Journal of Economics, Finance and Management Studies

ISSN (print): 2644-0490, ISSN (online): 2644-0504

Volume 08 Issue 09 September 2025

Article DOI: 10.47191/jefms/v8-i9-44, Impact Factor: 8.317

Page No: 6320-6333

AI-Driven Success: Exploring the Role of Technology Readiness and Artificial Intelligence Integration on Digital Business Performance

Vo Minh Vinh[*1], Nguyen Gia Hung[2]

[1]Faculty of Management and Economics, University of Tomas Bata, Zlin, Czech Republic

Orcid: https://orcid.org/0009-0007-4100-770X

[2]British Vietnamese international school, Ho Chi Minh, VIETNAM

ABSTRACT: This research investigates the interrelated influences of technology adoption readiness (TAR), AI integration in business operations (AI), and organizational digital literacy (ODL) on enhancing digital business performance (DBP) among enterprises in Southeast Asia. Methodologically, the study utilizes a quantitative methodology with a structured survey using a 5-point Likert scale. The results reveal AI integration has the strongest positive influence on DBP (β = 0.53), followed closely by TAR (β = 0.48). Notably, ODL significantly moderates the AI–DBP relationship (β = 0.36), highlighting the critical role of digital skills in unlocking AI's strategic value. Theoretically, the study contributes to existing scholarship by challenging overly technology-centric views, emphasizing that human and organizational capabilities are indispensable for realizing AI-driven outcomes. Practically, the findings pave the way for future studies to explore contextual influences and long-term effects within digital transformation processes.

KEYWORDS: Digital business performance, AI integration, technology adoption readiness, organizational digital literacy, Southeast Asia enterprises.

1. INTRODUCTION

Digital business performance (DBP) has emerged as a critical metric reflecting a firm's ability to leverage digital technologies for operational and strategic success. Despite its growing significance, concerns persist over how it is defined, measured, and influenced across industries. Scholars argue that DBP lacks a unified measurement framework, often blending financial outcomes with intangible gains like agility and innovation. Moreover, disparities in digital infrastructure, organizational culture, and data management capabilities lead to inconsistent digital outcomes, undermining performance benchmarking (Jeble et al. 2018). The rapid evolution of digital tools further complicates longitudinal assessments, making it challenging for businesses to sustain performance gains (Maroufkhani et al. 2020). These limitations necessitate deeper inquiry into variables like readiness and integration that shape DBP trajectories.

Prior research highlights that both technology adoption readiness and AI Integration significantly impact organizational performance; however, findings often treat these constructs in isolation (Dwivedi et al. 2021; Bag et al. 2021). Most studies emphasize AI's technical deployment, overlooking organizational readiness and contextual factors such as digital literacy (Jöhnk et al. 2021). Moreover, limited attention is given to how digital competencies moderate AI's effectiveness in enhancing digital business performance (Maroufkhani et al. 2020). Existing models frequently lack a holistic integration of technological and human factors, resulting in an incomplete understanding of performance outcomes. This research addresses these gaps by examining the interplay of readiness, AI integration, and digital literacy, offering a more nuanced perspective on how firms can maximize digital performance.

To address the identified gaps, this study focuses on the following three core research questions:

1. To what extent does technology adoption readiness influence digital business performance in enterprises across Southeast Asia?
2. How does the integration of artificial intelligence into business operations affect Digital Business Performance in emerging digital economies?

3. Does organizational digital literacy moderate the relationship between AI integration and digital business performance, and if so, to what degree?

The research objectives in this study are strategically designed to explore the multilayered relationship between digital capability and business performance in the age of AI. Unlike prior fragmented approaches, this study emphasizes a cohesive investigation by connecting technological readiness, operational AI integration, and the moderating role of organizational digital literacy. This allows for a richer understanding of how organizations can optimize their digital investments. Many past objectives have focused narrowly on adoption or technical integration alone, neglecting the organizational context that ultimately enables or constrains technological value realization. By addressing how readiness facilitates implementation and how digital literacy enhances AI's performance impact, the research bridges this gap, offering both theoretical enrichment and practical guidance. Additionally, the objectives reflect a systemic perspective crucial for dynamic, digitally transforming environments where human and technological capabilities must align. This approach acknowledges that technology alone is insufficient without strategic readiness and digitally competent workforces. Consequently, the study's objectives not only seek to validate direct effects but also illuminate conditional mechanisms, which are often overlooked yet critical in ensuring AI initiatives translate into meaningful business performance outcomes. This research thus offers a robust framework that enhances both academic inquiry and organizational decision-making.

2. LITERATURE REVIEW

2.1. Digital Business Performance

Digital business performance (DBP) is a multifaceted construct that reflects how effectively an organization leverages digital technologies to enhance its operational, strategic, and financial outcomes. According to Ononiwu et al. (2024), DBP includes not only financial gains but also innovation, agility, and customer-centricity driven by digital transformation efforts. In this study, DBP serves as the dependent variable, representing the outcome of organizational readiness, AI integration, and digital competency. Understanding DBP through this lens allows for a more comprehensive evaluation of how digital initiatives contribute to long-term success.

To provide theoretical grounding, the Dynamic Capabilities Theory (Teece 2007) is employed. This theory asserts that firms must continuously adapt, integrate, and reconfigure internal and external resources to respond effectively to digital and market disruptions. DBP, in this context, is not merely the product of technological investment but the result of an organization's ability to sense opportunities, seize digital tools such as AI, and transform processes for sustained advantage. This framework connects the study's variables: technology adoption readiness influences the firm's ability to sense and seize, AI integration represents seizing and transforming, while digital literacy enhances the dynamic execution of these capabilities.

Within the broader economy, DBP has emerged as a core performance metric, especially in sectors where digital disruption is most pronounced. Maroufkhani et al. (2020) argue that firms with higher digital performance show stronger adaptability, customer responsiveness, and resilience to economic shocks. As industries digitize, performance increasingly depends on how organizations deploy and scale digital technologies—not just whether they adopt them. Thus, analyzing DBP contributes to understanding broader economic competitiveness and innovation diffusion.

A real-world example can be seen in DBS bank, a leader in digital banking. Through AI and data analytics, DBS streamlined its operations, reduced costs, and enhanced customer engagement. These initiatives significantly improved its Digital Business Performance, as evidenced by increases in digital revenues and operational efficiency (Fountaine et al. 2019). This case exemplifies how the successful alignment of technological readiness, integration, and literacy—core variables in this research—drives measurable performance outcomes.

2.2. Anchoring theoretical framework

2.2.1. Dynamic Capabilities Theory

Dynamic Capabilities Theory (DCT) offers a comprehensive framework for understanding how firms adapt, integrate, and reconfigure internal and external competencies to address rapidly changing environments (Teece 2007). In the context of digital transformation, DCT emphasizes the importance of sensing opportunities, seizing them through resource mobilization, and transforming operations to maintain competitiveness. This theoretical lens is particularly pertinent to the integration of artificial intelligence (AI) in business operations, where rapid technological advancements necessitate continual adaptation and innovation. Recent empirical studies have underscored the relevance of DCT in the digital era. For instance, Sjödin et al. (2023) highlight that firms with robust dynamic capabilities are better positioned to leverage AI technologies for innovation and performance enhancement. They argue that the ability to sense technological trends, seize opportunities through strategic investments, and transform organizational processes is critical for sustaining competitive advantage in the digital landscape. Similarly, Almheiri et

al. (2025) emphasize the role of organizational learning and adaptability in integrating complex technologies like AI into business operations. Their findings suggest that dynamic capabilities facilitate not only technological adoption but also the organizational agility required to respond to evolving market demands.

Moreover, DCT's emphasis on continuous learning and innovation aligns with the need for organizations to develop and refine their digital competencies. As AI technologies evolve, firms must cultivate the capacity to assimilate new knowledge, reconfigure existing resources, and realign strategies to harness the full potential of AI. This dynamic process necessitates a culture of experimentation, flexibility, and resilience, which are hallmarks of organizations with strong dynamic capabilities.

In the realm of digital business performance, DCT provides a valuable lens for examining how technology readiness and AI integration contribute to organizational success. By focusing on the processes and routines that enable firms to adapt, DCT offers insights into the mechanisms through which digital competencies are developed and leveraged. This perspective is instrumental in understanding the interplay between technological advancements and organizational capabilities, particularly in the context of AI-driven transformation.

DCT assumes that in dynamic markets, the mere possession of resources is insufficient for sustained competitive advantage. Instead, it posits that firms must develop capabilities to reconfigure and renew their resource base in response to environmental changes. This theory presumes that organizations operate in environments characterized by rapid technological advancements and that their survival depends on their ability to adapt through learning and innovation (Teece 2007).

2.2.2. Technology-Organization-Environment

The Technology-Organization-Environment (TOE) framework, introduced by Tornatzky & Fleischer (1990), serves as a comprehensive model for understanding the multifaceted factors influencing technological innovation adoption within organizations. It posits that three contextual elements—technological, organizational, and environmental—collectively impact the adoption and implementation of new technologies. In the realm of artificial intelligence (AI) integration, the technological context encompasses the perceived benefits and challenges of AI technologies, including aspects such as compatibility, complexity, and relative advantage (Tornatzky & Fleischer 1990). The organizational context involves internal factors like firm size, managerial structure, and digital literacy, which can significantly influence an organization's readiness to adopt AI (Oliveira & Martins 2011). The environmental context includes external pressures such as competitive dynamics, regulatory requirements, and market trends that can drive or hinder AI adoption (Zhu & Kraemer 2005).

Recent empirical studies have applied the TOE framework to examine AI adoption, highlighting how organizational readiness and external pressures influence the successful integration of AI into business processes. For instance, Badghish & Soomro (2023) investigated the adoption of AI by small and medium-sized enterprises (SMEs) in Saudi Arabia, finding that factors across all three TOE contexts significantly impacted AI adoption and, consequently, sustainable business performance. Similarly, a meta-analysis by Shahadat et al. (2023) synthesized findings from multiple studies, confirming that technological factors like relative advantage and compatibility, organizational factors such as top management support and digital literacy, and environmental factors including competitive pressure and regulatory support, all play pivotal roles in AI adoption decisions. These studies underscore the TOE framework's utility in providing a holistic understanding of the determinants influencing AI integration and its subsequent impact on digital business performance.

Moreover, the TOE framework's emphasis on the interplay between internal and external factors aligns with the complexities of AI adoption in contemporary business environments. The rapid evolution of AI technologies necessitates not only technological readiness but also organizational agility and responsiveness to environmental cues. By considering these multifaceted influences, the TOE framework offers valuable insights into the determinants of AI adoption and its impact on digital business performance. This comprehensive perspective is instrumental for organizations aiming to navigate the challenges of digital transformation and leverage AI for competitive advantage.

The TOE framework assumes that technological innovation adoption is influenced by a combination of internal and external factors. It presumes that organizations make rational decisions based on their technological capabilities, organizational characteristics, and environmental pressures. This framework also assumes that these three contexts are interrelated and collectively shape the adoption process (Tornatzky & Fleischer 1990). Furthermore, it posits that the impact of each context may vary depending on the specific technology and organizational setting, necessitating a contextualized analysis for each adoption scenario (Oliveira & Martins 2011).

2.3. Technology Adoption Readiness

Technology adoption readiness (TAR) refers to an organization’s preparedness and willingness to embrace new technologies by aligning technical infrastructure, workforce competencies, leadership mindset, and strategic vision. According to Parasuraman

(2000), readiness is shaped by both enablers (optimism and innovativeness) and inhibitors (discomfort and insecurity), affecting how technology is perceived and integrated. In organizational contexts, TAR captures not only the availability of technology but also cultural, managerial, and operational readiness to implement innovation effectively (Webster & Gardner 2019).

From a socio-economic lens, TAR has become increasingly significant as digital transformation accelerates across industries. Economies with higher digital readiness are more resilient and adaptive during crises, such as the COVID-19 pandemic, which revealed stark differences in digital responses among organizations (Verma & Gustafsson 2020). Technological readiness, therefore, is both a predictor and driver of digital competitiveness at the macroeconomic level.

Effectively managing TAR enables organizations to implement AI, cloud computing, and data analytics in ways that enhance operational efficiency, customer satisfaction, and strategic agility. When TAR is high, firms can integrate digital technologies faster and more sustainably, leading to improved digital business performance (DBP) (Shahadat et al. 2023). DBP in this context refers to a company's success in leveraging digital tools for value creation, market responsiveness, and innovation. Moreover, a well-developed TAR can thus serve as a catalyst. For instance, organizations that invest in upskilling, agile processes, and digital leadership are more likely to unlock the full potential of AI and automation technologies (Khuntia et al. 2022). Consequently, the positive influence of TAR on DBP is not merely linear—it reinforces an organization's adaptive capacity in a rapidly evolving digital economy. However, scholarly debates have emerged regarding the extent of this impact. Some argue that TAR has a strong direct effect on DBP by reducing resistance to digital innovation and enabling smoother integration (Kraus et al. 2021). Others suggest the relationship is moderated by contextual factors such as industry type, firm size, and regulatory environment, meaning TAR alone may not guarantee performance gains (Nasiri et al. 2020).

From a pragmatist philosophical standpoint, technology readiness is not merely about intention but about practical capability—tools must serve real, context-based outcomes. Pragmatism supports the notion that TAR enhances DBP only when embedded in actionable strategies and measurable results. Economically, Schumpeterian theory offers a valuable perspective: TAR acts as a precursor to innovation-driven competition, where readiness determines which firms can leverage technological disruption for strategic gain. In essence, firms with higher TAR are better positioned to become "creative destructors," reshaping industries through digital advantage.

Drawing on the integrated theoretical perspectives outlined above, the first hypothesis is formulated as follows:

H1: Technology adoption readiness positively impacts digital business performance.

2.4. AI Integration in Business Operations

AI integration in business operations refers to the strategic incorporation of Artificial Intelligence technologies—such as machine learning, natural language processing, and intelligent automation—into core organizational processes to enhance efficiency, decision-making, and innovation. This integration encompasses deploying AI across various functions, including customer service, supply chain management, finance, and human resources, aiming to optimize workflows and deliver superior value. Theoretically, this concept aligns with the principles of the Resource-Based View (RBV), which posits that leveraging unique technological capabilities can yield a sustainable competitive advantage (Barney 1991). In the contemporary economic and social landscape, characterized by rapid digital transformation and heightened competition, AI integration has become pivotal. It enables organizations to respond swiftly to market changes, personalize customer experiences, and drive innovation, thereby solidifying their market position and ensuring long-term viability (Davenport & Ronanki 2018).

Effective AI integration significantly influences digital business performance (DBP) by streamlining operations, enhancing customer engagement, and fostering innovation. Organizations that adeptly incorporate AI into their operations often witness improved efficiency, reduced operational costs, and increased revenue streams. For instance, a study by Brynjolfsson & McElheran (2016) highlighted that firms implementing data-driven decision-making, facilitated by AI technologies, experienced a 5-6% increase in output and productivity. In the financial services sector, AI applications such as algorithmic trading, fraud detection, and personalized banking services have led to enhanced customer satisfaction and operational excellence (Jagtiani & Lemieux 2019). Moreover, AI-driven insights enable financial institutions to make informed strategic decisions, thereby improving their agility and competitiveness in a dynamic market environment. Thus, the integration of AI into business operations serves as a catalyst for elevating digital performance and achieving sustainable growth.

The extent to which AI integration impacts DBP has been a subject of academic debate. Proponents argue that AI serves as a transformative force, driving substantial improvements in efficiency, innovation, and customer satisfaction. For example, a study by Bughin et al. (2018) found that early AI adopters in various industries reported profit margins up to 5% higher than their competitors. Conversely, some scholars caution that the benefits of AI integration may be context-dependent, influenced by factors such as organizational readiness, data quality, and employee adaptability. Ransbotham et al. (2017) emphasized that

without a supportive culture and adequate infrastructure, AI initiatives might not yield the anticipated performance gains. These divergent perspectives underscore the necessity for organizations to assess their unique contexts and capabilities when integrating AI into their operations.

From a philosophical standpoint, the integration of AI into business operations raises questions about the nature of work and human agency. The automation of tasks traditionally performed by humans prompts discussions about job displacement and the ethical implications of delegating decision-making to machines (Bostrom & Yudkowsky 2014). Economically, the Schumpeterian theory of creative destruction posits that technological advancements, such as AI, can disrupt existing industries and create new market dynamics, leading to both opportunities and challenges for businesses (Schumpeter 2013). These perspectives highlight the complex interplay between technological innovation, societal values, and economic structures in the context of AI integration.

Building upon the synthesized theoretical insights previously discussed, the second hypothesis is proposed as follows:

H2: AI integration in business operations positively impacts digital business performance.

2.5. Moderating role of Organizational Digital Literacy

Organizational digital literacy (ODL) refers to an organization's collective capacity to effectively utilize digital technologies, encompassing the skills, attitudes, and knowledge necessary to navigate and leverage digital tools for achieving strategic objectives. This concept extends beyond individual competencies, encapsulating the organization's readiness to adapt to digital transformations and integrate emerging technologies like artificial intelligence (AI) into business operations. Theoretically, ODL aligns with the Resource-Based View (RBV), which posits that unique organizational resources and capabilities, such as digital literacy, can provide a sustainable competitive advantage (Barney 1991). In the current economic and social context, characterized by rapid technological advancements and digital disruptions, ODL plays a pivotal role in enabling organizations to respond effectively to market changes, innovate processes, and maintain competitiveness (Cetindamar & Phaal 2017).

ODL significantly influences the successful integration of AI into business operations, thereby impacting digital business performance (DBP). Organizations with high levels of digital literacy are better equipped to understand, implement, and manage AI technologies, leading to enhanced efficiency, innovation, and customer satisfaction. For instance, a study by Alzaghal et al. (2024) found that managers' digital literacy positively moderates the relationship between AI adoption and sustainable competitive advantage in SMEs, highlighting the critical role of ODL in maximizing the benefits of AI integration. Moreover, ODL facilitates effective change management, ensuring that employees are prepared and supported during digital transformations, which is essential for realizing the full potential of AI initiatives (Nikou et al. 2018).

The extent to which ODL moderates the impact of AI integration on DBP has been subject to academic debate. Some scholars argue that ODL is a crucial enabler of digital transformation, asserting that organizations with higher digital literacy levels are more likely to achieve superior performance outcomes from AI integration (Cetindamar & Abedin 2021). Conversely, other studies suggest that while ODL contributes to digital transformation, its impact may be contingent upon other factors such as organizational culture, leadership, and infrastructure (Gfrerer et al. 2021). These differing perspectives underscore the complexity of digital transformation processes and the need for a holistic approach that considers multiple organizational dimensions.

From a philosophical standpoint, ODL embodies the concept of digital humanism, which emphasizes the integration of human values and ethics in the digital age. It advocates for empowering individuals and organizations to navigate digital landscapes responsibly and inclusively (Floridi 2014). Economically, ODL aligns with the Schumpeterian view of innovation, where technological competencies drive creative destruction and economic growth. Organizations with high digital literacy are better positioned to innovate, adapt, and capitalize on new market opportunities, contributing to overall economic dynamism (Schumpeter 1942).

In light of the converging theoretical frameworks examined above, the third hypothesis is stated as follows:

H3: Organizational digital literacy positively moderates the impact of AI integration in business operations on digital business performance.

Anchored in strong theoretical underpinnings, this study strengthens its scholarly value by introducing the following conceptual framework.

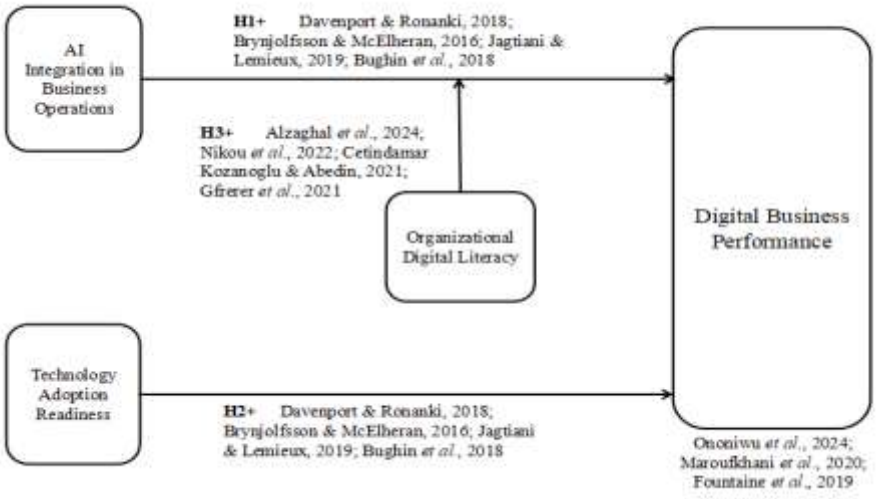

Figure 1: The Paper's Conceptual Framework

3. METHODOLOGY

This research adopts a quantitative approach, which facilitates the structured collection and analysis of data to identify and confirm underlying patterns (Creswell & Creswell 2017). Additionally, this methodology utilizes statistical techniques to objectively assess the data and generate measurable outcomes (Babbie 2020).

To maintain empirical integrity and ensure the study's relevance across different contexts, a purposive stratified sampling approach was utilized to examine digital business performance (DBP) in relation to AI integration and organizational preparedness. Participants were selected from Vietnam, Singapore, and Malaysia—regions that are actively advancing AI implementation and digital transformation in their business landscapes. These locations were chosen to capture a range of digital development levels across both emerging and more established economies in Southeast Asia. Respondents were organized into four key stakeholder categories that offer varied insights into the digital business ecosystem: (1) Digital business managers responsible for overseeing AI-enabled transformation initiatives within key functions such as customer relationship management (CRM), supply chain management (SCM), and finance; (2) IT specialists and data scientists who execute AI model deployment and oversee digital platform operations, ensuring alignment with organizational objectives; (3) Senior executives and strategic leaders, including chief information officers (CIOs) and digital strategy officers, who define AI investment priorities and track digital performance; (4) External advisors, such as digital transformation consultants, who provide tailored AI solutions and offer strategic guidance on enhancing organizational readiness and digital competencies.

To qualify, participants needed at least one year of practical experience implementing AI in business contexts, familiarity with internal digital literacy efforts, and direct involvement in evaluating performance or managing AI projects. They also had to represent firms operating in digitally intensive sectors such as fintech, e-commerce, logistics, or smart manufacturing.

Further stratification ensured diversity across firm size (SMEs vs. large corporations), industry type, and level of digital maturity. Recruitment was facilitated through collaborations with industry bodies like the Vietnam Digital Transformation Alliance, Singapore's Infocomm Media Development Authority (IMDA), and the Malaysia Digital Economy Corporation (MDEC). Additional participants were sourced via LinkedIn groups, digital innovation forums, and AI-focused professional communities.

A structured online survey featuring a 5-point Likert scale (1 = "Strongly disagree" to 5 = "Strongly agree") was used to gather responses on variables including technology adoption readiness, AI integration effectiveness, organizational digital literacy, and perceived digital business performance. Of the 612 total responses received, 385 met the eligibility criteria after screening for completeness, relevance of role, and experience requirements. This carefully curated and regionally diverse sample offers a solid basis for evaluating how digital capabilities and organizational readiness impact business performance in AI-driven enterprises across Southeast Asia.

4. RESULTS

4.1. Reliability analysis

Table 1: Reliability analysis of "Digital business performance". Source: (The authors, 2025)

Reliability Statistics

Cronbach's Alpha	N of Items
.638	4

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
DBP1	8.117	9.536	.518	.575
DBP2	6.313	7.202	.566	.578
DBP3	7.005	6.522	.594	.615
DBP4	8.716	8.433	.601	.627

Where DBP1 to DBP4 are coded for survey questions 1 to 4 of digital business performance (DBP) in enterprises across Southeast Asia respectively.

As shown in Table 1, all dependent variables demonstrated adjusted item-total correlation coefficients of at least 0.3. The overall Cronbach's alpha was 0.638, exceeding the commonly accepted minimum threshold of 0.6 and higher than the alpha values that would have resulted from excluding any individual item. Additionally, each dependent variable's Cronbach's alpha remained above its respective adjusted item-total correlations, even when specific items were removed. Therefore, no items were excluded from further analysis. Similar patterns were found in the Cronbach's alpha results for the remaining variables.

4.2. Exploratory factor analysis (EFA)

Table 2: Rotated Component Matrix. Source: (The authors, 2025)

Rotated Component Matrix[a]			
Component with loading factors			
1	2	3	4
DBP1 .556	ODL1 .507	TAR1 .715	AI1 .520
DBP2 .539	ODL2 .590	TAR2 .726	AI2 .545
DBP3 .683	ODL3 .632	TAR3 .687	AI3 .661
DBP4 .626	ODL4 .626	TAR4 .681	AI4 .646
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.			
a. Rotation converged in 7 iterations.			

Where survey items ODL1 to ODL4, TAR1 to TAR4, and AI1 to AI4 correspond to questions 1 through 4 designed to measure the moderator variable and the two independent variables, respectively.

As shown in Table 2, the rotated component matrix grouped the 16 sub-variables into four distinct factors corresponding to the dependent variable, two independent variables, and the moderator variable. All sub-variables exhibited factor loadings above 0.5, and none were excluded during the analysis.

4.3. Multiple linear regression model

Table 3: Coefficients[a]. Source: (The authors, 2025)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	6.414	.827		4.110	.000
	AI	.542	.631	.530	3.474	.015
	TAR	.497	.759	.480	3.767	.047

a. Dependent Variable: DBP

Where **DBP**: mean of DBP1 to DBP4; **AI**: mean of AI1 to AI4;
TAR: mean of TAR1 to TAR4

As presented in Table 3, the significance (Sig.) values obtained from the t-tests are .015 and .047, both of which fall well below the standard alpha level of 0.05. This indicates that the independent variables, technology adoption readiness and the integration of artificial intelligence, have a statistically significant influence on the dependent variable, technological innovation in disaster prevention. Accordingly, both hypotheses are validated.

4.4. Moderator analysis

Table 4: Results analysis of organizational digital literacy. Source: (The authors, 2025)

Model : 1
Y : DBP
X : AI
W : ODL
Sample Size: 385

****

OUTCOME VARIABLE:
DBP

Model Summary

R	R-sq	MSE	F	dl1	dl2	p
.639	.408	.712	4.666	3.000	381.000	.000

Model

	coeff	se	t	p	LLCI	ULCI
constant	8.314	.363	77.686	.000	6.672	6.576
AI	.528	.532	5.025	.000	.564	.557
ODL	.484	.696	4.937	.000	.393	.377
Int_1	.360	.642	4.819	.000	.381	.370

Where ODL: mean of ODL1 to ODL4

As presented in Table 4, the p-value for the interaction term (Int_1) is 0.000, which is substantially below the conventional significance threshold of 0.05. This result indicates a statistically significant interaction between organizational digital literacy and AI integration in shaping digital business performance in enterprises across Southeast Asia. The interaction coefficient of 0.360 suggests that a higher level of organizational digital literacy strengthens the positive impact of AI integration on digital business performance. Therefore, hypothesis H3 is supported.

5. DISCUSSION

5.1. Result summary

The linear regression analysis reveals that AI integration in business operations exert the most substantial influence on enhancing digital business performance, demonstrated by a standardized coefficient of 0.53. Technology adoption readiness also shows a positive, albeit comparatively smaller, effect with a coefficient of 0.48. Moreover, organizational digital literacy significantly

moderates the relationship between AI integration and digital business performance, as indicated by a moderation coefficient of 0.36. Consequently, the study successfully addresses the three research questions.

5.2. Theoretical implication

The study's findings offer empirical support for the significant role of technology adoption readiness (TAR) in boosting digital business performance (DBP), reinforcing the Dynamic Capabilities Theory which posits that organizational adaptability is key to transformation (Teece 2007). This is in agreement with Shahadat et al. (2023), who highlight how a firm's preparedness enables smoother technology adoption, thereby enhancing digital outcomes. Nevertheless, the observed effect size (β = 0.48) aligns only partially with Kraus et al. (2021), who contend that TAR's influence varies depending on industry and structural conditions, such as in healthcare versus manufacturing. Moreover, these results contrast with Nasiri et al. (2020), who minimize the direct effect of readiness, attributing performance improvements largely to the actual use of technology. By emphasizing TAR as a core capability rather than a peripheral factor, this study challenges such perspectives. Drawing on Schumpeterian economic thought, which sees readiness as a precursor to innovation, this research reframes TAR as a proactive mechanism for strategic change rather than a passive state (Schumpeter 2013). In doing so, the study contributes to the ongoing debate by affirming TAR's role as a central, rather than supplementary, element of digital transformation.

Additionally, the study validates the Resource-Based View (Barney 1991) by identifying AI Integration as a valuable organizational resource that significantly contributes to DBP (β = 0.53). This result supports the findings of Brynjolfsson and McElheran (2016), who associate AI-driven decision-making with measurable improvements in business outcomes. However, the study also nuances these optimistic views by questioning overly deterministic assumptions about AI's inherent effectiveness. While Bughin et al. (2018) report widespread profitability gains from AI, this research suggests that such outcomes are heavily dependent on contextual factors like organizational digital readiness and skills, as emphasized by Ransbotham et al. (2017). Thus, although AI's potential for performance enhancement is recognized, the study argues that its success is conditional upon an organization's ability to effectively integrate and utilize these technologies—challenging simplistic, technology-centric models and supporting the more nuanced Technology–Organization–Environment (TOE) framework (Badghish & Soomro 2024). Ultimately, this research takes a balanced stance, acknowledging AI's transformative power while underlining the importance of organizational capacity in realizing its benefits.

The validation of H3 (moderating effect β = 0.36) addresses a key point of contention in the literature: whether organizational digital literacy (ODL) merely supports AI adoption or actively enhances performance. This study confirms the latter, echoing Cetindamar & Abedin's (2021) argument that ODL is a dynamic capability that empowers organizations to extract strategic value from AI technologies. This finding stands in contrast to Gfrerer et al. (2021), who suggest that ODL's influence can be inconsistent and overstated without robust structural support. However, the present results demonstrate that ODL reliably strengthens the relationship between AI integration and DBP across different organizational settings, supporting the principles of digital humanism, which prioritize the development of human capabilities in technological transformation (Floridi 2014). Moreover, the study reinforces Schumpeter's concept of creative destruction by framing ODL as an essential intellectual asset for managing the disruptions introduced by AI (Schumpeter 1942). While acknowledging that leadership and infrastructure may shape the effectiveness of digital literacy, the evidence here positions ODL as a strategic differentiator rather than a mere operational necessity in digitally advanced organizations.

5.3. Practical Implications

The study presents three practical recommendations for business leaders aiming to improve digital business performance (DBP) in environments shaped by artificial intelligence. First, enhancing technology adoption readiness (TAR) requires strategic investment in digital infrastructure, leadership development, and organizational culture change. Khuntia et al. (2022) highlight that such readiness not only minimizes internal resistance but also facilitates faster innovation cycles. Aligning strategic vision with execution, through adaptive leadership and agile processes, helps ensure that technological initiatives translate into tangible performance benefits.

Second, the integration of AI should be guided by value creation rather than limited to technical implementation. Firms must deploy AI solutions to address critical operational challenges, such as customer attrition or inefficiency, instead of treating AI as experimental or peripheral. Davenport & Ronanki (2018) caution that without clearly defined goals, AI initiatives may struggle to deliver significant impact. This study reinforces the importance of aligning AI deployments with key performance indicators and organizational strategy.

Third, organizational digital literacy (ODL) must be developed at all levels of the enterprise. This extends beyond upskilling frontline staff to include strengthening digital competencies among executives and strategic leaders. According to Alzaghal et al. (2024), organizations where leaders demonstrate digital fluency are more likely to achieve lasting success with AI initiatives. As a result, human resource practices should integrate digital literacy into hiring, evaluations, and promotion criteria, thereby embedding it as a foundational capability within the organization.

In sum, the research advocates for a holistic, systems-based approach. Rather than treating TAR and AI Integration as independent levers, their combined effect—amplified by robust digital literacy—offers a more powerful route to competitive advantage. Organizations that align all three elements are better positioned to convert digital investments into sustained business performance.

5.4. Limitations

While this study provides insights across the Southeast Asian context, its generalizability may be limited due to differing levels of digital maturity among countries in the region. The use of a cross-sectional research design captures stakeholder perspectives at a single moment in time, thereby restricting the ability to draw definitive causal conclusions. Moreover, reliance on self-reported data may result in social desirability bias, even though respondent anonymity was preserved to mitigate such effects. The current model also omits key external environmental factors, such as regulatory disruptions or cybersecurity threats, that could potentially influence AI adoption and its outcomes. To strengthen future research, a longitudinal approach or the incorporation of mixed methods is recommended.

5.5. Future Research Directions

Future research is encouraged to utilize longitudinal data to evaluate whether the beneficial impacts of technology adoption readiness and AI Integration are sustained or change over time. Cross-national comparisons between developed and emerging economies could further illuminate how organizational digital literacy influences performance outcomes under differing institutional conditions. Additionally, qualitative approaches, such as ethnographic case studies, could provide richer insights into organizational dynamics and resistance to AI adoption. Researchers may also consider examining how factors like regulatory environments or data governance structures moderate the relationship between AI implementation and digital business performance.

5.6. Conclusion

This study offers both theoretical and practical contributions by clarifying how technology adoption readiness, AI Integration, and organizational digital literacy interact to influence digital business performance. The findings highlight that AI integration delivers the most substantial direct effect, while readiness acts as an enabler and digital literacy serves to strengthen this impact. Grounded in Dynamic Capabilities Theory and the Technology-Organization-Environment (TOE) framework, the research provides deeper understanding of how organizational and technological factors converge to generate strategic advantage. The study urges businesses to invest in foundational readiness, embed digital competencies across all levels, and implement AI with sensitivity to organizational context in order to achieve sustained digital outcomes. Collectively, these insights form a practical, evidence-driven strategy for maintaining digital competitiveness in the age of AI.

REFERENCES

1) Almheiri, H. M., Ahmad, S. Z., Khalid, K., & Ngah, A. H. (2025). Examining the impact of artificial intelligence capability on dynamic capabilities, organizational creativity and organization performance in public organizations. Journal of Systems and Information Technology, 27(1), 1–20. https://doi.org/10.1108/JSIT-10-2022-0239
2) ALZAGHAL, Q. K., SALAH, O. H., & AYYASH, M. M. (2024). Leveraging artificial intelligence for smes' sustainable competitive advantage: the moderating role of managers digital literacy. Journal of Theoretical and Applied Information Technology, 102(21).
3) Babbie, E. R. (2020). The practice of social research. Cengage AU.
4) Badghish, S., & Soomro, Y. A. (2024). Artificial Intelligence Adoption by SMEs to Achieve Sustainable Business Performance: Application of Technology-Organization-Environment Framework. Sustainability, 16(5), 1864. https://doi.org/10.3390/su16051864
5) Bag, S., Wood, L. C., Xu, L., Dhamija, P., & Kayikci, Y. (2021). Big data analytics as an operational excellence approach to enhance sustainable supply chain performance. International Journal of Production Research, 59(6), 1–21. https://doi.org/10.1016/j.resconrec.2019.104559

6) Barney, J. (1991). Firm resources and sustained competitive advantage. Journal of Management, 17(1), 99-120.
7) Bostrom, N., & Yudkowsky, E. (2018). The ethics of artificial intelligence. In Artificial intelligence safety and security (pp. 57-69). Chapman and Hall/CRC.
8) Brynjolfsson, E., & McElheran, K. (2016). The rapid adoption of data-driven decision-making. American Economic Review, 106(5), 133-139.
9) Bughin, J., Seong, J., Manyika, J., Chui, M., & Joshi, R. (2018). Notes from the AI frontier: Modeling the impact of AI on the world economy. McKinsey Global Institute.
10) Cetindamar Kozanoglu, D., & Abedin, B. (2021). Understanding the role of employees in digital transformation: conceptualization of digital literacy of employees as a multi-dimensional organizational affordance. Journal of Enterprise Information Management, 34(6), 1649-1672. https://doi.org/10.1108/JEIM-01-2020-0010
11) Cetindamar, D., & Phaal, R. (2017). Technology management: activities and tools. Bloomsbury Publishing.
12) Creswell, J. W., & Creswell, J. D. (2017). Research design: Qualitative, quantitative, and mixed methods approaches. Sage publications.
13) Davenport, T. H., & Ronanki, R. (2018). Artificial intelligence for the real world. Harvard Business Review, 96(1), 108-116.
14) Dwivedi, Y. K., Hughes, L., Kar, A. K., Baabdullah, A. M., & Raman, R. (2021). Artificial Intelligence (AI): Multidisciplinary perspectives on emerging challenges, opportunities, and agenda for research, practice and policy. International Journal of Information Management, 57, 101994. https://doi.org/10.1016/j.ijinfomgt.2019.08.002
15) Floridi, L. (2014). The fourth revolution: How the infosphere is reshaping human reality. OUP Oxford.
16) Fountaine, T., McCarthy, B., & Saleh, T. (2019). Building the AI-powered organization. Harvard Business Review, 97(4), 62–73.
17) Gfrerer, A., Hutter, K., Füller, J., & Ströhle, T. (2021). Ready or not: Managers' and employees' different perceptions of digital readiness. California Management Review, 63(2), 23-48.
18) Jagtiani, J., & Lemieux, C. (2019). The roles of alternative data and machine learning in fintech lending: Evidence from the LendingClub consumer platform. Financial Management, 48(4), 1009-1029. https://doi.org/10.1111/fima.12295
19) Jeble, S., Dubey, R., Childe, S. J., Papadopoulos, T., Roubaud, D., & Prakash, A. (2018). Impact of big data and predictive analytics capability on supply chain sustainability: A case study of the UK manufacturing sector. International Journal of Production Research, 56(1-2), 1–16. https://doi.org/10.1108/IJLM-05-2017-0134
20) Jöhnk, J., Weißert, M., & Wyrtki, K. (2021). Ready or not, AI comes—an interview study of organizational AI readiness factors. Business & information systems engineering, 63(1), 5-20.
21) Khuntia, J., Saldanha, T., Kathuria, A., & Tanniru, M. R. (2022). Digital service flexibility: a conceptual framework and roadmap for digital business transformation. European Journal of Information Systems, 33(1), 61–79. https://doi.org/10.1080/0960085X.2022.2115410
22) Kraus, S., Schiavone, F., Pluzhnikova, A., & Invernizzi, A. C. (2021). Digital transformation in healthcare: Analyzing the current state-of-research. Journal of Business Research, 123, 557–567. https://doi.org/10.1016/j.jbusres.2020.10.030
23) Maroufkhani, P., Wagner, R., Wan Ismail, W. K., Baroto, M. B., & Nourani, M. (2019). Big data analytics and firm performance: A systematic review. Information, 10(7), 226. https://doi.org/10.3390/info10070226
24) Nasiri, M., Ukko, J., Saunila, M., & Rantala, T. (2020). Managing the digital supply chain: The role of smart technologies. Technovation, 96-97, 102121. https://doi.org/10.1016/j.technovation.2020.102121
25) Nikou, S., De Reuver, M., & Mahboob Kanafi, M. (2022). Workplace literacy skills—how information and digital literacy affect adoption of digital technology. Journal of Documentation, 78(7), 371-391. https://doi.org/10.1108/JD-12-2021-0241
26) Oliveira, T., & Martins, M. F. (2011). Literature Review of Information Technology Adoption Models at Firm Level. The Electronic Journal Information Systems Evaluation, 14(1), 110–121.
27) Ononiwu, M. I., Onwuzulike, O. C., & Shitu, K. (2024). The role of digital business transformation in enhancing organizational agility. World Journal of Advanced Research and Reviews, 23(3), 285-308. https://doi.org/10.30574/wjarr.2024.23.3.2670
28) Parasuraman, A. (2000). Technology Readiness Index (TRI): A multiple-item scale to measure readiness to embrace new technologies. Journal of Service Research, 2(4), 307–320. https://doi.org/10.1177/109467050024001
29) Ransbotham, S., Kiron, D., Gerbert, P., & Reeves, M. (2017). Reshaping business with artificial intelligence. MIT Sloan Management Review, 59(1), 1-17.
30) Schumpeter, J. A. (2013). Capitalism, Socialism and Democracy. Harper & Brothers.

31) Shahadat, M. H., Nekmahmud, M., Ebrahimi, P., & Fekete-Farkas, M. (2023). Digital technology adoption in SMEs: what technological, environmental and organizational factors influence in emerging countries?. Global Business Review, https://doi.org/10.1177/09721509221137199
32) Sjödin, D., Parida, V., & Kohtamäki, M. (2023). Artificial intelligence enabling circular business model innovation in digital servitization: Conceptualizing dynamic capabilities, AI capacities, business models and effects. Technological Forecasting and Social Change, 197, 122903. https://doi.org/10.1016/j.techfore.2023.122903
33) Teece, D. J. (2007). Explicating dynamic capabilities: The nature and microfoundations of (sustainable) enterprise performance. Strategic Management Journal, 28(13), 1319–1350. https://doi.org/10.1002/smj.640
34) Tornatzky, L. G., & Fleischer, M. (1990). The Processes of Technological Innovation. Lexington Books.
35) Verma, S., & Gustafsson, A. (2020). Investigating the emerging COVID-19 research trends in the field of business and management: A bibliometric analysis approach. Journal of Business Research, 118, 253–261. https://doi.org/10.1016/j.jbusres.2020.06.057
36) Webster, A., & Gardner, J. (2019). Aligning technology and institutional readiness: the adoption of innovation. Technology Analysis & Strategic Management, 31(10), 1229–1241. https://doi.org/10.1080/09537325.2019.1601694
37) Zhu, K., & Kraemer, K. L. (2005). Post-adoption variations in usage and value of e-business by organizations: Cross-country evidence from the retail industry. Information Systems Research, 16(1), 61–84. https://doi.org/10.1287/isre.1050.0045

APPENDIX: Survey

Link of the survey: https://forms.gle/L9X3EquApi5VQG2T7

Table 5. MAIN SURVEY QUESTIONS

Variables	Variable Coding	Survey Content	Sources
Independent Variables			
Technology Adoption Readiness (TAR)	TAR1	Our organization has the technical infrastructure needed to support new digital technologies	(Parasuraman, 2000; Webster & Gardner, 2019; Shahadat et al., 2023; Khuntia et al., 2022)
	TAR2	Managers and employees are optimistic and willing to experiment with digital innovation.	
	TAR3	There is strong leadership commitment to promoting technology adoption in our organization.	
	TAR4	We have implemented agile processes and workforce upskilling programs to enhance readiness for digital transformation.	
AI Integration in Business Operations (AII)	AII1	Our organization has successfully integrated AI technologies into daily operational processes.	(Davenport & Ronanki, 2018; Brynjolfsson & McElheran, 2016; Jagtiani & Lemieux, 2019; Bughin et al., 2018)

	AII2	We use AI-driven insights to improve decision-making and strategic planning.	
	AII3	AI applications such as predictive analytics or automation have helped improve customer satisfaction.	
	AII4	The integration of AI has significantly contributed to increasing our profit margins or cost efficiency.	
Moderating Variable			
Organizational Digital Literacy (ODL)	ODL1	Employees in our organization possess the digital skills required to implement and manage AI systems.	(Alzaghal et al., 2024; Nikou et al., 2022; Cetindamar Kozanoglu & Abedin, 2021; Gfrerer et al., 2021)
	ODL2	Managers in our firm demonstrate high levels of digital literacy and strategic tech understanding.	
	ODL3	Digital training and development programs are regularly conducted across all organizational levels.	
	ODL4	There are noticeable differences in digital readiness perceptions between managers and staff.	
Dependent Variable			
Digital Business Performance (DBP)	DBP1	Our organization's use of digital technologies has significantly improved customer responsiveness and agility.	(Ononiwu et al., 2024; Maroufkhani et al., 2020; Fountaine et al., 2019)
	DBP2	We have experienced measurable innovation outcomes due to the adoption of digital tools.	
	DBP3	Digital transformation has led to improved financial outcomes for our organization.	
	DBP4	Our organization has achieved higher operational efficiency as a result of integrating AI and data analytics.	

BACKGROUND INFORMATION						
1	**What is your current professional role in the organization?**	Digital Business Manager	IT Specialist or Data Scientist	Executive or Strategic Decision-Maker (e.g., CIO, CTO)	External Technology Consultant / Digital Transform	Other (please specify)

					ation Advisor	
2	**What is the size of your organization?**	Small and Medium-sized Enterprise (SME) – Fewer than 250 employees		Large Enterprise – 250 employees or more		
3	**How many years of experience do you have been working directly with AI-based technologies in business operations?**	Less than 1 year	1–2 years	3–5 years	More than 5 years	
4	**Which industry does your organization primarily operate in?**	Fintech	E-commerce	Logistics / Supply Chain	Manufacturing / Automation	Other (please specify)