The positive interaction coefficient indicates that the stronger the Organizational Culture, the greater the influence of AI Integration in e-HRM on increasing the Effectiveness of HR Decisions. Conversely, the insignificant interaction coefficient shows that Organizational Culture does not play a role as a boundary condition in the relationship.

Through this approach, the research not only examines the direct relationship between constructs but also evaluates the value creation mechanism through mediation as well as identifies the organizational conditions that determine the effectiveness of AI implementation in e-HRM practice. Thus, the test results provide a more comprehensive understanding of how the Integration of AI in e-HRM contributes to Organization Performance both through operational and strategic channels involving Effectiveness of HR Decisions and Organizational Culture.

RESULTS AND DISCUSSION

Respondent Profile

This study involved 200 respondents consisting of managers and leaders of the Human Resource (HR) function in multinational manufacturing companies operating in Riau Islands Province, Indonesia. The sample count met the minimum recommendations for Covariance-Based Structural Equation Modeling (CB-SEM) analysis, particularly in models involving multiple latent constructs and simultaneous structural relationships.

The characteristics of the respondents showed that most respondents were female (58%), while the male respondents were 42%. In terms of age, the age group of 31–35 years dominated the research sample (25%), followed by the age group of 26–30 years (23%). This composition shows that most of the respondents are of productive age who are actively involved in the implementation of the organization's digital transformation. From the education aspect, most respondents have Bachelor's, Master's/Professional, and Doctoral education, which reflects the high level of professional competence in human resource management. In terms of position, most of the respondents occupy strategic positions ranging from HR Assistant Manager to HR Director (CHRO), so they have direct involvement in HR decision-making and the implementation of AI technology in the organization. Most respondents came from Batam City (82%), which is the center of manufacturing industry activity in the Riau Islands. The industry sectors represented include electronics, food and beverages, automotive, chemicals, textiles, metals and machinery, and medical devices. These characteristics show that respondents have sufficient experience, authority, and understanding of the implementation of Integration AI in e-HRM so that the data obtained is considered representative to explain the relationship between variables in the research model.

Measurement Model

The evaluation of the measurement model was carried out using Confirmatory Factor Analysis (CFA) to ensure the validity and reliability of the entire research construct before testing the structural relationship. The results of the CFA show that the measurement model has a good degree of conformity with the empirical data. The Comparative Fit Index (CFI) value of 0.953 and the Tucker-Lewis Index (TLI) value of 0.945 are above the minimum limit of 0.90. In addition, a Root Mean Square Error of Approximation (RMSEA) value

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XIII Issue VI June 2026

of 0.050 and a Standardized Root Mean Square Residual (SRMR) value of 0.054 indicate a low model error rate.

All research indicators have a loading factor value above 0.60 with a range of 0.621–0.847 so that they meet the requirements for convergent validity. The Average Variance Extracted (AVE) value is in the range of 0.515–0.579, while the Composite Reliability (CR) ranges from 0.791–0.858. All these values exceed the thresholds recommended in the SEM literature, thus indicating that the research construct has adequate validity and reliability.

Discriminant validity was evaluated using Fornell-Larcker and Heterotrait-Monotrait Ratio (HTMT) criteria. The test results showed that the square root of AVE of each construct was greater than the correlation between constructs, while the overall HTMT value was below 0.85. Thus, each construct can explain different concepts empirically and does not experience the problem of construct overlapping. In addition, Common Method Bias (CMB) testing showed that the single-factor variance was only 27.2%, well below the critical limit of 50%, so the risk of common method bias was not a serious threat in this study. Overall, the results of the measurement model show that the entire construct meets the requirements for validity and reliability so that it is feasible to use at the structural model analysis stage.

Structural Model Evaluation

Once the measurement model is declared valid and reliable, the next stage is to evaluate the structural model to test the compatibility of the theoretical model with the empirical data. The test results show that the structural model has a good level of goodness-of-fit . A CFI value of 0.948 and a TLI of 0.940 indicate a very adequate level of model suitability. An RMSEA value of 0.053 and an SRMR of 0.057 are also within the recommended range in the CB-SEM literature. These results indicate that the conceptual model developed based on UTAUT2 and the TOE Framework can adequately explain the relationships between variables.

Hypothesis Testing

The test results showed that the Integration of AI in e-HRM had a positive and significant effect on the Effectiveness of HR Decisions ($\beta = 0.412$; $p < 0.001$). These findings show that the higher the level of AI integration in e-HRM practices, the more effective the organization will be in producing accurate, objective, and data-driven HR decisions. Therefore, H1 is supported. Furthermore, the Effectiveness of HR Decisions was shown to have a positive and significant effect on Organization Performance ($\beta = 0.387$; $p < 0.001$). These results indicate that the quality of HR decisions is an important factor that determines the success of an organization in achieving its strategic goals. Thus, H2 is supported.

Mediation effect testing showed that Effectiveness of HR Decisions partially mediated the relationship between Integration AI in e-HRM and Organization Performance. The resulting indirect effect was $\beta = 0.160$ with a 95% confidence interval [0,089; 0,241], which does not include a zero value. These findings show that AI creates organizational value through improving the quality of HR decisions that organizations produce. H3 is therefore supported.

In addition to mediation, the integration of AI in e-HRM has also been proven to have a direct effect on Organization Performance ($\beta = 0{,}178$; $p < 0{,}05$). These findings suggest that AI provides operational benefits that can directly improve organizational effectiveness and efficiency without having to go entirely through HR decision-making mechanisms. Thus, H4 is supported.

The results of the moderation test show that Organizational Culture strengthens the relationship between Integration AI in e-HRM and Effectiveness of HR Decisions ($\beta = 0{,}193$; $p < 0{,}05$). These findings indicate that an organizational culture that supports innovation, learning, collaboration, and data utilization can increase the effectiveness of AI utilization in producing quality HR decisions. Hence, H5 is supported.

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XIII Issue VI June 2026

Discussion

The findings of the study show that the integration of AI in e-HRM plays a strategic resource that can improve the quality of HR decisions while encouraging the improvement of organizational performance. These results reinforce UTAUT2's argument that the benefits of technology arise when they are used effectively to support organizational activities and generate real value for both users and organizations.

The positive influence of AI integration in e-HRM on the Effectiveness of HR Decisions shows that AI's ability to process large amounts of data, generate predictive analytics, and provide data-driven recommendations allows organizations to improve the accuracy, objectivity, and speed of HR decision-making. These findings are in line with research Al-Ayed (2025), Khan et al. (2024), and Mahade et al. (2025) which shows that AI improves the quality of decisions through the provision of more accurate and real-time information. This study also shows that the Effectiveness of HR Decisions is a key mechanism that explains how the benefits of AI translate into improved organizational performance. In other words, the strategic value of AI does not solely come from the technology itself, but from the organization's ability to leverage AI-generated information to generate more effective HR decisions. These findings provide empirical support for the TOE Framework's perspective that places organizational capabilities as a key factor in creating value from technology investments.

In addition, Organizational Culture has been proven to function as a boundary condition that determines the effectiveness of the use of AI in organizations. A culture that supports innovation, learning, and data use allows organizations to benefit more from AI implementation than organizations that have a culture of resistance to change. These findings expand the application of the TOE Framework by showing that cultural factors not only influence the success of technology implementation but also determine the extent to which technology is able to improve the quality of HR decisions.

Overall, the results show that the benefits of Integration AI in e-HRM on Organization Performance occur through two complementary paths, namely the operational path through direct influence on organizational performance and the strategic path through increasing the Effectiveness of HR Decisions. These findings enrich the literature on AI in Human Resource Management while providing practical implications for multinational manufacturing companies in designing HR digital transformation strategies that are oriented towards sustainable organizational value creation.

CONCLUSION AND RECOMMENDATIONS

This study provides empirical evidence regarding the mechanism of organizational value creation through the implementation of Integration AI in e-HRM in multinational manufacturing companies in Riau Islands Province. Using the Covariance-Based Structural Equation Modeling (CB-SEM) approach and testing five hypotheses developed based on the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) and the Technology–Organization–Environment (TOE) Framework, this study explains how the integration of Artificial Intelligence In practice, e-HRM translates into improving organizational performance through operational and strategic channels.

The results of the study show that the Integration of AI in e-HRM has a positive and significant effect on the Effectiveness of HR Decisions, supporting H1. These findings show that the use of AI in e-HRM practices improves the organization's ability to produce more accurate, objective, fast, and data-driven HR decisions. This study also found that the Effectiveness of HR Decisions has a positive and significant effect on Organization Performance, thus supporting H2. These results indicate that the quality of HR decisions is a strategic factor that contributes to increasing the effectiveness of organizations in achieving their business goals.

Furthermore, this study proves that the Effectiveness of HR Decisions partially mediates the relationship between Integration AI in e-HRM and Organization Performance, thus supporting H3. These findings show that the strategic benefits of AI do not arise automatically from the existence of technology but rather are

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XIII Issue VI June 2026

realized through the ability of organizations to utilize AI-generated information to improve the quality of HR decision-making. In addition, the Integration of AI in e-HRM has also been proven to have a direct positive influence on Organization Performance, thus supporting H4. The findings indicate that AI not only creates value through improving the quality of HR decisions, but also through improving operational efficiency, accelerating work processes, reducing administrative burden, and optimizing Human Resource Management processes.

The study also found that Organizational Culture strengthens the relationship between Integration AI in e-HRM and Effectiveness of HR Decisions, thus supporting H5. These findings confirm that the success of AI implementation is not only determined by technological capabilities but also influenced by the organizational environment that supports innovation, learning, collaboration, and data-driven decision-making. Organizations with a culture that is adaptive to technological change tend to benefit more from the implementation of AI than organizations that have a culture that is more resistant to digital transformation.

The theoretical contribution of this research lies in the development of a model that integrates UTAUT2 and the TOE Framework to explain the mechanism of AI value creation in the context of e-HRM. This study expands the AI-HRM literature by showing that Effectiveness of HR Decisions is a strategic mechanism that bridges the relationship between Integration AI in e-HRM and Organization Performance. In addition, this study enriches the development of the TOE Framework by identifying Organizational Culture as an organizational condition that strengthens the effectiveness of the use of AI in the HR decision-making process.

Empirically, this study provides evidence from the context of multinational manufacturing companies in Riau Islands Province which until now is still relatively limited in AI-HRM literature. The findings of the study show that the benefits of AI to the organization occur through two complementary paths, namely the operational path through direct influence on Organization Performance and the strategic path through increasing the Effectiveness of HR Decisions. Thus, this research provides a more comprehensive understanding of how organizations can optimize their investments in AI technology to generate a sustainable competitive advantage.

Research Limitations

Several limitations need to be considered in interpreting the results of this study. First, the study used a cross-sectional design so that the relationships between variables were observed over a period and were not yet able to fully capture the dynamics of AI implementation in the long term. Second, the research is focused on multinational manufacturing companies in Riau Islands Province so that the generalization of research results to other industrial sectors or different geographical areas needs to be done carefully. Third, the research model only uses Organizational Culture as a moderation variable, while other organizational factors such as digital leadership, AI governance, strategic HR capability, and organizational readiness have the potential to have a different influence on the effectiveness of AI implementation in the Human Resource Management function.

Further Research

These limitations open opportunities for further research. Future research is suggested using longitudinal designs to observe the impact of AI implementation on organizations over a longer period. The next research can also expand the research context in the service, banking, health, education, and technology industry sectors to improve the generalization of the model. In addition, model development by including other organizational and strategic variables such as AI capability, digital leadership, organizational readiness, employee trust in AI, and strategic HR capability can provide a deeper understanding of the factors that determine the success of AI implementation in Human Resource Management.

Closing

Digital transformation driven by the development of Artificial Intelligence has changed the role of Human Resource Management from an administrative function to a strategic function oriented towards organizational value creation. The results of this study show that Integration AI in e-HRM is not just an instrument for automating HR processes but is a source of strategic capabilities that are able to improve the quality of HR decisions and organizational performance simultaneously. However, AI technology cannot create optimal organizational value without being supported by an adaptive organizational culture and managerial ability to utilize the information generated by the technology.

The findings of this study provide an important message that the success of AI transformation in Human Resource Management is not only determined by technology investments, but also by the organization's ability to build a data-driven culture, improve the quality of HR decision-making, and create a work environment that supports innovation. Therefore, organizations that can integrate these three elements will have a greater chance of gaining a competitive advantage and achieving sustainable performance in the digital economy era.

ACKNOWLEDGEMENTS

The author would like to thank all parties who have provided support, assistance, and contributions in the implementation of the research and the preparation of this article.

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