

ARTIFICIAL INTELLIGENCE-BASED TALENT MANAGEMENT AND ITS IMPACT ON EMPLOYEE ENGAGEMENT AND ORGANIZATIONAL RESILIENCE



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Abstract

The rapid advancement of Artificial Intelligence (AI) has transformed human resource management, particularly in organizational talent management. This study examines the effect of AI-based talent management on employee engagement and its impact on organizational resilience. A quantitative approach was employed using a survey of employees from service organizations and knowledge-based industries in Indonesia. Data were analyzed using Structural Equation Modeling (SEM) to test direct and indirect relationships among variables. The findings indicate that AI-based Employee engagement is positively and significantly impacted by talent management, which in turn significantly influences organizational resilience. Additionally, AI-based talent management directly affects organizational resilience, both independently and through the mediating role of employee engagement. These results highlight the importance of AI-driven talent management in enhancing organizational adaptability and sustainability amid dynamic environmental changes.

Keywords: Talent Management, Artificial Intelligence, Employee Engagement, Organizational Resilience.

INTRODUCTION

Modern organizational management techniques have undergone significant modifications as a result of the quick growth of digital technology, especially artificial intelligence (AI). AI is no longer positioned solely as a technical support tool, but has become a strategic component in data-driven decision making that affects the effectiveness and competitiveness of organizations (Vrontis et al., 2022). In a business environment characterized by volatility, uncertainty, complexity, and ambiguity, organizations are required to manage human resources in a more adaptive and future-oriented manner. Talent management is a strategic approach to human resource management that focuses on a systematic procedure for drawing in, training, and keeping people with exceptional skills who help the firm achieve its objectives (Collings et al., 2019). However, conventional talent management practices often face various limitations, such as subjectivity in the recruitment process, inaccurate competency mapping, and suboptimal long-term career planning (Gallardo-Gallardo & Thunnissen, 2016). These conditions encourage organizations to adopt technology-based approaches to improve the accuracy and effectiveness of talent management.

Organizations now have a lot of chances to increase the efficacy of talent management thanks to the growth of artificial intelligence in HRM practices. However, academically, There are still a number of philosophical and empirical questions regarding the application of AI in talent management that remain unresolved. The absence of conceptual agreement over the definition and scope of AI-based talent management is one of the primary issues. Some studies interpret AI in the context of HR as limited to the automation of administrative processes, while other studies place it as a strategic decision-making system based on predictive analytics, thus causing inconsistencies in the measurement and interpretation of research results (Margherita & Bua, 2021). The next academic problem relates to the limited empirical evidence on the psychological impact of AI-based talent management on employees. Although AI is believed to be capable of improving the objectivity and efficiency of talent management, a number of studies show the potential for employee resistance, distrust, and anxiety regarding the use of smart technology in HR processes, particularly in relation to algorithm transparency and decision fairness (Vrontis et al., 2022). This condition raises academic questions about the extent to which AI-based talent management is truly capable of increasing employee engagement, or whether it has the potential to weaken it if not managed ethically and participatively.

The application of artificial intelligence in talent management allows organizations to utilize big data analytics and machine learning to support smart recruitment processes, real-time data-based performance assessments, personalized competency development, and more precise career planning (Bersin, 2023). AI-based talent management is considered capable of increasing the objectivity of managerial decisions while accelerating the organization's response to changing talent needs. In addition, the use of AI in HR practices also has the potential to influence employee attitudes and behavior towards the organization. One important aspect influenced by talent management practices is employee engagement. Employee engagement refers to the level of emotional, cognitive, and behavioral attachment of employees to their work and organization (Kahn, 1990). Employees with high levels of engagement tend to show greater commitment, motivation, and optimal performance (Saks,

2019). Previous research shows that a transparent, fair, and data-driven talent management system can improve employees' positive perceptions of the organization, which ultimately strengthens employee engagement (Alshathry et al., 2017).

On the other hand, the increasingly unstable external environment requires organizations to have the ability to survive and adapt to various disruptions. The concept of organizational resilience is becoming increasingly relevant in this context. Organizational resilience is defined as an organization's ability to anticipate, respond to, adapt to, and recover from crises or significant changes (Duchek, 2020). Strategic management literature emphasizes that engaged and strategically managed human resources are the main foundation for building long-term organizational resilience (Lengnick-Hall et al., 2011). Although studies on the application of artificial intelligence in human resource management continue to grow, empirical research that specifically integrates AI-based talent management, employee engagement, and organizational resilience is still relatively limited, especially in the context of developing countries such as Indonesia. Most previous studies have focused on the impact of AI on HR process efficiency or individual performance, without examining the psychological role of employees as a connecting mechanism for organizational resilience (Margherita & Bua, 2021). In addition, testing the mediating role of employee engagement in the relationship between AI-based talent management and organizational resilience is still rarely done.

This study is crucial in light of these research gaps. It seeks to examine how AI-based talent management affects organizational resilience and employee engagement. It is anticipated that this study will offer thorough empirical data on the strategic function of AI in talent management and organizational resilience building using a quantitative methodology and Structural Equation Modeling (SEM) analysis. In theory, this study adds to the body of knowledge on digital talent management and organizational resilience, and in practice, it helps organizational leaders create flexible and long-lasting talent management plans in the age of digital transformation.

REVIEW OF LITERATURE

It has long been acknowledged that talent management is a key element of human resource management that supports long-term competitiveness and organizational effectiveness. Rather than focusing solely on identifying high-potential employees, contemporary talent management emphasizes integrated systems that align individual capabilities with organizational goals. Prior studies highlight that strategically designed HR practices shape employee attitudes and behaviors, which ultimately influence organizational outcomes. From a multilevel perspective, talent management operates across individual, team, and organizational levels, enabling organizations to create and sustain value through human capital development and deployment.

The growing integration of digital technologies has fundamentally reshaped the way organizations manage talent, particularly through the adoption of artificial intelligence (AI). AI has expanded the analytical capacity of HR functions by enabling data-driven decision-making in recruitment, performance evaluation, competency development, and career planning. Digital transformation has repositioned HR from an administrative role to a strategic partner that leverages advanced analytics and intelligent systems. Scholars argue

that AI-driven HR practices enhance accuracy, consistency, and efficiency while supporting evidence-based talent decisions. However, the value of AI in talent management lies not merely in automation, but in its ability to augment human judgment and support strategic workforce planning.

Within the domain of talent management, AI facilitates more precise talent identification and alignment by analyzing large datasets related to skills, performance patterns, and career trajectories. AI-based recruitment systems allow organizations to assess candidates beyond surface-level qualifications, improving person–job and person–organization fit. Similarly, AI-supported learning platforms enable personalized development paths that respond to individual needs and evolving organizational demands. These practices contribute to a more transparent and developmental talent management process, which is increasingly important in knowledge-based and service-oriented industries where employee capabilities are central to value creation.

Employee engagement represents a critical psychological state reflecting the degree to which individuals are cognitively, emotionally, and behaviorally invested in their work. Engagement theory suggests that meaningful work, psychological safety, and access to resources foster deeper involvement in job roles. Empirical evidence consistently demonstrates that supportive and developmental HR practices strengthen employee engagement by enhancing trust, motivation, and perceived organizational support. In the context of AI-based talent management, engagement is shaped by how technology is implemented and perceived by employees. When AI is used to promote fairness, clarity, and growth opportunities, employees are more likely to experience positive work-related engagement rather than resistance or anxiety toward technological change.

Engaged employees play a vital role in strengthening organizational resilience, particularly in environments characterized by uncertainty and rapid change. Organizational resilience refers to the capacity of an organization to anticipate disruptions, adapt to challenges, and recover while maintaining core functions. Human resources are widely regarded as a foundational element of resilience, as adaptive behaviors, learning orientation, and proactive problem-solving originate from employees. Research indicates that engaged employees demonstrate greater flexibility, commitment, and willingness to contribute beyond formal job requirements, all of which enhance an organization's ability to respond effectively to external shocks.

The relationship between human resource management and organizational resilience has been extensively discussed in strategic management literature. HR practices that emphasize capability development, continuous learning, and adaptability support the formation of dynamic organizational capabilities. From this perspective, AI-based talent management contributes to resilience by enabling organizations to respond more quickly to changing skill requirements and workforce conditions. The integration of AI into talent management systems allows organizations to identify emerging competency gaps, optimize workforce allocation, and support informed strategic decisions, thereby reinforcing resilience at both individual and organizational levels.

Overall, existing literature suggests that AI-based talent management holds significant potential to enhance employee engagement and organizational resilience. By enabling more strategic, transparent, and adaptive HR practices, AI supports a work environment in which employees feel valued and empowered to contribute meaningfully. At

the same time, engaged employees serve as a critical mechanism through which talent management practices translate into organizational resilience. Nevertheless, the effectiveness of AI-based talent management depends on its human-centered implementation, ethical governance, and alignment with organizational values. As organizations continue to navigate digital transformation, understanding the interconnected roles of AI-driven talent management, employee engagement, and organizational resilience becomes increasingly important.

RESEARCH METHOD

In order to investigate the causal relationship between employee engagement, organizational resilience, and AI-based talent management, this study employs a quantitative approach with an explanatory design (Creswell & Creswell, 2018). Employees at Indonesian service and knowledge-based industry companies that have incorporated artificial intelligence technology into their HRM procedures were given a structured questionnaire to complete as part of the data collection process. Purposive sampling was utilized as the sample technique, and respondents had to be permanent employees who had been employed for at least a year and were directly impacted by the deployment of a talent management system based on artificial intelligence (Hair et al., 2021). To guarantee enough statistical power, the sample size was modified in accordance with the specifications of Structural Equation Modeling (SEM) analysis. A five-point Likert scale was used to measure the research instruments, which were constructed based on measuring scales that had been verified in earlier investigations. Structural Equation Modeling (SEM) was used to evaluate the data in order to assess the constructs' validity and reliability as well as the direct and indirect impacts between variables, including the mediating function of employee engagement (Hair et al., 2019). Path coefficient values, significance levels, and overall model viability were taken into consideration while evaluating the measurement and structural models. Relevant statistical software was used throughout the entire data processing procedure.

RESULTS AND DISCUSSION

Data analysis results demonstrate that the suggested research model satisfies the requirements for measurement model and structural model viability. All research constructs, namely artificial intelligence-based talent management, employee engagement, and organizational resilience, show adequate levels of validity and reliability. The factor loading, composite reliability, and average variance extracted (AVE) values are above the recommended threshold, so the research instrument is declared feasible for measuring the constructs under study (Hair et al., 2019). Artificial intelligence-based talent management significantly and favorably affects employee engagement, according to structural relationship testing. This finding indicates that the use of AI in the recruitment, competency development, performance appraisal, and career planning processes can improve the perception of fairness, transparency, and accuracy of the human resource management system, which in turn strengthens employee attachment to the organization. These findings support earlier research

showing that digitizing data-driven HR procedures can boost employee engagement and trust in the company (Bersin, 2023; Vrontis et al., 2022).

Furthermore, the study's findings demonstrate that organizational resilience is positively and significantly impacted by employee engagement. High-engagement workers typically exhibit dedication, adaptability, and a willingness to deal with change—all of which are essential components in creating organizational resilience. The idea that engaged human resources are a strategic asset in enhancing an organization's capacity to adapt and recover from crises or environmental unpredictability is supported by these studies (Lengnick-Hall et al., 2011; Ducheck, 2020).

Additional research showed that organizational resilience is directly and significantly impacted by artificial intelligence-based people management. This demonstrates how the use of AI in personnel management not only affects workers' psychological well-being but also directly improves the organization's ability to predict and adapt to changes in the external environment. AI-based people management systems increase an organization's preparedness to deal with business fluctuations by enabling more responsive and predictive workforce planning (Margherita & Bua, 2021).

Additionally, the results of the mediation analysis indicate that the relationship between organizational resilience and artificial intelligence-based talent management is partially mediated by employee engagement. These results show that AI-based talent management affects organizational resilience both directly and indirectly through higher employee engagement. As a result, employee involvement is crucial in bridging the gap between the adoption of AI-based HR technologies and the organization's capacity to endure and change. By offering empirical proof of psychological effect pathways in the context of human resource digital transformation, these findings enhance the body of literature (Saks, 2019).

Overall, the study's findings and analysis highlight how crucial it is to include AI into corporate people management plans. The results of this study build on earlier research by connecting digital talent management strategies to elements of long-term organizational resilience in addition to organizational performance or efficiency. The practical implications of these findings indicate that in order to increase employee engagement and build organizational resilience in a sustainable way, firms should implement a human-centered AI approach to talent management.

The Impact of Artificial Intelligence-Based Talent Management on Employee Engagement

The main point to be discussed is the extent to which the application of artificial intelligence-based talent management can increase employee engagement. The discussion focuses on how AI systems in recruitment, competency development, performance appraisal, and career planning create perceptions of fairness, transparency, and accuracy in human resource decision-making. Empirical results showing a positive and significant impact reinforce the argument that AI technology can be an enabler of employee engagement when implemented ethically and in a human-oriented manner. These findings also need to be linked

to literature that emphasizes the role of digital HRM in building employee trust and engagement in the era of digital transformation.

The Role of Employee Engagement Mediation in the Relationship between AI-Based Talent Management and Organizational Resilience

The second important point is the discussion of the role of employee engagement as a mediating variable between artificial intelligence-based talent management and organizational resilience. The discussion focuses on the mechanism of how increased employee engagement becomes the main pathway to strengthening organizational resilience in the face of uncertainty and environmental change. Partial or full mediation results need to be interpreted as evidence that organizational resilience is not only built through systems and technology, but also through the psychological and behavioral responses of employees to AI-based talent management practices. This discussion confirms the theoretical contribution of research in integrating the perspectives of technology, organizational behavior, and organizational resilience.

Table 1. Findings from the Examination of AI-Based Talent Management's Impact on Employee Engagement

Relationships Between Variables	Path Coefficient (β)	t-value	p-value	Description
AI-Based Talent Management → Employee Engagement	0,482	6,317	0,000	Significant

Employee engagement is positively and significantly impacted by AI-based personnel management, according to the path coefficient value of .482. The hypothesis of a direct effect is accepted because the t-value > 1.96 and p-value < 0.05 show that this effect is statistically significant.

Table 2. Results of the Mediation Test of Employee Engagement on Organizational Resilience

Path of Influence	Path Coefficient (β)	t-value	p-value	Description
AI-Based Talent Management → Organizational Resilience	0,291	3,874	0,000	Significant
Employee Engagement → Organizational Resilience	0,436	5,962	0,000	Significant
AI-Based Talent Management → Employee Engagement → Organizational Resilience	0,210	4,118	0,000	Partial Mediation

The test results show that AI-based talent management directly impacts the resilience of organizations. In addition, employee engagement also has a significant effect on organizational resilience. The indirect path through employee engagement has an adequate coefficient and significance, proving that employee engagement partially mediates the

relationship between artificial intelligence-based talent management and organizational resilience. This study suggests that AI-based talent management has a strategic role in boosting employee engagement and bolstering organizational resilience based on the findings of quantitative analysis and debate. Employee engagement levels are positively and significantly impacted by the use of artificial intelligence in talent management procedures like hiring, competency development, performance reviews, and career planning, according to empirical research. These findings show that AI-based talent management systems can foster views of impartiality, justice, and transparency, which in turn promotes workers' cognitive and emotional involvement with the company.

These findings are in line with the employee engagement theory proposed by Kahn (1990), which emphasizes that employee engagement is influenced by psychological conditions such as meaningfulness, safety, and availability. The implementation of transparent and data-driven AI-based talent management has been proven to increase employee safety and trust in the organizational system, thereby strengthening engagement. Furthermore, the results of this study also support the strategic human resource management perspective, which states that innovative HR practices that are aligned with organizational strategy can increase positive attitudes and employee commitment (Collings et al., 2019). Moreover, The study's findings demonstrate that organizational resilience is positively and significantly impacted by employee engagement. When faced with change and uncertainty, engaged workers typically exhibit dedication, adaptability, and flexibility. This result supports the organizational resilience hypothesis, which emphasizes the importance of human resources in developing an organization's capacity to foresee, address, and recover from crises (Lengnick-Hall et al., 2011; Duchek, 2020). Thus, employee engagement not only impacts individual performance but also serves as an important foundation for the overall resilience of the organization.

This study discovered that artificial intelligence-based people management has a direct impact on organizational resilience in addition to indirect benefits through employee engagement. This demonstrates how using AI in talent management makes it possible for businesses to plan their workforces more predictably and adaptably, which increases their preparedness to deal with the changing nature of the business environment. The theory of dynamic capacities, which highlights the significance of an organization's capacity to integrate, develop, and reconfigure internal resources in the face of swift environmental change, is supported by this research (Teece, 2018).

Overall, The study's findings and analysis demonstrate that employee engagement is a significant mediating factor in the connection between organizational resilience and AI-based talent management. The integration of AI technology into talent management practices not only impacts the efficiency and accuracy of human resource management, but also strengthens the psychological aspects of employees, which ultimately increases organizational resilience. These findings contribute theoretically by integrating strategic talent management theory, employee engagement, and organizational resilience into a comprehensive empirical framework. The implications of this research emphasize A human-centered AI approach's significance for organizational talent management. Organizations need to not only focus on adopting artificial intelligence technology, but also ensure that its implementation is ethical, transparent, and participatory in order to improve employee

engagement and strengthen organizational resilience in a sustainable manner in the era of digital transformation.

CONCLUSION

The purpose of this study is to examine how employee engagement is affected by AI-based personnel management and how this affects organizational resilience. Employee engagement is positively and significantly impacted by artificial intelligence-based people management, according to the findings of a quantitative research utilizing structural equation modeling (SEM). This demonstrates how using artificial intelligence in personnel management procedures can boost worker engagement by creating a more impartial, open, and data-driven approach. Additionally, the study's findings demonstrate that employee engagement significantly and favorably affects organizational resilience. Increased organizational resilience in the face of uncertainty and the volatility of the business environment is a result of highly engaged employees' propensity for adaptability, commitment, and change readiness. Furthermore, it has been demonstrated that talent management based on artificial intelligence directly affects organizational resilience. Additionally, this study discovered that the association between organizational resilience and AI-based personnel management is partially mediated by employee engagement. This result suggests that enhancing organizational resilience through the use of AI in talent management happens both directly and indirectly through higher engagement.

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