The Interplay between Innovation Capacity, Supply Chain Agility, and Market Leadership in Emerging Economies

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Abstract: Firms in emerging economies often struggle to stay competitive in fast-changing markets. While innovation and supply chain agility are widely seen as drivers of market leadership, we still do not fully understand how these forces work together in contexts like Africa. Guided by the Resource-Based View (RBV) and the Dynamic Capabilities Theory (DCT), our study set out to explore the links between innovation capacity, supply chain agility, and market leadership. Data were collected through surveys from firms in Nigeria, Kenya, and Ghana, and analysed using structural equation modeling. Our results showed that innovation directly supports market leadership, but surprisingly, supply chain agility did not significantly predict leadership. Also, innovation did not strengthen leadership through agility, suggesting that the assumed pathways may not hold in emerging markets. These findings imply that innovation is indeed a valuable resource (RBV), but its impact depends on how well firms turn it into dynamic capabilities (DCT). Our study was limited by its cross-sectional design and focus on three countries. Future research should use longitudinal data and explore other regions. Overall, our study highlights that innovation matters, but without strong systems and dedicated strategic direction, its benefits may not fully translate into agility and competitiveness.

Keywords: Dynamic capabilities, emerging economies, innovation capacity, market leadership, supply chain agility.

Introduction

In today's business world, supply chains are no longer just hidden systems working in the background. They now decide which companies stay in business and which ones lose ground. As Kamakela, Callychurn, and Hurreeram (2025) explain, whether it is food, medicine, building materials, or everyday consumer goods, the ability to get products to the right place at the right time often separates winners from losers. In developed countries, supply chains usually have good support: strong infrastructure, smooth transport systems, and

steady regulations. But in many parts of Africa, the picture looks very different (Kempston, Coles, Dahlmann, & Kirwan, 2025). Bad roads, fuel shortages, border delays, and even strikes can make simple deliveries a daily headache (Klibi, Shawa, & Mkansi, 2025).

And yet, evidence suggests that in the middle of all these challenges, some firms are not just surviving but thriving (Dza, 2024; Tukamuhabwa, Mutebi, &Mbatsi, 2024). These companies seem more creative, quicker to act, and better at building customer trust (Qureshi, Ellahi, Javed, Rehman, & Rehman, 2023). Our study looks at three ideas that may explain why: innovation practices, supply chain agility, and market leadership. Our thinking is based on the premise that if innovation gives the firm smarter ways of working, agility can help it adjust when things go wrong, and together these can strengthen a company's chances of leading its market.

In this study, innovation practices mean the fresh ideas, processes, and technologies that firms adopt to improve how they work. It could be digital platforms to track deliveries, mobile money for easier payments, or even using data analytics to forecast demand. These are not about "big" technology only, they are about practical ways to solve daily supply challenges (e.g. strikes, bad roads, border bottlenecks, and fuel/electricity) and make things run smoother (Dza, 2024).

On the other hand, supply chain agility is about how quickly and effectively a company can react when the unexpected happens. It's about speed, flexibility, and the ability to keep moving (Ali, Ibua, & Ondisa, 2024). For example, if a truck carrying perishable goods breaks down between Lagos and Accra, an agile company will quickly arrange another truck, reroute shipments, and update customers. A less agile one may lose both the goods and customer trust. Finally in our study, market leadership capability is about being seen as reliable and dependable in the eyes of customers. A leader in the market does not have to be the largest player. Instead, it is the firm that people trust the most, the one setting the standard that others follow.

Our study also proposes that these three concepts are not separate; they are linked. That is to say, if innovation gives the supply chain the tools and smarter methods. Agility can help them apply those methods quickly when disruptions or volatilities happen. Over time, combining innovation and agility can build trust and credibility, which shows up as market leadership. In other words, innovation may feed into agility, and agility may act as the bridge

between innovation and leadership. This thinking fits with arguments from supply chain research that say firms in unpredictable environments must constantly adjust to stay ahead (Kempton *et al.*, 2025; Klibi*et al.*, 2025).

Most studies on supply chains come from developed economies, where the main focus is efficiency and cost-cutting. But in Africa, firms face very different problems: poor infrastructure, weak regulatory systems, and constant interruptions (Baldassarre, Maury, Tazi, Mathieux, & Sala, 2025; Nguyen, Van-Nguyen, Zhou, Duong, & Ieromonachou, 2025; Wang, Ji, Lang, & Zhang, 2025). Research directly linking innovation practices, supply chain agility, and market leadership in African supply chains is still limited (Musa, Haruna, Aliyu, Zubairu, & Eliseo, 2025; Nyagadza, Pashapa, Chare, Mazuruse, & Hove, 2022). This leaves an important gap in knowledge, especially for logistics firms trying to grow under pressure and uncertainty.

To see how this might work in practice, take the example of a truck carrying tomatoes from Kano to Lagos that breaks down. For such perishable goods, delays can quickly lead to heavy losses. An agile company can arrange another truck immediately and inform the buyer. Another less agile company will likely lose the tomatoes and disappoint the client. In a related development, think about border delays in Africa caused by long customs processes. A company that still relies on manual paperwork may be stuck at the border for days.

By contrast, a firm using digital clearance systems can get documents processed ahead of time, save costs, and impress its customers. These examples show that agility alone might not be enough. Without innovation, agility may not have the right tools to work with. At the same time, innovations without agility may fail when disruptions occur. Consequently, firms that combine both (i.e. innovation and agility) might have a better chance of becoming trusted leaders.

This research is important for a number of reasons. For businesses, it shows practical ways firms can stay competitive even in unpredictable conditions. For policymakers, it points to the need for better digital infrastructure, smoother border systems, and supportive policies for logistics firms. For researchers, it adds much-needed African evidence to global supply chain debates. And for society, stronger supply chains mean farmers and small businesses can sell more, consumers get goods more reliably, and economies benefit overall (Ejairu, Mhlongo, Odeyemi, Nwankwo, &Odunaiya, 2024; Poponcini, 2024).

The overall aim of this study is to assess how innovation practice sand supply chain agility separately and together, affects market leadership capability in

emerging economies, with a focus on a multinational supply chain company operating across Nigeria, Ghana, and Kenya.

The specific objectives are to:

1) Examine the relationship between innovation practices and market leadership capability.
2) Assess the relationship between supply chain agility and market leadership capability.
3) Investigate the link between innovation practices and supply chain agility.
4) Test the mediating role of supply chain agility between innovation practices and market leadership.
5) Provide practical recommendations for managers and policymakers on how firms can combine innovation and agility to achieve stronger market leadership in emerging economies.

Literature review

The review in this study has three parts: the conceptual review clarifies the meanings of supply chain agility, innovation practices, and market leadership; the theoretical review presents guiding perspectives that explain how these factors operate and support one another; and the empirical review evaluates previous findings to identify patterns, inconsistencies, and knowledge gaps that justify the current study.

Conceptual Review

Innovation Practices

Innovation practices describe how organizations create, adopt, and apply new ideas to improve supply chain operations (Dza, 2024). Innovation in this context goes beyond breakthrough technologies (Qureshi *et al.*, 2023); it includes practical improvements and creative problem-solving that make processes smoother, faster, and more reliable (Aggrey *et al.*, 2022). For example, a company might develop digital platforms to track deliveries in real time, introduce mobile payment systems for drivers, or use data analytics to forecast demand and reduce waste (Abdallah, Alfar, &Alhyari, 2021). These practices help firms overcome structural challenges, optimize resources, and deliver services that meet changing customer expectations (Bhatti, Hussain, Khan, Sultan, & Ferraris, 2024)). Innovation acts as the engine that provides agility with smarter tools, allowing firms to respond quickly to disruptions while also building long-term efficiency and customer confidence (Nikneshan, Shahin, & Davazdahemami, 2024).

Supply Chain Agility

Closely linked to agility are innovation practices and supply chain agility, which often describe a business's ability to respond quickly and effectively to unexpected changes (Mwania, &Kyule, 2024; Miriti, &Nteere, 2025). It involves flexibility and resilience in the face of disruptions, not just speed (Alfalla-Luque *et al.*, 2023). For a logistics firm, this could mean quickly rerouting deliveries when a road is blocked, finding new suppliers when stock runs out, or adjusting schedules to meet sudden spikes in customer demand (Ali *et al.*, 2024). Agility reflects a company's ability to adapt without losing efficiency, ensuring that customers receive value even in unpredictable circumstances (Osoro *et al.*, 2024). In unstable environments like emerging economies, where issues like poor infrastructure, changing regulations, and market instability are common, agility is a necessity for survival, not just a competitive advantage (Tukamuhabwa*et al.*, 2024).

Market Leadership Capability

Market leadership capability represent the trust, influence, and competitive strength companies achieve when they consistently deliver superior value (Negi, 2024). Leadership in this instance is not just about size or market share; it hinges on reliability, reputation, and the ability of the supply chain firm to set standards that others follow (Garcia-Buendia, Moyano-Fuentes, Maqueira, & Avella, 2023). A logistics company known for clear communication, dependable deliveries, and innovative solutions will naturally attract more clients and build stronger relationships (Meemken, Barrett, Michelson, Qaim, Reardon, & Sellare, 2021; Susitha, Jayarathna, & Herath, 2024). Over time, such a firm gains recognition as a leader in its field, shaping customer expectations and influencing industry practices (Iftikhar, Ali, Arslan, &Tarba, 2024; Shekarian, Ijadi, Zare, &Majava, 2021). According to Susitha *et al.* (2024) and Yerpude, Sood and Grima (2022), market leadership capability emerge from the collaboration of agility and innovation. In this regard, agility provides responsiveness, innovation offers intelligence, and together they create the consistency and trust that enable a firm to stand out among competitors (Dza, 2024).

Theoretical Review
Dynamic Capabilities Theory [DCT] (Teece, Pisano &Shuen, 1997)

The Dynamic Capabilities Theory was introduced in 1997 by David Teece, Gary Pisano, and Amy Shuen (Teece, 2022). DCT emerged when businesses began to realise that simply owning resources was not enough to survive in fast-

changing environments (Fainshtein, Chkoniya, Fiore, & Serova, 2024). The theory starts with the idea that markets are not stable, and firms cannot rely solely on past successes or static resources. Instead, they must build special skills to survive turbulence (Mele, Capaldo, Secundo, & Corvello, 2024). From the perspective of DCT, these skills as the ability to sense opportunities and threats, seize them when they arise, and rearrange resources to stay competitive (Teece, 2022). In simpler terms, it's like a business having both sharp eyesight to detect change and flexible muscles to adjust quickly when things shift. DCT assumes that regardless of how strong a company's assets are today, they can lose their value tomorrow if the firm does not stay adaptable (Fainshtein*et al.*, 2024; Rashid, Rasheed, Ngah, &Marjerison, 2024).

Over the years, dynamic capabilities have been applied widely in various fields of management research (Mele *et al.*, 2024). For instance, studies in technology firms have shown how companies stay ahead by constantly reconfiguring their products and supply chains in response to consumer demands (Ali, Arslan, Chowdhury, Khan, &Tarba, 2022; Kahkonen, Evangelista, Hallikas, Immonen, &Lintukangas, 2023). In the service sector, dynamic capabilities explain how banks adopt digital platforms to meet changing customer needs (Cheng, Fan, & Huang, 2023). Research has also used the DCT to show how firms survive economic crises, environmental disruptions, and even political instability (Fainshtein*et al.*, 2024).

However, DCT has faced some criticism. Part of DCT's criticisms is that its definitions are too broad and sometimes unclear, making it hard to measure in practical terms (Collis, & Anand, 2021). Others believe that the focus on sensing, seizing, and reconfiguring can be too general and not easily applicable across industries (Arndt, Galvin, Jansen, Lucas, & Su, 2022). Despite these concerns, DCT remains important because it highlights the need for firms to keep evolving to remain competitive (Kahkonen *et al.* 2023). For our study, we state on the basis of DCT that supply chain agility involves reconfiguring processes to handle uncertainty. Innovation practices are strategies to seize opportunities in tough markets. Market leadership, in this context, comes from firms that effectively use their dynamic capabilities to thrive despite constant challenges, exactly the situation faced by supply chain businesses in emerging economies (Aggrey *et al.*, 2022).

Resource-Based View [RBV] (Barney, 1991)

The Resource-Based View (RBV) gained popularity through Jay Barney in 1991 (Polyhart, 2021). While Dynamic Capabilities focuses on change, RBV highlights the significance of what a firm already possesses (Abdurrahman, 2025). The RBV theory suggests that firms can achieve sustained competitive advantage if they have resources that are valuable, rare, hard to copy, and non-substitutable (Huang, Wang, Lee, & Yeung, 2023). In other words, it's not just about having resources, but having those that competitors cannot easily replicate. These resources can be physical (like machinery or access to natural resources), financial (capital strength), or intangible (skills, knowledge, brand reputation, or organisational culture). The basic idea is that if a firm effectively manages these resources, it can keep competitors at bay and maintain an advantage in the market (Sharma, Alkatheeri, Jabeen, &Sehrawat, 2022).

RBV has been used in management studies (Chatterjee, Chaudhuri, Vrontis, & Thrassou, 2023). For example, researchers have applied it to explain why some companies become global leaders by building strong brands that others cannot replicate (Kumar, Raut, Mangla, Moizer, & Lean, 2024). In human resource management, RBV highlights how the unique skills and knowledge of employees can provide an advantage. In supply chain studies, it argues that firms with better logistics networks or stronger relationships with suppliers often outperform their peers (Huang *et al.*, 2023). Yet, a common critique of the RBV theory is that it can be too focused on resources within the firm while neglecting the external environment (Ferreira, & Ferreira, 2025). Another criticism is that what qualifies as "valuable" or "rare" can change rapidly in turbulent markets, making RBV less useful when change happens quickly (Pereira, & Bamel, 2021).

Despite these criticisms, RBV is considered relevant to this study. In emerging economies, where firms often work with limited resources, capabilities like supply chain agility and innovation practices can serve as rare and valuable assets. Not every company can adapt quickly, and not every company can create unique technological or process solutions. Those that can build resources that are hard to copy. These rare capabilities can then lay the groundwork for market leadership, allowing firms to rise above competitors even in resource-strained environments.

Empirical Review

Supply Chain Innovation and Market Leadership capability

Kilay, Simamora, and Putra (2022) examined how digital tools, especially e-payment and e-commerce, affect the supply chain performance of Indonesian MSMEs. They surveyed business owners and managers and found that digitalisation improved coordination, speed, and efficiency. They concluded that adopting these tools is essential for competitiveness and should be supported by policymakers. In Vietnam, Le, Vo, and Venkatesh (2022) studied how green innovation and supply chain management drive sustainable corporate performance. Using survey data and regression analysis, they showed that eco-friendly practices improve both environmental and financial results. They highlighted green innovation as both a responsibility and a factor for better performance.

Rehman Khan, Ahmad, Sheikh, and Yu (2022) focused on digital transformation, smart technologies, and eco-innovation across different industries. Using structural equation modeling, they found that companies embracing these tools achieved greater resilience and sustainability. This implies that technology is now central to being adaptable. Wong and Ngai (2022) developed and validated a tool for measuring supply chain innovation. They confirmed its positive effect on performance and provided managers with a practical method to track and strengthen innovation.

Al-Khatib (2022) explored how big data analytics improve green supply chain performance, with green innovation acting as a mediator and technological intensity as a moderator. Their findings showed that analytics work best when combined with innovation and advanced technology. In a follow-up study, Al-Khatib (2023) confirmed that green innovation is the crucial link between analytics and sustainable results. Finally, Belhadi *et al.* (2024), using survey data from Indian manufacturers, showed that AI-driven innovation improves resilience and performance in changing conditions. They urged companies to adopt AI as essential for future supply chain competitiveness.

Supply Chain Agility and Market Leadership Capability

Ali, Ibua, and Ondisa (2024) studied manufacturing firms in Mombasa, Kenya, using surveys and regression analysis to test how agility shapes supply chain performance. They found that firms were able to adapt quickly to disruptions and customer needs performed better, urging managers to invest in flexible systems and fast decision-making. Expanding the scope, Alfalla-Luque, García, and Marin-Garcia (2023) conducted a meta-analysis across industries worldwide. Their results confirmed agility generally improves performance,

though the strength of this link varies by context, suggesting African firms must adapt global lessons to local realities. Miriti and Nteere (2025) examined distribution firms in Nairobi, collecting survey data and running regression models. The study showed that quick decision-making, technology use, and customer responsiveness boosted delivery speed and cost efficiency, making agility a survival tool in congested urban markets.

Similarly, Mwania and Kyule (2024) found Nairobi manufacturers that embraced agile supply chain practices improved efficiency, reduced costs, and satisfied customers. Osoro, Noor, and Nyanga'u (2024) emphasised agility in Kenya's horticulture exports, showing it was vital for freshness, quality, and meeting strict foreign market demands. Beyond Africa, Panigrahi *et al.* (2023) used PLS-SEM to confirm agility directly enhanced operational flexibility and efficiency. Rashid *et al.* (2024) added that agility works best when supported by strong supplier and customer integration, highlighting the role of collaboration in achieving sustained performance.

Innovation Capability and Supply Chain Agility

Aprilia, Laili, Setyowati, and Waringga (2021) examined how supplier innovation impacts supply chain agility in coffee shops in Malang, Indonesia. They conducted a survey of 100 shop owners and analysed the data using regression. Their findings showed that suppliers who introduced new ideas and practices helped coffee shops react more quickly to changes. They concluded that supplier-driven innovation can shape agility directly, especially in small service businesses. They suggested that managers should view suppliers as partners in innovation. Abourokbah, Mashat, and Salam (2022) investigated firms in Saudi Arabia to understand how absorptive capacity, digital capability, agility, and resilience work together to influence supply chain innovation performance. They collected survey data from 220 managers and analysed it using structural equation modeling. The findings revealed that firms with strong digital skills and the ability to learn from others performed better in terms of agility and resilience. They concluded that a learning mindset and digital readiness are essential for innovative supply chains.

Aldhaheri and Ahmad (2023) looked into what drives supply chain agility and competitiveness among firms in the UAE. They used a questionnaire survey of 190 managers and analysed the data with regression. Their results indicated that technology adoption, leadership, and collaboration were important factors. The study concluded that agility is not random but is influenced by specific organisational elements, which has implications for policy and managerial training. Qureshi *et al.* (2023) studied fast food chains in Pakistan and

collected data from 150 managers. Their regression analysis showed that adopting IT improved agility by speeding up communication and decision-making. They concluded that investing in technology can directly boost responsiveness in service-based supply chains.

Wang, Hill, Liu, Hwang, and Lim (2024) surveyed 250 manufacturing firms across Asia to investigate the interaction between digitalisation and innovation. They used structural equation modeling for their analysis and found that digital tools enhance agility, particularly when firms are innovative. They concluded that technology alone is insufficient; a culture of innovation must go hand in hand with digital transformation. Aslam, Blome, Schleper, Ramish, and Bajwa (2025) studied firms in Europe and analysed survey data from 300 managers. They found that the relationship between agility and innovation relies heavily on the organisational context, such as structure and leadership style. The study concluded that there is no universal solution. Managers must tailor agility and innovation strategies to their specific environments.

Innovation Capability, Supply Chain Agility and Market Leadership Capability

Abdallah, Alfar, and Alhyari (2021) examined how supply chain quality management boosts performance in Jordanian manufacturing firms. They surveyed 218 managers and analysed the data using structural equation modeling. The study found that agility and innovation connect quality management to improved performance. The authors concluded that firms cannot depend solely on quality practices; they need to be flexible and innovative to remain competitive. Aggrey *et al.* (2022) studied agribusinesses in Ghana by surveying 301 managers with structured questionnaires and analysing the data through regression. Their findings showed that integration, agility, and innovation together strengthen firm performance. They concluded that agribusinesses in emerging economies should adopt a combined approach to succeed, especially in unpredictable markets.

Bahrami, Shokouhyar, and Seifian (2022) explored big data analytics in Iranian firms. They analysed data from 170 managers using SEM and found that big data indirectly improves performance by enhancing resilience and innovation. They concluded that investing in technology must align with flexible systems to create a real impact. Firmansyah and Siagian (2022) studied Indonesian manufacturing firms and collected survey data from 125 managers. Their regression analysis revealed that information sharing enhances supply chain performance, especially when mediated by supplier quality, agility, and

innovation. They concluded that openness and collaboration are essential across supply chains.

Dza (2024) focused on agribusiness firms in Ghana using a survey of 210 respondents. The results indicated that innovation capacity and process agility directly drive supply chain collaboration and performance. The study suggested that collaboration thrives in environments where firms can adapt quickly and innovate. Susitha, Jayarathna, and Herath (2024) conducted a bibliometric analysis of 400 global studies. They found increasing evidence that agility and digital tools work together to enhance supply chain competitiveness. They concluded that adopting digital tools is becoming a necessity for firms.

Wang and Prajogo (2024) studied Australian firms by surveying 150 supply chain managers. Their SEM analysis showed that digitalisation boosts firm performance through efficiency gains. They concluded that digital tools are essential, not optional. Li, Waris, and Bhutto (2024) surveyed 210 Chinese manufacturers. Their findings showed that big data and green capabilities enhance agility and competitive advantage, with innovation strengthening these effects. They concluded that sustainability and agility are closely linked in modern supply chains.

Gap in Literature and Hypotheses Development

Following our literature review, we observe that most previous studies have examined innovation or agility separately, mostly in developed countries. Secondly, it is still unclear how these two abilities work together to influence market leadership in emerging economies. Firms in these regions face unique challenges, like poor infrastructure and uncertain regulations. Besides, the role of agility in enhancing the link between innovation and leadership is also not well explored in emerging economies. This study fills that gap by focusing on multinational supply chains in Nigeria, Ghana, and Kenya. Therefore, we propose the following hypotheses:

1) **HO_1**   Innovation practices do not significantly affect market leadership capability.
2) **HO_2**   Supply chain agility does not significantly affect market leadership capability.
3) **HO_3**   Innovation practices do not significantly affect supply chain agility.
4) **HO_4**   The indirect effect of innovation practices on market leadership capability through supply chain agility is not significant.

Methodology

In this section, we explain how the study was done. We describe the overall design, the people involved, and how we gathered and analysed data. Our goal is to provide a clear picture of the steps taken to explore how innovation capacity and supply chain agility relate to market leadership in the focal multinational supply chain firm headquartered in Lagos, with regional offices in Ghana and Kenya.

Research Design and Philosophy

This study used a quantitative survey design based on positivist philosophy. The philosophy assumes that social reality can be observed, measured, and explained through structured data (Dulal, 2025). We considered this design as the best choice because the study aimed to test relationships among measurable variables: innovation practices, supply chain agility, and market leadership capability. The sample included employees from three African countries.

Population and Sample Size

The population consisted of staff from a multinational supply chain company with its headquarters in Lagos, Nigeria, and offices in Ghana and Kenya. These locations were chosen because they are key centers for supply chain operations in West and East Africa. With a large workforce in these three countries, a minimum sample of 350 employees was targeted, meeting the suggestions for structural equation modeling (Hair, Babin, Anderson & Black, 2019). A snowball sampling method was used to ensure fair representation across departments and offices.

Data Collection Procedure

Data was collected digitally to make participation easy across borders. An online questionnaire was sent out through the company's official staff communication platform, ensuring broad reach and convenience for respondents. This method also saved time and money, avoiding the challenges of physical distribution. Respondents were promised anonymity and confidentiality to encourage honest feedback.

Research Instrument

The main data collection tool was a structured questionnaire that aimed to capture employees' views on innovation practices, supply chain agility, and market leadership capability. The questionnaire had three key sections. The first section gathered demographic information like role, years of experience, and country of office. The second section measured the main constructs of the

study, while the last part collected general comments from respondents. To ensure relevance and reliability, the questionnaire was adapted from established scales used in past studies.

Items on innovation practices were inspired by Wang and Ahmed's (2004) scale, commonly used to assess firms' ability to introduce new processes, services, or ideas. The supply chain agility items were adapted from Gligor, Holcomb and Stank (2013), whose framework reflects responsiveness, flexibility, and speed in supply chain operations. For market leadership capability, we adapted items from Chang, and Ko's (2014) brand leadership scale which measures the extent to which a company stand-out and establish its brand in a specific industry. Adapting existing measures ensures our questions are valid, easy to understand in the local context, and comparable with findings from other studies.

Confirmatory factor analysis of Wang and Ahmed's (2004) organisational innovativeness scale indicated an excellent model fit (x^2/df = 1.855; GFI = .873; CFI = .922; RMSEA = .063). Factor loadings significantly ranged from .77 to .89. Reliability tests showed high internal consistency, with Cronbach's alpha values above .60 for each dimension and an overall coefficient of .91 (Wang & Ahmed, 2004). These results confirm both the validity and reliability of the instrument for assessing organizational innovativeness in different contexts.

Gligor *et al.* (2013) report that the Cronbach's alpha and construct reliability for the Supply Chain Agility scale (SCA) were above the 0.70 threshold. However, the average variance extracted (AVE) for the accessibility and flexibility subscale was slightly below the standard, at .488 and .475. Confirmatory factor analysis (CFA) showed an adequate model fit with CFI = .886, RMSEA = .077, and GFI = .803. These psychometric properties underscore the internal consistency and construct validity of the SCA scale.

According to an earlier study (Chang, Ko, Lee, Cho, & Arai, 2012), the brand leadership scale showed strong predictive validity by significantly predicting attitude toward the brand (path coefficient, γ = .76). Consumer-focused studies that used Chang & Ko's (2014) BLS in luxury services or e-commerce sectors reported reliability α values ranging from .75 to .91 (Chang, Ko, & Leite, 2016; Zhihan, Abd Rahman, & Noor, 2022).

All items were measured on a five-point Likert scale from "strongly agree" (1) to "strongly disagree" (5), making it easy for respondents to reply. Before distribution, experts reviewed the instrument for content validity. Reliability was checked using Cronbach's alpha and composite reliability (CR), both of

which met the recommended thresholds of 0.70 and above (Hair *et al.*, 2019). Confirmatory factor analysis assessed construct validity, showing acceptable convergent and discriminant validity. These steps ensured the questionnaire was robust and appropriate for the study's goals.

Method of Data Analysis
The data collected was analysed using Covariance-Based Structural Equation Modeling (CB-SEM) with AMOS. CB-SEM was chosen because it allowed us to examine direct, indirect, and mediating effects the relationship between innovation practices, supply chain agility and market leadership capability. As part of the CB-SEM analysis, model fit indices like CFI, RMSEA, and Chi-square/df assisted us to confirm the adequacy of the measurement and structural models (Astrachan, Patel, &Wanzenried, 2014).

Ethical Considerations
Ethical approval came from the Research Ethics Committee of the lead author's university. Informed consent was obtained from all respondents, assuring them that participation was voluntary and they could withdraw at any time. Because the survey was created as an online, self-administered questionnaire that had no self-identifying questions, the anonymity of the responses was fully preserved. Also, data was securely stored with access limited to the research team.

Data Presentation and Analysis
This section shows the results of our survey aimed at understanding how innovation practices and supply chain agility interact to create market leaders in supply chains within emerging economies. Our survey involved a snowball sample of 353 employees from a multinational supply chain organisation with offices in Nigeria, Ghana, and Kenya. The analysis starts with the demographic profile of the respondents, which provides important context for interpreting the findings on innovation practices, supply chain agility, and market leadership capability in emerging economies. In accordance with our model, the second part of the analysis uses Covariance-Based Structural Equation Modeling (CB-SEM) in AMOS to test the direct, indirect, and mediating effects of innovation practices, supply chain agility, and market leadership capability.

Analysis of Demographic Data

Table 1: Respondents' Demographic Profile (N = 353)*

Variable	Category	Frequency	Percent
Age	18–24 years	102	28.9
	25–34 years	163	46.2
	35–44 years	27	7.6
	45–54 years	34	9.6
	55 years & above	27	7.6
Gender	Female	103	29.2
	Male	250	70.8
Qualification	SSCE/Diploma	128	36.3
	Bachelor's Degree	137	38.8
	Master's Degree	54	15.3
	Doctorate Degree	34	9.6
Country	Nigeria	161	45.6
	Kenya	69	19.5
	Ghana	123	34.8
Position	Junior Management	244	69.1
	Middle Management	81	22.9
	Senior Management	28	7.9
Experience (years)	1–3 years	54	15.3
	4–6 years	116	32.9
	7–10 years	55	15.6
	More than 10 years	128	36.3

Source: Field Survey (2025)

* based on valid responses

The demographic profile table shows clear patterns among survey participants (see Table 1). Most of the sample were relatively young, with 75.1% between 18 and 34 years old. This indicates that the supply chain workforce mainly

consists of younger professionals who are often open to new ideas. The gender balance was uneven; men made up 70.8% and women 29.2%, highlighting a male-dominated industry. In terms of education, most respondents held a diploma (36.3%) or a bachelor's degree (38.8%), while fewer had postgraduate qualifications, suggesting limited opportunities for further training. Perhaps due to its vast market, Nigeria had the largest share of respondents (45.6%), followed by Ghana (34.8%) and Kenya (19.5%). Additionally, 69.1% worked in junior management roles. These roles are mainly field-based, suggesting that our study are rich in insights from employees engaged with daily supply chain operations.

Exploratory Factor Analysis (EFA)

We carried out exploratory factor analysis on the six-item Innovation Practices scale. The sampling adequacy was acceptable, with a KMO of .703 and Bartlett's x^2 (15) at 522.43, p < .001. Two factors with eigenvalues above 1 accounted for 63.6% of the variance. After applying varimax rotation, items IN1 and IN3 loaded strongly on factor 1. Items IN5 and IN6 loaded on factor 2. We named factors 1 & 2, idea/product-oriented and process-oriented innovation practices respectively. Items IN2 and IN4 displayed weak or cross-loadings and low communalities (less than .50), so we deleted them and kept four items in the final structure. This is consistent with the findings of Kline (2016).

For the Supply Chain Agility (SCA) scale, we obtained a KMO value (.735) that was above the .60 threshold set by Kaiser (1974), and Bartlett's test of sphericity was significant (x^2 = 347.301, p < .001), which confirmed that the sample was adequate. Communalities ranged from .468 to .703 and exceeded Hair *et al.*'s (2019) .40 threshold. Two components with eigenvalues greater than 1 were identified, explaining 58.32% of the total variance. After applying Varimax rotation, items SA1, SA2 & SA3 loaded strongly on Factor 1, while items SA4, SA5 & SA6 loaded on Factor 2. We named the two factors operational responsiveness and adaptive flexibility respectively.

Concerning the six-item Market Leadership scale, the sampling adequacy was marginally acceptable, with KMO at .659 and Bartlett's x^2 (15) at 539.24, p < .001. Two factors with eigenvalues greater than 1 explained 63.3% of the variance. After varimax rotation, ML1, ML2 & ML3 loaded on factor I, we termed this market positioning. Meanwhile, ML5 and ML6 loaded on factor 2, which we termed sustained advantage. ML4 had weak loading and low communality, less than .50, so in tandem with Kline (2016) we removed it and kept a five-item final structure.

Confirmatory Factor Analysis (CFA)

We performed a confirmatory factor analysis (CFA) to validate our measurement model. The chi-square statistic was significant (x^2 (82) = 210.07, p < .001). The x^2/df ratio (2.56) was within the acceptable range (< 3). Model fit indices showed good overall fit: GFI = .926, AGFI = .892, CFI = .894, IFI = .896, and TLI = .864, all close to or above the recommended cutoffs (> .90). The RMSEA was .067 (90% CI = .056-.078, PCLOSE = .008), which indicates an acceptable approximation error. Parsimony indices (PNFI = .656; PCFI = .698) were satisfactory. Together, these indices suggest that our proposed model fits the data well (Hair *et al.*'s (2019).

Test of Hypotheses

In this subsection, we present the results of the hypotheses we tested (see Table 2) to find out how innovation practices and supply chain agility (both separately and together) shape market leadership in emerging economies using a multinational supply chain company that operates across Nigeria, Ghana, and Kenya.

Table 2: Regression Results for showing the outcome of our Hypothesis Testing

Path	Estimate (β)	S.E.	C.R.	*P*	Result
Market Leadership capability ← Innovation	.414	.083	4.990	< .001	Significant (H0$_1$ rejected)
Market Leadership ← Agility	-.023	.127	-0.182	.856	Not significant (H0$_2$ accepted)
Agility ← Innovation	-.015	.050	-0.291	.771	Not significant (H0$_3$accepted)
Indirect Effect (Innovation → Agility → Market Leadership capability)	-	-	-	n.s.	Not significant (H0$_4$ accepted)

n.s. = not significant

We tested four main hypotheses to see how innovation practices and supply chain agility influence market leadership capability in three emerging economies in sub Saharan Africa. The results are mixed. First, innovation practices had a strong and positive effect on market leadership (β = .414, p < .001). This means that supply chain firms that actively pursue new ideas and

improvements are more likely to build strong market positions in these emerging markets. Second, supply chain agility did not significantly affect market leadership ($\beta = -.023$, p = .856). This suggests that, within our sampled multinational supply chain firm, agility alone does not lead to market advantage.

Third, innovation practices did not significantly influence supply chain agility ($\beta = -.015$, p = .771). This was unexpected, as many studies argue that innovation drives flexibility. In this case, the link was weak and not statistically significant. Finally, the indirect effect of innovation on market leadership through supply chain agility was also not significant. In other words, agility did not explain how innovation leads to market leadership; the relationship was more direct. Overall, the evidence shows that innovation practices directly strengthen market leadership, while agility had no meaningful role in this model.

Discussion of Findings

Our first finding shows that innovation practices strongly and positively influence market leadership of supply chain in Nigeria, Kenya, and Ghana. This aligns with earlier research. For example, Kilay*et al.* (2022) illustrated how digital tools like e-payments and e-commerce helped Indonesian MSMEs increase their competitiveness. Le *et al.* (2022) reported that green innovation provided Vietnamese firms with both financial and environmental benefits. Similarly, Rehman Khan *et al.* (2022) and Wong and Ngai (2022) found that smart technologies and supply chain innovation enhance resilience and overall firm performance. In simpler terms, these studies confirm what we observe in our context: firms in rapidly changing and resource-limited markets have a better chance of leading when they innovate.

From a theoretical perspective, our first result makes sense under both the Resource-Based View (RBV) and the Dynamic Capabilities Theory (DCT). RBV (Barney, 1991) states that firms maintain an advantage by developing valuable and hard-to-copy resources. Innovation fits this idea because not all competitors can easily replicate new products, services, or strategies. DCT (Teece *et al.*, 1997) takes it further, suggesting that firms thrive by continuously reshaping and adjusting their resources as markets evolve. Again, this is what our finding indicates, innovation is the act of adapting and reinventing to remain relevant.

Our second finding was more surprising: supply chain agility did not significantly impact market leadership. In fact, the effect was slightly negative.

This contradicts much of the previous evidence. For instance, Ali *et al.* (2024), Miriti and Nteere (2025), and Mwania and Kyule (2024) all demonstrated that being agile (i.e. quickly reacting to disruptions, responding to customers, and using technology) generally helps firms improve efficiency, speed, and competitiveness. Even large-scale reviews like Alfalla-Luque *et al.* (2023) concluded that agility tends to enhance performance, although results vary by context.

So why do we observe a different scenario in Nigeria, Kenya, and Ghana? One possible explanation is that being agile on its own may not be enough to achieve market leadership. Firms might have been flexible and quick to respond, but without strong supplier relationships, financial stability, or solid partnerships, agility alone may not lead to lasting market power. Rashid *et al.* (2024) made a similar point, suggesting that agility works best when paired with collaboration and integration.

Theoretically, RBV would anticipate agility, as a rare and valuable capability, to provide a competitive edge. However, our results indicate that simply having agility doesn't automatically lead to leadership for supply chain in emerging economies. DCT might explain this better. According to DCT, capabilities only matter if they are actively used to realign resources with changing environments. If agility is reactive rather than strategic, it may fall short. In other words, our finding contradicts much of the literature, but supports the DCT idea that not every capability guarantees an advantage, it needs to be applied correctly and within the right context.

Our third finding revealed that innovation practices did not significantly enhance supply chain agility. The negative value makes this even more unexpected. Most of the studies we reviewed found the opposite. For example, Aprilia *et al.* (2021) showed that supplier-led innovation made small coffee shops in Indonesia more agile. Abourokbah*et al.* (2022) found that digital skills and learning capabilities in Saudi firms increased both agility and resilience. Wang et al. (2024) demonstrated that innovation, especially digitalisation, helped Asian manufacturers respond more quickly to change. Similarly, Qureshi *et al.* (2023) and Aldhaheri and Ahmad (2023) confirmed that technology and innovation directly support agility.

Why, then, do our results differ? Context may hold the key. Innovation might be happening in these African firms, but it may not always directly strengthen supply chain processes. It could be fragmented, too incremental, or insufficiently supported by leadership and structure. As Aslam *et al.* (2025)

observed, the link between innovation and agility often depends on how leadership and organisational setup facilitate the process.

Theoretically, RBV views innovation as a valuable capability that should provide firms with an advantage. However, our findings suggest that simply having innovative practices isn't enough to enhance a firm's agility in emerging economies. This is where DCT offers clearer insight. Innovation only creates value if it is actively employed to adjust resources to meet changing conditions. If innovation occurs in isolation, such as in separate areas of the business or disconnected from supply chain decisions, it won't necessarily lead to agility. This appears to be exactly what we are seeing in Nigeria, Kenya, and Ghana.

Our fourth finding showed that innovation did not indirectly improve market leadership through supply chain agility. This contrasts sharply with what most of the reviewed studies suggest. For example, Abdallah *et al.* (2021) in Jordan and Aggrey *et al.* (2022) in Ghana found that innovation and agility together helped firms perform better. Similarly, Dza (2024) argued that in Ghana's agribusiness sector, innovation and agility worked together to strengthen collaboration and competitiveness. Even studies like Bahrami *et al.* (2022) in Iran, and Firmansyah and Siagian (2022) in Indonesia emphasised that innovation, combined with agility, plays an important role in driving better supply chain outcomes. In short, the evidence indicates that innovation fuels agility, which leads to stronger market positions. Our finding, however, deviates from this trend.

One possible reason could be the emerging economy setting of our study. In such contexts, firms often face resource shortages, weak infrastructure, and unpredictable market conditions. Innovation may exist, but without strong systems or stable environments, it may not lead to the kind of agility that drives market leadership. This interpretation relates to the Dynamic Capabilities Theory (Teece *et al.*, 1997), which states that for firms to stay ahead, they need more than just resources; they must be able to reconfigure and apply them in changing environments. In our case, innovation by itself may not have been adjusted in ways that strengthen agility. On the other hand, the Resource-Based View (Barney, 1991) considers innovation a valuable capability that should create an advantage. Our finding suggests that in emerging economies, innovation alone may not be enough to achieve market leadership unless it is actively transformed into dynamic capabilities that enhance supply chain agility.

Conclusion, implications and recommendations
Conclusion

Our study aimed to understand how innovation and supply chain agility influence market leadership within a multinational enterprise that operates in Nigeria, Kenya, and Ghana. Four key findings emerged. First, innovation directly supports market leadership. This confirms earlier studies and shows that firms in emerging economies gain strength by introducing new products, services, or practices. Second, supply chain agility did not significantly drive market leadership; in fact, its impact was slightly negative. Third, innovation did not significantly improve agility, which contradicts what most studies suggest. Finally, innovation did not indirectly boost market leadership through agility. Together, we conclude from these findings that while innovation is essential, its connection to agility and its indirect effects on market leadership of a supply chain may be more complex in emerging economies.

Implications for Stakeholders

Our study suggests that innovation should not be seen by supply chain business leaders and managers as a one-time event. Supply chains in emerging economies need to connect their innovativeness with strategy, supplier relationships, and internal structures. Firms that innovate without integrating those changes into their supply chains might miss the benefits of agility and long-term leadership.

Concerning policy, the weak relationship between innovation and agility highlights gaps in infrastructure, regulation, and support in emerging economies. Governments can help by improving logistics, digital infrastructure, and collaboration platforms to ensure innovation leads to agility and competitiveness. Also, our findings remind investors to look beyond whether a firm is "innovative" on paper. Real market leadership in Africa seems to come from how firms use innovation strategically, not just from having innovation activities.

In the area of academics and trainers, our study showed that business schools and professional institutes should focus not just on innovation as a concept but on the processes and leadership structures that make it effective. In a similar vein, our study implies that future supply chain managers in emerging economies should focus on turning innovations into dynamic capabilities.

Recommendations
1) Firms should closely integrate innovation with supply chain strategy instead of treating them apart.

2) Leadership teams must actively support innovation by connecting it to collaboration, supplier networks, and customer needs.

3) Policymakers in Nigeria, Kenya, and Ghana should strengthen the enabling environment. For example, they should invest in transport system, digital tools, and financing models that help firms turn innovation into agility.

4) Researchers and practitioners should promote cross-border learning, as firms in similar contexts may face common barriers to linking innovation with agility.

Limitations

Like any study, our research has limitations. Data was gathered through surveys, which reflect managers' views and may not fully represent real-world conditions. The study focused only on three African countries, meaning the results may not apply to all emerging economies. Additionally, the cross-sectional, unlike longitudinal design does not reveal how these relationships change over time.

Future Research

Future studies could use longitudinal designs to track how innovation and agility interact over several years. Comparative research in other regions, like Asia or Latin America, would help clarify whether the weak link between innovation and agility is specific to African markets or a broader trend in emerging economies. Finally, more qualitative studies could explore the "how," examining leadership styles, decision-making processes, and cultural influences that affect the use of innovation in supply chains.

Contribution to Knowledge

Our study provides new insights for both theory and practice. Theoretically, it shows that the Resource-Based View (RBV) does not always fully explain competitive advantage in emerging economies. While innovation is a valuable resource, it only leads to market leadership when applied dynamically, as highlighted by the Dynamic Capabilities Theory (DCT). Practically, the study indicates that in contexts like Nigeria, Kenya, and Ghana, innovation may help firms lead the market directly, but its indirect benefits through agility are much less certain. This challenges the common belief that innovation automatically drives agility and market strength and underscores the importance of context, leadership, and supporting structures.

References

1. *Abdallah, A. B., Alfar, N. A., &Alhyari, S. (2021). The effect of supply chain quality management on supply chain performance: The indirect roles of supply chain agility and innovation. International Journal of Physical Distribution & Logistics Management, 51(7), 785-812.*

2. *Abdurrahman, A. (2025). Examining the impact of digital transformation on digital product innovation performance in banking industry through the integration of resource-based view and dynamic capabilities. Journal of Strategy & Innovation, 36(1), 200540.*

3. *Abourokbah, S. H., Mash at, R. M., & Salam, M. A. (2022). Role of absorptive capacity, digital capability, agility, and resilience in supply chain innovation performance. Sustainability, 15(4), 3636.*

4. *Aggrey, G. A. B., Kusi, L. Y., Afum, E., Osei-Ahenkan, V. Y., Norman, C., Boateng, K. B., & Amponsah Owusu, J. (2022). Firm performance implications of supply chain integration, agility and innovation in agri-businesses: Evidence from an emergent economy. Journal of Agribusiness in Developing and Emerging Economies, 12(2), 320-341.*

5. *Aldhaheri, R. T., & Ahmad, S. Z. (2023). Factors affecting organizations' supply chain agility and competitive capability. Business Process Management Journal, 29(2), 505-527.*

6. *Alfalla-Luque, R., Luján García, D. E., & Marin-Garcia, J. A. (2023). Supply chain agility and performance: evidence from a meta-analysis. International Journal of Operations & Production Management, 43(10), 1587-1633.*

7. *Ali, I., Arslan, A., Chowdhury, M., Khan, Z., &Tarba, S. Y. (2022). Reimagining global food value chains through effective resilience to COVID-19 shocks and similar future events: A dynamic capability perspective. Journal of Business Research, 141, 1-12.*

8. *Ali, W. W., Ibua, M. P., &Ondisa, F. (2024). Effect of supply chain agility on supply chain performance of manufacturing firms in Mombasa County, Kenya. South Sahara Multidisciplinary Journal, 2(1), 49-60.*

9. *Al-Khatib, A. W. (2022). Big data analytics capabilities and green supply chain performance: investigating the moderated mediation model for green innovation and technological intensity. Business Process Management Journal, 28(5/6), 1446-1471.*

10. *Al-Khatib, A. W. (2023). The impact of big data analytics capabilities on green supply chain performance: is green supply chain innovation the missing link? Business Process Management Journal, 29(1), 22-42.*

11. *Aprilia, A., Laili, F., Setyowati, P. B., &Waringga, K. F. (2021, April). The effect of supplier innovation on supply chain agility: Evidence from coffee shops in Malang area. In IOP Conference Series: Earth and environmental science (Vol. 733, No. 1, p. 012059). IOP Publishing.*

12. *Arndt, F., Galvin, P., Jansen, R. J. G., Lucas, G. J. M., & Su, P. (2022). Dynamic capabilities: New ideas, micro foundations, and criticism. Journal of Management & Organization, 28(3), 423-428.*

13. *Aslam, H., Blome, C., Schleper, M. C., Ramish, A., & Bajwa, S. U. (2025). Investigating the supply chain agility–innovation link: The role of organizational context. European Management Journal, 43(2), 246-256.*

14. *Astrachan, C. B., Patel, V. K., & Wanzenried, G. (2014). A comparative study of CB-SEM and PLS-SEM for theory development in family firm research. Journal of Family Business Strategy, 5(1), 116-128.*

15. *Bahrami, M., Shokouhyar, S., &Seifian, A. (2022). Big data analytics capability and supply chain performance: the mediating roles of supply chain resilience and innovation. Modern Supply Chain Research and Applications, 4(1), 62-84*

16. *Baldassarre, B., Maury, T., Tazi, N., Mathieux, F., & Sala, S. (2025). Increasing plastic circularity in the automotive sector: Supply chain analysis and policy options from the European Union (EU). Resources, Conservation and Recycling, 218, 108216.*

17. *Belhadi, A., Mani, V., Kamble, S. S., Khan, S. A. R., & Verma, S. (2024). Artificial intelligence-driven innovation for enhancing supply chain resilience and performance under the effect of supply chain dynamism: an empirical investigation. Annals of operations research, 333(2), 627-652.*

18. *Bhatti, S. H., Hussain, W. M. H. W., Khan, J., Sultan, S., & Ferraris, A. (2024). Exploring data-driven innovation: what's missing in the relationship between big data analytics capabilities and supply chain innovation?. Annals of Operations Research, 333(2), 799-824.*

19. *Chang, Y., Ko, Y. J., Lee, Il R., Cho, S-H., & Arai, A. (2012). The brand leadership scale: Development and validation. Association of Marketing Theory and Practice Proceedings.*

20. *Chang, Y., & Ko, Y. J. (2014). The brand leadership: Scale development and validation. Journal of Brand Management, 21(1), 63-80.*

21. *Chang, Y., Ko, Y. J., & Leite, W. L. (2016). The effect of perceived brand leadership on luxury service WOM. Journal of Services Marketing, 30(6), 659-671.*

22. *Chatterjee, S., Chaudhuri, R., Vrontis, D., &Thrassou, A. (2023). Revisiting the resource-based view (RBV) theory: From cross-functional capabilities*

perspective in post COVID-19 period. Journal of Strategic Marketing, 33(6), 822–837.

23. *Cheng, S., Fan, Q., & Huang, M. (2022). Strategic orientation, dynamic capabilities, and digital transformation of commercial banks: A fuzzy-set QCA approach. Sustainability, 15(3), 1915.*

24. *Collis, D. J. & An and, B. N. (2021). The virtues and limitations of dynamic capabilities. Strategic Management Review, 2(1), 47-78.*

25. *Dza, M. (2024). Agribusiness supply chain collaboration: Role of innovation capacity and business process agility as antecedents of supply chain performance. Journal of Operations and Strategic Planning, 7(1), 27-47.*

26. *Ejairu, E., Mhlongo, N. Z., Odeyemi, O., Nwankwo, E. E., & Odunaiya, O. G. (2024). Block chain in global supply chains: A comparative review of USA and African practices. International Journal of Science and Research Archive, 11(1), 2093-2100.*

27. *Fainshtein, E., Chkoniya, V., Fiore, M., &Serova, E. (2024). An innovation potential and organizational performance: An integrative role of company's dynamic capabilities. Agricultural and Food Economics, 12(41).*

28. *Ferreira, N. C., & Ferreira, J. J. (2025). The field of resource-based view research: Mapping past, present and future trends. Management Decision, 63(4), 1124-1153.*

29. *Firmansyah, H. S., & Siagian, H. (2022). The impact of information sharing on supply chain performance through supplier quality management, supply chain agility, and supply chain innovation. Petra International Journal of Business Studies, 5(2), 119-131.*

30. *Garcia-Buendia, N., Moyano-Fuentes, J., Maqueira, J. M., & Avella, L. (2023). The lean supply chain management response to technology uncertainty: Consequences for operational performance and competitiveness. Journal of Manufacturing Technology Management, 34(1), 67-86.*

31. *Gligor, D. M., Holcomb, M. C., & Stank, T. P. (2013). A multidisciplinary approach to supply chain agility: Conceptualization and scale development. Journal of Business Logistics, 34(2), 94-108.*

32. *Hair, J. F., Babin, B. J., Anderson, R. E., & Black, W. C. (2019). Multivariate data analysis (8th ed.). England: Pearson Prentice.*

33. *Huang, K., Wang, K., Lee, P. K., & Yeung, A. C. (2023). The impact of industry 4.0 on supply chain capability and supply chain resilience: A dynamic resource-based view. International Journal of Production Economics, 262, 108913*

34. Iftikhar, A., Ali, I., Arslan, A., &Tarba, S. (2024). Digital innovation, data analytics, and supply chain resiliency: A bibliog. metric-based systematic literature review. Annals of Operations Research, 333(2), 825-848.

35. Kahkonen, A. K., Evangelista, P., Hallikas, J., Immonen, M., & Lintukangas, K. (2023). COVID-19 as a trigger for dynamic capability development and supply chain resilience improvement. International Journal of Production Research, 61(8), 2696-2715.

36. Kamakela, J. S., Callychurn, D., &Hurreeram, D. (2025). Supply chain management and the fourth industrial revolution in Africa: A systematic review, theory building and future directions. In Supply Chain Forum: An International Journal, 26(2), 180-195.

37. Kempston, S., Coles, S. R., Dahlmann, F., & Kirwan, K. (2025). UK electric vehicle battery supply chain sustainability: A systematic review. Renewable and Sustainable Energy Reviews, 210, 115216.

38. Kilay, A. L., Simamora, B. H., & Putra, D. P. (2022). The influence of e-payment and e-commerce services on supply chain performance: Implications of open innovation and solutions for the digitalization of micro, small, and medium enterprises (MSMEs) in Indonesia. Journal of Open Innovation: Technology, Market, and Complexity, 8(3), 119.

39. Klibi, W., Shawa, L. B., & Mkansi, M. (2025). Supply chains in Africa: Current status and emerging trends. Supply Chain Forum: An International Journal, 26(2), 99-105.

40. Kline, R. B. (2016). Principles and practice of structural equation modeling (4th ed.). The Guilford Press.

41. Kumar, M., Raut, R. D., Mangla, S. K., Moizer, J., & Lean, J. (2024). Big data driven supply chain innovative capability for sustainable competitive advantage in the food supply chain: Resource-based view perspective. Business Strategy and the Environment, 33(6), 5127-5150.

42. Le, T. T., Vo, X. V., & Venkatesh, V. (2022). Role of green innovation and supply chain management in driving sustainable corporate performance. Journal of Cleaner Production, 374, 133875.

43. Li, W., Waris, I., & Bhutto, M. Y. (2024). Understanding the nexus among big data analytics capabilities, green dynamic capabilities, supply chain agility and green competitive advantage: the moderating effect of supply chain innovativeness. Journal of Manufacturing Technology Management, 35(1), 119-140.

44. Meemken, E., Barrett, C. B., Michelson, H. C., Qaim, M., Reardon, T., &Sellare, J. (2021). Sustainability standards in global agrifood supply chains. Nature Food, 2(10), 758-765.

45. Mele, G., Capaldo, G., Secundo, G., & Corvello, V. (2024). Revisiting the idea of knowledge-based dynamic capabilities for digital transformation. Journal of Knowledge Management, 28(2), 532-563.

46. Miriti, K. M., & Nteere, K. (2025). Supply chain agility and performance of distribution firms in Nairobi City County, Kenya. Journal of Applied Social Sciences in Business and Management, 4(1), 161-179.

47. Musa, S. M., Haruna, U. A., Aliyu, L. J., Zubairu, M., & Eliseo, D. (2025). Leveraging AI to optimize vaccines supply chain and logistics in Africa: Opportunities and challenges. Frontiers in Pharmacology, 16, 1531141.

48. Mwania, P. L., & Kyule, A. (2024). Influence of agile supply chain management on performance of manufacturing firms in Nairobi City County, Kenya. International Journal of Social Sciences Management and Entrepreneurship, 8(4), 1196-1214.

49. Negi, S. (2024). Global supply chain competitiveness: The synergistic role of integrated logistics and global sourcing. Global Business and Organizational Excellence, 43(4), 111-130.

50. Nguyen, T., Van Nguyen, T., Zhou, Duong, Q. H. &Ieromonachou, P. (2025). Assessing the impact of EU policies on recycling supply chain: A system dynamics perspective on advancing packaging recycling capacity. Annals of Operations Research, 0(0), 1-53.

51. Nikneshan, P., Shahin, A., &Davazdahemami, H. (2024). Proposing a framework for analysing the effect of lean and agile innovation on lean and agile supply chain. International Journal of Quality & Reliability Management, 41(1), 291-323.

52. Nyagadza, B., Pashapa, R., Chare, A., Mazuruse, G., & Hove, P. K. (2022). Digital technologies, fourth industrial revolution (4IR) & global value chains (GVCs) nexus with emerging economies' future industrial innovation dynamics. Cogent Economics & Finance, 10(1).

53. Osoro, J., Noor, I., & Nyanga'u, S. (2024). Supply chain agility and performance of horticulture exporting firms in Kenya. International Journal of Social Sciences Management and Entrepreneurship, 8(1), 190-207.

54. Pereira, V., & Bamel, U. (2021). Extending the resource and knowledge based view: A critical analysis into its theoretical evolution and future research directions. Journal of Business Research, 132, 557-570.

55. Ploy hart, R. E. (2021). Resources for what? Understanding performance in the resource-based view and strategic human capital resource literatures. Journal of Management, 47(7), 1771-1786.

56. Poponcini, L. (2024). Global supply chains: Opportunities and challenges for Africa. Global Trade and Customs Journal, 19(7/8), 519-529.

57. Qureshi, F., Ellahi, A., Javed, Y., Rehman, M., & Rehman, H. M. (2023). Empirical investigation into impact of IT adoption on supply chain agility in fast food sector in Pakistan. Cogent Business & Management, 10(1).

58. Rashid, A., Rasheed, R., Ngah, A. H., &Marjerison, R. K. (2024). A nexus of multiple integrations and business performance through supply chain agility and supply flexibility: A dynamic capability view. Journal of Science and Technology Policy Management.

59. Rehman Khan, S. A., Ahmad, Z., Sheikh, A. A., & Yu, Z. (2022). Digital transformation, smart technologies, and eco-innovation are paving the way toward sustainable supply chain performance. Science Progress, 105(4)

60. Shekarian, E., Ijadi, B., Zare, A., &Majava, J. (2021). Sustainable supply chain management: A comprehensive systematic review of industrial practices. Sustainability, 14(13), 7892.

61. Sharma, M., Alkatheeri, H., Jabeen, F., & Sehrawat, R. (2022). Impact of COVID-19 pandemic on perishable food supply chain management: A contingent Resource-Based View (RBV) perspective. The International Journal of Logistics Management, 33(3), 796-817.

62. Susitha, E., Jayarathna, A., & Herath, H. (2024). Supply chain competitiveness through agility and digital technology: A bibliometric analysis. Supply Chain Analytics, 7, 100073.

63. Teece, D. J. (2022). Strategy dynamics and the theory of the firm: Homage to Richard Rumelt. Strategic Management Review, 3(2), 265-294.

64. Tukamuhabwa, B. R., Mutebi, H., &Mbatsi, A. (2024). Supply chain agility in humanitarian organizations: Ethe role of self-organization, information integration and adaptability in South Sudan. Journal of Systems and Information Technology, 26(4), 528-561.

65. Wang, C. L., & Ahmed, P. K. (2004). The development and validation of the organizational innovativeness construct using confirmatory factor analysis. European Journal 0f Innovation Management, 7(4), 303-313.

66. Wang, M., Hill, A., Liu, Y., Hwang, S., & Lim, M. K. (2024). Supply chain digitalization and agility: How does firm innovation matter in Companies? Journal of Business Logistics, 46(1), e70007.

67. Wang, M., & Prajogo, D. (2024). The effect of supply chain digitalization on a firm's performance. Industrial Management & Data Systems, 124(5), 1725-1745.

68. Wang, Y., Ji, X., Lang, Y., & Zhang, Z. (2025). Supply chain network optimization of power battery based on the new EU battery regulation under uncertainty. Computers & Industrial Engineering, 201, 110930.

69. *Wong, D. T. W, & T. Ngai, E. W. (2022). Supply chain innovation: Conceptualization, instrument development, and influence on supply chain performance. Journal of Product Innovation Management, 39(2), 132-159.*

70. *Yerpude, S., Sood, K., & Grima, S. (2022). Blockchain-augmented digital supply chain management: A way to sustainable business. Journal of Risk and Financial Management, 16(1), 7.*

71. *Zhihan, H., Abd Rahman, K. A. A., & Noor, M. S. M. (2022). The interrelationship between brand personality, brand trust and consumers' purchase intention: A structural equation modeling approach. International Journal of Operations and Quantitative Management, 28(3), 32-42.*