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AI CAPABILITY AND FIRM PERFORMANCE: A DYNAMIC CAPABILITIES PERSPECTIVE ON DECISION-MAKING QUALITY

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Abstract
In today's agile business landscape, Artificial Intelligence (AI) has emerged as a key strategic asset for companies looking to optimize business performance. Although AI investments have been increasing, not much research has focused on how AI capability can affect firm performance. Based on the Dynamic Capabilities Perspective (DCP), the present study examines the connection between the AI capability, decision-making quality, and firm performance. The study also explores the mediating effect of decision making quality between AI capability and firm performance. The design of the research used was quantitative and the respondents were 245 people who belong to organizations that are implementing technologies powered by AI. Measurement scales from previous studies were adapted to quantify the aspects of AI capability, quality of decision-making, and firm performance. Data collected were analyzed by using the software ADANCO, namely by Partial Least Squares Structural Equation Modeling (PLS-SEM). The results confirmed that the capability of AI has a positive and significant impact on decision-making quality and firm performance. The quality of the decisions also proved to impact firm performance positively. The mediation analysis verified the presence of a partial mediation between AI capability and firm performance. The study helps the existing literature by elucidating the mechanism of generating organizational value through the use of AI capability and the enhancement of managerial decision making processes. The results also offer implications for organizations looking to enhance their strategic responsiveness and competitive edge with AI-driven decision systems. AI's capabilities are opening up exciting new areas for growth in the business world, with the ability to enhance the effectiveness of decision-making and the performance of the firm.AI capabilities are increasingly a viable option for businesses in

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several sectors as they can improve the decision-making process and boost business performance.

Keywords**:** *Performance, capability, technologies, businesses strive, Dynamic , capabilities*

1. Introduction

One of the most impactful technological developments which is transforming the modern business organizations is Artificial Intelligence or AI. More and more organizations across multiple industries are turning to AI-based systems to help in strategic planning, operations, customer relations management, forecasting, and decision-making (Kalyan Kumar & Keerthiga Priyatharsini, 2025). With the widespread use of big data, cloud computing, machine learning algorithms, and intelligent analytics, AI capabilities are becoming more and more readily adopted as businesses strive to enhance efficiency, responsiveness, and competitive edges (Yaşar, 2024). As organisations keep pouring resources into AI technologies, there is still uncertainty on the part of some organisations about how AI capability can translate to good organizational performance and how (Gupta & Kumar Gupta, 2025). The benefits of AI in automation, analytical processing, and information management have been recognized in the existing literature. However, many companies do not achieve the benefits of their technologies that they anticipated upon great investment (Perifanis & Kitsios, 2023). A part of it is because people believe that adopting technology directly leads to successful organization. Yet, the true value that companies can obtain from AI is not just having the technological infrastructure, but also the capacity to apply AI-powered insights for strategic and operational decisions (Mitra et al., 2024). This shows that the quality of decision-making processes could be a pivotal organizational process between the ability of using AI and firm performance.

This relationship can be explained using the DCP. Dynamic capabilities are the internal and external competences that a firm can integrate, develop and reconfigure in an environment of rapid change (Sunder M et al., 2019). AI capability can enhance the organisational sensing, learning, and adaptive aspects in digitally intensive business environments, empowering managers to manage complex information quickly and make informed decisions in an uncertain environment (Liu et al., 2024). Companies with robust AI skills can thus benefit their decision-making process by making more precise predictions, real-time analytics, risk assessment, and strategic agility (Hani & Akter, 2024). These enhancements can then impact the performance results of an organization. As the use of AI grows and attention is drawn to digital transformation, there is still a dearth of empirical research on the relationship between AI capabilities, decision-making quality, and business effectiveness. Most previous research studies have concentrated on the technical aspects of innovation, its impact on operational efficiency or its impact on the outcome of innovation, with relatively little attention paid to the mediating variables associated with managerial decision making processes (Nasiru et al., 2025). Likewise, there is a lack of studies based on the DCP that statistically examine the link between AI capability and performance improvement via organizational decision quality (Wamba-Taguimdje et al., 2020). In an effort to close this gap, the current study examines how AI capability affects company performance, using decision-making quality as the intervening variable. By gathering information from 245 respondents and using ADANCO software to analyse it, the study empirically tests the suggested framework. The results demonstrate a favorable correlation between AI capability and business performance as well as a positive and significant relationship between AI competence and decision-making quality. Additionally, the results verify that the relationship between AI capabilities and business performance is mediated by decision-making quality.

This research adds literature in a few ways. First, it complements the Dynamic Capabilities Perspective by making AI capability a strategic organizational capability, which helps to improve adaptive decisions-making processes. Second, it provides a new key explaining

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mechanism: decision making quality. Second, it incorporates a new key explaining mechanism: decision making quality. Third, the study offers empirical evidence that supports the strategic role of AI-enabled managerial practices in organizations. The results also have managerial and organizational implications for maximizing AI investments' benefits. Indeed, the findings indicate that AI is not just a technological device, but a capability that enhances the organization's intelligence and the quality of decision-making. Companies that successfully leverage AI in managing their operations could enhance their ability to respond quickly, optimize operations and boost their future success in an gradually data-driven and volatile company landscape.

2. literature review and Hypothesis Development

2.1 Dynamic Capabilities Perspective

A theoretical framework that has become a powerful tool to comprehend how firms maintain competitive advantage in volatile business settings is the DCP (Teece, 2025). The theory focuses on a firm's ability to combine external and internal resources, develop them and reconfigure them when dealing with uncertainty in the environment and technological disruption (Ahmadi & Arndt, 2022). The Dynamic Capabilities Perspective emphasizes on the adaptability, learning and strategic renewal of the organization as the determinants of performance in the long term, in contrast to traditional resource-based view where the emphasis is on valuable and rare resources (Rettig & Schreyögg, 2020). In the context of dynamical environments, Teece et al. proposed the need for detection, grabbing and transforming capabilities for firms to remain competitive. Sensing capabilities consist of discovering opportunities and threats in the external environment, seizing capabilities of mobilizing resources and making strategic decisions, and transforming capabilities of adapting the organizational processes and structures to the changing external market demands (Engelmann, 2023). AI capability, in the digital era, may be considered a strategic dynamic capability that contributes to the organization's learning capability and analytical competence and supports the adaptive decision-making process. The use of AI capability allows companies to gather, analyze, and understand a huge amount of structured and unstructured data in real-time (Hassan Hussein et al., 2023). AI-powered systems have become essential components for organizations to leverage in their forecasting, strategic planning, customer analysis, risk evaluation, and operational optimization processes. As per DCP, AI capability enhances the firm's capacity to sense changes in its environment and increase the managerial responsiveness using data-based insights (Asiedu, 2025). It offers a thorough conceptual model to address the connection between AI capabilities, decision-making quality, and company performance based on this idea.

2.2 AI Capability

AI capability is how well a company can implement AI-related technologies, skills, infrastructure, and knowledge to facilitate strategic and operational functions (Itodo et al., 2024). This includes technological readiness, data management capabilities, analytical skills, employee expertise, and organizational support for AI-driven initiatives. This prospect of AI is rapidly evolving into a valuable resource for enterprises, contributing to innovation, agility, and a competitive edge (Han et al., 2025). Current studies have shown that organizations that have strong AI capabilities are more likely to be able to optimize their processes, automate repetitive tasks, and derive insights for action from data (Umamaheswari et al., 2024). AI-powered systems empower companies to identify market trends, predict customer behaviour, streamline resource utilization, and make informed decisions (Adesoga et al., 2024). Furthermore, researchers have claimed that the ability to provide AI can enhance an organization's flexibility, as they are able to adjust quickly with changing business environments (Kabus, 2025). The DCP is in line with the thesis that the AI capability is a factor to the adaptability and strategic responsiveness of the organization. Companies with cutting-edge AI capabilities can enhance their information-handling capabilities and boost the

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managerial understanding of complex business conditions (Kabus, 2025). This kind of power is especially important in uncertain and intensely competitive markets where speedy decision-making is critical. While there's been a lot of investment in AI technologies, there is a wide variation in how AI technologies are turning into real organizational productivity (Agarwal, 2025). This is because the capability of AI technology doesn't necessarily mean it will enhance firm performance in general unless firms manage to leverage the AI insights in managerial activities and decision-making processes.

2.3 AI Capability and Decision-Making Quality

Decision making quality is the accuracy, timeliness, rationality, consistency and consistency of organizational goals of the management decisions (Sedky, 2026). By enabling businesses to make informed choices, minimize risks, and optimize strategic agility, high-quality decision-making is essential (Ortiz, 2023) Decision making relies more and more on information being available, tools for analysis and information processing in modern organisations. By boosting the accuracy of information, the speed of analysis, and the predictive intelligence of organizations, AI capability can play a significant role in enhancing organizational decision making capability (Islam, 2026). AI systems assist managers by detecting patterns, making predictions, assessing options and reducing cognitive biases in the decision-making process. Machine learning algorithms and intelligent analytics also enable companies to analyse large amounts of data that are beyond human analytical capacity (Ahuja, 2024). Previous research has shown that AI based decision systems enhance strategic planning, operational forecasting, supply chain management and customer relationship decisions (Isoe, 2024). AI technologies can help organizations ensure more efficient coordination and quicker response times, as managers are provided with real-time information and predictive insights. AI capability helps to enhance managerial capability, particularly in uncertain and evolving contexts (Rajagopal, 2024). AI capability can be seen as an extension of sensing and seizing capabilities by helping firms to better understand the signals in their environment and act strategically in response. Companies that have higher capabilities in AI should thus show better decision-making quality.

H1: There is a statistically significant relationship between AI capability and decision making quality.

2.4 Decision-Making Quality and Firm Performance

Firm execution is how well the firm is doing in attaining desired firm strategic and operational outcomes. Commonly measured with metrics like profitability, operational efficiency, market growth, innovation, customer satisfaction, and competitive advantage (Bolton et al., 2023) Strategic decisions significantly affect how the organization allocates its resources and positions itself in the market, as well as its ability to adapt, thereby significantly impacting organizational performance. Effective decision-making helps companies capitalize on its opportunities and mitigate risks in its operations and enhance strategic execution (Deep, 2023). Organizations that can make timely and evidence-based decisions are usually more responsive to changes in the environment and competition. Good decision are also promoted by better cooperation between higher efficiency in the operation and.organisational departments (Panpatte & Takale, 2023). In the business world, where the climate of activity is constantly changing, managerial skill in interpreting information correctly and reacting quickly can be a tremendous asset. The DCP also presents that the essential to organizational success is not only to possess the resources but also to be able to manage the resources in a proper way (Sunder M et al., 2019). Quality of decision making is an organizational mechanism that is crucial for firms to adjust to environmental uncertainty and maintain the performance benefits (Sedky, 2026). Assessing these arguments, it is anticipated that companies with better quality decision making will have better performance results.

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H2: Decision-making quality has a positive effect on firm performance.

2.5 Mediating Role of Decision-Making Quality

While AI capability offers a company cutting-edge technological and analytical tools, the gains from AI assets investments may not directly correspond to enhanced company performance (Agarwal, 2025). Many companies underestimate the benefits of technology and do not see the gains they anticipate because they have not integrated appropriate management processes to leverage the insights provided by the technology (Sharma & Reddy, 2024). The capability of AI also improves the information-processing capacity of the organization and can assist with managerial assessment of strategic alternatives. (Odeibat, 2023) AI-driven insights can enable managers to make more rational decisions, decrease uncertainty, and increase the accuracy of forecasts. These enhancements in decision-making efficacy can then impact the efficiency of operations, strategic agility and overall firm performance (Kewalramani & Agnihotri, 2025). Previous research has increasingly focused on how organizational processes can contribute the transformation from technological capability to outcomes ((Raina et al., 2025)). The researchers believe not only that companies benefit from the adoption of technology, but also when that technological intelligence is embedded into companies' decision-making processes (Aini et al., 2024). This indicates that a key facilitating factor between AI competence and business effectiveness may be the calibre of decision-making. The Dynamic Capabilities Perspective suggests that AI capability helps build organizational sensing and learning capabilities, and decision-making quality is a measure of the firm's ability to capitalize on opportunities and execute strategic actions. These skills can work in concert to enhance an organization's performance and flexibility in changing circumstances. According to the study's theory, decision-making quality acts as a mediator in the relationship between AI capabilities and a firm's performance.

H3: The effect of AI capability on firm performance is partially explained by decision-making quality.

3. Methodology

The current study used a quantitative research approach to examine the relationship between AI capabilities, decision-making quality, and company performance. Professionals and managerial personnel of businesses that employ AI technologies were surveyed using a standardized questionnaire. During the process 245 valid responses were returned and analysed. Measurement scales were used that were already established and adapted from previous research to ensure reliability and validity. The ability of AI was assessed through the use of items derived from Mikalef and Gupta, (2021), which enable the assessment of organizational competence in the area of AI infrastructure, analytical capability and integration of AI in the business processes. The scale developed by Dean and Sharfman (1996) was used to measure decision making quality, which was based on the effectiveness, rationality and timeliness of managerial decision making processes. The evaluation of the firm's performance was based on subjective performance measures taken from Venkatraman and Ramanujam (1986) such as operational efficiency, market performance and overall organizational effectiveness. The constructs were all scaled between 1 = “Strongly Disagree” and 7 = “Strongly Agree.” Before the final survey was administered, the questionnaire was pretested with professionals from academia and business to ensure its content validity and the measuring items' clarity. The program known as ADANCO was used to evaluate the data using the Partial Least Squares Structural Equation Modelling (PLS-SEM) analysis approach. The technique was deemed to be appropriate because it was suitable for prediction-oriented research models and mediation analysis. Average variance extracted (AVE), composite reliability, factor loadings, and Cronbach's alpha were used to evaluate validity and

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reliability). The significance of the proposed correlations between the research constructs was tested using bootstrapping and path coefficient analysis.

4. Results Analysis

Partial Least Square Structural Equation Modeling (PLS-SEM) with ADANCO software was used to analyze the measurement model and structural model. Model fit, reliability, convergent validity, discriminant validity, and bootstrapping methods were assessed in order to test hypotheses.

4.1 Model Fit Assessment

The total model fit was evaluated using dULS, dG, and standardized root means square residual (SRMR) values. A decent model fit is suggested by the SRMR value of 0.0197, which is less than the suggested SRMR value of 0.08. Likewise, the dULS and dG value were found to be lower than the HI95 and HI99 value indicating that the model was adequate.

Table 1. Model Fit Indices

Fit Index	Obtained Value	Threshold	Interpretation
SRMR	0.0197	< 0.08	Good fit
dULS	0.0666	< HI95 (0.0945)	Acceptable
dG	0.1573	< HI95 (0.1969)	Acceptable

4.2 Measurement Model Assessment

4.2.1 Reliability Analysis

Cronbach's alpha, Jöreskog's rho (ρc), and Dijkstra-Henseler's rho (ρA) were used to evaluate construct reliability. Strong internal consistency among the measurement items was indicated by all reliability values exceeding the suggested criterion of 0.70.

Table 2. Construct Reliability

Construct	Dijkstra-Henseler's rho (ρA)	Jöreskog's rho (ρc)	Cronbach's Alpha
AI Capability (AIC)	0.9621	0.9616	0.9615
Decision-Making Quality (DMQ)	0.9483	0.9477	0.9477
Firm Performance (FP)	0.9531	0.9525	0.9525

The findings indicate excellent reliability for all constructs used in the study.

4.2.2 Convergent Validity

Average Variance Extracted (AVE) was used to evaluate convergent validity. A substantial amount of the variance in the indicators was explained by the constructs, as evidenced by the fact that all the AVE values were higher than the designated threshold of 0.50.

Table 3. Convergent Validity

Construct	AVE
AI Capability (AIC)	0.8068
Decision-Making Quality (DMQ)	0.7515

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Firm Performance (FP)	0.7697

The results confirm satisfactory convergent validity for all latent constructs.

4.2.3 Discriminant Validity

The discriminant validity was assessed using the Fornell-Larcker Criterion and the Heterotrait-Monotrait Ratio (HTMT). Since all HTMT values were below the 0.90 criterion, the constructs' discriminant validity was deemed good.

Table 4. HTMT Ratio

Constructs	AIC	DMQ	FP
AIC	—	—	—
DMQ	0.7992	—	—
FP	0.7485	0.8404	—

The Fornell-Larcker Criterion also supported discriminant validity because the square root of AVE values on the diagonal was larger than the inter-construct correlations.

Table 5. Fornell-Larcker Criterion

Constructs	AIC	DMQ	FP
AIC	0.8068		
DMQ	0.6391	0.7515	
FP	0.5627	0.7081	0.7697

The findings show that every construct is empirically different from the others.

4.3 Structural Model Assessment

To evaluate the structural model, bootstrapping approaches were used to produce path coefficients, t-values, and p-values. Every association that was hypothesized was substantial and positive.

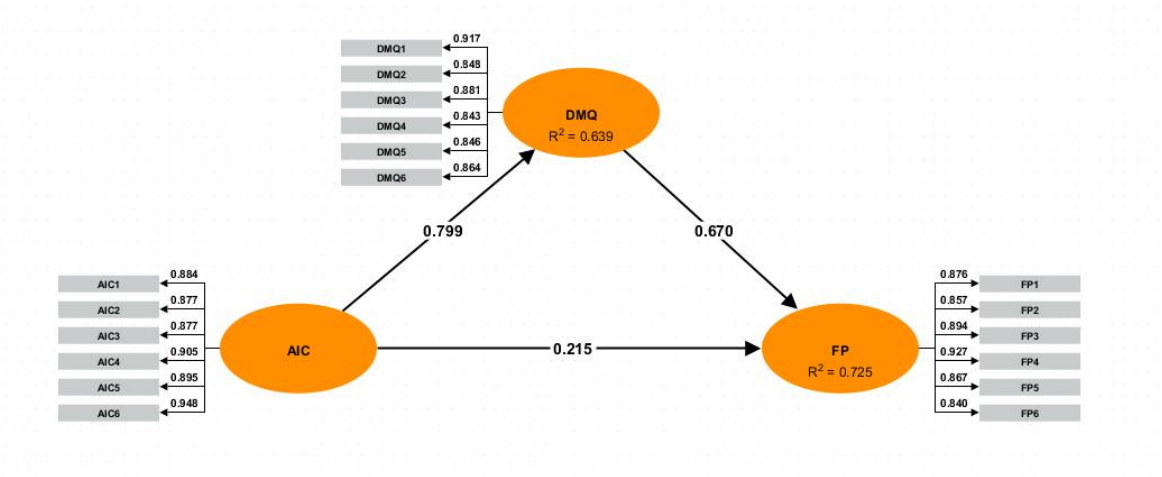

Figure 1. Structural Model Results

The results show that the characteristic of decision making is significantly better when using AI capability ($\beta = 0.7994$, $p < 0.001$). The results also suggest that the quality of decision

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making has a significant impact on firm performance (β = 0.6699, p < 0.001). The direct effect of AI capability on firm performance was also significant (β = 0.2146, p < 0.01). The coefficient of determination (R2) results indicated that the variance in decision making quality was explained by 63.9% of the AI capability, and 72.5% of the modification in firm performance was described by both AI ability and decision making quality. These values are significant in terms of goodness of prediction of proposed model.

4.4 Mediation Analysis

Bootstrapping analysis of indirect effects was used to test the mediation effect. The correlation between AI capability and decision-making quality was positive and statistically substantial, signaling that AI capability plays a positive indirect role in firm performance via decision-making quality.

Table 6. Direct Effects and Hypothesis Testing

Hypothesis	Relationship	Path Coefficient (β)	t-value	p-value	Result
H1	AIC → DMQ	0.7994	29.9533	0.0000	Supported
H2	DMQ → FP	0.6699	9.5791	0.0000	Supported
H3	AIC → FP	0.2146	2.9295	0.0034	Supported

The significant indirect effect demonstrates that AI capabilities and firm performance, including decision-making quality, are mediated. The findings show that improvements in managerial decision-making processes are the main reason why businesses experience the performance advantages of AI capacity.

Table 7. Indirect Effects Analysis

Relationship	Indirect Effect (β)	t-value	p-value	Result
AIC → DMQ → FP	0.5356	9.0529	0.0000	Supported

When the direct and indirect effect of AI capability are taken together, the overall effect is strong (total effects analysis). This underscores the critical role of AI capability in boosting the quality of decision making and overall organizational effectiveness.

5. Discussion and Implications

5.1 Discussion of Findings

This study focused on the relationship between AI capability, decision-making quality, and company performance from the standpoint of dynamic capabilities. Empirical results obtained from analyzing 245 responses were positive, with statistically significant results being found for all three hypotheses that were proposed for the study. The findings show that the AI capability has a mediating effect on the firm performance, which is the quality of decision making, and that the AI capability greatly influences the quality of decision making, which has a favorable impact on the firm performance. The results confirm the research which suggests that the AI capability is a strategic organizational trait and not merely a technological means (Kurter, 2025). Companies also with a more advanced level of AI have

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emerged as more competent in analytical competencies, in the aptitude to process information and in the ability to react to environmental changes. That's a reflection of the Dynamic Capabilities Perspective where the emphasis is on sensing and seizing capabilities within the context of dynamic and uncertain businesses. AI-powered systems can handle massive amounts of data, detect trends and make inferences, and provide predictive and real-time insights to assist management decision-making.

The significant association between the quality of decisions made and the AI capability highlights the findings of previous studies which suggested that AI technologies help boost the managerial effectiveness through reducing uncertainty and strengthening evidence-based decision making processes. As stated in previous studies, AI analytics are crucial for making predictions about the market, minimizing costs, and finding the most accurate solutions for strategic planning. These claims are confirmed by current results as companies with greater AI capabilities are more likely to make improved managerial decisions. This indicates that the use of AI technologies helps to improve the organizational intelligence and make more rational, intelligent and timely decisions (Gorka et al., 2025).

The study also discovered a favourable correlation between decision-making quality and business performance. The results are consistent with earlier research on the strategic significance of managerial decision-making processes for the performance of organizations. Quality decisions enhance resource utilization, operational integration, strategic agility and competitive advantage (Sedky, 2026). The ability to make accurate and timely decisions can help firms to adapt better to environmental complexities and uncertainty. The present study therefore found that decision-making quality is an important organizational mechanism that affects the overall performance of the firm. The authors' findings are important because they validate the mediating effect of decision-making quality between AI capability and the firm's execution. The findings from the mediation indicate that while an AI capability in itself is not a direct driver of better performance, it appears that firms need to make good use of the insights provided by AI in management processes if there is to be an impact on performance. This discovery provides reinforcement to previous arguments that technological investments can only add value to the organizations when they are embedded in their considered and operational decision-making methods. Previous research on digital transformation and technological capability has also highlighted the significance of the structural processes and management skills in turning technological resources into a performance advantage.

The significance of the Dynamic Capabilities Perspective as a mediator of the effect of AI on organizational performance is further supported by the mediation results. While the quality of decision-making has a beneficial impact on the quality of organizational opportunities and strategic actions, the ability of AI has a positive impact on organizational sensing and learning functions. Businesses with the capability to integrate AI into their decision-making processes are therefore likely to be more adaptable, agile, and competitive in the ever-changing business landscape (Owusu & Agbesi, 2025). It adds to the existing body of research on the adoption of AI, and is a worthwhile addition to the literature on the effects of AI capability on organizational performance. Most of the previous research has been on the direct association between technology adoption and performance outcome. A smaller number of studies provided explanations using decision making quality. The present results demonstrate empirical evidence of managerial decision-making processes as an important determinant of the value-added from AI capability to meaningful organizational outcomes.

5.2 Theoretical Implications

The study has numerous theoretical implications. First, it extends the scope of the Dynamic Capabilities Perspective to shift its focus from AI capability to strategic AI capability as a dynamic capability that can be the source of an increased organizational adaptability and

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responsiveness. The results suggest that the capability of AI cannot be understood just from a technological perspective, but as an organizational competence that improves the sensing, learning, and decision-making process. Second, by include decision making quality as a mediator construct, the study adds to the body of research on the connection between AI and company success. Existing research tended to concentrate on the direct effects of AI application on organizational outcomes rather than on the underlying managerial processes that bring about these effects. The current research contributes a more complete explanation by revealing that the AI capability positively impacts performance indirectly, via improved decision-making quality. Third, by highlighting the significance of management and organizational procedures in determining the return on technology investments, the results supplement recent research on digital transformation. The findings suggest that the deployment of AI-based insights in strategic and operational decision-making processes has a significant impact when combined with AI competence.

5.3 Practical Implications

The outcomes of the study have consequences for those responsible for managing AI, the AI policy movement, and companies investing in AI technology. The first step is for the organization to understand that simply having an AI capability isn't enough to deliver better performance outcomes. Companies will need to establish structures to make successful use of the AI-informed insights in decision-making functions. Therefore, the policies need to be complemented by the training of managers, capacity building of analytical skills, and support for organizations in the adoption of AI technologies. Second, it is important for business to develop cultures of making decisions based on data. The organization’s performance is likely to be more positively influenced by having AI generated data and information that managers can understand and act on. Thus, the analytical abilities of employees and better interactions between technological and managerial positions can be beneficial for organizations. Thirdly, the results imply that organizations should not consider AI implementation as a standalone technological effort but link it to strategic goals. If AI systems are integrated into the operational planning, forecasting, customer analysis and strategic decision-making processes, it can provide value that is significant. The study also focuses on the need for associations to be agile in digital business settings. As the business landscape becomes increasingly uncertain and competitive, AI competency can play a crucial role in driving agility, responsiveness, and strategic flexibility for companies. The managers who can tap into the power of AI-intelligent will be more efficient and competitive. Policy makers can contribute to the digital infrastructure investments, skill building, and innovation promotion programs to increase AI readiness. These could lead to increased technological capability and competitiveness for the companies in today's data-driven economies.

6. Conclusion

The aim of this study was to examine the relationship between AI capability, decision-making quality, and business success within the context of dynamic capacities. The results demonstrated that the value of decision making improves significantly by the artificial intelligence, and then the performance of the firm improves. The study also confirmed the mediation effect of the value of decision-making in between the AI capability and the organizational performance outcomes. The results indicate that companies can and do benefit more from their investments in AI if they use the information provided by AI in their decision-making process by managers. AI's ability to boost organizational agility, analytical skills, and strategic agility empowers businesses to adapt and respond to changing conditions and challenges. Overall, the study adds to the existing body of research on the connection between AI and organizational performance, shedding light on how AI capability affects the firm's performance. The conclusions also highlight the importance of creating data-driven decision cultures and integrating AI technologies into the natural part of the business. The

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model could be expanded to explore moderating factors like environmental dynamism, organizational agility or digital leadership in various industrial or geographic settings in the future.

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