Dialogue Social Science Review (DSSR)
www.thedssr.com

ISSN Online: 3007-3154
ISSN Print: 3007-3146
Vol. 3 No. 12 (Dec) (2025)

DIALOGUE SOCIAL SCIENCE REVIEW

The Impact of Artificial Intelligence Adoption on Firms' Performance: Exploring the Mediating Role of Decision-Making Quality and Firm Creativity

Dr. Muhammad Ali
Lecturer Institute of Management Sciences, The University of Haripur-
msali747@gmail.com

Prof. Dr. Muhammad Yasir (Corresponding Author)
Chairman Department of Management Sciences, Hazara University-
muhammadyasir@hu.edu.pk

Dr. Sheraz Ahmed
Assistant Professor Institute of Management Sciences, The University of Haripur-
sherazahmed@uoh.edu.pk

Dr. Muhammad Tufail
Lecturer Institute of Management Sciences,- The University of Haripur
tufail@uoh.edu.pk

Abstract
The study examined the association between artificial intelligence (AI) utilization, AI-driven decision-making, firm creativity, AI capability, and enterprise performance. We adopted regression analysis and correlation techniques to test the hypotheses. Furthermore, the study findings show positive associations between AI utilization and firm performance, AI-driven decision-making, firm creativity, and AI capability. Additionally, firm creativity and decision-making quality and efficiency mediate the relationships between AI utilization and MNEs' performance. The results identify the potential of AI technologies in enhancing firms' operationalization in terms of decision-making and creativity to gain a competitive advantage. The study provides useful insights into theoretical implications regarding AI adaptation and utilization to gain a competitive advantage.
Keywords: Artificial intelligence AI, decision making, creativity, MNEs performance, novel technologies.

Introduction:
Artificial Intelligence (AI) represents a groundbreaking technological algorithm designed to emulate human cognitive functions and execute complex tasks with rational behavior, akin to human beings (Schuett, 2019). Recent years have witnessed remarkable advancements in AI tools such as artificial neural networks, convolutional neural networks, Bayesian networks, natural language processing, and Fuzzy systems (Hatcher et al., 2018). This surge in AI capability, defined as "the ability of a firm to select, orchestrate, and leverage its AI-specific resources," has been propelled by advancements in information and communications technology, IT infrastructure, and computational power, permeating various domains including business strategic and operational decision making (Lezoche et al., 2020). AI, often characterized as machines or programs simulating human intelligence through the utilization of advanced algorithms (Kumar, & Thakur, 2012).

Dialogue Social Science Review (DSSR)
www.thedssr.com

ISSN Online: 3007-3154
ISSN Print: 3007-3146
DIALOGUE SOCIAL SCIENCE REVIEW
Vol. 3 No. 12 (Dec) (2025)

The contemporary discourse on AI and business underscores the importance of responsible business practices (Kulkov et al., 2023; Parida, Sjödin, & Reim, 2019). Linking AI with business models through resources aligns with the principles of resource-based theory (RBT) (Chowdhury et al., 2023; Koivuniemi, 2020). Firms are required to leverage resources to develop AI capabilities, encompassing tangible resources (data, technology, investments, and time), intangible resources (coordination efficiency, capacity, risk-taking orientation), and human resources (business and technical skills of employees) (Fosso Wamba et al., 2024). The swift evolution of AI has unlocked new business prospects for business firms (Abonamah, Tariq, & Shilbayeh, 2021). Moreover, its integration into businesses offers benefits in gaining competitive advantage through cost saving and quality ehancement (Antony, & Banuelas, 2002). Despite the significant potential of AI capability to enhance businesses' performance (Mikalef and Gupta, 2021). Businesses across the globe encounter substantial challenges in its adoption and utilization (Cann, 2021).

AI can be leveraged by businesses to elevate customer service through personalized methodologies and cost-effective techniques (Chaturvedi & Verma, 2023). According to the resource-based view, the applied capability of AI comprises implicit resources, such as labor skills and organizational management (Fajimolu, Okonji, & Onyemaobi, 2023; Pan, & Froese, 2023). Mastery over the organization of these unique resources can confer a competitive advantage, enhancing firm performance (Kemp, 2023). The adoption of AI fosters creativity and rationality in decision-making (Jarrahi, 2018). Understanding the methodologies and factors of AI's impact on the performance of the firms in terms of theoretical and practical significance (Mikalef et al., 2023). While numerous studies explore the impact of AI across different industries, a research gap exists in understanding the composition of AI in Multinational Enterprises (MNEs) in terms of rational AI-based decision-making and its impact on firm creativity. Moreover, creativity plays a pivotal role in MNEs in generating sustainable solutions to various business problems (Moore & Manring, 2009). Moreover, MNEs' performance necessitates creative models through innovative business approaches (Tallman, Luo, & Buckley, 2018). AI tools, such as big data, can enhance decision-making for more profitable outcomes (Duan, Edwards, & Dwivedi, 2019). However, there remains a lack of focus on firm creativity through the adaptation of AI, AI-based rational decision-making models, and their impact on MNEs' performance and competitive advantage, highlighting a significant research gap.

To address this research gap, this study aims to investigate the internal components of AI and analyze its impact on MNEs' performance, creativity, rational decision-making, and sustainable development. We will explore the association among MNEs' and AI, AI and effective decision-making, and AI and MNEs' creativity. The study utilizes partial least squares structural equation modeling (PLS-SEM) to analyze 1,863 valid questionnaires collected through online platforms. The study aims to deepen the understanding of AI applications in MNEs' performance and operationalization while focusing on AI-driven rational decision-making to enhance firms' creativity and performance.

Literature

Hypothesis Development:

The firm performance is critical in gaining a competitive advantage specifically in a dynamic business environment (Chatterjee, Rana, Tamilmani, & Sharma, 2021). Moreover, AI has the potential to influence the overall performance of business firms with its advanced algorithms that are capable of developing rational business models based on creative decision-making (Wamba-Taguimdje et al., 2020). AI provides a

Dialogue Social Science Review (DSSR)
www.thedssr.com

ISSN Online: 3007-3154
ISSN Print: 3007-3146
Vol. 3 No. 12 (Dec) (2025)

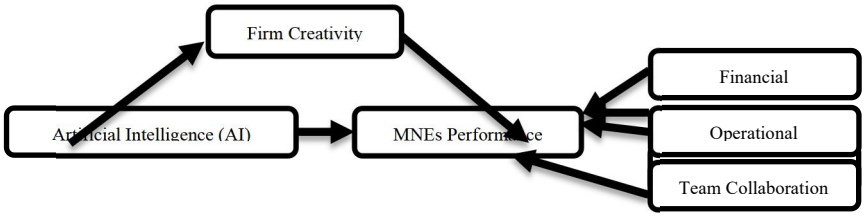
systematic platform through which sustainable and innovative business strategies can be crafted to enhance the operationalization of the firm (Sjödin, Parida, Palmié, & Wincent, 2021). AI algorithms are capable of processing real-time information to provide rational solutions to complex problems, thus enabling the management to craft creative and rational decisions (Andronie et al., 2021).

MNEs across the globe increasingly investing in AI-based technologies to enhance business performance and contribute significantly towards sustainable business solutions (Ghauri, Strange, & Cooke, 2021). Furthermore, AI functionality is not just limited to the decision-making models but is spread across supply chain operations (Gupta, Modgil, Bhattacharyya, & Bose, 2022), along with intelligent mechanisms that are saving costs across different domains with the framework of business firms (Areia et al., 2022). Furthermore, AI-assisted customer services have taken over traditional customer services channels thus providing effective solutions and handling of the complaints with great accuracy and satisfaction thus boosting firms' performance (Adam, Wessel, & Benlian, 2021). The Resource-Based View (RBV) stands as authentic model for understanding firm's performance based on its resources within a particular industry (Barney, 2001). The RBV has served as a main platform for numerous studies exploring the effects of Artificial Intelligence (AI) on firm effectiveness (Chen et al., 2022). Furthermore, AI is categorized as an intangible resource that when effectively utilized and developed is hard to copy thus yielding a more effective competitive advantage through the applicability of an effective AI-based decision-making process (Makhloufi et al., 2021).

Wamba-Taguimdje et al. (2020) examined the impact of (AI) and performance of the firms. Through an analysis of 500 case studies spanning various organizations, the authors concluded that the implementation of AI-based projects significantly and positively influences firm performance across different dimensions. Their findings indicate that the AI usages are not limited to specific industries or firms sizes; rather, organizations with SMART strategies regarding AI initiatives leads towards higher level of performance. Furthermore, based on the above literature discussion we proposed the following hypotheses:

Hypothesis 1 (H1): There exists a positive relationship between Artificial Intelligence (AI) and Firms' Performance (MNEs), thus highlighting the importance of AI adaptation.

Hypothesis 1b (H1B): Firm creativity mediates the positive relationship between artificial intelligence (AI) and multinational enterprises (MNEs) performance.



Dialogue Social Science Review (DSSR)
www.thedssr.com

ISSN Online: 3007-3154
ISSN Print: 3007-3146
Vol. 3 No. 12 (Dec) (2025)

DIALOGUE SOCIAL SCIENCE REVIEW

Figure 1: Artificial Intelligence (AI) utilization

Hypothesis 2 (H2): There exists a positive association between AI-driven decision-making models and firms' overall business performance.
Hypothesis 2b (H2b): AI-driven decision-making is positively mediated by the decision-making quality and efficiency (rationality) with firms' overall business performance.

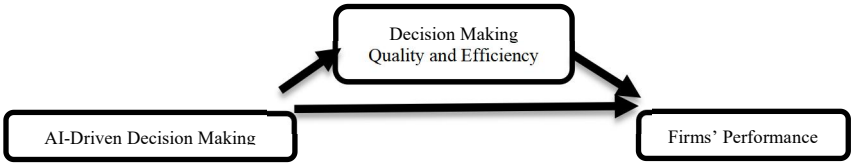


Figure 2: AI-Driven Decision Making (AIDDM)

Furthermore, Firm creativity (FsC) plays a critical role in fostering the innovation that enables the firm to gain a competitive advantage in the global business environment (Esty, & Winston, 2009). Moreover, firm creativity is defined as the capabilities of firms to generate innovative and sustainable business ideas and solutions (Souto, 2022). Additionally, firms' creativity is a combination of new technologies, including artificial intelligence, big data, and cloud computing, and their integration into different operations of business firms (Mikalef & Gupta, 2021).
Business firms that place a premium on creativity are more inclined to embrace cutting-edge technologies, such as artificial intelligence, to upgrade their business and its international mechanisms (Mikalef & Gupta, 2021). Firm creativity emerges as a crucial precursor influencing organizations to formulate strategic thinking and decisions (Neill, McKee, & Rose, 2007). Artificial Intelligence Management (AIM) denotes a system supporting the implementation of artificial intelligence within a firm (Davenport & Ronanki, 2018).
Artificial Intelligence Capability (AIC) represents a cornerstone of firm competitiveness, requiring the harmonious integration of various resources. However, its sustainability is contingent on continuous monitoring activities (Dagiliene & Šutiene, 2019). The development and regular updating of systems for artificial intelligence management can enhance the quality of firms' decisions, consequently yielding improved returns (Bag et al., 2021). The essence of AI lies in its decision-making capabilities associated with AI techniques (Saba, Sahli, & Hadidi, 2021). Furthermore, the key factor in gaining a competitive advantage through the applicability of AI is the role of creativity (Lee, 2022). Creativity in terms of decisions as well as the development of products and services ensures efficient performance (Abulsaoud & Adel, 2020). Furthermore, based on the above discussion we propose the following hypothesis:
Hypothesis 3 (H3): There is a positive association between firm creativity (FsC) and adaptation of novel technologies (Artificial intelligence A1)

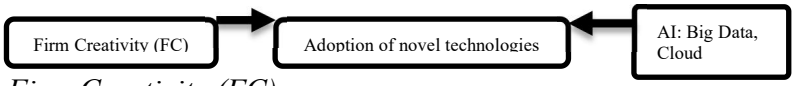
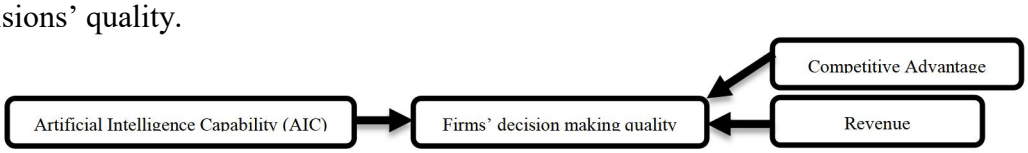


Figure 3: Firm Creativity (FC)

Hypothesis 4 (H4): There exists a positive association between AI capabilities, and firms' decisions' quality.



Dialogue Social Science Review (DSSR)
www.thedssr.com

ISSN Online: 3007-3154
ISSN Print: 3007-3146
Vol. 3 No. 12 (Dec) (2025)

DIALOGUE SOCIAL SCIENCE REVIEW

Figure 4: Artificial Intelligence Capability (AIC)

Theoretical Framework

Given the aim of scrutinizing the influence of AI in terms of firms' performance, the utilization of the RBV framework appears appropriate. We applied the resource-based theory (RBT) to our study it is a comprehensive framework that provides structure for understanding a firm's operationalization and gaining competitive advantage (Barney, 1991; Wernerfelt, 1984). RBT works on the principle of valuable resources that are unique (Barney, 1991; Wernerfelt, 1984). We combined RBT with AI technologies in this way firms can utilize existing resources more effectively thus taking AI as a valuable resource in gaining a competitive advantage.

Studies have shown that the RBV offers a suitable platform for exploring vibrant business environments. Moreover, this suitability stems from the consistent association between the complementarity of resources and the generation of unique resources for competitive success (Dutta et al., 2005). Moreover, utilizing the RBV framework appears to be a prudent approach, given its potential for accommodating future expansions in understanding the interplay between AI and firm performance.

Conceptual Model

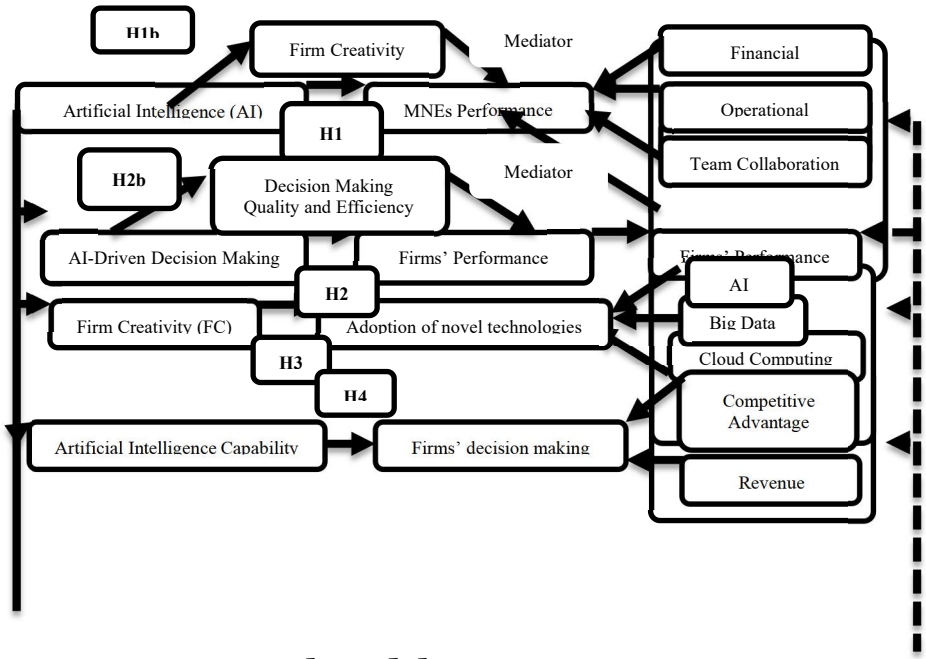


Figure 5: Conceptual Model

Methodology

We adopted an online survey to collect the data from the MNEs operating in the People's Republic of China. These MNEs were specifically selected as these MNEs have adopted AI technologies. All survey items were sourced from previous studies and tailored to the specific context of AI adoption, utilization, and consequences. The study data collected time-period span from November 2022 to December. Furthermore, we contacted 3,472 MNEs and 1,863 agreed to participate in the study. The constructs were measured using a seven-point Likert scale, ranging from 'strongly disagree' (1) to 'strongly agree' (7). The

Dialogue Social Science Review (DSSR)
www.thedssr.com

ISSN Online: 3007-3154
ISSN Print: 3007-3146
Vol. 3 No. 12 (Dec) (2025)

construct of AI utilization items was based on Tarafdar, Beath, & Ross, 2019 work (AI attitude scale (AIAS-4)), AI-driven decision scale by Phillips-Wren & Ichalkaranje, 2008 (Scale Decision Making (LSDM)), firms' creativity scale by Gong, Zhou, & Chang, 2013; and AI capabilities scale based on the work of Mikalef, Fjørtoft, & Torvatn, 2019. The data was collected from the Chief Technology Officer (CTO)/Chief Information Officer (CIO); Head of Innovation or Research & Development (R&D); Senior Managers; and Directors of Business Units. Project was funded by Af Research Center Grant Number (AFRC/12/TAF/2023/004)

Results and Analysis

In this study, we have employed Least Squares Structural Equation Modeling (PLS-SEM) and fuzzy-set Qualitative Comparative Analysis (fsQCA) to provide complementary perspectives for examining the relationships within models. PLS-SEM offers insights into linear relationships, while fsQCA delves into non-linear associations. Furthermore, we applied regression and correlation models to test the hypotheses. We used Smart PLS v4 and SPSS v24 to analyze the data.

Reliability and Validity

Table 1. Factor Loading, Construct Reliability, and Validity

Variables	Loadings	CA	CR	AVE
Artificial Intelligence (AI) (items)		0.876	0.906	0.754
AI1	0.612			
AI2	0.753			
AI3	0.646			
AI4	0.763			
AI5	0.678			
AI6	0.703			
AI7	0.798			
AI8	0.704			
AI9	0.732			
AI-Driven Decision Making (AIDDM) (items)		0.821	0.987	0.767
DM1	0.745			
DM2	0.632			
DM3	0.752			
DM4	0.742			
DM5	0.654			
DM6	0.733			
DM7	0.767			
DM8	0.760			
DM9	0.604			
Firm Creativity (FC) (items)		0.842	0.973	0.784
FC1	0.652			
FC2	0.733			
FC3	0.654			
FC4	0.667			
FC5	0.729			
FC6				
Artificial Intelligence Capability (AIC) (items)		0.842	0.955	0.743
IC1	0.761			

Dialogue Social Science Review (DSSR)
www.thedssr.com

ISSN Online: 3007-3154
ISSN Print: 3007-3146
Vol. 3 No. 12 (Dec) (2025)

DIALOGUE SOCIAL SCIENCE REVIEW

IC2	0.672			
IC3	0.724			
IC4	0.634			
IC5	0.692			
IC6	0.761			
IC7				
Firms' Performance		0.823	0.945	0.711
FP1	0.742			
FP2	0.621			
FP3	0.862			
FP4	0.791			
FP5	0.672			

"Note: CA, Cronbach's Alpha; CR, composite reliability; AVE, average variance extracted."

Table 1 depicts the results regarding scale reliability and validity. In the Artificial Intelligence (AI) construct, individual items (AI1 through AI9) exhibit strong factor loadings ranging from 0.612 to 0.876, signifying robust relationships between these items and the AI construct. The high Cronbach's Alpha (CA) value of 0.906 indicates substantial internal consistency among the AI items, suggesting that they collectively measure the AI construct reliably. Additionally, the composite reliability (CR) value of 0.754 further supports the notion of good internal consistency within the AI construct. The average variance extracted (AVE) value of 0.754 implies that approximately 75.4% of the variance in the AI items is accounted for by the AI construct, highlighting its convergent validity. Furthermore, the AI-driven decision-making construct demonstrates strong factor loadings for its constituent items (DM1 through DM9) ranging from 0.604 to 0.821, indicating robust relationships with the underlying construct. Furthermore, Cronbach's Alpha (CA) value of 0.987 shows a high internal consistency across the scale items (DM items). Furthermore, the composite reliability (CR) of 0.767 further strengthens the scale reliability and shows good internal consistency among AI-driven decision variables. Furthermore, we obtained an average variance extracted (AVE) of 0.767 that shows strong convergent validity of the construct. Moreover, the Firm Creativity (FC) variable's items ranging from FC1 to FC6 show strong factor loadings ranging from 0.652 to 0.842. Additionally, the high Cronbach's Alpha (CA) value of 0.973 shows a strong internal consistency among items, thus indicating a good reliability of the instrument. Similarly, the composite reliability (CR) value of 0.784 shows strong internal consistency (Firm Creativity) along with a strong variance (AVE) value of 0.784. Lastly, in the Artificial Intelligence Capability (IC) variable, items ranging from IC1 to IC7 show strong factor loadings ranging from 0.634 to 0.761, thus establishing a strong association. Furthermore, the high Cronbach's Alpha (CA) value of 0.955 shows a strong internal consistency among the Artificial Intelligence Capability (AIC) items, showing the reliability of the research instrument. Additionally, the composite reliability (CR) value of 0.743 shows a strong internal consistency within the AIC variable with a strong average variance extracted (AVE) value of 0.743.

Cronbach's Alpha (CA), Composite Reliability (CR), and Average Variance Extracted (AVE) serve as key indicators in evaluating the internal consistency and convergent validity of the construct. In this study, Firms' Performance demonstrates high internal consistency, as reflected by a Cronbach's Alpha value of 0.823, indicating a strong correlation among the items within the construct. Additionally, the Composite Reliability

Dialogue Social Science Review (DSSR)
www.thedssr.com

ISSN Online: 3007-3154
ISSN Print: 3007-3146
Vol. 3 No. 12 (Dec) (2025)

value of 0.945 suggests excellent reliability, signifying that the items reliably measure the underlying concept of Firms' Performance. Moreover, the Average Variance Extracted value of 0.711 indicates that 71.1% of the variance in the observed variables is explained by the construct, highlighting its good convergent validity. These results affirm the reliability and validity of the measurement model in accurately assessing Firms' Performance. Cronbach's Alpha of Firms' Performance at 0.823 indicates a strong correlation among the items, whereas, Composite Reliability, with a value of 0.945 shows excellent reliability. Average Variance Extracted, with a value of 0.711 which shows 71.1% of the variance in the observed variables is explained by the construct.

Table 2. Discriminant Validity (Fornell and Larcker)

	1	2	3	4	5
01 Artificial Intelligence (AI)	0.823				
02. AI-Driven Decision Making	0.475	0.815			
03. Firm Creativity (FC)	0.512	0.397	0.837		
04. Artificial Intelligence Capability	0.542	0.451	0.413	0.843	
05. Firm Performance	0.567	0.652	0.876	0.782	0.862

Table 2 depicts the diagonal values ranging from approximately 0.823 to 0.843, implying substantial convergence validity within each construct, suggesting that the items effectively measure their intended constructs. Off-diagonal elements reflect correlation coefficients between pairs of constructs, denoting the degree of correlation between them. The correlation coefficients range from approximately 0.397 to 0.542, indicating moderate positive correlations between some constructs. For instance, there is a moderate positive correlation between Artificial Intelligence (AI) and Decision Making based on AI, AI and Firm Creativity, AI and Artificial Intelligence Capability, AI-Driven Decision Making and Firm Creativity, AI-Driven Decision Making and Artificial Intelligence Capability, as well as the Creativity of the firm and Artificial Intelligence Capability. The square root of the AVE for Firm Performance is 0.862, showing a strong level of discriminant validity.

Statistical Analysis

Table 3: Regression Analysis

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.325	.231		5.735	.000
	Firms' Performance (MNEs)	.751	.148	.834	5.074	.000
	Firm Creativity (FC)	.687	.118	.623	5.822	.000
a. Dependent Variable: Artificial Intelligence (AI) R-84.3%						

Table 3 depicts the regression results regarding hypothesis 1 and hypothesis 1b, the coefficient for "Firms' Performance (MNEs)" is 0.751 with a standard error of 0.148. This indicates that for every one-unit increase in Firms' Performance (MNEs), there is a corresponding increase of 0.751 units in Artificial Intelligence (AI) utilization. Furthermore, the results support Hypothesis 1, suggesting a positive association between Artificial Intelligence (AI) utilization and Firm Performance (FP). This means that firms

Dialogue Social Science Review (DSSR)
www.thedssr.com

ISSN Online: 3007-3154
ISSN Print: 3007-3146
Vol. 3 No. 12 (Dec) (2025)

incorporating AI technologies experience improved financial, operational, marketing, and team collaboration aspects. A Firm Creativity (FC) statistically significant value of 0.687 shows a positive association with Artificial Intelligence (AI) utilization. Moreover, we found a positive mediating association between AI and firms' performance through Firms' Creativity. Thus supporting Hypothesis 1 and Hypothesis 1b. The results highlight the importance of Firm Creativity (FC) and artificial intelligence (AI) utilization in multinational enterprises (MNEs) performance and gaining of competitive advantage.

Table 4: Regression Analysis

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.331	.227		5.863	.000
	Firms' Performance (MNEs)	.612	.132	.714	4.636	.000
	Decision-Making Quality and Efficiency	.687	.156	.517	4.403	.000
a. Dependent Variable: AI-Driven Decision Making (AIDDM) (AI) R-87.6%						

Table 4 shows a positive association between AI-Driven Decision Making (AIDM) with Firms' performance (β = .612; p=0.000). Furthermore, we found a positive mediating association between AI-Driven Decision Making (AIDM) and Firms' performance through Decision Making Quality and Efficiency (Rational Decisions) (β = .687; p=0.000). Furthermore, these results support Hypothesis 2 (H2) and Hypothesis 2b (H2b).

Table 5: Regression Results

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.268	.129		9.829	.000
	Novel Technologies	.791	.201	.526	3.935	.000
a. Dependent Variable: Firms' Creativity (AI) R-84.1%						

Table 5 shows the coefficient for "Novel Technologies" at 0.791 with a standard error of 0.201. This indicates that for every one-unit increase in Novel Technologies, there is a corresponding increase of 0.791 units in Firms' Creativity (AI). The results support Hypothesis 3, suggesting that Firm Creativity (FC) significantly influences the willingness of organizations to experiment with and adopt novel technologies.

Table 6: Regression Results

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.543	.232		6.650	.000

Dialogue Social Science Review (DSSR)
www.thedssr.com

ISSN Online: 3007-3154
ISSN Print: 3007-3146
Vol. 3 No. 12 (Dec) (2025)

	Novel Technologies	.791	.245	.634	3.228	.000
a. Dependent Variable: Artificial Intelligence Capability (AIC) R-86.3%						

Table 6 presents the coefficient for "Novel Technologies" at 0.791 with a standard error of 0.245. This indicates that for every one-unit increase in Novel Technologies, there is a corresponding increase of 0.791 units in Artificial Intelligence Capability (AIC). The results support Hypothesis 4, suggesting that Artificial Intelligence Capability (AIC), characterized by the effective development and continuous updating of systems for AI positively impacts firms' decision-making quality, leading to enhanced returns and competitive advantages.

Table 7: Pearson Correlation

Pearson Correlation				
	Artificial Intelligence (AI)	AI-Driven Decision Making (AIDDM)	Firm Creativity (FC)	Artificial Intelligence Capability (AIC)
Artificial Intelligence (AI)	1			
AI-Driven Decision Making (AIDDM)	.827**	1		
Firm Creativity (FC)	.727**	.676**	1	
Artificial Intelligence Capability (AIC)	.716**	.791**	.668**	1
	**. Correlation at 0.01 level (2-tailed). N = 1863			

Artificial Intelligence (AI); AI-Driven Decision Making (AIDDM); Firm Creativity (FC); Artificial Intelligence Capability (AIC).

The Pearson correlation coefficients presented in Table 7 indicate the strength and direction of relationships between different variables related to artificial intelligence (AI). Firstly, the variable of Artificial Intelligence (AI) demonstrates a perfect correlation of 1 with itself, which is expected. Secondly, AI-Driven Decision Making (AIDDM) shows a strong positive correlation of 0.827 with AI with a p-level of 0.01. Furthermore, Firm Creativity (FC), shows a strong positive correlation of 0.727 (p=0.000) with AI and 0.676 (p=0.000) with AIDDM. Lastly, Artificial Intelligence Capability (AIC) shows a strong positive correlation with AI (0.716; p=0.000), AIDDM (0.791; p=0.000), and FC (0.668; p=0.000). Furthermore, these results strengthen the regression analysis results.

Discussion

The study findings contribute to the understanding of AI in the operationalization of MNEs (Malik et al., 2021). Moreover, the study highlighted the importance of AI capabilities in firms' performance (Mikalef, & Gupta, 2021). Results generated through factor loading, validity, reliability, regression, and correlation confirm that AI capabilities shape firms' decision-making and performance. The results show strong support regarding the utilization of AI in boosting firms' performance through developing a creative culture within the strategic formulation and implementation parameters. Furthermore, we explore the AI-driven decisions along with firms'

ISSN Online: 3007-3154
ISSN Print: 3007-3146
Vol. 3 No. 12 (Dec) (2025)

performance (Domini, Dewi, & Cesna, 2023) and we found that AI-generated decisions are more authentic and rational thus creating more quality and efficient decisions (Baabdullah, 2024; Agostini, Torras, & Wörgötter, 2017). AI enhances quality and effectiveness. Furthermore, firms can boost creativity through adaptation of the AI-based novel technologies such as big data analysis, and cloud spacing thus enhancing the overall operationalization of the firms. These results of the study are well supported by the previous studies (e.g. Wamba-Taguimdje et al., 2020; Ho et al., 2022; Mishra, Ewing, & Cooper, 2022). Furthermore, the results of the study contribute to the in-depth understanding of AI adaptation and utilization in gaining a competitive advantage. Leverage artificial intelligence to augment firms' creativity. MNEs have the opportunity to integrate AI to automate basic tasks into more innovative techniques to save cost and enhance effectiveness (Mikalef and Gupta, 2021). Moreover, firms can explore utilizing AI for innovative endeavors, leveraging advanced data mining techniques to uncover emerging customer needs from both internal and external data sources. This strategic use of AI allows businesses to allocate more time towards refining processes, enhancing products, and optimizing services to meet evolving customer demands.

Managerial and Theoretical Implications:

Leaders can adopt AI to support human resource decisions along with resource management both tangible and intangible. Managers and supervisors can take assistance from AI tools and technologies in designing more effective workflow and assignment of tasks based on time and demand. Furthermore, the results of the study contributed to the theoretical foundations in the field of organizational theory. The association of AI with a focus on firms' performance highlights the critical factors that can be taken into consideration in the effective utilization of the firms' resources. Moreover, the findings reveal insightful implications and provide a comprehensive understanding of A1 and business development. Firstly, we emphasize the critical importance of AI capability and its correlation with a firm's performance and creativity, particularly in advancing key aspects of sustainable development. Leaders are urged to recognize the significance of investments in AI technologies, as these investments are essential in a current dynamic and global environment. Secondly, by gaining a deeper understanding of AI models specifically in resource management and utilization, leaders should acknowledge the diverse configurations through which sustainable development can be supported. Current awareness of the business environment and customers' buying behavior has triggered the need for sustainable products and services. In light of these challenges, businesses can develop more effective strategies that utilize AI capability to develop businesses. Thus fulfilling the SDGs goals (i-e., Sustainable Development (Goal-9)).

Limitation:

The study was conducted in China and only MNEs were taken into consideration. Moreover, we didn't use financial data to address the firms' performance. As firms' performance was assessed using a subjective approach. Furthermore, we only used quantitative research methodology these factors limit the scope of the results. In the future, these limitations can be overcome through the design of mixed methodology research that utilizes both the techniques of qualitative and quantitative research.

References

Abonamah, A. A., Tariq, M. U., & Shilbayeh, S. (2021). On the Commoditization of Artificial Intelligence. *Frontiers in Psychology*, *12*, 696346.

Abou-Foul, M., Ruiz-Alba, J. L., & López-Tenorio, P. J. (2023). The impact of artificial

ISSN Online: 3007-3154
ISSN Print: 3007-3146
Vol. 3 No. 12 (Dec) (2025)

intelligence capabilities on servitization: The moderating role of absorptive capacity-A dynamic capabilities perspective. *Journal of Business Research*, *157*, 113609.

Abulsaoud Ahmed Younis, R., & Adel, H. M. (2020, September). Artificial intelligence strategy, creativity-oriented HRM and knowledge-sharing quality: Empirical analysis of individual and organisational performance of AI-powered businesses. In *The Annual International Conference of The British Academy of Management (BAM)*.

Adam, M., Wessel, M., & Benlian, A. (2021). AI-based chatbots in customer service and their effects on user compliance. *Electronic Markets*, *31*(2), 427-445.

Agostini, A., Torras, C., & Wörgötter, F. (2017). Efficient interactive decision-making framework for robotic applications. *Artificial Intelligence*, *247*, 187-212.

Al Shebli, K., Said, R. A., Taleb, N., Ghazal, T. M., Alshurideh, M. T., & Alzoubi, H. M. (2021, May). RTA's employees' perceptions toward the efficiency of artificial intelligence and big data utilization in providing smart services to the residents of Dubai. In *The International Conference on Artificial Intelligence and Computer Vision* (pp. 573-585). Cham: Springer International Publishing.

Andronie, M., Lăzăroiu, G., Iatagan, M., Uță, C., Ștefănescu, R., & Cocoșatu, M. (2021). Artificial intelligence-based decision-making algorithms, internet of things sensing networks, and deep learning-assisted smart process management in cyber-physical production systems. *Electronics*, *10*(20), 2497.

Antony, J., & Banuelas, R. (2002). Key ingredients for the effective implementation of Six Sigma program. *Measuring business excellence*, *6*(4), 20-27.

Areia, M., Mori, Y., Correale, L., Repici, A., Bretthauer, M., Sharma, P., ... & Hassan, C. (2022). Cost-effectiveness of artificial intelligence for screening colonoscopy: a modelling study. *The Lancet Digital Health*, *4*(6), e436-e444.

Baabdullah, A. M. (2024). The precursors of AI adoption in business: Towards an efficient decision-making and functional performance. *International Journal of Information Management*, *75*, 102745.

Bag, S., Gupta, S., Kumar, A., & Sivarajah, U. (2021). An integrated artificial intelligence framework for knowledge creation and B2B marketing rational decision making for improving firm performance. *Industrial marketing management*, *92*, 178-189.

Cann, G. (2021). The Business of AI Adoption. In *Machine Learning and Data Science in the Oil and Gas Industry* (pp. 153-179). Gulf Professional Publishing.

Chatterjee, S., Rana, N. P., Tamilmani, K., & Sharma, A. (2021). The effect of AI-based CRM on organization performance and competitive advantage: An empirical analysis in the B2B context. *Industrial Marketing Management*, *97*, 205-219.

Chaturvedi, R., & Verma, S. (2023). Opportunities and challenges of AI-driven customer service. *Artificial Intelligence in customer service: The next frontier for personalized engagement*, 33-71.

Chen, D., Esperança, J. P., & Wang, S. (2022). The impact of artificial intelligence on firm performance: an application of the resource-based view to e-commerce firms. Frontiers in Psychology, 13.

Chowdhury, S., Dey, P., Joel-Edgar, S., Bhattacharya, S., Rodriguez-Espindola, O., Abadie, A., & Truong, L. (2023). Unlocking the value of artificial intelligence in human resource management through AI capability framework. *Human Resource*

ISSN Online: 3007-3154
ISSN Print: 3007-3146
Vol. 3 No. 12 (Dec) (2025)

Management Review, *33*(1), 100899.

Dagiliene, L., & Šutiene, K. (2019). Corporate sustainability accounting information systems: a contingency-based approach. *Sustainability Accounting, Management and Policy Journal*, *10*(2), 260-289.

Davenport, T. H., & Ronanki, R. (2018). Artificial intelligence for the real world. *Harvard business review*, *96*(1), 108-116.

Domini, B., Dewi, A. S., & Cesna, G. P. (2023). The Effects of Artificial Intelligence (AI) on Company Performance Including the Value of AI-based Business Transformation Initiatives. *IAIC Transactions on Sustainable Digital Innovation (ITSDI)*, *5*(1), 24-38.

Duan, Y., Edwards, J. S., & Dwivedi, Y. K. (2019). Artificial intelligence for decision making in the era of Big Data–evolution, challenges and research agenda. *International journal of information management*, *48*, 63-71.

Dutta, S., Narasimhan, O., & Rajiv, S. (2005). Conceptualizing and measuring capabilities: methodology and empirical application. Strategic Management Journal, 26(3), 277–285.

Esty, D. C., & Winston, A. (2009). *Green to gold: How smart companies use environmental strategy to innovate, create value, and build competitive advantage*. John Wiley & Sons.

Fajimolu, O., Okonji, P., & Onyemaobi, C. (2023). The Role of Organizational Creativity Between Artificial Intelligence Capability and Organizational Performance. *Business and Entrepreneurial Review*, *23*(1), 157-174.

Fernández-Loría, C., Provost, F., & Han, X. (2020). Explaining data-driven decisions made by AI systems: the counterfactual approach. *arXiv preprint arXiv:2001.07417*.

Fosso Wamba, S., Queiroz, M. M., Pappas, I. O., & Sullivan, Y. (2024). Artificial Intelligence Capability and Firm Performance: A Sustainable Development Perspective by the Mediating Role of Data-Driven Culture. *Information Systems Frontiers*, 1-15.

Ghauri, P., Strange, R., & Cooke, F. L. (2021). Research on international business: The new realities. *International Business Review*, *30*(2), 101794.

Gong, Y., Zhou, J., & Chang, S. (2013). Core knowledge employee creativity and firm performance: The moderating role of riskiness orientation, firm size, and realized absorptive capacity. *Personnel psychology*, *66*(2), 443-482.

Gupta, S., Modgil, S., Bhattacharyya, S., & Bose, I. (2022). Artificial intelligence for decision support systems in the field of operations research: review and future scope of research. *Annals of Operations Research*, 1-60.

Hatcher, W. G., & Yu, W. (2018). A survey of deep learning: Platforms, applications and emerging research trends. *IEEE Access*, *6*, 24411-24432.

Ho, L. T., Gan, C., Jin, S., & Le, B. (2022). Artificial intelligence and firm performance: Does machine intelligence shield firms from risks?. *Journal of risk and financial management*, *15*(7), 302.

Jarrahi, M. H. (2018). Artificial intelligence and the future of work: Human-AI symbiosis in organizational decision making. *Business horizons*, *61*(4), 577-586.

Kemp, A. (2023). Competitive Advantages through Artificial Intelligence: Toward A Theory of Situated Ai. *Academy of Management Review*, (JA).

Koivuniemi, U. (2020). Data-driven marketing: business model innovation from a resource-based theory view.

ISSN Online: 3007-3154
ISSN Print: 3007-3146
Vol. 3 No. 12 (Dec) (2025)

Kulkov, I., Kulkova, J., Rohrbeck, R., Menvielle, L., Kaartemo, V., & Makkonen, H. (2023). Artificial intelligence-driven sustainable development: Examining organizational, technical, and processing approaches to achieving global goals. *Sustainable Development*.

Kumar, K., & Thakur, G. S. M. (2012). Advanced applications of neural networks and artificial intelligence: A review. *International journal of information technology and computer science*, *4*(6), 57.

Lee, H. K. (2022). Rethinking creativity: creative industries, AI and everyday creativity. *Media, Culture & Society*, *44*(3), 601-612.

Lezoche, M., Hernandez, J. E., Díaz, M. D. M. E. A., Panetto, H., & Kacprzyk, J. (2020). Agri-food 4.0: A survey of the supply chains and technologies for the future agriculture. *Computers in industry*, *117*, 103187.

Makhloufi, L., Azbiya Yaacob, N., Laghouag, A. A., Ali Sahli, A., & Belaid, F. (2021). Effect of IT capability and intangible IT resources on sustainable competitive advantage: Exploring moderating and mediating effect of IT flexibility and core competency. *Cogent Business & Management*, *8*(1), 1935665.

Malik, A., De Silva, M. T., Budhwar, P., & Srikanth, N. R. (2021). Elevating talents' experience through innovative artificial intelligence-mediated knowledge sharing: Evidence from an IT-multinational enterprise. *Journal of International Management*, *27*(4), 100871.

Mikalef, P., & Gupta, M. (2021). Artificial intelligence capability: Conceptualization, measurement calibration, and empirical study on its impact on organizational creativity and firm performance. *Information & Management*, *58*(3), 103434.

Mikalef, P., & Gupta, M. (2021). Artificial intelligence capability: Conceptualization, measurement calibration, and empirical study on its impact on organizational creativity and firm performance. *Information & Management*, *58*(3), 103434.

Mikalef, P., Fjørtoft, S. O., & Torvatn, H. Y. (2019). Developing an artificial intelligence capability: A theoretical framework for business value. In *Business Information Systems Workshops: BIS 2019 International Workshops, Seville, Spain, June 26–28, 2019, Revised Papers 22* (pp. 409-416). Springer International Publishing.

Mikalef, P., Lemmer, K., Schaefer, C., Ylinen, M., Fjørtoft, S. O., Torvatn, H. Y., ... & Niehaves, B. (2023). Examining how AI capabilities can foster organizational performance in public organizations. *Government Information Quarterly*, *40*(2), 101797.

Mishra, S., Ewing, M. T., & Cooper, H. B. (2022). Artificial intelligence focus and firm performance. *Journal of the Academy of Marketing Science*, *50*(6), 1176-1197.

Moore, S. B., & Manring, S. L. (2009). Strategy development in small and medium sized enterprises for sustainability and increased value creation. *Journal of cleaner production*, *17*(2), 276-282.

Neill, S., McKee, D., & Rose, G. M. (2007). Developing the organization's sensemaking capability: Precursor to an adaptive strategic marketing response. *Industrial Marketing Management*, *36*(6), 731-744.

Pan, Y., & Froese, F. J. (2023). An interdisciplinary review of AI and HRM: Challenges and future directions. *Human Resource Management Review*, *33*(1), 100924.

Parida, V., Sjödin, D., & Reim, W. (2019). Reviewing literature on digitalization, business model innovation, and sustainable industry: Past achievements and future promises. *Sustainability*, *11*(2), 391.

Phillips-Wren, G., & Ichalkaranje, N. (Eds.). (2008). *Intelligent decision making: An AI-based approach* (Vol. 97). Springer Science & Business Media.

ISSN Online: 3007-3154
ISSN Print: 3007-3146
DIALOGUE SOCIAL SCIENCE REVIEW
Vol. 3 No. 12 (Dec) (2025)

Saba, D., Sahli, Y., & Hadidi, A. (2021). The role of artificial intelligence in company's decision making. *Enabling AI Applications in Data Science*, 287-314.

Schuett, J. (2019). A legal definition of AI. *arXiv preprint arXiv:1909.01095*.

Sjödin, D., Parida, V., Palmié, M., & Wincent, J. (2021). How AI capabilities enable business model innovation: Scaling AI through co-evolutionary processes and feedback loops. *Journal of Business Research*, *134*, 574-587.

Sjödin, D., Parida, V., Palmié, M., & Wincent, J. (2021). How AI capabilities enable business model innovation: Scaling AI through co-evolutionary processes and feedback loops. *Journal of Business Research*, *134*, 574-587.

Souto, J. E. (2022). Organizational creativity and sustainability-oriented innovation as drivers of sustainable development: overcoming firms' economic, environmental and social sustainability challenges. *Journal of Manufacturing Technology Management*, *33*(4), 805-826.

Tallman, S., Luo, Y., & Buckley, P. J. (2018). Business models in global competition. *Global Strategy Journal*, *8*(4), 517-535.

Tarafdar, M., Beath, C. M., & Ross, J. W. (2019). Using AI to enhance business operations. *MIT Sloan Management Review*, *60*(4).

Wamba-Taguimdje, S. L., Fosso Wamba, S., Kala Kamdjoug, J. R., & Tchatchouang Wanko, C. E. (2020). Influence of artificial intelligence (AI) on firm performance: the business value of AI-based transformation projects. *Business Process Management Journal*, *26*(7), 1893-1924.

Wamba-Taguimdje, S. L., Fosso Wamba, S., Kala Kamdjoug, J. R., & Tchatchouang Wanko, C. E. (2020). Influence of artificial intelligence (AI) on firm performance: the business value of AI-based transformation projects. *Business Process Management Journal*, *26*(7), 1893-1924.

Wamba-Taguimdje, S. L., Fosso Wamba, S., Kala Kamdjoug, J. R., & Tchatchouang Wanko, C. E. (2020). Influence of artificial intelligence (AI) on firm performance: the business value of AI-based transformation projects. *Business Process Management Journal*, *26*(7), 1893-1924.

Wennberg, K., & Lindqvist, G. (2010). The effect of clusters on the survival and performance of new firms. Small Business Economics, 34(3), 221–241.

Wu, Z., Ji, D., Yu, K., Zeng, X., Wu, D., & Shidujaman, M. (2021). AI creativity and the human-AI co-creation model. In *Human-Computer Interaction. Theory, Methods and Tools: Thematic Area, HCI 2021, Held as Part of the 23rd HCI International Conference, HCII 2021, Virtual Event, July 24–29, 2021, Proceedings, Part I 23* (pp. 171-190). Springer International Publishing.