

# The Influence of Artificial Intelligence (AI) Capability on Organizational Performance Mediated by Process Automation, Cognitive Insight, Cognitive Engagement and Organizational Creativity: Study of Startup Companies in Solo Raya

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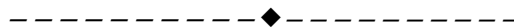
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## Abstract

Grounded in Resource-Based Theory (RBT), this study investigates the influence of artificial intelligence capabilities on organizational performance, with automation processes, cognitive insights, cognitive engagement, and organizational creativity acting as mediating mechanisms. This study uses a survey method. The research population is employees in each division of artificial intelligence (AI) users at start-up companies in Solo Raya. Purposive sampling was employed, yielding 250 returned questionnaires. The data were examined using Partial Least Squares Structural Equation Modeling (PLS-SEM). The findings indicate that: (1) artificial intelligence capabilities do not have a statistically significant direct impact on organizational performance; and (2) artificial intelligence capabilities exert a significant positive influence on process automation; (3) process automation does not significantly influence organizational performance; (4) process automation does not serve as a mediating mechanism in the relationship between artificial intelligence capabilities and organizational performance; (5) artificial intelligence capabilities have a significant effect on cognitive insights; (6) cognitive insights do not exert a significant influence on organizational performance; (7) cognitive insights do not mediate the relationship between artificial intelligence capabilities and organizational performance; and (8) artificial intelligence capabilities significantly influence cognitive engagement; (9) cognitive engagement does not significantly influence organizational performance; (10) cognitive engagement does not mediate the relationship between artificial intelligence capabilities and organizational performance; (11) artificial intelligence capabilities exert a significant influence on organizational creativity; (12) organizational creativity has a significant positive impact on organizational performance; and (13) organizational creativity serves as a mediating mechanism in the relationship between artificial intelligence capabilities and organizational performance.

**Keywords:** *Artificial Intelligence Capability, Organizational Performance, Process Automation, Cognitive Insight, Cognitive Engagement, Organizational Creativity.*



## A. INTRODUCTION

Organizational performance refers to the evaluation of how effectively an organization or firm achieves its predetermined goals and objectives (Kassar et al., 2022). Performance includes a wide range of aspects including financial success, growth rate, market share, innovation, operational efficiency, customer satisfaction, and overall strategic effectiveness. In contemporary contexts, organizational performance reflects a company's-particularly a start-up's-capacity to implement its

business strategies effectively and generate value for key stakeholders, including investors, employees, and Customers operate within an environment that is becoming increasingly competitive (Patnaik et al., 2022).

In the contemporary digital era, artificial intelligence (AI) capability has emerged as a critical determinant of organizational performance (Kumar et al., 2023). AI capability refers to computational systems that emulate human cognitive functions by utilizing data to enhance decision-making processes (Hradecky et al., 2022), thereby offering substantial value in organizational and business contexts (Sullivan & Wamba, 2024). Artificial intelligence (AI) capabilities can provide efficiency advantages, cost savings, improved product quality, and improved services (Kumar *et al.*, 2023). In government in Indonesia, AI technology is being developed to provide better and more efficient public services (Databooks, 2023). Meanwhile, in the business sector, the use of AI technology can increase efficiency and productivity by performing tasks that were previously performed by humans manually (Fetrati *et al.*, 2022).

The adoption of artificial intelligence (AI) capabilities constitutes a substantial organizational advancement, as these technologies facilitate the development and implementation of innovations across a wide range of business functions, including customer service and human resource management (Mikalef et al., 2021; Chen et al., 2022). By utilizing advanced and intelligent systems, organizations that adopt AI can obtain considerable advantages, particularly in improving their overall performance (Hradecky et al., 2022).

From the perspective of Resource-Based Theory (RBT), the deployment of artificial intelligence represents an integrated bundle of organizational resources (Mikalef et al., 2021). Where these resources include employee skills support, and organizational coordination (Actor *et al.*, 2023). Then after the company masters the organization of resources that are not easy to imitate, then it has an advantage in competitiveness (Ali *et al.*, 2023) and will improve the company's performance (Sullivan et al., 2024). Prior research grounded in Resource-Based Theory (RBT) suggests that organizations can achieve competitive advantage by effectively leveraging their resources and developing organizational capabilities, thereby fostering long-term sustainability (Bhilat et al., 2024). Artificial intelligence technologies are widely recognized as transformative, as they reconfigure organizational processes by delivering a wide array of benefits, ranging from process automation to enhanced organizational performance (Tejeda et al., 2022; Kumar et al., 2023; Sullivan et al., 2024). Despite the substantial potential of AI applications to improve performance (Mikalef et al., 2021, 2023), organizations may also encounter various challenges during its implementation (Krakowski et al., 2023).

Chen et al. (2022) argue that technological progress, coupled with the rapid expansion of AI capabilities, has stimulated extensive innovative and creative developments across various sectors, including human resource (HR) management. These innovations can be effectively applied within HR practices. The evolution of AI has also exerted a considerable influence on the human resource landscape in Indonesia (Hradecky *et al.*, 2022). It is necessary to adapt to the development of AI

technology to face the challenges that arise. Although AI technology can replace some human jobs, the impact opens up new opportunities in various sectors. Therefore, companies and human resources in Indonesia must prepare themselves by developing new skills to compete in the increasingly advanced digital era.

Organizations are expected to improve operational efficiency through the adoption of artificial intelligence (AI) (Tejeda et al., 2022; Kumar et al., 2023; Shahzad et al., 2023). However, ineffective implementation of AI may impede an organization's capacity to identify, apply, and leverage context-specific AI opportunities (Sahoo et al., 2024). Therefore, the development of AI-related capabilities is critical for enhancing organizational performance (Mikalef et al., 2023). Building on prior research, this study conceptualizes AI adoption as a function of organizational resources, including physical resources such as equipment and data essential for AI operations (Kumar et al., 2023)-as well as foundational resources required to sustain AI applications (Rumanti et al., 2023). Human-related resources encompass AI technologies and the expertise necessary to develop and train AI applications that detect and exploit business opportunities (Patnaik et al., 2022). Following Mikalef and Gupta (2021), AI capabilities are defined as an organization's ability to select, organize, and deploy AI-specific resources, thereby enabling the effective utilization of diverse AI technologies to generate value. This conceptualization is grounded in Resource-Based Theory (RBT), which emphasizes the connection between organizational resources and performance. Practically, AI capabilities manifest across three interconnected dimensions-process automation, cognitive insights, and cognitive engagement-which collectively enhance organizational performance within the context of AI adoption (Actor et al., 2023).

Mikalef and Gupta (2021) argue that the cultivation of AI capabilities across various industries has enhanced organizational creativity, suggesting that AI capabilities significantly impact the creative processes within organizations. AI can enhance human creativity by providing tools and *platform* which helps in generating and refining ideas (Chen et al., 2022). AI algorithms are capable of processing vast datasets to detect patterns and propose innovative solutions that might not be apparent to humans (Mikalef et al., 2023). According to Fettrati et al. (2022), organizational creativity is defined as the generation of novel products, services, ideas, procedures, or processes that provide value and benefits to the individuals collaborating within the organization. Creativity in an organization has a very central role in improving organizational performance (El-Kassar et al., 2022). In developing creativity, organizations really need people who have the ability to think creatively and analytically so as to improve organizational performance (Sullivan & Wamba, 2024).

Prior research on AI adoption has predominantly focused on the factors that influence the utilization of AI. A range of elements affects organizational and business outcomes in the context of AI adoption, including social media capabilities (Lane, 2023), social trading capabilities (Chen et al., 2022), business analytics capabilities (Mikalef et al., 2023), the political, legal, and policy environment (Rumanti et al., 2023),

and economic capabilities (Akter et al., 2023). Nevertheless, studies investigating how organizations across various sectors can enhance their technological capabilities to improve performance remain limited (Akter et al., 2023; Chen et al., 2022; Mikalef et al., 2023; Mikalef & Gupta, 2021). In this context, Resource-Based Theory (RBT) offers a valuable framework for examining the mechanisms and factors through which AI adoption influences performance, particularly within startup and e-commerce sectors (Chen et al., 2022; Mikalef et al., 2023).

Previous research has indicated that artificial intelligence (AI) capabilities can enhance organizational performance (Mikalef & Gupta, 2021). These capabilities exert an indirect influence on performance by enabling transformations in organizational processes and activities. Consistent with the findings of Davenport and Ronanki (2018), the effects of AI capabilities on organizational performance are most effectively realized through process automation, cognitive engagement, and cognitive insights. AI capabilities are positively associated with process automation, cognitive insights, and cognitive engagement. While process automation and cognitive insights contribute positively to organizational performance, cognitive engagement has been found to exhibit a negative relationship with performance (Mikalef et al., 2023). Additionally, prior studies have shown that process automation, cognitive insights, and cognitive engagement serve as significant mediators in the relationship between AI capabilities and organizational performance (Mikalef & Gupta, 2021; Mikalef et al., 2023). Furthermore, evidence suggests that AI capabilities foster organizational creativity, with a positive relationship between AI capabilities and creativity, which in turn enhances organizational performance (Mikalef & Gupta, 2021).

Company start up in Indonesia, it is now intensively carrying out digital transformation. In fact, many of them already have the foundation to adopt future technology, namely AI (Kominfo.go.id, 2023). This is reflected in research conducted by digital solution companies with the discovery of 62% of companies start up in Indonesia has the potential to adopt AI technology or artificial intelligence (Infobanknews, 2023). Company start up in Indonesia, many have succeeded, but there is also start-up who could not survive and chose to cease its operations (Detik.com, 2023). Many factors are the cause of the company start up bankruptcy is one of the problems of finance and business performance. Insight and Skynova surveys in 2022 show 44% start up bankruptcy because it runs out of capital because its performance is not optimal (CNN-Indonesia, 2023). The failure of some start-ups has been linked to global economic conditions, the effects of the COVID-19 pandemic, and competitive pressures within the business environment (Detik.com, 2023). Increased competition in various sectors can make it difficult start up compete. Companies start-up who do not have high competitiveness and show good performance, will be left behind. Errors in management and strategy implementation can also contribute to failures in resource management. Factors including limited market understanding, inadequate responsiveness to evolving market conditions, and deficiencies in innovation and organizational adaptability can substantially influence start-up performance and long-term sustainability (Chen et al., 2022). Therefore, measuring performance start-up It is

very important to help make policies within the company.

Mikalef et al. (2023) emphasize that developing digital transformation capabilities through AI is increasingly vital, with the resources underpinning AI capabilities being critical for enhancing organizational performance. In this regard, start-ups in Indonesia are actively pursuing digital transformation initiatives and adopting AI technologies. This study took different objects, samples, and research sites from the previous two journals, namely in the AI user division of the company *start up* and also add organizational creativity variables as a support to improve performance. That way, this research is possible to fill the research gap/*Research Gap*, which can produce contributions and implications from previous research. This is adjusted to the object of the research, namely the company *start up* in Solo Raya, which is in the process of developing technology services in the Solo Technopark science and technology area in developing technology-based start-up companies, especially supporting the local potential of Solo Raya so that the researcher hopes that this research can contribute theoretically to improving company performance *start up* in Solo Raya.

## B. LITERATURE REVIEW

### 1. Resource-Based Theory

This study adopts Resource-Based Theory (RBT) as its underlying theoretical framework (Barney, 2001). According to RBT, firms gain competitive advantage when they have unique, professional resources that cannot be replicated or obtained by other organizations (Ren *et al.*, 2023). RBT states that critical resources determine the performance of companies and organizations (Patnaik *et al.*, 2022). Organizational resources encompass both physical and non-physical assets (Mikalef *et al.*, 2023). RBT posits that scarce, non-replicable, and non-substitutable resources enable firms to achieve competitive advantage by contributing to value creation and improved performance (Mikalef *et al.*, 2021). These improvements may persist over an extended duration (Chen *et al.*, 2022). Businesses are able to augment resource value because the synergistic effect of complementary resources generates greater value than the total of each resource independently (Krakowski *et al.*, 2023).

Resource-Based Theory (RBT) has become a key lens for understanding how organizations derive value from information technology (IT) investments and translate them into improved performance (Mikalef *et al.*, 2021). This theoretical perspective is especially pertinent to the present study, as comprehending the artificial intelligence (AI) capabilities and the organizational resources required for their development is essential for achieving returns on investment. Previous research applying RBT has highlighted this fact in addition to technology, human resources and other complementary organizations are needed to increase investment (Chen *et al.*, 2022). Within the framework of Resource-Based Theory (RBT), this study examines the interconnections among artificial intelligence (AI) capabilities, process automation, cognitive insights, cognitive engagement, organizational creativity, and organizational performance.

## 2. Capability Artificial Intelligence

Artificial intelligence (AI) capabilities are defined as the scientific and engineering processes involved in creating machines that exhibit intelligent behavior (Actor et al., 2023). As a branch of computer science, artificial intelligence (AI) capabilities employ advanced machine learning techniques to analyze data and detect patterns, with the aim of emulating human cognitive functions (Mohamad et al., 2023).

Shahzad et al. (2023) conceptualize AI capabilities as the implementation of organizational technologies—such as cognitive computing tools, proprietary data analytics systems, machine learning models, and interactive dashboards—to improve decision-making, interpret complex datasets, and facilitate efficient access to critical information. Moreover, Pepper et al. (2023) highlight that AI represents the cutting edge of computational innovation, serving as a standard for human-like intelligence in addressing increasingly complex decision-making challenges (Patnaik et al., 2022).

## 3. Organizational Performance

An organization constitutes a structured collective of individuals aligned toward a common purpose. Performance refers to the accomplishment of tasks or functions, while organizational performance denotes an entity's ability to fulfill its goals and generate desirable outcomes (Chen et al., 2022). This performance can be evaluated at multiple hierarchical levels, including individuals, teams, and the organization overall (Opazo-Basáez et al., 2024).

Kanter & Brinkerhoff (1981) argue that the meaning of organizational performance is contingent upon the stakeholder posing the question and the intended purpose of the assessment. Practitioners evaluate and report organizational performance to ensure the responsible allocation of investor resources, support managerial decision-making by identifying areas requiring attention, enable comparisons across functions, projects, and personnel, and maintain control mechanisms (Nguyen et al., 2023). As a result, the conceptualization of organizational performance may shift depending on its intended use (Somwethee et al., 2023).

## 4. Research Hypothesis

Artificial intelligence (AI) capabilities refer to computational systems designed to perform functions that ordinarily depend on human cognitive abilities, such as speech recognition, decision-making, and natural language processing (Krakowski et al., 2023). AI has the potential to reform many industries and improve today's lives. However, there are concerns about the moral and social implications of AI, such as judgment bias, job turnover, and loss of privacy (Chen *et al.*, 2022). In recent years, organizations are increasingly adopting AI-based solutions to improve human resource functions (Mikalef et al., 2021, 2023; Akter et al., 2023). This trend is anticipated to persist, as AI capabilities enable organizations to streamline human resource processes and make more informed decisions (Rumanti et al., 2023). Scholars

contend that AI-related technological capabilities can affect organizational performance through multiple pathways (Lada et al., 2023; Shahzad et al., 2023; El Bhilat et al., 2024). AI has the potential to optimize operational processes and overall efficiency, thereby improving product quality and reducing delivery times. Such improvements may enhance customer satisfaction and loyalty, ultimately strengthening an organization's competitive position and market share (Sullivan & Wamba, 2024). Additionally, AI capabilities facilitate a deeper understanding of customer preferences, allowing for more effectively tailored products and services (Sahoo et al., 2024). Drawing on these findings, the researcher proposes the following hypothesis.

#### H1: Artificial Intelligence capabilities affect Organizational Performance

Prior studies indicate that the development of AI capabilities allows organizations to more effectively identify appropriate areas for implementing technologies such as robotic process automation and to deploy and manage these tools efficiently (Mikalef et al., 2023). In addition, language-processing applications have been shown to support the automation of document-intensive tasks, thereby enhancing operational efficiency and mitigating performance bottlenecks (Wirtz et al., 2019). Similarly, routine administrative tasks, such as data entry, document validation, and application processing, can be automated through the use of suitable AI solutions (Al-Mushayt, 2019). These findings underscore the importance for public organizations to develop AI capabilities that enable them to identify labor-intensive manual workflows and automate them effectively. Empirical evidence further demonstrates that AI capabilities are positively linked to process automation (Mikalef et al., 2023).

#### H2a: Artificial Intelligence capabilities affect Process Automation

Previous research suggests that artificial intelligence (AI) capabilities play a significant role in improving organizational performance (Akter et al., 2023). The use of AI to automate repetitive and manual tasks has become increasingly widespread, resulting in shorter processing times, reduced human errors, and enhanced transparency (Sahoo et al., 2024). Within organizations, process automation includes numerous routine activities, such as handling applications, processing documents, and entering or transferring data. When effectively implemented, process automation contributes to long-term organizational sustainability and enhances efficiency as well as overall performance (Mikalef et al., 2023). Furthermore, automating labor-intensive tasks frees employees to concentrate on more strategic activities that rely on human judgment and creativity. Empirical evidence further demonstrates that process automation is positively related to organizational performance (Mikalef et al., 2023). Moreover, Mikalef et al. (2023) find that AI capabilities exert an indirect effect on organizational performance through their impact on process automation, which serves as a mediating mechanism. Drawing on these insights, the following hypothesis is proposed.

#### H2b: Process Automation affects Organizational Performance

#### H2c: Process automation functions as an intermediary variable linking artificial

intelligence capabilities to improvements in organizational performance

In addition to facilitating the automation of manual and repetitive tasks, the development of AI capabilities is expected to strengthen organizations' ability to generate insights from data analytics. By applying techniques such as clustering, unsupervised machine learning, and classification, organizations can uncover latent patterns that support evidence-based decision-making (Singh et al., 2020). These analytical methods have wide-ranging applications, including enhanced forecasting and predictive maintenance, the anticipation of extreme weather events, and data-driven resource allocation, among others (Wirtz et al., 2019). However, the successful use of such applications requires that organizations maintain sufficient data and technological infrastructure, employ personnel with the technical and operational expertise needed to apply AI solutions, and implement structures and processes that facilitate effective collaboration (Sun & Medaglia, 2019). In previous studies, it showed that Artificial intelligence capabilities have a positive relationship with Cognitive insights (Mikalef *et al.*, 2023).

H3a: Artificial Intelligence capabilities affect Cognitive Insights

Another key challenge for resource-constrained public organizations is effectively taking action and optimizing resource utilization (Shareef et al., 2021). By deriving actionable insights from large datasets, organizations can take proactive measures to mitigate potential risks, thereby optimizing the utilization of financial, physical, and human resources through predictive capabilities and access to previously unavailable information (Brandt et al., 2021; McBride et al., 2019). The capacity to generate cognitive insights also allows organizations to more effectively recognize and address the needs of previously overlooked or marginalized groups (Ooijen et al., 2019). Empirical evidence indicates that cognitive insights positively influence organizational performance, particularly in developed urban contexts (Kankanhalli et al., 2019). Furthermore, Mikalef et al. (2023) show that AI capabilities indirectly enhance organizational performance by promoting cognitive insights, which function as a mediating mechanism. Drawing on these findings, the following hypothesis is proposed:

H3b: Cognitive Insights affect Organisational Performance

H3c: Cognitive Insights mediate the influence of Artificial Intelligence Capabilities on Organizational Performance

AI capabilities have been shown to enhance organizational performance by supplying accurate and timely information, as well as by improving efficiency and productivity (Bickmore et al., 2019). Beyond increasing employees' cognitive engagement, AI capabilities are also argued to help organizations better align with societal needs (Androutsopoulou et al., 2019). Kankanhalli et al. (2019) suggest that an organization's ability to rapidly adapt to digital technological changes and utilize artificial intelligence for innovation can strengthen community engagement by promoting increased collaboration among stakeholders. Additionally, prior research has established a positive relationship between artificial intelligence capabilities and cognitive insights (Mikalef et al., 2023).

#### H4a: Artificial Intelligence capabilities affect Cognitive Insights

The ability to engage closely with the community has long been acknowledged as a key driver of innovation and enhanced service delivery in public organizations (Jong et al., 2019). Increased cognitive engagement with public institutions has been shown to bolster trust and satisfaction toward government entities (Simonofski et al., 2017). Additionally, providing employees with timely and relevant information can optimize work tasks, potentially reducing errors, increasing efficiency, and alleviating stress and burnout (Cruz et al., 2019). These interactions are thought to enhance service quality and organizational performance by cultivating more engaged relationships with both the community and employees. Prior research has also documented a positive link between the use of chatbots and community engagement (Androutopoulou et al., 2019). Furthermore, Mikalef et al. (2023) suggest that AI capabilities indirectly enhance organizational performance by promoting cognitive engagement, which serves as a mediating mechanism.

#### H4b: Cognitive Engagement affects Organizational Performance

#### H4c: Cognitive Insights mediate the influence of Artificial Intelligence Capabilities on Organizational Performance

Across various industries, the development of artificial intelligence (AI) capabilities has been demonstrated to foster organizational creativity (Mikalef et al., 2021). In addition, AI capabilities facilitate the automation of numerous manual processes that have traditionally required considerable human time and effort. By freeing human resources to engage in more creative activities, organizations are better positioned to drive innovation. Achieving these benefits, however, requires advancing AI applications beyond the experimental phase to realize long-term human resource advantages. Previous research suggests that certain AI applications produce novel insights, thereby supporting the development of innovative solutions within organizations (Fetrati et al., 2022). Additionally, studies have documented a positive relationship between AI capabilities and organizational creativity (Mikalef et al., 2021).

#### H5a: Artificial Intelligence capabilities affect Organizational Creativity

Mikalef et al. (2023) argue that utilizing information technology to support dynamic capabilities enables organizations to enhance market capitalization and operational agility, both of which are critical elements of competitive advantage. Similar findings have been reported in other studies, highlighting IT as a significant driver of increased organizational flexibility (Actor et al., 2023), Intrapreneurship Culture (Saha et al., 2018), and as a tool to mitigate sacrifice (Opazo-Basáez *et al.*, 2024). AI capabilities are defined as the degree to which an organization can efficiently leverage and master resources specific to artificial intelligence (Mikalef et al., 2023). Mikalef and Gupta (2021) indicate that developing AI capabilities can enhance an organization's creative output, although the precise mechanisms underlying this relationship are not yet fully understood. This study proposes that AI capabilities may indirectly influence organizational performance through the mediating effect of organizational creativity (Mikalef et al., 2021). Based on these insights, the following hypothesis is advanced.

H5b: Organizational Creativity affects Organizational Performance

H5c: Organizational Creativity Mediates the Influence of Artificial Intelligence Capabilities on Organizational Performance

### **C. METHOD**

This study employed a survey-based research methodology. The target population included employees across divisions engaged with artificial intelligence (AI) within start-ups in the Solo Raya region. Purposive sampling was employed to select respondents with relevant experience and knowledge concerning AI implementation and organizational processes. A total of 250 participants completed and returned structured questionnaires, ensuring that the collected data adequately represent the constructs under investigation. The inclusion criteria for respondents encompassed all employees within divisions that actively use AI in selected start-ups in Solo Raya.

The questionnaire used in this study was organized into two main sections. The first section gathered respondents' socio-demographic information, including age, gender, education, and income. The second section addressed the study's primary variables: artificial intelligence (AI) capabilities, organizational performance, process automation, cognitive insights, cognitive engagement, and organizational creativity. AI capabilities were measured using 16 items adapted from Fetrati et al. (2022), Mikalef et al. (2023), and Mikalef & Gupta (2021). Process automation was assessed with 6 items derived from Davenport and Ronanki (2018), Quille et al. (2023), and Mikalef et al. (2023). Cognitive insights and cognitive engagement were each measured with 5 items, based on Lu & K. (2017), Davenport and Ronanki (2018), and Mikalef et al. (2023). Organizational creativity was evaluated using 5 items adapted from Gao et al. (2021), Mikalef & Gupta (2021), and Rumanti et al. (2023), while organizational performance was measured with 13 items sourced from Mikalef et al. (2023) and Mikalef & Gupta (2021). The collected data were analyzed using descriptive statistics with the support of SmartPLS 3.0. Structural equation modeling (SEM) was employed to simultaneously test the seven proposed hypotheses and estimate the associated path coefficients, offering a comprehensive evaluation of the relationships among the study variables.

### **D. RESULTS AND DISCUSSION**

#### **1. Measurement Model**

Data analysis was conducted using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SMART PLS software version 3.3.2. The analysis followed a three-stage procedure, encompassing the assessment of reliability, internal consistency, convergent validity, and discriminant validity. Internal consistency reliability was evaluated using Cronbach's Alpha. The results of the analysis are presented in the table below:

**Table 1. Internal Consistency Reliability Testing**

Variable	Cronbach Alpha	Information
Artificial Intelligence Capabilities	0.967	Excellent
Cognitive Engagement	0.928	Excellent
Organizational Performance	0.954	Excellent
Organizational Creativity	0.935	Excellent
Process Automation	0.918	Excellent
Cognitive Insights	0.893	Excellent

The results presented in the table above indicate that all reliability values exceed 0.70. According to Hair (2017), a Cronbach’s Alpha value above 0.70 is considered excellent, demonstrating that all variables meet the criteria for internal consistency reliability. Convergent validity was assessed by examining Indicator Reliability (Outer Loading) and Average Variance Extracted (AVE) values. Hair (2017) suggests that an outer loading greater than 0.70 and an AVE above 0.50 indicate strong convergent validity. The outcomes of the convergent validity assessment are summarized in the table below:

**Table 2. Convergent Validity Testing**

Variable	Indicators	Outer Loading	Composite Reliability	AVE
Organizational Performance	K1	0.639	0.960	0.656
	K2	0.830		
	K3	0.865		
	K4	0.851		
	K5	0.395		
	K6	0.838		
	K7	0.848		
	K8	0.861		
	K9	0.837		
	K10	0.844		
	K11	0.868		
	K12	0.856		
	K13	0.859		
Cognitive Engagement	KK1	0.828	0.946	0.778
	KK2	0.871		
	KK3	0.891		
	KK4	0.901		
	KK5	0.917		
Artificial Intelligence Capabilities	KKB1	0.821	0.970	0.670
	KKB2	0.822		
	KKB3	0.826		
	KKB4	0.765		
	KKB5	0.781		
	KKB6	0.853		
	KKB7	0.797		
	KKB8	0.812		
	KKB9	0.831		
	KKB10	0.844		
	KKB11	0.833		
	KKB12	0.855		

	KKB13	0.891		
	KKB14	0.768		
	KKB15	0.749		
	KKB16	0.837		
Organizational Creativity	KO1	0.868	0.950	0.793
	KO2	0.915		
	KO3	0.888		
	KO4	0.904		
	KO5	0.877		
Process Automation	OP1	0.876	0.937	0.711
	OP2	0.772		
	OP3	0.830		
	OP4	0.858		
	OP5	0.850		
	OP6	0.871		
Cognitive Insights	WK1	0.802	0.921	0.701
	WK2	0.839		
	WK3	0.839		
	WK4	0.836		
	WK5	0.870		

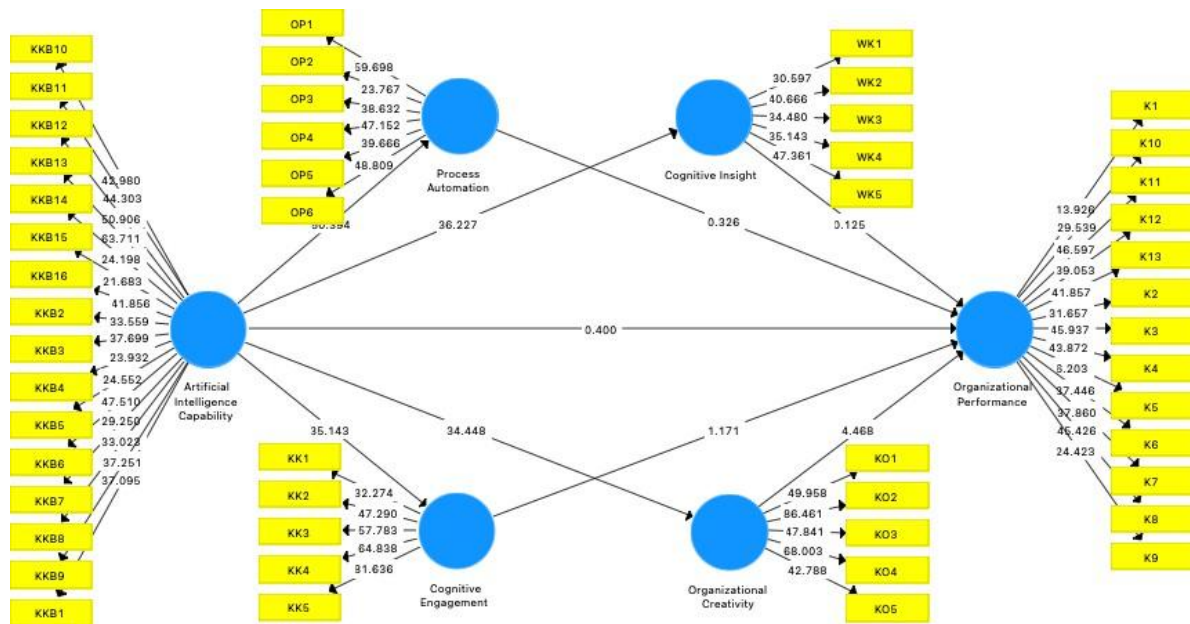
The results of the convergent validity assessment, presented in the table above, show that all outer loading values exceed 0.70 and all AVE values are above 0.50, indicating that each construct and its indicators exhibit strong convergent validity. Discriminant validity was evaluated using the Fornell-Larcker criterion (Hair, 2017), which examines whether a construct is more strongly correlated with its own indicators than with other constructs. The findings of this assessment are summarized in the table below.

**Table 3. Discriminant Validity Testing**

Variable	1	2	3	4	5	6
Artificial Intelligence Capabilities	0.828	0.000	0.000	0.000	0.000	0.000
Cognitive Engagement	0.818	0.882	0.000	0.000	0.000	0.000
Organizational Performance	0.585	0.612	0.810	0.000	0.000	0.000
Organizational Creativity	0.821	0.850	0.660	0.891	0.000	0.000
Process Automation	0.820	0.823	0.585	0.829	0.881	0.000
Cognitive Insights	0.818	0.837	0.578	0.805	0.836	0.891

## 2. Structural Model Evaluation

Following the assessment of the measurement model, the next step involves evaluating the structural model to test the proposed hypotheses. This analysis examines both the direct and indirect relationships among the hypothesized variables. The results of the PLS-SEM analysis are presented below:



**Figure 1. Structural Model Testing**

The complete results of hypothesis testing can be seen in the following table:

**Table 4. Results of Hypothesis Testing**

Hypothesis	Original Sample (O)	Sample Mean (M)	(STDEV)	T Statistics	P Values
Artificial Intelligence Capability -> Organizational Performance	0.042	0.042	0.105	0.400	0.689
Artificial Intelligence Capability -> Process Automation	0.881	0.881	0.017	50.394	0.000
Process Automation -> Organizational Performance	0.034	0.034	0.105	0.326	0.744
Artificial Intelligence Capability -> Process Automation -> Organizational Performance	0.030	0.029	0.093	0.325	0.745
Artificial Intelligence Capability -> Cognitive Insight	0.818	0.818	0.023	36.227	0.000
Cognitive Insight -> Organizational Performance	0.016	0.013	0.130	0.125	0.900
Artificial Intelligence Capability -> Cognitive Insight -> Organizational Performance	0.013	0.011	0.106	0.125	0.901
Artificial Intelligence Capability -> Cognitive Engagement	0.821	0.821	0.023	35.143	0.000
Cognitive Engagement -> Organizational Performance	0.138	0.138	0.118	1.171	0.242
Artificial Intelligence Capability -> Cognitive Engagement -> Organizational Performance	0.113	0.113	0.097	1.171	0.242
Artificial Intelligence Capability -> Organizational Creativity	0.828	0.828	0.024	34.448	0.000
Organizational Creativity -> Organizational Performance	0.466	0.473	0.104	4.468	0.000

Artificial Intelligence Capability ->	0.386	0.392	0.089	4.335	0.000
Organizational Creativity ->					
Organizational Performance					

The hypothesis testing was conducted at a 95% confidence level, with a critical t-value of 1.96. A hypothesis is considered supported if the t-value exceeds 1.96 and the p-value is less than 0.05. In this study, of the 13 proposed hypotheses, six were supported while seven were not.

Some organizations may struggle to implement AI solutions effectively due to technological complexity, integration issues with systems or inadequate skills among the workforce (Aker et al., 2023). This can lead to disappointing results or a limited impact on overall performance. Implementing AI technology can provide high operational costs, especially for smaller organizations or those operating on tighter budgets. Initial investments in AI infrastructure and ongoing maintenance costs may not always justify the expected returns in terms of performance improvements (Chen et al., 2022). Even with advanced automation, human elements including organizational culture, leadership traits, and employee engagement remain critical determinants of performance outcomes (Krakowski et al., 2023). When these factors are not effectively managed during AI implementation, the anticipated benefits may be diminished (Ren et al., 2023). Consequently, the impact of AI on organizational performance can vary considerably based on contextual conditions, the organization's readiness, and the degree to which AI initiatives align with overarching strategic goals and operational practices. Thus, while some prior studies have reported a limited or even negative impact of AI due to implementation challenges or other factors, the prevailing consensus is that AI possesses substantial potential to enhance organizational performance when deployed strategically and effectively.

Artificial intelligence capabilities exert a substantial impact on process automation across multiple industries and organizational functions (Imran et al., 2020). Automated systems can execute repetitive tasks with greater speed and accuracy than human labor. This increased efficiency reduces processing times and alleviates operational bottlenecks, thereby enhancing overall workflow performance (Lada et al., 2023). AI can manage complex tasks involving large data sets, complex calculations, or decision-making based on various variables. This capability extends automation to tasks that traditionally require human intervention (Tejeda et al., 2022). AI-driven process automation can improve workflow efficiency by identifying inefficiencies, optimizing processes, and reallocating resources more effectively through real-time data insights (Quille et al., 2023). Furthermore, by automating routine customer interactions and personalizing responses based on AI-generated insights, organizations can enhance customer satisfaction and foster greater loyalty (Mikalef et al., 2023).

The effect of process automation on organizational performance is not inherently uniform, as its effectiveness can vary depending on contextual and organizational factors (Krakowski et al., 2023). Nonetheless, numerous studies have shown that well-implemented process automation can yield significant improvements

in productivity and cost efficiency across diverse industries (Chen et al., 2022). The extent of these benefits, however, may depend on the specific context, industry norms, and the maturity level of the deployed automation technology. Poorly planned or executed process automation cannot provide the expected benefits and can even disrupt operations for a while (Rumanti et al., 2023). Excessive dependence on automation, without adequate oversight and human involvement in critical areas, can result in complacency or errors.

AI demonstrates strong capabilities in swiftly processing vast datasets and identifying patterns that may be imperceptible to human analysts (Krakowski et al., 2023). Such analytical capacity enables the production of cognitive insights across diverse industrial domains (Mikalef et al., 2021). Furthermore, AI is capable of analyzing historical data to forecast future trends and outcomes. This predictive ability improves the decision-making process by providing insights into potential scenarios and probabilities (Shahzad et al., 2023). AI allows human cognitive resources to be allocated toward more complex and creative tasks. This enhanced efficiency can lead to breakthroughs and innovations that traditional approaches may be unable to achieve (Lada et al., 2023). Furthermore, AI's ability to analyze large datasets, detect complex patterns, generate predictive insights, and support decision-making significantly strengthens cognitive intelligence within organizations (Beck et al., 2004). By augmenting human capabilities with artificial intelligence, AI contributes to deeper understanding, more informed decisions, and innovative breakthroughs that shape our understanding of the world and how to interact with it.

Cognitive insight refers to the ability to understand and interpret information in a manner that improves problem-solving, decision-making, and innovation (El Bhilat et al., 2024). While cognitive insights are valuable on an individual level, their immediate impact on organizational performance can vary. Strong cognitive insights among individuals within an organization, the ability to translate these insights into actionable strategies and effective execution is essential (Wang et al., 2023). Organizational performance frequently relies on the effective application of insights across teams and departments. It is also influenced by the quality of collaboration and communication among teams. Cognitive insights need to be shared effectively across the organization to align goals, strategies, and actions (Camp et al., 2017). Leadership style and organizational culture play a crucial role in harnessing cognitive insights to improve organizational performance (Ali Mohamad et al., 2023; Wang et al., 2023). A culture that fosters openness to new ideas, experimentation, and learning from insights can amplify its impact (Riggs et al., 2012). The accessibility and efficient utilization of technology and resources can amplify the effectiveness of cognitive insights (Tejeda et al., 2022). Organizations that invest in tools for data analysis, predictive modeling, and decision support can leverage cognitive insights more effectively. Although cognitive insights enhance an individual's capacity for understanding and problem-solving, their effect on organizational performance is contingent upon the extent to which these insights are effectively integrated, applied, and aligned with organizational objectives and external conditions.

Artificial intelligence capabilities play an important role in influencing cognitive engagement across various domains (Mikalef et al., 2023). AI can tailor experiences and content based on individual preferences, learning styles, and cognitive abilities. This personalization increases engagement by presenting information in a more effective way for users to understand (Quille et al., 2023). AI is designed to recognize and respond to emotions, creating a more empathetic and supportive learning experience. This emotional intelligence increases engagement by not only addressing the cognitive aspect but also the affective aspect of learning (Wang et al., 2022). AI capabilities can impact cognitive engagement by personalizing learning experiences, driving interaction and feedback, improving understanding through predicting user needs, supporting emotional engagement, automating routine tasks, and improving accessibility (Annosi et al., 2023). This supports the creation of a more efficient and engaging organizational work environment.

The impact of cognitive engagement on organizational performance may vary according to industry characteristics, the type of work, and the dominant organizational culture (Mikalef et al., 2021). In certain fields such as the creative industries and the education sector higher levels of cognitive engagement tend to exhibit stronger associations with performance outcomes than in more routine or highly structured settings, such as the digital industry (Chen et al., 2022; Fetrati et al., 2022). Even when statistical analyses in a particular study suggest that cognitive engagement does not exert a significant effect on performance, its practical relevance and real-world implications should still be thoughtfully evaluated (Akter et al., 2023). Small statistical effects still have meaningful practical implications for organizations. While cognitive engagement is typically considered advantageous for organizational outcomes, its immediate and significant effect on performance may be influenced by a range of contextual, methodological, and moderating factors, highlighting potential directions for future research (Mikalef et al., 2021).

## E. CONCLUSION

AI handles routine and repetitive tasks, enabling employees to focus on more creative and strategic activities (El-Kassar et al., 2022). This alleviates the cognitive load on employees, enabling the allocation of resources toward creative thinking and innovation. By providing valuable insights and predictive analytics, AI can inform creative decisions and inspire new ideas based on data-driven evidence (Rumanti et al., 2023). AI can generate ideas independently based on pre-set criteria or assist human teams in brainstorming by suggesting new combinations or improvements (Gao et al., 2021). These collaborative efforts often result in more innovative solutions. The capacity of AI to optimize processes, produce actionable insights, and facilitate collaboration substantially boosts organizational creativity by enabling individuals and teams to explore novel ideas, experiment without constraints, and devise innovative solutions to complex problems (Fetrati et al., 2022; Rumanti et al., 2023).

Organizations that foster creativity are more likely to produce distinctive products or services that better address customer needs (Gao et al., 2021). Innovation

can result in competitive advantage, increased market share, and higher profitability (Mikalef et al., 2021). Creative thinking allows organizations to face challenges and uncertainties with a new perspective. Innovative solutions frequently lead to more efficient processes, enhanced resource utilization, and accelerated adaptation to evolving market conditions or technological developments. Organizations that prioritize and cultivate creativity frequently experience elevated levels of employee engagement and job satisfaction (Methot, 2011). When employees feel compelled to contribute ideas and innovations, they are more motivated and committed to achieving organizational goals. This positive work environment can reduce employee turnover and attract top talent. Organizational creativity enhances performance by fostering innovation, strengthening problem-solving abilities, boosting employee engagement, shaping organizational culture, reinforcing customer relationships, optimizing operational processes, and facilitating continuous learning and adaptation (Rumanti et al., 2023). When organizations utilize creativity as a strategic resource, they can attain sustainable growth and maintain a competitive edge.

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