Accelerating Supply Chain Performance: The Crucial Role of Artificial Intelligence Mediation in Driving Adaptability and Collaboration in Indonesia's Automotive Supply Chain

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ABSTRACT

The purpose of this study is to establish the role of Artificial Intelligence in supporting the supply chain performance of automobile manufacturing companies, at the Bekasi industrial complex. The authors investigate whether Artificial Intelligence is a mediating factor of two independent variables, Adaptability and Collaboration, and the dependent variable, overall supply chain performance. This study applied a quantitative approach and obtained data from 133 respondents of executives of automotive companies on supply chain operations. The SEM model was applied in this study, and validated using Smart PLS. All the hypotheses were verified by the findings. Adaptability and collaboration have direct positive impacts on supply chain performance. This study also verified that Artificial Intelligence is a very strong mediator. Artificial Intelligence is very instrumental in enhancing Adaptability and Collaboration for the purpose of maximizing supply chain performance. In this article, it is implied that firms with good Adaptability and Collaboration frameworks are better positioned to take full advantage of Artificial Intelligence, and Artificial Intelligence functions perfectly in maximizing the salutary effect of Adaptability and Collaboration. Thus, the firms must make use of Artificial Intelligence paramount to maximize their supply chain operations.

Keywords: Supply Chain Adaptability, Supply Chain Collaboration, Artificial Intelligence, Supply Chain performance, Automotive Industry.

ABSTRAK

Tujuan penelitian ini adalah untuk menetapkan peran Kecerdasan Buatan (AI) dalam mendukung kinerja rantai pasokan perusahaan manufaktur otomotif di kompleks industri Bekasi. Penulis menyelidiki apakah Kecerdasan Buatan merupakan faktor mediasi dari dua variabel independen, yaitu Adaptabilitas dan Kolaborasi, dan variabel dependen, yaitu kinerja rantai pasokan secara keseluruhan. Penelitian ini menggunakan pendekatan kuantitatif dan memperoleh data dari 133 responden eksekutif perusahaan otomotif mengenai operasi rantai pasokan. Model SEM diterapkan dalam penelitian ini, dan divalidasi menggunakan Smart PLS. Semua hipotesis terverifikasi oleh temuan. Adaptabilitas dan kolaborasi memiliki dampak positif langsung terhadap kinerja rantai pasokan. Penelitian ini juga memverifikasi bahwa Kecerdasan Buatan merupakan mediator yang sangat kuat. Kecerdasan Buatan sangat berperan dalam meningkatkan Adaptabilitas dan Kolaborasi untuk tujuan memaksimalkan kinerja rantai pasokan. Dalam artikel ini, tersirat bahwa perusahaan dengan kerangka kerja Adaptabilitas dan Kolaborasi yang baik lebih mampu memanfaatkan Kecerdasan Buatan secara maksimal, dan Kecerdasan Buatan berfungsi

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sempurna dalam memaksimalkan efek positif dari Adaptabilitas dan Kolaborasi. Oleh karena itu, perusahaan harus memanfaatkan Kecerdasan Buatan secara maksimal untuk memaksimalkan operasi rantai pasokan mereka.

Kata Kunci: *Adaptasi Rantai Pasok, Kolaborasi Rantai Pasok, Kecerdasan Buatan, Kinerja Rantai Pasok, Industri Otomotif.*

INTRODUCTION

The role of global supply chains is indicated as a result of the process of globalization that involves an extensive set of activities starting from the sourcing of raw materials to the selling of finished goods, their transportation, and storage, assisted by an international supply chain apparatus to minimize cost (Liu & Lin, 2021). Growing complexity in the supply chain requires the incorporation of information technology and operational coordination starting from upstream suppliers to the retail industry, thereby supplementing the competitive advantage of locally produced products. The global automobile industry has undergone far-reaching changes at the global level in the manufacturing processes and management approaches, as aptly referred to by the iconic Peter Drucker as an "industrial industry" (Veloso & Kumar, 2002).

The Indonesian automotive industry, which is the backbone of the manufacturing economy, faces challenges in producing sustainable automotive products as well as having efficient supply chains that can meet both domestic and international demand (Anwar et al., 2023). Some of the challenges facing the Indonesian automotive sector include unstable market dynamics, changing regulatory environments, and global supply chain disruptions. To address these challenges, a strategic framework of flexibility and coordination in the supply chain needs to be accomplished, where artificial intelligence plays the role of the key enabler in enhancing efficiency and responsiveness (Redzeb, 2024). Artificial intelligence has to be implemented to enhance supply chain resilience through better predictability of disruptions and thereby automating the risk reduction measures associated with them (Shamsuddoha et al., 2025). Thus, this strategy, when optimized, not only helps the adaptability of the Indonesian automotive industry to market conditions but also makes it more competitive in the global market due to continuous enhancement in innovation and productivity (Riad et al., 2024). Strategic application of artificial intelligence in supply chain management has been shown to have the potential to optimize resource use, reduce waste, and provide enabling capabilities toward circular supply chain systems-all positive for sustainability (Redzeb, 2024).

It intends to explore to what degree supply chain flexibility and cooperation, actualized via the integration of AI, can be capitalized on in improving the supply chain performance in the automotive industry in Indonesia. Quantitative research was conducted through a well-designed questionnaire that collected data from middle to top levels of Indonesian automotive firms' management (Bahono, 2023). This research is very timely considering the need to enhance the competitiveness and sustainability of the locally manufactured products under the automotive cluster, particularly amidst the competitive situation of world markets (Soesetyo et al., 2024). The result is anticipated to assist policymakers and practitioners in formulating strategies for upgrading the supply chain performance through the implementation of the suitable Artificial Intelligence technology.

While the conversation around digital supply chains is louder than ever, there's a screaming disconnect in how we actually study the impact of technology. Too many studies have fallen into the trap of viewing AI as some kind of magic 'plug-and-play' tool that boosts performance. Such oversimplification misses the point: AI does not work in a vacuum. It actually requires a fundamental shift in how a company works. Our research breaks away from this by treating AI as that missing link-a mediator-that turns raw organizational flexibility into actual competitive results, especially when facing the chaotic supply chain shifts we see today.

What is even more surprising is the lack of hard data on how this plays out in Indonesia's automotive sector. Most models lean on data from Western markets, but the peculiarities of the Indonesian landscape demand a more granular view through the lens of PLS-SEM. Drawing on the Dynamic Capabilities framework (Teece, 2014), we aim to demonstrate that thriving amidst global disruptions (Ivanov, 2020) is not solely achieved by having superior technology; it is rather how that technology is integrated into the weave and weft of the supply chain. This study is not an ivory tower academic exercise; it serves as a reality check for automotive leaders on how they should forge ahead beyond the glitter of AI to build genuine resilience.

While digital transformation in the automotive world is highly relevant, much of current research misses the point by treating AI as a "plug-and-play" miracle rather than a complex organizational capability. This research reveals the mystery behind this "black box" by removing AI as a sole panacea; through the lens of Dynamic Capabilities, AI reveals its actual role-a crucial, strategic bridge that translates raw organizational flexibility into real and actual resilience. It is all the more urgent, considering the current Western bias in supply chain data, often bypassing the peculiar reality of Indonesia's automotive sector, such as the one represented by the hub of Bekasi, where firms have to deal with local regulatory shifts and global material dependencies that a "one-size-fits-all" strategy simply cannot handle. Moving beyond anecdotal stories of success and using PLS-SEM, this research gives a tough statistical "stress test" to prove exactly how cooperation and flexibility, filtered through AI, hold up a company when global disruption strikes.

LITERATURE REVIEW

Supply Chain Performance

Supply chain performance is a multi-dimensional idea, which examines the performance of a supply chain in meeting its strategic objectives, commonly measured in terms of the operational metrics such as cost, speed, quality, and flexibility. It includes material flow optimization, information sharing, and the monetary flow through the network, beginning with buying raw materials to delivery at the final customer. Supply chain performance dimensions encompass efficiency (i.e., unit cost, inventory turnover), responsiveness (i.e., timely delivery, lead time), resilience (i.e., disruptive recovery), and sustainability (i.e., environmental impact, ethical sourcing) (Belhadi et al., 2021) (Winanto, 2025). These are delved into in depth to determine the effectiveness with which the supply chain recovers from interruption, adjusts to change in the market, and realizes social and ecological wellness (Belhadi et al., 2021) (Winanto, 2025).

Guided by the Dynamic Capabilities Theory, this study looks at how firms survive in high-pressure environments like Indonesia's automotive sector. While Adaptability and Collaboration are essential foundations, they often remain static on their own. To truly drive Supply Chain Performance, these resources need a higher-order engine to bring them to life. This is where Artificial Intelligence steps in as the digital orchestrator; it "senses" shifts and "reconfigures" collaborative efforts into real-time strategic actions, turning raw potential into a decisive competitive advantage.

The Effects of Adaptability, Collaboration, and Artificial Intelligence on Supply Chain Performance

Supply chain Adaptability implies that a company has the potential to strategically re-mold its operations, resources, and operating patterns due to imminent disruptions, emerging market demands, and technological innovations (Shamsuddoha et al., 2025). Supply chain Adaptability forms include structural flexibility, which allows faster network configuration reengineering, and operational agility, allowing faster production and distribution process adjustments(Belhadi et al., 2021). Supply chain Adaptability is required as it enables firms to react suitably to customer needs and market volatility. This is attested by research from Dubey et al., where it is stated that Adaptability and supply chain agility drive competitive advantage (Dubey et al., 2018). The same study evidences that highly responsive organizations outperform better in managing uncertainty, thus

improving total supply chain performance (Dubey et al., 2018). Supply chain coordination is a strategic imperative that involves cooperative conduct by independent actors in the supply chain to achieve mutually favorable results through mutual information, plan coordination, and process integration(Teixeira et al., 2025). Such interorganizational synergy goes beyond transactional exchange and evokes more intense goal and resource interdependencies that have the potential to affect strongly total supply chain performance (Nguyen et al., 2023). Effective partnership fosters commitment and trust, which are crucial for achieving optimal supply chain performance through increased information sharing and collaborative decision-making (Mukhsin & Suryanto, 2021)(Essatty et al., 2024). Furthermore, collaborative supply chain competencies also lead to improved market knowledge.

Artificial Intelligence supply chain management leverages Artificial Intelligence technologies to improve forecasting accuracy, automate, and optimize complex decision-making across the value chain (Graham & Jordan, 2025). The applications of Artificial Intelligence typically belong to machine learning for predictive analysis, natural language processing for unstructured data analysis, and computer vision for inventory control and quality monitoring (Alomar, 2022). Leverage of Artificial Intelligence along with supply chain management not only makes processes more efficient but also enhances supply chains' resilience as it enables preemption against potential disruptions (Riad et al., 2024) (Choudhuri, 2024). Use of Artificial Intelligence technology in data analytics enables businesses to process and analyze data in real time, which plays a crucial role in making timely and informed decisions. With data to be processed ongoing to increase, the Artificial Intelligence technology offers the opportunity to gain insights from the data and make precious recommendations for enhancing the process. Supply Chain Adaptability and Collaboration are of very important positive contribution for Artificial Intelligence .

The hypothesis of The Effects of Adaptability, Collaboration, and Artificial Intelligence on Supply Chain Performance is as follows:

H1: Supply Chain Adaptability Affects Supply Chain Performance

H2: Supply Chain Collaboration Affects Supply Chain Performance

H3: Artificial Intelligence Affects Supply Chain Performance

Influence of Supply Chain Adaptability and Supply Chain Collaboration has strong positive impact on Artificial Intelligence

Collaboration flexibility and adaptability in the supply chain enables organizations to successfully implement Artificial Intelligence solutions, with joint data for improved predictions and real-time decisions (Redzeb, 2024). The application of Artificial Intelligence technology can accelerate decision-making by establishing new solutions, and increase competitiveness through innovation supported by the knowledge gains offered by Artificial Intelligence (Tian et al., 2024). Adoption of Artificial Intelligence enhanced operations, predicted demand volatility, and controlled levels of inventories more effectively (Kelly, 2024) . Moreover, artificial intelligence technologies such as predictive analytics and machine learning significantly enhance supply chain visibility and toughness so that businesses are able to deal with market trends and predictable disruptions effectively (Zhang, 2024).

The hypothesis of the Influence of Supply Chain Adaptability and Supply Chain Collaboration has a strong positive impact on Artificial Intelligence is as follows:

H4 : Supply Chain Adaptability has strong positive impact on Artificial Intelligence

H5 : Supply Chain Collaboration has strong positive impact on Artificial Intelligence

The Indirect Influence Supply Chain Adaptability dan Collaboration Supply Chain on Supply Chain Performance through Artificial Inteligent

Integrating AI into supply chain management is far more than just a technical upgrade; it acts as a critical bridge that brings organizational strategies to life. While Adaptability and Collaboration provide the raw strategic potential, that potential often stays "locked" because the human mind alone can't keep up with the sheer volume of modern supply chain data. AI steps in as the analytical engine that turns shared information into foresight. For instance, while collaboration gets partners talking, AI is what actually

listens to the data, spotting hidden patterns to stop risks before they hit. This means the link between being adaptable and being successful isn't always a straight line; instead, AI amplifies that link by running "what-if" scenarios, allowing companies to pivot with surgical precision.

In the high-pressure world of Indonesia's automotive sector, AI is the mechanism that translates a company's *willingness* to cooperate into the actual *ability* to perform. By enabling a level of synchronized decision-making that traditional methods simply can't reach, AI doesn't just sit alongside these strategies—it fundamentally reshapes them to survive and thrive in a disruptive global market.

The hypothesis of The Indirect Influence of Supply Chain Adaptability and Collaboration Supply Chain on Supply Chain Performance through Artificial Intelligence is as follows:

H6 : Supply Chain Adaptability affects Supply Chain Performance indirectly through Artificial Inteligent.

H7 : Supply Chain Collaboration has an impact on Supply Chain Performance via Artificial Inteligent

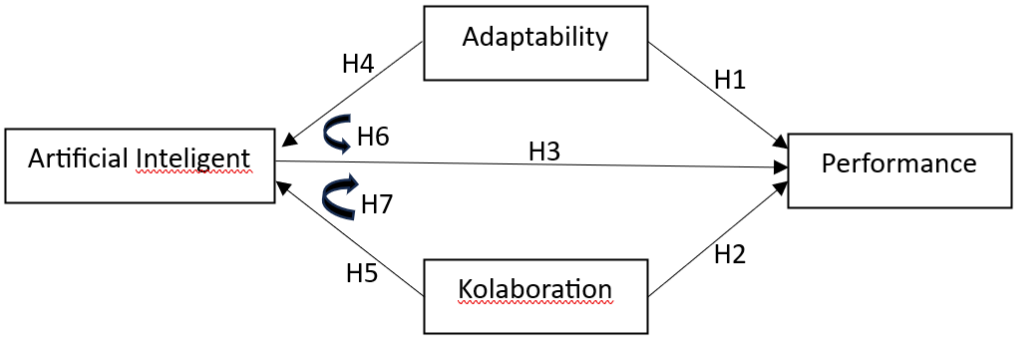

Figure 1 : Research framework

METHODOLOGY

It was the pursuit of insights into the real world that put the focus of this study squarely on the Bekasi industrial zone, which is not coincidental but has been identified as the beating heart of Indonesia's automotive industry. To capture this ecosystem in its entirety, the research connects two diverse worlds: global manufacturers and mid-sized suppliers who feed them. Such a division is important, as the challenges and resource limitations for a global leader and a local supplier are rarely aligned. Focusing on firms that have adopted AI as a living, breathing part of their operations-where it is used to predict demand or smooth out logistics-and ensuring that all 133 respondents were practitioners on the front lines, this study captured the authentic pulse of the industry rather than just rhetoric by the corporates.

PLS-SEM acts as the principal analytical lens to make sense of these lived experiences. The choice was compelled by the desire to map the hidden threads and untangle the intricate paths at which AI serves as the essential bond between a company's intentions and its actual results. As the role of AI as a mediator remains a fresh frontier within the Indonesian automotive landscape, the goal is to discover new ways through which businesses can remain resilient rather than merely repeating old formulas.

Table 1. Indicators

Variable	Operational Definition	Source
Performance Supply Chain (Y)	Measured both on operational dimensions (cycle time, cost efficiency) as well as strategic dimensions (competitive advantage and resilience).	Gunasekaran, A., Subramanian, N., & Rahman, S. (2022).
Adaptability Supply Chain (X1)	Measured from responsiveness to changes in processes, flexibility of resources, and reconfigurability of networks.	Phadnis, R. (2024).

Collaboration Supply Chain (X2)	Assessed on the scale of Level of Information Sharing, Planning Integration, and Trust with partners.	Simatupang, T. M., & Sridharan, R. (2005).
Artificial Intelligence (M)	Assessed from critical SCM processes' extent of application of Artificial Intelligence technologies (e.g., machine learning, predictive analytics, automation).	Teixeira et al., 2025 (2024)

RESULTS

The following are the results of analysis conducted by the writer based on information accessed from the responses of questionnaires provided by managers of Bekasi automobile firms using Smart PLS software:

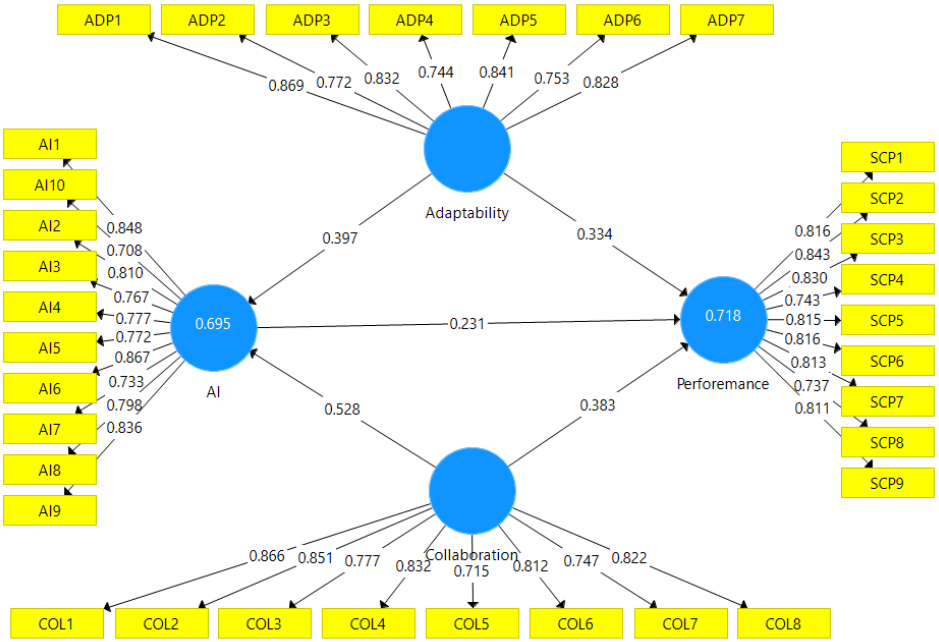

Figure 2. Measurement model

The figure above shows that the outer loading for each of the indicators is greater than 0.7, which implies that all the indicators are valid.

Table 2. Construct Reliability and Validity

Construct	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Artificial Intelligence	0.934	0.935	0.944	0.629
Adaptability	0.91	0.915	0.929	0.651
Collaboration	0.921	0.923	0.936	0.647
Performance	0.931	0.932	0.942	0.646

Source: Primary Data Processed with SmartPLS (2025)

These results cumulatively show that the measurement model meets the requirements of convergent validity, hence ensuring that indicators always measure the intended construct in the same accurate manner. All the items are therefore considered valid and suitable for structural analysis.

Table 3. Discriminant Validity

	AI	Adaptability	Collaboration	Performance
Artificial Intelligence	0.793			
Adaptability	0.723	0.807		
Collaboration	0.773	0.617	0.804	
Performance	0.769	0.737	0.768	0.804

Source: Primary Data Processed with SmartPLS (2025)

Table 3 also substantiates this fact with the presentation that all the indicators of every variable register more loading values on the sought-after construct than on other constructs. This confirms that every indicator possess high discriminant validity, i.e., it is indeed measuring the variable for which it is intended to measure and not others. Convergent and discriminant validity are therefore attained, which ensures that the constructs used in the present study are appropriately measured and valid for subsequent structural model analysis.

Model Evaluation

Model Predictive Power (R^2 , F^2 and Q^2)

The following are the results of the R^2 , F^2 and Q^2 analysis.

Tabel 4. R Square

	R Square	R Square Adjusted
Artificial Intelligence	0.695	0.69
Perforemance	0.718	0.711

Source: Primary Data Processed with SmartPLS (2025)

Tabel 5. F Square

	AI	Adaptability	Collaboration	Performance
Perforemance				
Collaboration	0.565			0.206
Adaptability	0.321			0.185
AI				0.058

Source: Primary Data Processed with SmartPLS (2025)

Tabel 6. Q square

	SSO	SSE	Q^2 (=1-SSE/SSO)
Artificial Intelligence	1330	762.62	0.427
Adaptability	931	931	
Collaboration	1064	1064	
Perforemance	1197	655.397	0.452

Source: Primary Data Processed with Smart PLS (2025)

Results show that AI is explained by A and C with the value of 0.695, while SCM performance is explained by A, C, and AI with a value of 0.718. The R^2 value, positioned between 0.695 and 0.718 (above 0.67), is regarded as strong (substantial), reflecting the model's strong predictive power in explaining the dependent variable.

With a value of $F^2 = 0.565$, the impact of collaboration on AI adoption is massive and classified as a Large Effect. It denotes that AI does not exist in a vacuum; rather, in Bekasi's automotive hub, the strength of partnerships is a driver of AI, not necessarily internal flexibility. Collaboration is almost twice as strong, compared to Adaptability at $F^2 = 0.321$, in driving the two drivers. That relational bonds are the priority in successful digital transformation is what this suggests. Moreover, positive Q^2 values for all endogenous variables (Artificial Intelligence and SCM Performance) confirm the predictive relevance of the model.

Direct Hypothesis Testing (H1, H2, H3, H4, H5)

Table 7. Direct effect

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
Artificial Intelligence -> Performance	0.231	0.225	0.077	2.982	**0.003**
Adaptability -> Artificial Intelligence	0.397	0.399	0.059	6.691	**0.000**
Adaptability -> Performance	0.334	0.334	0.067	4.952	**0.000**
Collaboration -> Artificial Intelligence	0.528	0.527	0.055	9.615	**0.000**
Collaboration -> Performance	0.383	0.389	0.078	4.897	**0.000**

Source: Primary Data Processed with Smart PLS (2025)

Based on the table above, it is evident that: Supply Chain Adaptability has a significant positive effect on Supply Chain Performance because of the P-value of 0.000, which is less than 0.05, and the Original Sample value is 0.334; Supply Chain Collaboration greatly influences Supply Chain Performance since the P-value of 0.000, less than 0.05, with its Original Sample at 0.383; Artificial Intelligence has a very significant positive influence in Supply Chain Performance since the P-value is 0.003, which is less than 0.05, and its Original Sample is 0.231; Supply Chain Adaptability plays a significant role in contributing towards Artificial Intelligence because the P-value indicated is 0.000 (<0.05) and the Original Sample value is 0.397; Supply Chain Collaboration, too, plays an extremely positive role toward Artificial Intelligence as the indication of its P-value is 0.000 (<0.05) and the Original Sample value is 0.528..

Table 8. Indirect Effect

Construct	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
Adaptability -> Artificial Intelligence -> Performance	0.092	0.090	0.035	2.606	**0.009**
Collaboration -> Artificial Intelligence -> Performance	0.122	0.118	0.042	2.908	**0.004**

Source: Primary Data Processed with SmartPLS (2025)

Collaboration has an indirect and positive impact on Supply Chain Performance through AI, denoted by the P-value of 0.004 (<0.05) and Original Sample value of 0.122. Supply Chain Adaptability through Artificial Intelligence has a positive impact on Supply Chain Performance, as depicted by the P-value of 0.009 less than 0.05 and Original Sample value of 0.092. From this, it follows that supply chain flexibility and cooperation have a significant role to play in shaping supply chain performance through intermediation by artificial intelligence. Greater cooperation and simultaneous application of Artificial Intelligence may have the synergistic effects of rendering supply chains more robust, more efficient, and effective overall.

DISCUSSION

These results go beyond mere hypothesis confirmation and reflect a structural transformation in Indonesia's automotive industry, particularly within the Bekasi industrial cluster, which serves as a strategic manufacturing hub in Southeast Asia. While Adaptability and Collaboration naturally emerge as foundational drivers of firm performance—consistent with dynamic capability theory—the empirical evidence underscores that Artificial Intelligence (AI) plays a critical bridging role that reconfigures these human-centric capabilities into operational excellence. In contemporary high-velocity industrial environments, adaptability is no longer a strategic advantage but rather a baseline requirement for survival. Firms that fail to respond rapidly to supply chain disruptions, demand volatility, or technological shifts risk being outpaced by competitors operating in increasingly data-driven ecosystems.

The findings suggest that without AI-enabled decision-support systems, even highly collaborative organizational structures may struggle to convert shared knowledge into timely strategic action. AI functions as a cognitive infrastructure that integrates fragmented data across organizational boundaries, enabling firms to transition from reactive problem-solving to proactive and predictive operational strategies. This supports the dynamic capabilities perspective that digital intelligence enhances sensing, seizing, and transforming processes by augmenting managerial cognition and organizational learning. In the context of Bekasi, AI emerges not merely as a technological tool but as an institutional mechanism that reduces information asymmetry, enhances transparency, and strengthens inter-organizational trust among supply chain partners. By converting dispersed and heterogeneous data into a single source of truth, AI facilitates coordinated decision-making across original equipment manufacturers (OEMs), tier-1 suppliers, and downstream distributors.

Furthermore, the confirmation of H6 and H7 indicates that firms have progressed beyond basic technology adoption toward the strategic integration of AI to amplify human judgment and organizational intuition. This aligns with the concept of human–AI symbiosis, where digital systems do not replace human decision-makers but rather extend their cognitive capabilities. When organizational structures are inherently agile, AI enables firms to respond to disruptions with speed and precision, transforming crisis management from a reactive mitigation approach into a proactive resilience strategy. As global manufacturing environments become increasingly volatile due to geopolitical uncertainties, pandemics, and technological disruptions, the results highlight that organizational resilience is embedded not in static contingency plans but in predictive intelligence systems that allow firms to anticipate and adapt to emerging risks.

From a managerial perspective, the implications are particularly salient for leaders operating within the Bekasi industrial ecosystem. AI should be viewed not as a symbolic technological investment but as a strategic integrator that synchronizes fragmented supply chain actors into a cohesive and responsive system. A key managerial risk lies in adopting advanced AI technologies while maintaining rigid, siloed organizational cultures that hinder data sharing and cross-functional collaboration. Effective AI deployment requires organizational restructuring, cross-functional integration, and the development of data-driven decision-making routines. When AI is embedded within collaborative organizational processes, it enables real-time coordination among supply chain partners, thereby enhancing responsiveness, reducing operational uncertainty, and improving overall system performance.

At the policy level, the findings suggest that government initiatives should extend beyond hardware subsidies and infrastructure investments toward the development of a comprehensive digital supply chain ecosystem. Maintaining Bekasi's position as the "Detroit of Indonesia" requires coordinated policies that foster digital literacy, data governance frameworks, and inter-organizational data-sharing standards. Policymakers should facilitate the integration of small and medium-sized suppliers into digital platforms used by multinational OEMs, thereby reducing digital divides within the industrial ecosystem. This includes regulatory frameworks for data interoperability, cybersecurity standards, and incentives for collaborative digital platforms that enable seamless information flow across supply chain tiers.

Ultimately, the Indonesian automotive industry must transition from traditional manufacturing paradigms toward intelligent orchestration models, where competitive advantage is determined not only by production capacity but also by the speed and intelligence of system-wide decision-making processes. In this emerging paradigm, AI functions as the central nervous system of industrial ecosystems, enabling firms and policymakers to orchestrate complex networks of production, logistics, and innovation in real time.

CONCLUSION

These results do more than just support a hypothesis; they unfold an exciting tale of how the Indonesian automotive industry is indeed changing. Though it was also further established that adaptability and collaboration were indispensable in performance, the most striking finding was the role of AI as a watershed mediator. Data suggests that in the chaotic environment of the Bekasi industrial hub, flexibility or even collaboration is no longer sufficient. Without AI, these capabilities are mostly dormant or too slow to react. This mirrors the dynamic capability framework by Teece (2014) but with a digital twist: AI acts as the reconfiguration engine turning raw collaborative data into surgical action. This supports arguments by Dubey et al. (2020), who identified technology as the sole means of managing complexity, adding local nuance findings that AI in Bekasi is being mobilized in order to bridge those gaps of trust and transparency which often make traditional partnership ineffective. Moreover, the acceptance of H6 and H7 resonates with the work of Belhadi et al. (2021) in proving that AI-driven innovation is the main driver of resilience. Companies within this industry are not merely Adopting AI; they utilize it

to enhance their human capabilities. When an organization is already resilient, AI makes such resilience an accurate one, rather than a reactive process. As Ivanov warned in 2020, getting through global disruptions entails something more than having a contingency plan-up, it requires predictive intelligence, which only AI can provide at scale.

For managers in the automotive sector in Bekasi, the message is clear: AI should not be treated as something shiny new to buy but rather as the strategic glue of the organization. The dead end in digital transformation lies in investing in software without first fixing the collaborative culture. Success will be in how AI can cement the bonds between teams and suppliers, making sure that everyone is looking at the same real-time truth.

What it means from a policy perspective is that the Indonesian government and industry bodies must look beyond subsidizing hardware. There must be a focused effort on building the digital supply chain ecosystem by creating data-sharing standards and digital literacy programs that enable even medium-sized suppliers to plug into the AI grids of larger OEMs. If Bekasi wants to remain the Detroit of Indonesia, it has to pivot from traditional manufacturing into intelligent, orchestrated production.

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