
Workplace Artificial Intelligence and Employee Competitiveness: The Strategic Role of Employee Agility in Higher Education Institutions

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Abstract

This study aims to investigate the influence of Workplace Artificial Intelligence (WAI) on Employee Competitiveness (EC), with Employee Agility (EA) serving as a mediating variable. Grounded in the resource-based view (RBV), the research addresses the growing need to understand how AI adoption in the workplace shapes individual capabilities and performance, particularly within the context of public higher education in Indonesia. A quantitative approach was employed using a causal research design. Data were collected through a structured questionnaire distributed to 167 academic staff at public universities, selected using purposive sampling. The model was analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) to assess both measurement and structural components. The findings reveal that WAI significantly enhances both EA and EC, while Employee Agility also positively affects Employee Competitiveness. Furthermore, the study confirms a significant indirect effect of WAI on EC through EA, indicating that agility plays a mediating role in translating technological exposure into competitive capability. These results emphasize the importance of fostering agility among employees as a strategic response to technological change. The study contributes to both theoretical understanding and practical insight, encouraging institutions to not only invest in AI technologies but also support the behavioral readiness of their workforce through leadership, learning, and organizational culture.

Keywords

Workplace Artificial Intelligence; Employee Agility; Employee Competitiveness; Digital Transformation; Higher Education

INTRODUCTION

In recent years, digital technology has advanced significantly, particularly in the field of Artificial Intelligence (AI). Organizations across various sectors including manufacturing, financial services, education, and healthcare have increasingly adopted AI. Its implementation in the workplace has not only transformed how organizations operate but also directly impacted the nature of jobs, employee roles, and the relationship between humans and technology (Faruqi, 2019). AI no longer functions solely as a support tool; it has become an integral component in decision-making, data analysis, and the execution of complex tasks. When organizations integrate AI into their operations, they gain numerous potential benefits, such as improved productivity, streamlined business processes, and the creation of more sustainable competitive advantages (Temelkova, 2020). AI also enhances human capabilities by simplifying routine tasks and allowing employees to focus on more strategic and creative work. However, this technological shift also presents significant challenges. Rapid changes in the work environment driven by AI can create uncertainty and trigger resistance from employees who may not be ready to adapt. Concerns about job security, structural changes within organizations, and the need to develop new skill sets have emerged as key issues in the digital transformation process (J. Xu & Choi, 2023).

AI plays an increasingly crucial role in enhancing both efficiency and organizational competitiveness. It automates various routine and administrative tasks, enabling employees to concentrate on higher-value work such as strategic analysis, innovation, and data-driven decision-making. In many cases, AI also helps create more adaptive and responsive work environments by leveraging real-time data. For employees, AI expands individual capabilities by offering tools that accelerate work processes, improve accuracy, and deliver insights that were previously difficult to obtain manually. In addition, AI can contribute to employee well-being by predicting workload trends, supporting performance management with data, and personalizing training and competency development. As a result, AI functions not only as a technological enabler but also as a catalyst for cultural transformation in the workplace requiring organizations to support continuous learning and adaptation for all employees.

Employee agility refers to an individual's capacity within an organization to respond to change quickly, flexibly, and proactively. Core characteristics of employee agility include continuous learning, adaptability in dynamic work environments, and the ability to take initiative when facing new challenges. In the era of digital transformation, agile employees do more than just respond to change (Shafiabady et al., 2023). By acting as change agents, they help foster innovation and support the organization's ability to remain competitive and forward-thinking. AI technologies are more deeply integrated into the workplace. The implementation of AI is transforming how employees perform their tasks affecting work processes, tools, and decision-making approaches. This shift requires employees to quickly adapt to new systems, understand data-driven logic, and develop relevant digital skills. Employees with high levels of agility are more prepared to embrace AI and leverage it as a tool to enhance performance. In contrast, those with lower agility often experience resistance, discomfort, or difficulty adjusting to a technology-based work environment.

Workplace Artificial Intelligence also plays a crucial role in shaping and promoting the development of Employee Agility. AI technologies offer personalized work experiences, support adaptive learning, and provide real-time feedback based on performance data. These features enable employees to continuously improve in response to evolving job demands. AI also fosters flexible work environments, encourages cross-functional collaboration, and facilitates rapid access to information (Wang et al., 2022). Therefore, the relationship between employee agility and AI is bidirectional: agility enhances the success of AI adoption, while AI accelerates the growth of agility in modern workplaces. Meanwhile, Employee Competitiveness refers to an individual's ability to effectively compete in dynamic and competitive work environments. It encompasses mastery of relevant skills, high productivity, the ability to innovate, and readiness to navigate ongoing challenges and opportunities. In the context of an increasingly digital, employee competitiveness becomes a critical determinant of both individual career success and overall organizational performance. Workplace Artificial Intelligence plays a significant role in shaping and influencing the level of Employee Competitiveness. AI in the workplace has drastically changed how tasks are performed ranging from process automation to complex data analysis (Oosthuizen, 2022). To remain competitive, employees must learn to understand, adapt to, and work alongside these technologies. This includes developing new competencies such as data literacy, basic algorithmic thinking, and critical analysis of AI-generated insights. Employees who can strategically utilize AI for innovation and problem-solving will gain a competitive edge over those who cannot.

At the same time, Workplace AI serves as a catalyst for enhancing employee competitiveness. AI supports skill development through intelligent learning platforms, individualized training programs, and real-time mapping of employee strengths and weaknesses. With such insights, employees can more accurately identify development needs and address them efficiently. Additionally, AI enables more objective performance monitoring, which can drive motivation and encourage continuous improvement. As such, the relationship between Workplace AI and employee competitiveness is mutually reinforcing: AI both demands and supports the enhancement of individual competitiveness in an ever-evolving work environment.

Research on the impact of Workplace Artificial Intelligence (AI) on employee behavior and performance has grown rapidly in line with the increasing adoption of technology in the workplace. Gallego & Kurer (2022) found that the use of AI in organizational settings enhances operational efficiency and accelerates decision-making processes, which in turn increases the

demand for more adaptive work behaviors. Similarly, Xu et al., (2023) emphasized that AI contributes significantly to digital transformation, requiring employees to continuously learn and adapt two core characteristics of employee agility. However, much of the existing research has focused primarily on the relationship between AI and organizational performance or general changes in work processes, with limited attention to individual behavioral aspects such as agility. For instance, Mirbabaie et al., (2022) examined the effects of AI on team efficiency and cross-functional collaboration, but did not address how individuals adapt to technological change. In another study, Pereira et al., (2023) explored AI's role in workforce reskilling and upskilling but failed to specifically address how AI drives cognitive flexibility and rapid responsiveness.

Research on Workplace Artificial Intelligence has also increasingly explored its contribution to organizational competitiveness, especially in the context of digital transformation. Several studies have shown that AI adoption improves work efficiency and fosters competitive advantage at the organizational level. For example, Einola & Khoreva (2023) demonstrated that AI implementation improves employee productivity, which is closely tied to employee competitiveness. In line with this, Korteling et al., (2021) found that AI integration in human resource management facilitates the identification and development of high-potential talent, suggesting that AI contributes to enhancing individual competitiveness within organizations.

The research gap lies in the limited number of studies that directly investigate the relationship between Workplace Artificial Intelligence and employee competitiveness at the individual level, particularly in relation to adaptive behavioral responses. Most prior studies have concentrated on AI's impact on general organizational performance, operational efficiency, or training needs, without providing a clear explanation of how AI fosters individual competitiveness through behavioral agility. Therefore, the novelty of this research is its focus on analyzing the mediating role of employee agility in bridging the relationship between Workplace Artificial Intelligence and employee competitiveness. This study is particularly important in the context of academic staff at public universities in Indonesia, who are currently at the forefront of digital transformation in higher education. The implementation of AI-based technologies—such as adaptive learning systems, intelligent e-learning platforms, and automated academic data management—requires lecturers not only to use these tools effectively, but also to adapt quickly and compete in an increasingly open and competitive academic ecosystem. The readiness of academic staff to develop employee agility is therefore essential in sustaining and enhancing their employee competitiveness in the face of such transformative change.

METHODS

This study employed a quantitative approach, which focuses on the collection and analysis of numerical data to identify patterns, relationships between variables, and to test hypotheses objectively. The research design adopted was causal research, aimed at examining cause-and-effect relationships between independent and dependent variables. Specifically, this study investigated the impact of Workplace Artificial Intelligence (WAI) on employee competitiveness, with employee agility acting as a mediating variable. The population consisted of academic staff at public universities in Indonesia who have been involved in the use of AI-based technologies within academic work settings—such as adaptive online learning platforms, automated grading systems, and AI-powered academic data management tools. The sample included 167 respondents, selected through purposive sampling, with criteria specifying that participants must be active lecturers with a minimum of one year of experience working in environments that have adopted AI technologies. Data were collected using a closed-ended questionnaire, designed to measure the core variables of the study: the level of AI usage in the workplace, employee agility, employee competitiveness applied within their respective work units. A 5-point Likert scale was used to capture the degree of agreement for each item. To analyze the data, the study applied Structural Equation Modeling (SEM), which enables the testing of both direct and indirect relationships among variables, as well as the simultaneous identification of mediation effects (Memon et al., 2021).

RESULTS AND DISCUSSION

This study tested both the outer model and inner model using Partial Least Squares Structural Equation Modeling (PLS-SEM). The outer model was examined to assess the validity and reliability of the measurement constructs, while the inner model was analyzed to evaluate the structural relationships among the variables in the proposed framework.

Table 1.
Validity and Reliability Test Result

Variable	Indicator	Loading Factor	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
Employee Agility	EA1	0.923	0.965	0.973	0.877
	EA2	0.959			
	EA3	0.938			
	EA4	0.943			
	EA5	0.919			
Employee Competitiveness	EC1	0.947	0.961	0.97	0.865
	EC2	0.929			
	EC3	0.927			
	EC4	0.922			
	EC5	0.926			
Workplace Artificial Intelligence	WAI1	0.949	0.963	0.973	0.899
	WAI2	0.959			
	WAI3	0.954			
	WAI4	0.932			

Convergent validity was assessed through the outer loadings of the indicators. All retained items demonstrated loading factor values above 0.70, indicating that each indicator had a strong correlation with its corresponding latent construct. This suggests that the indicators effectively represent the constructs being measured, including Workplace Artificial Intelligence, employee agility, employee competitiveness, perceived organizational support, and leadership style. For reliability testing, Cronbach's Alpha and Composite Reliability (CR) were used. The results showed that all constructs met the recommended thresholds, with Cronbach's Alpha values exceeding 0.70, and Composite Reliability values also above 0.70, confirming that the measurement items were internally consistent and reliable. In addition, Average Variance Extracted (AVE) was used to further assess convergent validity. All constructs achieved AVE values above 0.50, indicating that the majority of variance in the observed variables was explained by the underlying construct.

Table 2.
Model Fit

Model Fit	Value
SRMR	0.086
d_ULS	0.226

d_G	1.019
Chi-Square	576.762
NFI	0.803

The model fit assessment indicates an acceptable level of fit. The Standardized Root Mean Square Residual (SRMR) value of 0.086 is above the recommended threshold of 0.08, suggesting a good fit between the observed data and the model. The d_ULS and d_G values are within acceptable ranges, supporting overall model adequacy. Additionally, the Normed Fit Index (NFI) value of 0.803 indicates a moderate-to-good fit, as values above 0.80 are generally considered acceptable

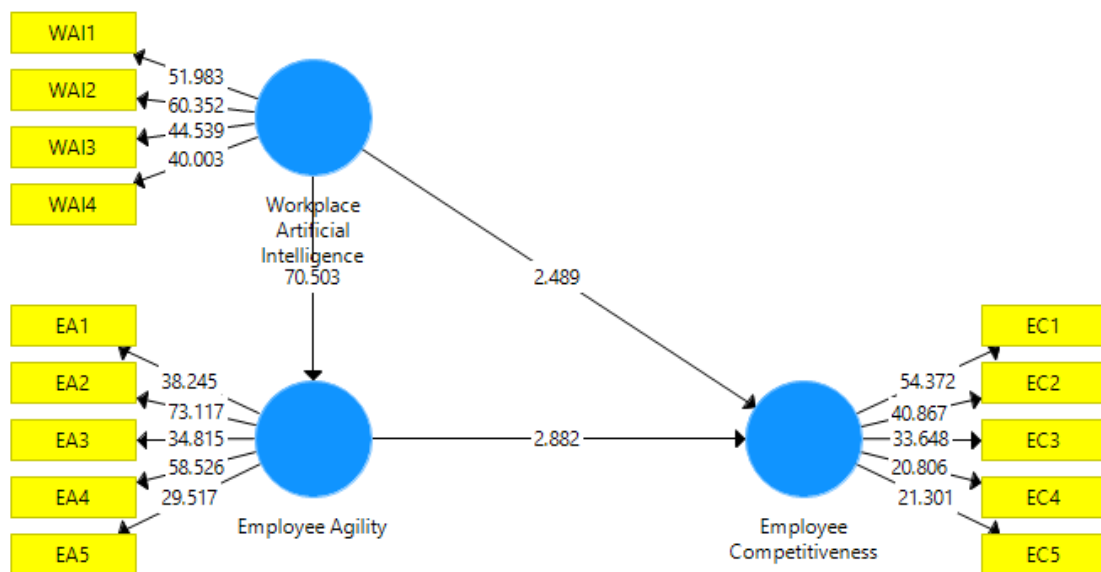


Figure 1.
Research Model

Based on the hypothesis testing results, the structural model shows several significant relationships. First, the effect of employee agility on employee competitiveness is statistically significant ($\alpha=2.882$, sig 0.004), indicating a strong positive relationship. Second, workplace artificial intelligence has a significant positive effect on employee agility, with a very high path coefficient ($\alpha=70.503$, sig 0.000), suggesting that AI implementation in the workplace strongly enhances employee adaptability. Third, workplace artificial intelligence also significantly influences employee competitiveness directly, ($\alpha=2.489$, sig. 0.013). This indicates that AI contributes directly to improving employees' competitive capabilities, in addition to its indirect effect through agility.

Table 3.
Direct Effect Result

Hypothesis	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
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Employee Competitiveness	Agility	->	Employee	0.505	0.508	0.175	2.882	0.004
Workplace Employee Agility	Artificial Intelligence	->		0.963	0.962	0.014	70.503	0.000
Workplace Employee Competitiveness	Artificial Intelligence	->		0.452	0.451	0.181	2.489	0.013

Table 4.
Indirect Effect Result

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
Workplace Artificial Intelligence -> Employee Agility -> Employee Competitiveness	0.486	0.49	0.171	2.839	0.005

The analysis also reveals a significant indirect effect of workplace artificial intelligence on employee competitiveness through employee agility ($\alpha=2.839$, sig. 0.005) and a p-value of 0.005, indicating a statistically significant mediation effect. This suggests that Employee Agility serves as a mediating variable, strengthening the impact of AI implementation on the competitive ability of employees.

Discussion

The finding that Workplace Artificial Intelligence (WAI) has a significant positive effect on Employee Agility (EA) reinforces the growing body of literature that highlights the transformative role of AI in shaping employee behavior and capabilities. With a strong path coefficient of 0.963 and a highly significant p-value, the result suggests that as AI becomes more embedded in workplace processes, employees are increasingly required and in many cases enabled to become more agile. This aligns with previous studies Einola & Khoreva (2023) which argue that AI facilitates dynamic environments where responsiveness, adaptability, and continuous learning become essential employee attributes. AI systems often introduce automation, data-driven decision-making, and real-time responsiveness into organizational operations. In response, employees are expected to shift from routine, repetitive tasks to more strategic and adaptive roles. This transition inherently requires agility: the ability to learn new technologies, quickly adapt to changes in workflows, and respond to emerging challenges. Moreover, AI tools themselves often provide support for agile behavior such as personalized learning recommendations, real-time feedback, and intelligent task management further fostering an agile mindset among employees (Oosthuizen, 2022). In higher education institutions, particularly public universities in Indonesia, this relationship is especially relevant. As AI becomes integrated into academic systems—through adaptive e-learning platforms, automated grading, or intelligent administrative systems—lecturers must demonstrate agility not only in using these tools but also in adjusting pedagogical strategies and academic planning. Thus, the significant influence of WAI on EA reflects how digital transformation is reshaping not just technological infrastructure, but also the behavioral competencies needed for professional sustainability in modern workplaces.

The finding that Workplace Artificial Intelligence (WAI) significantly influences Employee Competitiveness (EC) reinforces the growing relevance of digital capabilities in enhancing individual performance and career sustainability. The result indicates that as AI becomes more integrated into daily work processes, employees are better positioned to develop competitive

advantages—such as efficiency, innovation, and strategic thinking. AI-driven tools empower employees to complete tasks more accurately and efficiently by automating repetitive work, enabling real-time access to data, and supporting complex decision-making. These capabilities enhance individual productivity and allow employees to focus on high-value activities, thereby improving their standing in increasingly competitive work environments (Pereira et al., 2023). Moreover, AI can support employee development by identifying skill gaps and offering tailored learning recommendations, enabling individuals to continuously upskill and stay relevant in their roles. AI adoption in academic systems (e.g., intelligent grading, research analytics, digital classrooms) requires lecturers to adapt and excel in new technological settings. Those who embrace and leverage these tools not only maintain productivity but also differentiate themselves in terms of instructional quality, research output, and institutional value. This positions AI not merely as an operational tool, but as a strategic enabler of individual competitiveness in academic careers. Ultimately, the positive impact of WAI on EC demonstrates that AI is not a threat to human capital, but rather a powerful complement empowering employees to innovate, adapt, and lead (Margaryan, 2023).

The significant positive relationship between Employee Agility (EA) and Employee Competitiveness (EC) underscores the critical role of behavioral adaptability in enhancing individual performance within dynamic work environments. The result indicates that employees who are more agile—those who can learn quickly, respond flexibly to change, and proactively adapt to new challenges—are more likely to maintain and strengthen their competitive position in the workplace. Agility enables employees to navigate uncertainty, adjust to shifting job demands, and continuously update their skillsets. In an era marked by technological disruption and organizational transformation, such characteristics are increasingly seen as essential (G. Xu et al., 2023). Agile individuals tend to embrace innovation, seize development opportunities, and remain effective even in volatile contexts, giving them a distinct advantage over less adaptable peers.

Academic staff are facing mounting pressures to keep up with technological integration, curriculum innovation, research demands, and institutional reforms. Those with higher levels of agility are better positioned to adapt teaching methods, explore interdisciplinary research, and meet evolving student expectations—all of which contribute to higher professional relevance and competitiveness. Thus, agility functions not only as a personal attribute but also as a strategic resource that directly contributes to an individual's ability to compete, grow, and lead in today's knowledge-driven institutions. This finding highlights the importance of investing in training, leadership, and organizational support systems that foster agility as a core competency.

CONCLUSION

This study aimed to examine the impact of Workplace Artificial Intelligence (WAI) on Employee Competitiveness (EC), with Employee Agility (EA) as a mediating variable. The findings reveal that Workplace Artificial Intelligence has a significant and positive effect on both Employee Agility and Employee Competitiveness. Additionally, Employee Agility itself was shown to be a strong predictor of Employee Competitiveness, confirming its critical role as a behavioral competency in today's digital workplace. Importantly, the study also found a significant indirect effect, demonstrating that Employee Agility mediates the relationship between AI integration and employee competitiveness. These results highlight the dual role of AI—as both a technological enabler and a driver of behavioral adaptation among employees. Competitiveness in the digital age depends not only on tools but also on people who can adapt and thrive alongside them. Future studies may consider expanding this research model by incorporating additional mediating or moderating variables such as digital literacy, innovation behavior, or technostress to deepen the understanding of AI's impact on employees. Moreover, comparative studies across different sectors or types of institutions (e.g., private vs. public, academic vs. corporate) could offer broader insights. Longitudinal approaches are also recommended to capture the dynamic evolution of agility and competitiveness over time in response to sustained AI implementation.

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