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The Role of Artificial Intelligence in Enhancing the Resilience of Corporate Supply Chains to Organizational Adaptation Strategies in Facing Global Disruption

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ABSTRACT

Global disruptions such as pandemics, geopolitical tensions, and economic volatility have significantly challenged the stability of global supply chains, forcing organizations to develop more resilient operational systems and adaptive strategic capabilities. In this context, Artificial Intelligence (AI) has emerged as an important technological tool that enables organizations to improve predictive capabilities, enhance operational visibility, and support more effective decision-making processes. This study aims to analyze the role of Artificial Intelligence in enhancing corporate supply chain resilience and its relationship with organizational adaptation strategies in responding to global disruptions. The research employs a quantitative approach using a cross-sectional survey method involving managers and supply chain professionals from organizations that have implemented AI-based technologies in their operational systems. Data were collected through structured questionnaires and analyzed using Structural Equation Modeling (SEM) to examine the relationships among AI utilization, supply chain resilience, and organizational adaptation strategies. The results indicate that Artificial Intelligence utilization significantly enhances supply chain resilience through improved predictive analytics, real-time monitoring, and automated decision-making capabilities. Furthermore, stronger supply chain resilience positively influences organizational adaptation strategies, enabling companies to develop strategic flexibility and more effective responses to global disruptions. The study concludes that integrating Artificial Intelligence with adaptive organizational strategies plays a crucial role in strengthening supply chain resilience and improving organizational capability to navigate uncertainty in the global business environment.

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1. INTRODUCTION

The global business environment has experienced unprecedented turbulence over the last decade due to various forms of disruption, including pandemics, geopolitical conflicts, technological transformations, and climate-related risks. These disruptions have significantly affected the stability of global supply chains, forcing organizations to rethink traditional operational models and adopt more adaptive and resilient strategies. Supply chains that were once optimized primarily for efficiency and cost reduction are now increasingly required to prioritize flexibility, agility, and resilience in order to survive in uncertain environments. The COVID-19 pandemic, for example, exposed structural vulnerabilities in global supply networks and demonstrated how quickly supply chain disruptions can propagate across industries and countries. As a result, organizations worldwide are actively exploring new technological solutions and management strategies to enhance supply chain resilience and sustain operational continuity in the face of global uncertainty (Modgil et al., 2021).

One of the most significant technological developments influencing supply chain management is the rapid advancement of Artificial Intelligence (AI). AI technologies enable organizations to process large volumes of data, generate predictive insights, and support more accurate decision-making in complex and dynamic environments. In supply chain contexts, AI applications include demand forecasting, predictive maintenance, risk detection, logistics optimization, and real-time monitoring of supply chain activities. These capabilities allow companies to detect potential disruptions earlier and respond more effectively through proactive strategies. Consequently, the integration of AI into supply chain management is increasingly recognized as a critical driver for building resilience and maintaining operational stability in volatile global markets (Belhadi et al., 2021).

The increasing adoption of AI in supply chain systems is also closely linked with broader digital transformation initiatives within organizations. Digital transformation not only involves technological adoption but also requires fundamental changes in organizational structures, leadership approaches, and strategic management practices. Companies implementing AI technologies must adapt their organizational capabilities, decision-making processes, and collaborative mechanisms to fully leverage the benefits of these technologies. This transformation often involves restructuring workflows, redefining roles, and promoting a culture of innovation and learning within organizations. In this context, AI-driven digital transformation becomes an important catalyst for strengthening supply chain resilience while simultaneously encouraging organizational adaptability in response to global disruptions (Silvia et al., 2025).

Recent global supply shocks, including trade tensions, inflationary pressures, and geopolitical conflicts, have further intensified the need for resilient supply chains. These shocks disrupt production, transportation, and distribution networks, leading to shortages of critical materials and increased operational costs. Firms operating in highly interconnected global markets are particularly vulnerable to such disruptions, as disturbances in one region can rapidly affect production and distribution activities elsewhere. Consequently, organizations must develop adaptive strategies that allow them to adjust operations, diversify supply sources, and respond quickly to unexpected market changes. Organizational adaptation has therefore become a strategic capability that enables firms to navigate uncertainty and maintain competitiveness in volatile economic environments (Aulia & A'yun, 2025).

Supply chain resilience is commonly defined as the ability of supply chain systems to anticipate, prepare for, respond to, and recover from disruptive events while maintaining operational performance. Achieving this resilience requires a combination of technological capability, organizational flexibility, and strategic coordination among supply chain actors. Studies emphasize that resilience can be strengthened through collaboration, redundancy, and agility within supply chain networks. These mechanisms allow organizations to maintain operational continuity even when certain parts of the supply chain experience disruptions. In the era of digital transformation,

the integration of advanced technologies such as AI is increasingly seen as a key enabler for improving these resilience capabilities across global supply chain systems (Kencono et al., 2025).

Artificial Intelligence provides several strategic advantages in strengthening supply chain resilience. AI-based analytics can help organizations identify potential risks through predictive modeling and real-time monitoring of supply chain activities. Machine learning algorithms can analyze historical and real-time data to detect patterns associated with disruptions, enabling firms to anticipate supply shortages, logistics delays, or demand fluctuations. Moreover, AI systems can support automated decision-making processes that enable faster responses to unexpected events. These capabilities significantly improve an organization's ability to respond to disruptions while minimizing operational losses and maintaining service performance (Lin & Zhang, 2025). Several empirical studies have demonstrated the positive relationship between AI adoption and supply chain resilience. For instance, research on manufacturing firms indicates that AI-driven supply chain systems improve operational visibility, coordination, and risk management capabilities. By leveraging AI technologies, organizations can enhance their ability to adapt production schedules, optimize inventory levels, and manage supplier relationships more effectively. These improvements contribute to stronger resilience and better overall supply chain performance, particularly in highly uncertain and dynamic environments. Consequently, AI is increasingly regarded as a strategic technological resource that enables organizations to maintain stability and competitiveness amid global disruptions (Dey et al., 2023).

In addition to technological capabilities, organizational factors also play a crucial role in determining the effectiveness of AI-driven resilience strategies. Organizational change management is essential for ensuring that technological innovations are successfully integrated into existing operational systems. Implementing AI requires adjustments in leadership practices, decision-making structures, and employee competencies. Organizations must foster adaptive cultures that encourage continuous learning and innovation while ensuring alignment between technological initiatives and strategic objectives. Without effective organizational adaptation, the potential benefits of AI technologies may not be fully realized in improving supply chain resilience (Aprianto et al., 2025). Despite the growing body of literature examining AI and supply chain resilience, several research gaps remain. Many previous studies primarily focus on the technological aspects of AI implementation, such as predictive analytics, machine learning models, and data processing capabilities. However, relatively limited attention has been given to how AI-driven supply chain resilience interacts with organizational adaptation strategies in response to global disruptions. In other words, while existing research highlights the importance of AI technologies, fewer studies explore how organizations strategically integrate these technologies into broader adaptive management frameworks that enable firms to navigate complex global uncertainties (Kassa et al., 2023).

Furthermore, most empirical investigations tend to analyze supply chain resilience from an operational perspective, emphasizing logistics optimization, inventory management, or risk mitigation mechanisms. Although these aspects are important, they do not fully capture the strategic and organizational dimensions of resilience. Organizational leadership, strategic alignment, and adaptive decision-making processes also significantly influence how effectively supply chains respond to disruptions. Understanding the relationship between AI-driven supply chain systems and organizational adaptation strategies is therefore essential for developing more comprehensive resilience frameworks in the context of global uncertainty (Zamani et al., 2022).

Another limitation in the existing literature concerns the integration of AI with broader organizational resilience strategies. While some studies acknowledge the importance of agility, adaptability, and alignment in managing supply chain disruptions, fewer studies investigate how AI technologies specifically support these strategic capabilities. Organizations facing global disruptions must simultaneously develop technological competencies and strategic leadership capacities in order to effectively respond to uncertainty. Integrating AI with adaptive organizational strategies can potentially enhance decision-making quality, improve operational coordination, and strengthen the overall resilience of supply chain systems (Patrucco et al., 2025). In addition, global disruptions increasingly require organizations to adopt integrative leadership approaches that

combine technological innovation with adaptive strategic thinking. Leadership plays a critical role in guiding organizations through periods of uncertainty, particularly when implementing complex technological systems such as AI. Effective leadership ensures that technological initiatives align with organizational goals while fostering collaboration across different functional areas. Adaptive leadership approaches also enable organizations to respond more effectively to evolving global challenges by promoting flexibility, innovation, and strategic learning within supply chain systems (Sode & Mustapha, 2025).

The novelty of this study lies in its integrated perspective that simultaneously examines the role of Artificial Intelligence in strengthening supply chain resilience and its relationship with organizational adaptation strategies in responding to global disruptions. Unlike previous studies that focus predominantly on technological implementation or operational resilience, this research emphasizes the strategic interaction between AI-driven supply chain systems and organizational adaptive capabilities. By integrating technological and organizational perspectives, this study contributes to a more holistic understanding of how companies can leverage AI not only as a technological tool but also as a strategic enabler for adaptive organizational transformation in uncertain global environments (Beta et al., 2025). Furthermore, this research also expands the conceptual understanding of supply chain resilience by linking AI adoption with broader strategic management processes within organizations. In the context of global crises, companies must align technological innovation with organizational transformation initiatives in order to maintain competitiveness and operational continuity. This study therefore offers a conceptual framework that highlights how AI-driven analytics, predictive capabilities, and data-driven decision-making can support adaptive organizational strategies in managing global supply chain disruptions (Riad et al., 2024).

Based on the background and research gaps identified above, this study aims to analyze the role of Artificial Intelligence in enhancing corporate supply chain resilience and its relationship with organizational adaptation strategies in responding to global disruptions. By examining the interaction between technological capabilities and organizational strategic adaptation, this research seeks to provide deeper insights into how companies can effectively utilize AI technologies to strengthen supply chain resilience and improve their ability to navigate complex and uncertain global business environments (Islam, 2023).

2. METHOD

This study employs a quantitative research approach to analyze the role of Artificial Intelligence (AI) in strengthening supply chain resilience and its relationship with organizational adaptation strategies in responding to global disruptions. The quantitative design is chosen because it allows researchers to measure relationships between variables systematically and generate empirical evidence regarding the influence of AI adoption on supply chain resilience and organizational adaptability. The study adopts a cross-sectional survey method targeting companies that actively utilize digital technologies in supply chain management, particularly those operating in manufacturing, logistics, and distribution sectors that are highly exposed to global supply disruptions.

The population of this research consists of managers, supply chain professionals, and strategic decision-makers within organizations that have implemented or are in the process of adopting AI-based technologies in their supply chain operations. A purposive sampling technique is used to select respondents who possess relevant knowledge and experience related to AI implementation and supply chain management. Data collection is conducted using structured questionnaires distributed through online survey platforms to ensure broader accessibility and efficiency. The questionnaire includes measurement indicators related to Artificial Intelligence utilization, supply chain resilience, and organizational adaptation strategies, which are assessed using a Likert scale ranging from strongly disagree to strongly agree.

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The collected data are analyzed using a multivariate statistical approach to examine the relationships between research variables and test the proposed research model. Prior to hypothesis testing, the data undergo validity and reliability testing to ensure the consistency and accuracy of the measurement instruments. Construct validity is evaluated using factor analysis, while reliability is tested using Cronbach's alpha to confirm internal consistency among measurement indicators. After confirming the adequacy of the measurement model, structural analysis is conducted using Structural Equation Modeling (SEM) to evaluate the causal relationships between AI utilization, supply chain resilience, and organizational adaptation strategies. The analysis also includes goodness-of-fit evaluation to ensure that the proposed research model adequately represents the observed data.

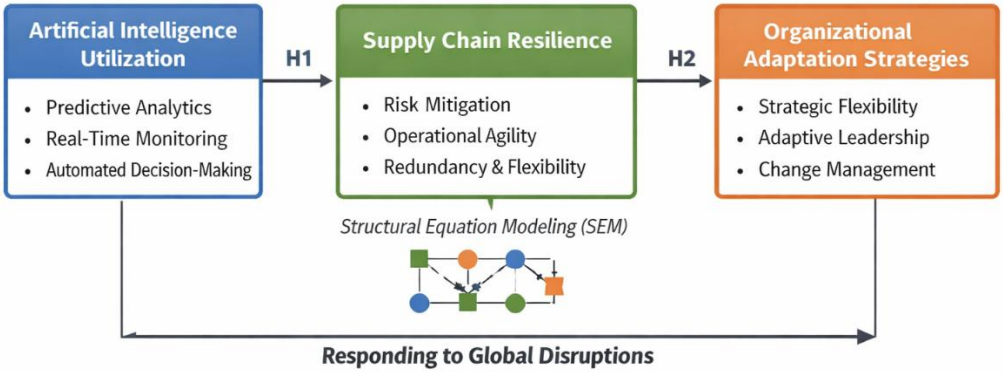

Figure 1. Research Framework of Artificial Intelligence in Enhancing Supply Chain Resilience and Organizational Adaptation.

3. RESULTS AND DISCUSSION

The analysis begins with descriptive statistics to provide an overview of the characteristics of the research variables, including Artificial Intelligence utilization, supply chain resilience, and organizational adaptation strategies. Descriptive statistics are useful for identifying the general tendencies of respondents' perceptions regarding the implementation of AI technologies and their impact on supply chain resilience and organizational adaptability in responding to global disruptions.

Table 1 presents the descriptive statistics of the main variables used in this study, including the mean and standard deviation values obtained from the responses of participating organizations.

Table 1. Descriptive Statistics of Research Variables

Variable	Indicators	Mean	Standard Deviation
Artificial Intelligence Utilization	Predictive analytics capability	4.12	0.63
	Real-time monitoring systems	4.05	0.68
	Automated decision-making	3.98	0.72
Supply Chain Resilience	Risk mitigation capability	4.15	0.60
	Operational agility	4.09	0.66

The results in Table 1 indicate that respondents generally perceive the implementation of Artificial Intelligence in supply chain operations to be relatively high, with mean values ranging between 3.98 and 4.12. Predictive analytics capability shows the highest mean among AI indicators, suggesting that many organizations rely on AI-driven forecasting and analytical tools to anticipate potential supply chain disruptions. Meanwhile, the indicators of supply chain resilience also demonstrate high average values, particularly in risk mitigation capability and operational agility. This finding suggests that companies increasingly emphasize proactive strategies and flexible operational systems to maintain supply chain stability during periods of uncertainty. Similarly, organizational adaptation strategies show strong average scores, especially in strategic flexibility and adaptive leadership. These results indicate that organizations are actively adjusting their strategic management practices to respond effectively to global disruptions.

To further examine the relationships among variables, structural model analysis was conducted using Structural Equation Modeling (SEM). This analysis aims to determine the extent to which Artificial Intelligence utilization contributes to supply chain resilience and how supply chain resilience influences organizational adaptation strategies.

The results of the structural model analysis are presented in Table 2.

Table 2. Structural Model Results and Hypothesis Testing.

Hypothesis	Relationship	Path Coefficient	t-value	Result
H1	Artificial Intelligence Utilization → Supply Chain Resilience	0.63	7.84	Supported
H2	Supply Chain Resilience → Organizational Adaptation Strategies	0.58	6.91	Supported

The results presented in Table 2 show that Artificial Intelligence utilization has a significant positive effect on supply chain resilience, with a path coefficient of 0.63 and a t-value of 7.84, which exceeds the critical value for statistical significance. This finding indicates that the implementation of AI technologies such as predictive analytics, automated decision systems, and real-time monitoring significantly enhances the ability of organizations to anticipate, respond to, and recover from supply chain disruptions. The results support the argument that AI-driven analytics improve operational visibility and enable more proactive risk management within supply chain systems.

Furthermore, the results also demonstrate that supply chain resilience significantly influences organizational adaptation strategies, with a path coefficient of 0.58 and a t-value of 6.91. This suggests that organizations with more resilient supply chain structures are better equipped to develop adaptive strategies when facing global disruptions. Resilient supply chains allow companies to maintain operational stability while simultaneously adjusting strategic decisions, leadership approaches, and organizational processes. Overall, these findings highlight the critical role of Artificial Intelligence as a technological enabler that strengthens supply chain resilience and supports organizational adaptability in increasingly uncertain global business environments.

The findings of this study demonstrate that Artificial Intelligence utilization plays a significant role in strengthening supply chain resilience and supporting organizational adaptation strategies in responding to global disruptions. The statistical results show that Artificial Intelligence utilization has a strong and significant effect on supply chain resilience, which subsequently contributes to the development of organizational adaptation strategies. These findings support the argument that

digital technologies, particularly Artificial Intelligence, are increasingly becoming critical strategic tools for organizations operating in highly uncertain global environments. The integration of Artificial Intelligence into supply chain management enables organizations to improve operational visibility, strengthen risk management capabilities, and enhance responsiveness to disruptions occurring within global supply networks. In the current era of rapid technological advancement and global market volatility, companies are required to develop resilient operational systems supported by advanced digital technologies that enable faster and more accurate decision-making processes (Belhadi et al., 2021).

The quantitative approach employed in this study provides a systematic and empirical framework for examining the relationships between Artificial Intelligence utilization, supply chain resilience, and organizational adaptation strategies. This approach enables the measurement of causal relationships among variables and offers robust evidence regarding the strategic role of AI in enhancing organizational resilience. Previous studies have emphasized that quantitative methods are particularly effective in analyzing technology-driven phenomena within supply chain systems, especially in identifying the impact of AI-based predictive analytics, automation, and data-driven decision-making on operational performance and resilience (Belhadi et al., 2021; Dey et al., 2023). The use of structured questionnaires distributed to managers and supply chain professionals also ensures that the data reflects real organizational practices in implementing AI technologies within complex and dynamic environments.

Furthermore, the application of Structural Equation Modeling (SEM) in this study strengthens the analytical rigor by allowing simultaneous examination of multiple relationships among latent variables. This method is widely recognized as a powerful analytical tool for investigating complex interactions between technological and organizational factors in supply chain contexts. Prior research indicates that SEM is particularly suitable for exploring how AI capabilities influence resilience and adaptive strategies in organizations facing global disruptions (Zamani et al., 2022; Kassa et al., 2023; Riad et al., 2024). By integrating empirical survey data with advanced statistical modeling, this study provides a comprehensive understanding of how AI-driven technologies contribute to strengthening supply chain resilience and supporting organizational adaptability in uncertain global environments.

The descriptive statistical results indicate that predictive analytics capability represents the most dominant indicator within Artificial Intelligence utilization. This finding suggests that organizations increasingly rely on data-driven analytical systems to anticipate supply chain risks and potential disruptions. Predictive analytics allows organizations to process large volumes of operational data and generate forecasting models that help identify demand fluctuations, supply shortages, and potential logistical bottlenecks before they escalate into major operational disruptions. The ability to anticipate risks through predictive technologies provides organizations with a strategic advantage in managing complex supply chain networks that involve multiple suppliers, logistics providers, and distribution channels. Such predictive capabilities significantly enhance the stability and resilience of supply chain operations in an increasingly dynamic and uncertain global environment (Lin & Zhang, 2025). Furthermore, the results also show that real-time monitoring and automated decision-making capabilities play an important role in strengthening supply chain resilience. These technologies enable organizations to continuously monitor operational activities across different stages of the supply chain and detect anomalies that may indicate potential disruptions. Real-time monitoring systems supported by Artificial Intelligence allow managers to access updated operational information, enabling faster responses when unexpected events occur. Automated decision-making systems further enhance organizational responsiveness by providing data-driven recommendations that help managers choose optimal operational strategies. These technological capabilities allow organizations to respond quickly to unexpected supply chain disturbances, thereby reducing operational risks and improving overall system stability (Beta et al., 2025).

The significant relationship between Artificial Intelligence utilization and supply chain resilience observed in this study aligns with previous research emphasizing the strategic importance of AI-

driven technologies in strengthening supply chain systems. Artificial Intelligence provides advanced analytical tools that enable organizations to identify vulnerabilities within supply chain structures and develop proactive strategies to mitigate potential disruptions. By leveraging machine learning algorithms and advanced data analytics, organizations can enhance operational transparency and improve coordination among supply chain actors. These capabilities are particularly important in global supply networks where disruptions occurring in one location can rapidly affect production and distribution activities across multiple regions. Consequently, AI-driven supply chain systems contribute significantly to improving organizational preparedness and resilience in responding to unexpected global events (Dey et al., 2023).

The concept of supply chain resilience itself has become increasingly important in the context of global economic uncertainty and technological transformation. Resilient supply chains are characterized by the ability to anticipate potential disruptions, respond effectively to operational disturbances, and recover quickly from unexpected events while maintaining operational continuity. The findings of this study demonstrate that Artificial Intelligence contributes to strengthening these resilience capabilities by improving risk detection, enhancing operational flexibility, and supporting more effective coordination among supply chain actors. These capabilities enable organizations to maintain operational stability even in highly uncertain environments characterized by fluctuating demand patterns, supply shortages, and logistical challenges (Setyadi et al., 2025). In addition to strengthening operational resilience, Artificial Intelligence also supports strategic decision-making processes that are essential for organizational adaptation. Global disruptions often require organizations to make rapid strategic adjustments in order to maintain competitiveness and operational sustainability. AI-driven analytics provide decision-makers with real-time insights that help identify emerging market trends, evaluate operational risks, and design more adaptive strategic responses. The integration of Artificial Intelligence into strategic decision-making processes therefore enables organizations to develop more flexible and responsive management strategies that are better suited to the rapidly changing global business environment (Silvia et al., 2025).

The results of the structural model analysis also indicate that supply chain resilience significantly influences organizational adaptation strategies. This finding suggests that organizations with stronger supply chain resilience capabilities are better positioned to implement strategic adaptations in response to global disruptions. Supply chain resilience provides organizations with operational stability that allows managers to focus on strategic innovation and organizational transformation rather than solely addressing operational crises. In this context, resilient supply chain systems act as a foundation for broader organizational adaptability, enabling companies to adjust their business strategies, operational processes, and leadership approaches in response to evolving global challenges (Patrucco et al., 2025). Organizational adaptation strategies are particularly important in the context of global disruptions that continuously reshape the competitive landscape of international business. Companies operating in highly dynamic environments must develop adaptive capabilities that allow them to respond effectively to rapid technological changes, geopolitical tensions, and environmental challenges. Adaptive strategies often involve restructuring operational processes, diversifying supply sources, strengthening collaboration with supply chain partners, and investing in digital technologies that enhance organizational agility. The integration of Artificial Intelligence into these strategies allows organizations to improve their ability to anticipate changes and respond more effectively to emerging challenges (Van Lai et al., 2025).

The role of leadership is also critical in ensuring that technological innovations such as Artificial Intelligence are successfully integrated into organizational adaptation strategies. Effective leadership enables organizations to align technological initiatives with broader strategic objectives while fostering a culture of innovation and continuous learning. Leaders must also ensure that employees develop the necessary skills to effectively utilize AI-driven technologies in their daily operational activities. Without strong leadership support, technological initiatives may fail to deliver their full strategic potential, particularly in complex organizational environments characterized by rapid change and uncertainty (Anwar et al., 2025). Another important aspect

highlighted by the findings of this study is the importance of organizational change management in facilitating the successful implementation of Artificial Intelligence technologies. The adoption of AI-driven supply chain systems often requires significant changes in organizational structures, workflows, and decision-making processes. Organizations must therefore implement effective change management strategies that ensure employees are prepared to adapt to new technologies and operational practices. Successful change management initiatives typically involve employee training programs, leadership support, and the development of collaborative organizational cultures that encourage innovation and experimentation. These efforts enable organizations to fully leverage the potential of Artificial Intelligence technologies in strengthening supply chain resilience and improving organizational adaptability (Aprianto et al., 2025).

The findings of this study also reinforce the importance of collaboration, agility, and redundancy as key elements of supply chain resilience. AI technologies support these resilience mechanisms by enabling more effective coordination among supply chain partners and improving information sharing across supply chain networks. For example, AI-based analytics can help organizations identify alternative suppliers, optimize inventory allocation, and adjust production schedules in response to disruptions. These capabilities enhance organizational agility and allow companies to maintain operational continuity even when certain parts of the supply chain experience disturbances. Such resilience mechanisms are particularly important in global supply networks characterized by high levels of interdependence among different actors (Kencono et al., 2025). In addition to operational benefits, Artificial Intelligence also contributes to long-term organizational resilience by supporting continuous learning and knowledge development within supply chain systems. AI-driven data analytics generate valuable insights that help organizations identify patterns and trends associated with supply chain disruptions. These insights enable organizations to develop more effective risk management strategies and improve their preparedness for future disruptions. Over time, the accumulation of knowledge derived from AI-based analytics contributes to the development of more sophisticated supply chain management capabilities that enhance organizational competitiveness and sustainability (Firoozi et al., 2025).

The integration of Artificial Intelligence into supply chain management also aligns with broader trends in digital transformation across global industries. Many organizations are increasingly adopting advanced digital technologies to enhance operational efficiency, improve decision-making accuracy, and strengthen resilience in the face of uncertainty. AI technologies play a particularly important role in this transformation because they enable organizations to process large volumes of complex data and generate actionable insights that support strategic decision-making. As digital transformation continues to reshape the global business landscape, organizations that effectively integrate AI technologies into their operational and strategic processes are likely to achieve significant competitive advantages (Zamani et al., 2022).

Moreover, the development of AI-driven supply chain systems also contributes to improving organizational preparedness for future crises. Global disruptions such as pandemics, geopolitical conflicts, and climate-related risks are likely to continue affecting supply chain stability in the coming years. Organizations must therefore develop resilient operational systems that enable them to anticipate potential disruptions and respond quickly when crises occur. AI technologies provide powerful tools for supporting these resilience efforts by enabling organizations to monitor supply chain activities in real time, identify emerging risks, and implement proactive mitigation strategies before disruptions escalate into major operational problems (Kassa et al., 2023). From a strategic management perspective, the findings of this study highlight the importance of integrating technological innovation with organizational adaptation strategies. Artificial Intelligence should not be viewed solely as a technological tool but rather as a strategic capability that supports broader organizational transformation efforts. Organizations that successfully integrate AI technologies with adaptive strategic management practices are better positioned to navigate complex global environments characterized by uncertainty and rapid change. Such integration enables

organizations to enhance operational resilience while simultaneously developing strategic flexibility that supports long-term competitiveness (Riad et al., 2024).

Finally, the results of this study confirm that the integration of Artificial Intelligence and supply chain resilience plays a crucial role in supporting organizational adaptation in the context of global disruptions. The findings provide empirical evidence that AI-driven technologies significantly enhance the ability of organizations to anticipate risks, respond to operational disruptions, and develop adaptive strategic responses. These capabilities are essential for organizations seeking to maintain operational stability and strategic competitiveness in an increasingly complex and uncertain global business environment. The study therefore contributes to the growing body of literature emphasizing the strategic importance of Artificial Intelligence in strengthening supply chain resilience and supporting organizational adaptation strategies in the era of global disruption (Islam, 2023).

4. CONCLUSION

The results of this study indicate that Artificial Intelligence plays a significant role in strengthening supply chain resilience and supporting organizational adaptation strategies in responding to global disruptions. The findings demonstrate that AI utilization, particularly through predictive analytics, real-time monitoring, and automated decision-making systems, enhances the ability of organizations to anticipate risks, respond effectively to operational disturbances, and maintain supply chain stability under uncertain conditions. Furthermore, the study confirms that stronger supply chain resilience contributes positively to the development of organizational adaptation strategies, including strategic flexibility, adaptive leadership, and effective change management practices. These results suggest that the integration of Artificial Intelligence within supply chain management not only improves operational resilience but also facilitates broader organizational transformation in addressing complex global challenges. Therefore, organizations that strategically adopt AI-driven technologies and align them with adaptive management approaches are better positioned to navigate uncertainty, sustain operational continuity, and maintain competitiveness in an increasingly volatile global business environment.

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