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ARTIFICIAL INTELLIGENCE AND DIGITAL TRANSFORMATION: IMPLICATIONS FOR ORGANIZATIONAL PERFORMANCE

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Abstract
Artificial intelligence (AI) is increasingly in use by organizations to enhance operational efficiency, decision-making quality and strategic competitiveness. Although there has been growing investment in AI technologies, the way that AI adds value to organizational performance is not fully understood. This research explores the relationship between Artificial Intelligence Adoption (AIA), Digital Transformation Capability (DTC) and Organizational Performance (OP) with a special focus on the mediating role of DTC. The study is based on the Resource Based View (RBV) and Dynamic Capability Theory (DCT) and suggests that AI adoption takes a direct and indirect path to improving organizational performance via a boost in digital transformation capability. The design of the research is quantitative research design with cross sectional survey type. Data were collected through a cross-sectional survey of 245 professionals working in technology-based organizational environments and analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) in ADANCO software. The results show that the use of artificial intelligence is related to the digital transformation capacity and to performance within an organisation. The ability to undertake digital transformation also has a strong positive impact on the performance of the organization. Mediation analysis revealed a significant partial mediating effect of DTC in the relationship between AIA and OP ($\beta = 0.5358$, $p < 0.001$). The study adds to the existing body of literature by offering a holistic understanding of how organizations realize performance outcomes from their AI investments by building capabilities. The results also provide actionable knowledge for companies aiming for sustainable growth and competitive advantage by leveraging artificial intelligence for transformation initiatives.

Keywords*: Artificial Intelligence Adoption, Digital Transformation Capability, Organizational Performance, Digital Transformation, PLS-SEM.*

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Introduction

AI and digital transformation have emerged as critical drivers of organizational competitiveness (Yaşar, 2024). Organizations are increasingly investing in AI technologies to improve decision-making, operational efficiency and innovation in workplace (Kalyan Kumar & Keerthiga Priyatharsini, 2025). Yet, evidence on the role of AI in superior organizational performance remains fragmented (Asiedu, 2025). There has been significant research on the link between performance and AI implementation in organizations (Wu, 2024). Previous research has indicated that AI technologies have a positive impact on organizational outcomes by boosting productivity and efficiency in resource allocation and decision-making (Alasmri & Basahel, 2022). While prior studies examined the direct impact of AIA on OP, limited research has investigated the organizational capabilities that explain this relationship (Hu et al., 2026). Specifically, DTC has received insufficient attention as a mediating mechanism through which AI investments generating performance outcomes (Huang & Lin, 2025). This gap restricts both theoretical understanding and managerial guidance regarding the effective utilization of AI resources.

Its effectiveness could be contingent on the capacity of an organization to make its processes, structure and operations more digitally integrated systems (Sultana, 2026). The degree of digital transformation capability can thus serve as a crucial link between AI adoption and organizational outcomes (Dua, 2024). Firms with more robust digital transformation capabilities will be better equipped to harness AI technologies, turning the investments into long-term performance gains. Theoretically, the resource-based view and the dynamic capability perspectives offer useful bases to understand these relationships (Kero and Bogale, 2023). AI implementation can be viewed as a strategic asset within the organization that can create value when paired with other assets. The ability of the organization to integrate, reconfigure, and use technological resources in adapting to the environment is the digital transformation capability. These abilities help organizations transform their technological potential into better operational and strategic results. By exploring digital transformation capability as an intermediate variable, it can be deduced that the organizations' value from their AI initiatives is more complex. This study aims to fill this gap by examining the correlation between the use of artificial intelligence, the organization's digital transformation capability, and organizational performance.

The study specifically focuses on the direct effect of the adoption of Artificial Intelligence on digital transformation capability and organizational performance and on the mediation of digital transformation capability. The study aims to offer a more complex understanding of the pathways via that AI can assist with organizational achievement by incorporating these constructs in one structure. The study builds on previous research in several ways. First, it provides a new lens on AI-driven organizational outcomes by explaining why digital transformation capability is a factor. Secondly, it brings strategic capability perspectives into the relationship between technology and performance in the organization. Second, it expands technology and organization performance research by including strategic capability perspectives in the relationship between technology and performance. Further, from a managerial perspective, organizations are investing heavily in AI technologies. Whereas struggling to realize expected performance benefits. Understanding whether digital transformation capability acts as a bridge between AIA and OP can help managers prioritize capability development and align technological investments with strategic objectives. Such insights are valuable for organizations seeking sustainable competitive advantage in the evolving digital environments.

2. Literature Review

2.1 Theoretical Foundation

This can be understood by how artificial intelligence adoption, digital transformation capability, and organizational performance are interrelated, as explained from the combined perspective of the RBV and DCT. The RBV is a theory that asserts that resources can give organizations sustainable competitive advantage when they are valuable, rare, inimitable, and non-substitutable (Almheiri et al., 2024). Technological assets and organizational competencies are strategic if they help realize improved organizational outcomes. The use of AI could be considered as an organizational tool to help businesses handle information in an efficient manner, enhance the quality of decision-making and facilitate innovation processes (Sposato & Dittmar, 2026). But resources can only create value over time if they have complementary skills to make use of and integrate them well.Theoretically, Dynamic Capability Theory builds on this by focusing on an organisation's capacity to combine, acquire, and reconfigure internal and external capabilities to respond to changing environments (Öztürk, 2024). While RBV explains AI adoption as a valuable strategic resource, DCT explains how organizations reconfigure and integrate such resources to create value. Thus, AIA represents a strategic asset, whereas DTC acts as the organizational mechanism through which AI resources are converted into superior performance outcomes. DTC is the dynamic

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capability which is defined as the ability of the organization to integrate the technological resources with the strategic goals (Rajan, 2025). Digital transformation processes can redesign business models, process efficiency and enable new opportunities for value generation. The combination of RBV and DCT provides a fitting basis for examining how the adoption of AI affects the performance of organizations. AI technologies can be viewed as strategic assets, and digital transformation capability can be seen as a way to turn technological potential into real results of performance. The integrated view indicates that the benefits of the organization may come not only from the acquisition of technology but also from the proper processes of capability development and transformation. Accordingly, RBV explains why AIA can create competitive advantage, whereas DCT explains how DTC enables organizations to sense opportunities, seize technological benefits and transform operational processes. This integrated perspective provides the theoretical basis for all proposed hypotheses.

2.2 Adopting AI and implementing Digital Transformation Capability

Today, AI is emerging as a key pillar of the organizational digitalization efforts. AI technologies enable data processing, predictive analytics, machine learning applications, and intelligent decision support systems to enhance organizational responses and operational efficiency (Yaşar, 2024). When an organization implements or rolls out AI technologies, they often rework their processes and organization to integrate the technology. The need for such change is sometimes great transformations of business processes and organizational practices (Veerasingam & Perumal, 2025).The ability of an organisation to make the changes required because of digital transformation and to adjust structures and processes is called “digital transformation capability”. The adoption of AI technologies could enable firms to build up their digital capabilities due to the need for technological infrastructure, employee adaptation, and process reconfiguration (Balakrishna et al., 2026). AI-based systems enable organization learning and enhance the capacity for efficient digital resource management.The use of technology has been found in some past research to be an important precursor to organizational change efforts. AI systems can streamline mundane tasks, boost communication efficiency, and boost strategic agility (Najana et al., 2024). The more that organizations use AI technologies, the more quickly they will grow in digital maturity and technological capabilities. All these arguments suggest that the use of AI could be beneficial to digital transformation capability. From a DCT perspective, AIA compels organizations to redesign workflows, develop digital skills and integrate data-driven processes. These changes strengthen an organization's ability to execute DTC initiatives, suggesting a positive relationship between AIA and DTC. Hence it is hypothesized that:

H1: Artificial Intelligence Adoption has a significant positive effect on Digital Transformation Capability.

2.3 Digital Transformation Capability and Organizational Performance

Organizational performance is a multi-dimensional concept that is used to measure the efficiency and effectiveness in meeting organizational strategic and operational goals (Wang & Zhao, 2022). Typical performance outcomes are productivity gains, economic expansion, operational efficiency, innovation potential, and competitive edge (Panda et al., 2025). The ability to create digital transformation has been identified as a key factor for success in organizations. Digital organizations have the ability to quickly respond to market changes and technological advancements (Konopik et al., 2021). By leveraging digital transformation, companies can streamline their operations, optimize their resource use, and boost customer engagement. It further enables data-driven decision making and organizational agility (Öztırak, 2024).

A company that is technologically advanced clearly has more flexibility and innovation potential. Integrating digital technologies in business processes can enhance collaboration and coordination between departments, as well as minimise inefficiencies. These capabilities have a positive impact on the overall performance outcomes, allowing for greater responsiveness and alleviating operation, control, and coordination constraints (K V et al., 2025).Empirical research has shown positive relationships between digital transformation programs and organizational effectiveness. The companies that achieve digital transformation can see a rise in productivity, customer satisfaction, and financial gains (Bouarar et al., 2022; Kidschun, 2024). These results indicate that the digital transformation capability can be a strong factor influencing organizational performance.

H2: Digital Transformation Capability has a significant positive effect on Organizational Performance.

2.4 Artificial Intelligence Adoption and Organizational Performance

With the advent of artificial intelligence technologies, there have been significant interests in the consequences of its use on organizational outcomes. With AI applications, organizations can handle vast

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amounts of information, automate repetitive tasks, and assist with complex decision-making processes. The technological functions can enhance efficiency, and can also support strategic planning.The use of AI technologies has been growing in popularity among organizations, with a focus on areas such as cost reduction, enhancing service quality, and boosting competitiveness (Kalyan Kumar & Keerthiga Priyatharsini, 2025). AI powered systems help to process information quickly and offer insights that could improve managerial decision making. This can help to increase productivity and the effectiveness of the organization.

Studies focusing specifically on the impact of AI on organizational performance have yielded mixed results, with most demonstrating a positive impact. AI technologies have been linked to increased innovation, better customer experiences, and better resource allocation (Nasiru et al., 2025). Companies can benefit from higher levels of precision and adaptability by using AI systems.While there is evidence to support the benefits of implementing AI, several studies have indicated that the benefits of AI adoption may not be enough to ensure performance improvements (Nasiru et al., 2025). The level of technological integration and readiness of organizations may influence the organizational outcomes. Despite all these factors, the literature shows that there is a direct positive relationship between the use of AI and performance.

H3: Artificial Intelligence Adoption has a significant positive effect on Organizational Performance.

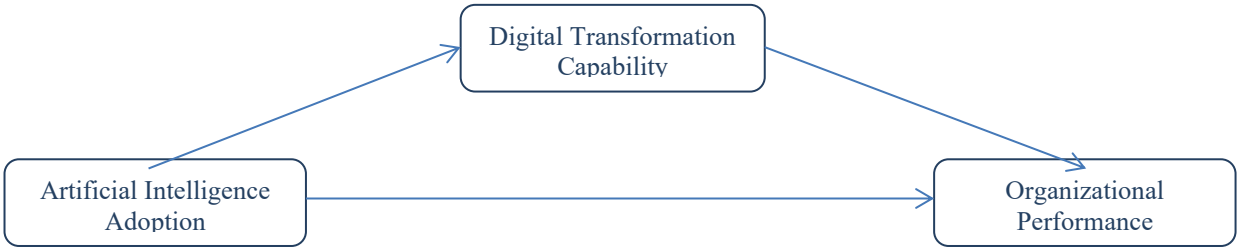
2.5 The Mediating Role of Digital Transformation Capability

Technological resources can often lead to organizational value by intermediate processes as well. There are potential pathways by which AI adoption could impact organizational outcomes that involve changes in organizational structures and operations (Feng et al., 2024; Nasiru et al., 2025). One of these mechanisms could be digital transformation capability.The adoption of AI technologies may involve a change in conventional business processes and the development of digitally integrated systems (Subramanyam, 2025). When firms have the capacity to leverage technological resources into operational improvements, they create value through the application of AI. Those that effectively embed AI capabilities into their larger digital efforts stand to gain better performance results.

The integrated RBV-DCT framework suggests that technological resources alone rarely generate performance gains. Rather, organizational capabilities act as transformation mechanisms that convert technological investments into strategic outcomes. Therefore, DTC is expected to mediate the relationship between AIA and OP. The capability for digital transformation allows companies to adjust, learn and react to changes in the environment (Alrub & Sánchez-Cañizares, 2025). Companies that can take full advantage of AI technologies in the context of digital transformation are likely to see greater productivity benefits and competitive edge.To date, there has been growing attention to the role of mediating mechanisms in the technology-performance linkage. The pathway of how the adoption of AI affects organizational effectiveness might be further reinforced as digital transformation capability is enabled, so as to help enhance the organizational capability to adapt and improve.

H4: Digital Transformation Capability acts as a mediator between Artificial Intelligence Adoption and Organizational Performance.

The study suggests a theoretical framework that connects the adoption of artificial intelligence, the organizational's digital transformation capability with organizational performance, based on the theoretical arguments and empirical evidence found in the literature. The framework assumes that the adoption of the AI impacts directly on the capability of digital transformation and the performance of the organization. Digital transformation capability also is a direct determinant of organizational performance, and at the same time a mediator between the use of AI and the performance of the organization.The proposed framework (figure 1) links how AI adoption can lead to organizational outcomes via creation and evolution of digital capabilities. This model is the foundation for empirical tests in the following parts of the study.



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Figure 1: Conceptual Framework

3. Methodology

The present study adopted a quantitative research design, and specifically, it aimed at investigating the relationships between Artificial Intelligence Adoption, Digital Transformation Capability and Organizational Performance. A cross-sectional survey was conducted among employees and professionals in technology-enabled organizations. Respondents were from managerial, supervisory, and operational roles. Data were collected between January and March 2026 using purposive sampling. Structured questionnaires were used to gather data for this study, which was sent out via online methods and professional networking platforms. Prior to participation, respondents were informed about the purpose of the study and informed consent was taken. Participation was voluntary and anonymous responses were recorded. After screening for incomplete and inconsistent responses, 245 responses were obtained and analyzed. The size of the sample is appropriate for the structural equation modeling recommendations and is adequate for the PLS-SEM analysis. The questionnaires included previously validated measurement scales adapted from previous research. The AIA was determined by six items based on Mikalef et al. (2020). DTC was measured on the basis of 6 items adapted from Warner and Wäger (2019). The five items from Delaney and Huselid (1996) were adapted to measure OP. Questions were all answered on a 5-point Likert scale from 1 to 5.The data analysis was done using ADANCO software by PLS-SEM. The analysis were conducted in two stages including measurement model assessment and structural model assessment. Path relationships and mediation effects were first assessed for reliability, convergent validity and discriminant validity, and then for path relationships and mediation effects, hypothesis testing was done by applying bootstrap procedures. Prior to hypothesis testing, collinearity diagnostics were checked using variance inflation factor (VIF) values. The VIF values ranged from 3.11 to 5.93, below the recommended threshold of 10 indicate that multicollinearity and potential common method bias were not significant.

4. Results

4.1 Measurement Model Assessment

Indicator reliability, internal consistency reliability, convergent validity and discriminant validity were examined to evaluate the measurement model. All the loadings values were higher than the recommended value of 0.70 for all the constructs with values being AIA 0.842 to 0.944, DTC 0.842 to 0.920, and OP 0.850 to 0.912. The values in these categories represent acceptable indicator reliability.The internal consistency reliability was tested with Dijkstra-Henseler's rho (ρA), Jöreskog's rho (ρc) and Cronbach's alpha (α). The reliability values for AIA (ρA = 0.9625; α = 0.9621), DTC (ρA = 0.9477; α = 0.9471), and OP (ρA = 0.9434; α = 0.9429) exceeded the recommended threshold of 0.70, demonstrating strong internal consistency among the measurement items.Average Variance Extracted (AVE) was used to test the convergent validity. The AVE for AIA (0.8089), DTC (0.7491) and OP (0.7677) were significantly higher than the cut-off value recommended by 0.50, indicating good convergent validity.

Table 1. Reliability and Convergent Validity

Construct	Cronbach's Alpha	rhoA	Composite Reliability	AVE
AIA	0.9621	0.9625	0.9621	0.8089
DTC	0.9471	0.9477	0.9471	0.7491
OP	0.9429	0.9434	0.9429	0.7677

These findings indicate that the variance of the latent constructs corresponding to these indicators is reasonably accounted for by these indicators.The two measures for discriminant validity were HTMT and the Fornell-Larcker criterion. The HTMT range was 0.7524–0.8437 i.e., below 0.90, which was recommended, showing satisfactory discriminant validity.

Table 2. HTMT Discriminant Validity

Construct	AIA	DTC	OP
AIA	-	-	-
DTC	0.7989	-	-
OP	0.7530	0.8443	-

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Similarly, the Fornell-Larcker criterion showed that the square root of AVE exceeded their correlations with other constructs for each construct.

Table 3. Fornell-Larcker Criterion

Construct	AIA	DTC	OP
AIA	0.899*		
DTC	0.6385	0.865*	
OP	0.5682	0.7135	0.876*

"*Square root of AVE. The square root of AVE for each construct exceeded its inter-construct correlations, satisfying the Fornell-Larcker criterion."

4.2 Model Fit Assessment

The overall model fit was assessed using the standardized root mean square residual (SRMR), d_ULS and d_G statistics. The SRMR value was 0.0196, much lower than the threshold value of 0.08, suggesting the model had a good fit. Likewise, d_ULS (0.0591) and d_G (0.1400) were found to be within the limits of the HI95 and HI99 confidence interval values, supporting the acceptability of the model.

Table 4. Model Fit Indices

Fit Index	Value	HI95
SRMR	0.0196	0.0232
dULS	0.0591	0.0823
dG	0.1400	0.1751

The resultssupport suitability of structural model for further analysis, with satisfactory fit.Path coefficient, t-value, and p-value arepresented in Table 1.

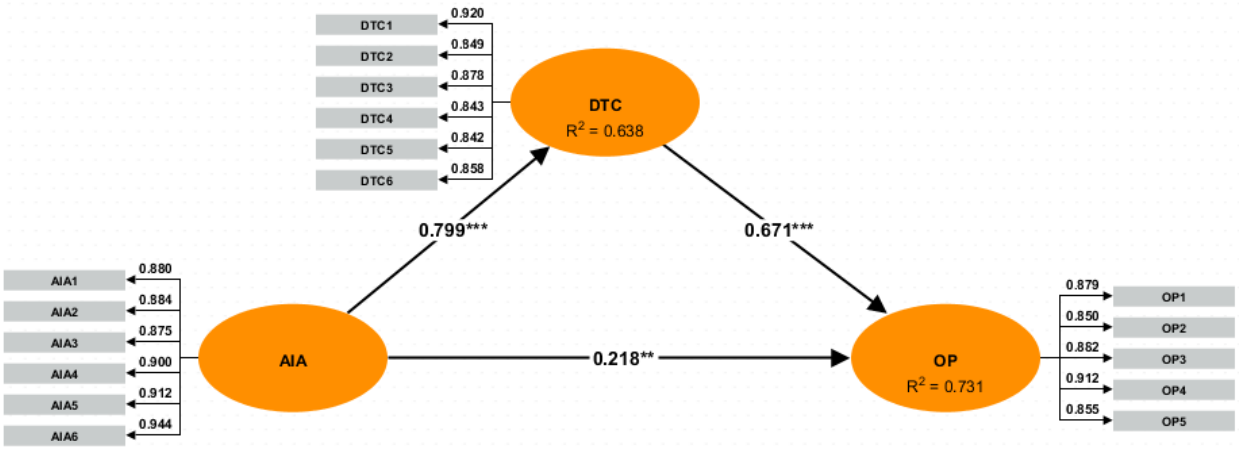


Figure 2: Structural Model

The correlation between AIA and DTC was positive and statistically significant (β = 0.799, t = 29.9208, p < 0.001), which supported H1. The findings suggest that the more advanced the level of AI adoption in an organisation, the more advanced it is also at a digital transformation level.The DTC also had a positive and significant relationship with OP (β = 0.6705, t = 9.7491, p < 0.001), which was consistent with H2. This discovery implies that those organizations with higher digital transformation competency can more easily deliver better performance results.

The findings showed a positive and significant relationship between AIA and OP (β = 0.2180, t = 3.0497, p = 0.0023), which supported H3. The finding shows that the use of AI has a direct impact on enhancing organizational performance.Coefficient of determination (R2) was used as an evaluation for the explanatory power of the model. The variance in Digital Transformation Capability (R2 = 0.638) was explained by Artificial Intelligence Adoption. The combined variance of AI Adoption and Digital Transformation Capability was 73.1% (R^2 = 0.731) for Organizational Performance. These values suggest good explanatory power as per standard guidelines.

4.4 Mediation Analysis

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Bootstrapping procedures were used to analyze the relationship between AIA and OP as mediated by DTC. The indirect effect was positive and significant ($\beta = 0.5358$, $t = 9.2133$, $p < 0.001$) and was consistent with H4.The results show a partial mediation as both the direct effect of AI Adoption on Organizational Performance and the indirect effect via Digital Transformation Capability are statistically significant. It indicates that adoption of AI boosts organization performance directly as well as directly via the enhancement of digital transformation capability.

Table 5. Summary of Hypothesis Testing

Hypothesis	Path	β	t-value	p-value	Result
H1	AIA → DTC	0.799	29.9208	<0.001	Supported
H2	DTC → OP	0.6705	9.7491	<0.001	Supported
H3	AIA → OP	0.2180	3.0497	0.0023	Supported
H4	AIA → DTC → OP	0.5358	9.2133	<0.001	Supported

The results show that AI implementation makes a significant contribution to organisational performance via direct channels and by boosting the capability of digital transformation. The key mediating effect of digital transformation capability indicates that developing organizational capability is crucial in translating investments in AI into actual performance improvements.

5. Discussion and Implications

The present study explore the connections between AIA, DTC and OP. The results offer empirical evidence of the positive relationship between the adoption of AI and the digital transformation capability and between the digital transformation capability and organizational performance, as well as between the adoption of AI and organizational performance. Furthermore, the mediation analysis reveals that the digital transformation capability is a partial mediator between the adoption of AI and organizational performance. The results provide new insights into the relationship between the use of technology investments and their impact on organizational outcomes. The strong relationship between AIA and DTC suggests that AI functions as a catalyst for organizational renewal. This finding is in consistent with Balakrishna et al. (2026), who argued that AI and digital transformation initiatives enhance organizational agility and technological capability development. It also supports the observations by Najana et al. (2024), who highlighted the role of AI in facilitating organizational transformation through process redesign and digital integration. The present study further confirms that AIA serves as an important driver of DTC. The outcome agrees with the Resource Based View assumptions that strategic technological resources generate value when combined with bigger organization systems (Gupta et al., 2026).

The results also confirm that the DTC has a significant role in OP. The finding is in line with Konopik et al. (2021), who emphasized that organizational capabilities developed through DTC improve business effectiveness and strategic responsiveness. Similarly, Shuib et al. (2026) reported that digital transformation contributes positively to OP through capability enhancement. The current study reinforces this evidence by demonstrating a strong positive relationship between DTC and OP. This strong relationship indicates that performance enhancements within an organization come as a result of capability development and process change, not just technology implementation. The direct impact of AI adoption on organization performance was also statistically significant, but had a relatively lower impact than the digital transformation capability. The discovery indicates that AI technology has an independent impact on organizational outcomes, as it enhances organizational efficiency and helps in making decisions. But the relatively small direct impact suggests that AI is not the only avenue for achieving the potential benefits for organizations. Significant performance gains seem to be more pronounced when AI technologies are integrated into larger transformation projects.

One of the most significant findings of this study is to be found in the mediation results. AI adoption was partially mediated by digital transformation capability. The result indicates that there is a significant indirect effect of AI on performance via organizational transformation mechanisms. Partial mediation suggests that there are two pathways to the impact of AI adoption on performance. There are two pathways: the first one is technological, which is represented by the automation and enhancement of information processing capabilities; the second one is capability, which is represented by organizational restructuring.The results support the theoretical assumptions suggested by integrating RBV and DC theory. Resource Based View suggests that valuable resources lead to competitive advantage, and Dynamic Capability Theory focuses on the ability of an organization to integrate and reconfigure resources in conditions of changes. Results show

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that AI technologies can be valuable resources, but organization performance gains are more prominent when these technological resources become capabilities through digital transformation processes. This suggests that capability development acts as a medium between technological resources and organizational products.

5.1 Theoretical Implications

The study highlights some theoretical implications. First, it adds to a body of growing research on AI and organizational performance that adds digital transformation capability as an explanatory mechanism. Previous research has tended to concentrate on the direct link between technology and performance, and has neglected to consider any intermediate organisational processes. The current results highlight the importance of organizational ability in the understanding of the performance effects of technological investments.Secondly, the study is an extension of the application of RBV and DCT in technology management research. The results confirm the hypothesis that competitive advantage is a product not only of technological assets, but also of the capacities of the organizations to effectively utilize and develop the assets.Third, the study is an addition to the digital transformation literature, as it sets the stage for digital transformation capability as an active organizational mechanism and not just a passive technological outcome. This view enriches the current knowledge on digital skills and their contribution in an organization's strategic context.

5.2 Practical Implications

The results offer significant managerial insights for organisations aiming to achieve an optimal return on their investments in AI. It's important for managers to understand that AI technologies are not always a straightforward formula for improved organizational performance. A parallel effort to support digital transformation capability must be undertaken in parallel with investments in technological infrastructure.Organizations need to build flexible digital systems, focus on organizational learning, and re-design operational processes to ensure that they are aligned with technological innovations. Additionally, companies could require funding for employee training initiatives and the enhancement of digital skills to aid in the implementation of technology and capability building.Managers should consider AI adoption within the context of an organisational transformation journey and not as a standalone technological solution, as the results indicate that digital transformation capability is an important mediator. Businesses that can leverage AI technologies and transformation efforts can enhance their operations and gain sustainable competitive edge.The significant explanatory power of the proposed model suggests that there is a potential for transforming performance outcomes if AI adoption and digital transformation capabilities are strengthened simultaneously in an organization. Organisational managers and policies should consider a holistic approach to digital strategy, which integrates digital technologies with capability building programs for sustainable organisational development.

6. Conclusion

This study explored the effect of Artificial Intelligence Adoption (AIA) on Organizational Performance (OP) and its mediating effect in the relationship between the two constructs. The study highlights that AIA enhances OP both directly and through DTC. The study further showed that the capability of digital transformation has a positive influence on the performance of the organization, and plays a significant mediating role between AI adoption and organizational performance. AI implementation has a direct impact on organizational performance by making things more efficient, effective, and better organized, but a significant portion of its impact is indirect through improvements in digital transformation capability. These results further support the theory that without access to technology resources, sustained competitive advantages are not possible without the organizational resources.This study builds on the previous research by combining the RBV and DCT to understand how AI resources can be converted to performance. This study has several limitations. First, the cross-sectional nature of the study restricts causal inference. Second, the data collection from a single respondent group may attract common method bias despite the statistical checks performed. Third, the sample was limited to technology-oriented organizational environments may affect the generalizability of the findings. Future research may be conducted using longitudinal designs to examine the long-term impact of AIA on OP. Additional mediating and moderating variables like organizational culture, digital leadership, innovation capability and employee readiness may be employed in future research. Comparative studies across industries, countries and cross-cultural context may enhance the generalizability of the findings.

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