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Supply Chain Management and Firm Performance in Saudi Arabia: A Conceptual Model Based on Dynamic Capabilities

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Abstract

This conceptual paper explores the role of supply chain management (SCM) in enhancing the performance of manufacturing firms in Saudi Arabia through the lens of the Dynamic Capability View (DCV). While traditional SCM practices have been widely acknowledged for improving operational efficiency, their strategic impact remains underexplored, particularly in dynamic and emerging economies. Drawing from recent literature, this study identifies core SCM practices both operational (e.g., logistics, procurement) and strategic (e.g., supplier collaboration, digital integration) and examines how these contribute to firm-level outcomes such as agility, efficiency, and profitability. The present study's framework is contextually grounded in Saudi Arabia's Vision 2030, which emphasizes industrial transformation, technological adoption, and economic diversification. By synthesizing SCM and DCV perspectives, the paper contributes to theoretical advancement in supply chain strategy and provides a foundation for future empirical testing. Practical implications are also discussed, offering guidance for manufacturing leaders aiming to build resilient and high-performing supply chains. The study highlights the necessity of dynamic capabilities in translating supply chain investments into sustainable competitive advantage in rapidly evolving industrial contexts.

Keywords: Dynamic Capability, Supply Chain Management, Manufacturing Firm, Saudi Arabia

Introduction

Dynamic capabilities in supply chain management leverage advanced analytics tools and technologies to analyze vast amounts of data, enabling manufacturers to make informed decisions and improve overall efficiency (Gupta et al., 2020). Supply chain analytics support the organization in demand forecasting, allowing manufacturers to anticipate customer needs and adjust production accordingly (Felsberger et al., 2022). This minimizes inventory costs and ensures that products are readily available, preventing stockouts or overstock situations. In addition, such analytics capabilities optimize production processes by identifying bottlenecks, inefficiencies, and areas for improvement (Matarazzo et al., 2021).

Manufacturing firms can streamline operations, reduce cycle times, and enhance overall productivity. In this view, Saudi Arabia's manufacturing sector is undergoing significant transformation as part of the country's Vision 2030 initiative, which seeks to diversify the economy away from oil dependency and build a globally competitive industrial base (Altalhi, 2023; Shoaib & Saleem, 2023). Historically, supply chain management in Saudi Arabia was characterized by linear, cost-driven models with minimal strategic integration. However, with globalization, digitalization, and heightened competition, manufacturing firms in the Kingdom are now compelled to adopt more agile, responsive, and technology-enabled supply chain systems (Gupta et al., 2021). The evolution of supply chain management in Saudi Arabia has also been influenced by increased exposure to international trade, foreign investments in industrial zones, and the national push for localization of production capabilities (Alotaibi et al., 2024). As a result, the role of supply chain management has shifted from being a back-end support function to a key driver of strategic advantage and operational excellence.

Empirical evidence from recent studies underscores the growing relevance of supply chain management in enhancing firm performance, particularly within emerging markets. For instance, Al-Shboul (2024) demonstrated that supply chain agility and integration significantly improve operational responsiveness and financial performance in manufacturing firms across the Middle East. Another study by Alzoubi and Yanamandra (2024) highlighted that strategic supplier relationships and internal supply chain alignment positively influence innovation and customer satisfaction. Furthermore, research conducted by Dubey et al. (2021) found that dynamic supply chain capabilities such as adaptability, sensing market changes, and reconfiguring processes act as critical mediators between supply chain management practices and firm-level outcomes. These findings suggest that not only the implementation of supply chain management practices but also the dynamic capability to evolve and reconfigure these practices is vital for maintaining competitiveness in volatile environments like that of the Saudi market. However, supply chain dynamic capability enables better supplier management by assessing supplier performance, reliability, and risk (Yu et al., 2019; Saleem et al., 2022). This ensures a stable and efficient supply of raw materials, reducing the likelihood of disruptions and delays. Additionally, analytics play a crucial role in inventory management, helping manufacturers maintain optimal inventory levels, reduce carrying costs, and prevent excess stock. This leads to cost savings and improved cash flow. Overall, integrating supply chain dynamic capabilities empowers manufacturers to make data-driven decisions, enhance operational and market efficiency, and ultimately achieve higher performance levels in the competitive landscape of manufacturing (Bag et al., 2020).

Despite growing awareness of supply chain management strategic value, many Saudi manufacturing firms continue to struggle with embedding dynamic capabilities into their supply chain systems. For example, Kueffner et al. (2022) witness supply chain challenges include rigid organizational structures, reliance on outdated technologies, limited collaboration with external partners, and weak risk management frameworks. Moreover, most studies conducted in the Saudi context have narrowly focused on operational metrics such as cost, delivery, or quality, overlooking the strategic and adaptive aspects of supply chain management (Alahmad et al., 2021; El-Garaihy, 2021; Alotaibi et al., 2024). Thus, Saleem et al., (2025) stated that the lack of a holistic understanding presents a significant research gap, especially in relation to how supply chain capabilities can be leveraged to build

dynamic capabilities that support sustainable firm performance in a rapidly changing industrial ecosystem.

The present study aims to explore the role of supply chain management in enhancing the performance of manufacturing firms by adopting the lens of the dynamic capability view. Specifically, the study intends to: (1) identify key supply chain management practices currently employed in the manufacturing sector and (2) analyze how dynamic capabilities such as sensing, seizing, and transforming mediate this relationship. In addition, the study also aims to develop a conceptual model that integrates supply chain management practices with dynamic capability dimensions to offer a more robust understanding of performance drivers in the manufacturing context. Therefore, this study contributes to the literature by bridging two traditionally distinct domains supply chain management and dynamic capability theory within an underexplored geographic and industrial context. It advances theoretical development by conceptualizing SCM as a dynamic capability, rather than a static operational function. Practically, the study offers insights for managers and policymakers to strengthen their strategic supply chain systems and build resilient, performance-oriented manufacturing operations. By aligning supply chain management initiatives with the broader Vision 2030 industrial objectives, this study supports national efforts to position Saudi firms as globally competitive players in the manufacturing arena.

Literature Review

Supply Chain Management: Importance and Challenges

Supply chain management in manufacturing firms is widely recognized as a vital component for achieving operational efficiency, cost competitiveness, and customer satisfaction (El-Garaihy et al., 2021; Saleem et al., 2025). It encompasses a broad spectrum of activities including procurement, production planning, logistics, inventory control, and distribution management (Nozari et al., 2022). In the manufacturing sector, where input and output flows are highly interconnected and time-sensitive, a well-coordinated supply chain can significantly enhance firm performance by ensuring timely delivery, reducing waste, and facilitating innovation (Christopher, 2022). The importance of supply chain management has been further amplified in the wake of globalization and digital transformation. Advanced technologies such as Internet of Things (IoT), artificial intelligence, and blockchain are reshaping traditional supply chain processes, offering real-time visibility and predictive capabilities (Singh et al., 2021; Saleem et al., 2025). In emerging economies like Saudi Arabia, these innovations are particularly crucial to help firms align with Vision 2030 goals of efficiency, localization, and industrial diversification (Altalhi, 2023). A study by Alshehri et al, (2022) emphasized that Saudi manufacturing firms adopting integrated SCM technologies observed higher levels of responsiveness and customer service quality. Despite its benefits, supply chain management in the manufacturing sector faces numerous challenges. These include limited collaboration among supply chain partners, fluctuating demand and raw material prices, disruptions due to geopolitical tensions, and inadequate technological infrastructure (Rasshyvalov et al., 2024; Celestin and Sujatha, 2024). Saudi Arabia's reliance on imported raw materials further complicates supply chain coordination and risk management. According to Ezmigna et al. (2024), firms in the Saudi Arabia often struggle with fragmented logistics networks, poor data integration, and a shortage of skilled supply chain professionals. Additionally, external shocks such as the COVID-19 pandemic exposed the vulnerabilities of global supply chains, underlining the urgent need for resilience and

adaptability in supply chain operations (Alsuwailem et al., 2021). This has spurred interest in frameworks that go beyond operational efficiency to include strategic flexibility and learning—one such framework is the dynamic capability view.

Dynamic Capabilities

The concept of dynamic capabilities emerged as an extension of the resource-based view (Saleem et al., 2025), aiming to explain how firms sustain competitive advantage in rapidly changing environments. Teece et al. (1997) introduced the term to describe a firm's ability to integrate, build, and reconfigure internal and external resources in response to environmental changes. Unlike ordinary capabilities, which emphasize efficiency and routine operations, dynamic capabilities focus on strategic renewal and continuous adaptation. The dynamic capabilities theory represents a dynamic paradigm extending the resource-based view (Wamba and Akter, 2019). Dynamic capabilities theory is a pivotal framework in strategic management, particularly relevant in the context of organizations navigating dynamic and uncertain business landscapes (Gupta et al., 2020). Initially, the theory was proposed by David J. Teece in the 1990s, Dynamic capabilities theory delves into the intricacies of how firms can effectively respond to environmental changes, emphasizing their ability to integrate, reconfigure, and leverage internal resources and capabilities of an organization (Killo, 2022). The crux of Dynamic capabilities theory lies in recognizing the relentless dynamism of markets and environments, where adaptability of an organization is paramount. Firms characterized by dynamic capabilities possess the agility to sense shifts in the external landscape, learn from these shifts, and subsequently adjust their strategies (Mikalef et al., 2021). The theory accentuates the necessity of not only possessing resources and capabilities but also the capability to reconfigure them dynamically, aligning with evolving circumstances.

Prior empirical studies argued that the capabilities are dynamic of an organization that can readily implement novel supply chain analytics strategies in fluctuating market conditions (Kumar et al., 2018; Mathivathanan et al., 2017; Saleem et al. 2023). Moreover, Wamba and Akter (2019) pointed out that the dynamic capabilities theory serves as a productive extension of the RBV, asserting that resources have a pivotal impact on a company's ability to design, produce, market, and distribute manufactured products. Dynamic capabilities are generally categorized into three interrelated dimensions: sensing (identifying threats and opportunities), seizing (mobilizing resources to capture value), and transforming (reconfiguring organizational assets for alignment with market shifts) (Matysiak et al., 2018). These capabilities are particularly relevant for supply chain management, where agility, risk mitigation, and innovation are paramount. For instance, a firm's ability to sense supply risks, seize opportunities for diversification, and transform its sourcing strategies can determine its resilience and long-term competitiveness (Teece et al., 1997; Saleem et al., 2025). In recent years, dynamic capability theory has gained traction in supply chain research, especially in the context of disruption and digitalization. Dubey et al. (2021) demonstrated that firms with strong dynamic supply chain capabilities could better withstand disruptions and recover faster during the pandemic. Similarly, Zhou et al. (2022) highlighted that dynamic capabilities help firms implement digital SCM technologies more effectively by aligning technological adoption with organizational learning and strategic intent. In the Saudi context, the application of dynamic capabilities remains under-researched but is increasingly recognized as critical. With Vision 2030 pushing for an agile, knowledge-driven economy, manufacturing firms are expected to adopt strategic supply chain practices that are not only efficient but also

adaptive and resilient (Altalhi, 2023). Dynamic capabilities thus offer a valuable theoretical lens for understanding how Saudi firms can reconfigure their supply chain systems in response to both local and global challenges (Alsuwailem et al., 2021). Integrating SCM practices with dynamic capability dimensions holds the potential to enhance firm performance in an environment marked by uncertainty, competition, and transformation (Hong et al., 2018).

Method

This study adopts a conceptual research design grounded in an integrative review of relevant literature to develop a theoretical framework that links supply chain management practices with firm performance through the lens of the dynamic capability view. As a conceptual paper, the objective is not to test hypotheses empirically but to synthesize existing theories and findings into a coherent model that can guide future empirical inquiry and managerial application. The methodology followed a structured approach, beginning with the identification of key constructs—SCM practices, dynamic capabilities (sensing, seizing, transforming), and firm performance as informed by foundational and contemporary literature. Furthermore, this conceptual model is intended to serve as a foundation for future empirical studies, which may use quantitative methods such as structural equation modeling (SEM) or qualitative approaches such as case studies to validate and refine the framework. Additionally, by contextualizing the model within Saudi Arabia's Vision 2030 industrial transformation agenda, this paper offers region-specific theoretical insights that can guide both academic research and strategic decision-making in manufacturing firms. While conceptual in nature, the research adheres to rigorous academic standards for construct clarity, theoretical consistency, and logical coherence. The use of a multi-disciplinary literature base and a systematic synthesis strategy enhances the model's relevance and potential applicability across various manufacturing environments. The study's limitations—such as the absence of empirical testing and potential generalizability constraints—are acknowledged and pave the way for future research recommendations outlined in the concluding section.

Data Analysis

As this study is conceptual in nature, the data analysis process involved a systematic and structured synthesis of existing scholarly literature rather than empirical data collection. The purpose of the analysis was to identify key themes, relationships, and theoretical patterns across diverse studies related to supply chain management, dynamic capabilities, and firm performance within the context of manufacturing firms. A narrative synthesis approach was employed to organize and interpret the findings. The process began with an extensive review of academic literature published in Scopus, Web of Science, and Google Scholar. Keywords such as "supply chain management," "manufacturing firms," "dynamic capabilities," "firm performance," "agility," "sensing and seizing," and "Saudi Arabia industry" were used to identify relevant sources. Thus, the data analysis was conducted in three major stages presented below.

Identification of Core SCM Practices

To construct a theoretically grounded conceptual framework, it was essential to first identify and categorize the core supply chain management practices relevant to manufacturing firms (Saleem et al., 2025). The literature reviewed in this study reveals that supply chain management activities typically fall into two broad categories: operational practices and

strategic practices. Operational supply chain management practices include routine functions such as procurement, logistics coordination, inventory management, warehouse operations, and production scheduling (Yang et al., 2020). These functions are essential for ensuring the smooth flow of materials and products throughout the supply chain, contributing to efficiency, cost reduction, and timely delivery key performance indicators in manufacturing settings (Saccani et al., 2023). In contrast, strategic supply chain management practices involve higher-level, long-term activities such as supplier relationship management, digital integration of supply chain systems, demand forecasting, and risk mitigation strategies (Yang et al., 2020; Saccani et al., 2023). These practices enable firms to build resilient supply networks, align with evolving customer demands, and rapidly respond to disruptions or market changes. For example, digital integration through ERP or IoT platforms enhances supply chain visibility, while strategic partnerships with suppliers facilitate innovation and flexibility (Shukor et al., 2021). By categorizing these practices into operational and strategic dimensions, the study provides a clearer understanding of how supply chain management activities—when dynamically configured—can significantly influence both short-term efficiency and long-term competitive performance in manufacturing firms.

Mapping of Dynamic Capabilities

Using Teece's (2007) dynamic capability framework as a foundation, this study analyzed relevant literature to explore how manufacturing firms leverage dynamic capabilities—sensing, seizing, and transforming to address supply chain challenges. Sensing refers to the ability to detect changes in customer preferences, emerging technologies, or potential supply disruptions. This capability is especially critical under volatile conditions where early identification of risks or opportunities can provide a strategic advantage (Saleem et al., 2025). Seizing involves mobilizing resources and making timely decisions to capture value, such as adopting digital supply chain tools, shifting supplier bases, or investing in logistics innovation (Thirupathi et al., 2015). Transforming reflects the firm's capacity to realign and reconfigure internal processes, supply networks, and governance models to maintain competitiveness (Gupta et al., 2021). This may include reorganizing supply chain structures, re-skilling employees, or automating workflows (Altalhi, 2023). These dynamic capabilities become most critical under conditions of uncertainty, such as global pandemics or geopolitical instability, where traditional supply chain practices may fail to ensure resilience or responsiveness.

Linking SCM, Dynamic Capabilities, and Firm Performance

The final step in the analysis involved synthesizing key concepts to construct a theoretical bridge connecting supply chain management practices with firm-level performance outcomes such as efficiency, adaptability, and profitability (Saleem et al., 2025). This integration emphasized the mediating role of dynamic capabilities, particularly the firm's ability to sense, seize, and transform in response to environmental shifts. Relationships among these variables were assessed through a combination of empirical evidence, theoretical coherence, and contextual relevance to the Saudi manufacturing sector (Wasiq et al., 2023). The resulting conceptual model suggests that dynamic capabilities are not passive enablers of SCM but active mediators that reshape and enhance the effectiveness of supply chain strategies (Hong et al., 2018). This means that firms with stronger dynamic capabilities are more likely to convert supply chain management initiatives into sustained performance improvements. The insight emerged from layered analysis across the literature, where dynamic responsiveness

was repeatedly associated with competitive advantage in uncertain and fast-changing markets—conditions increasingly relevant to Saudi Arabia's industrial transformation (AlRwais, 2020). While the analysis did not include statistical testing, it adhered to principles of rigor, transparency, and theoretical saturation, ensuring that the conceptual framework is grounded in existing knowledge and suitable for future empirical validation.

Literature Synthesis

The matrix table synthesizes (Table I) presents key studies linking supply chain management, dynamic capabilities, and firm performance across diverse contexts. It highlights the growing relevance of supply chain integration, green innovation, and sustainable practices in driving agility, innovation, and competitiveness. Most studies employed quantitative methods, revealing strong empirical support for the mediating or moderating roles of strategic orientation and dynamic capabilities. Notably, research in Saudi Arabia emphasizes alignment with Vision 2030 goals. Future research is encouraged to explore sector-specific dynamics, cross-country comparisons, and the long-term impacts of digital and circular supply chain transformations.

Table I. Literature Synthesis on SCM and DCT

Discussion and Conclusion

This conceptual paper has proposed an integrative framework that links supply chain management practices to firm performance through the mediating role of dynamic capabilities. Drawing on the dynamic capability view, the framework underscores that in today’s volatile, uncertain, and competitive manufacturing environment especially in emerging markets like Saudi Arabia operational efficiency alone is insufficient. Firms must also possess the strategic agility to sense, seize, and transform in response to both external pressures and internal innovation opportunities. Manufacturing firms play a crucial role in developing the global economy, key drivers of innovation, job creation, and economic growth (Yang et al., 2020). Conversely, in this era of technological innovation, manufacturing firms face numerous challenges (i.e., operational inefficiencies, environmental impact, workforce skill gap, and supply chain complexity) that hinder their ability to thrive in an increasingly competitive landscape (Saccani et al., 2023). Prior studies pointed out that manufacturing firms struggle with inefficient production processes, higher costs, longer lead times, and reduced customer satisfaction (Gupta et al., 2020). Inefficiencies can arise from poor inventory management, suboptimal workflow design, inadequate production planning, and inefficient resource allocation (Zhang et al., 2003). Most importantly, manufacturing firms have a significant environmental footprint, thus contributing to pollution, resource depletion, and climate change (Thirupathi et al., 2019). Several manufacturing firms struggle to balance economic growth with environmental sustainability. Hence, they face increasing pressure to adopt cleaner technologies, reduce waste generation, and minimize greenhouse gas emissions (Nishitani et al., 2016). For instance, the growing body of literature is exploring and concluding the impact of supply chain dynamic capability on manufacturing firms' operational, market, and financial performance. Understanding the role of supply chain dynamic capability, agility, and organizational flexibility, it is important to identify its key dimensions in predicting the overall performance of manufacturing firms. Studies demonstrated that the manufacturing firms in Saudi Arabia face several cultural, technical, social, environmental, climate, and modern supply chain problems (Wasiq et al., 2023; Karmaker et al., 2023). Additionally, the manufacturing firms in Saudi Arabia suffer from a

lack of dynamic supply chain management capability. Unfortunately, a limited number of manufacturing firms in Saudi Arabia have adapted and implemented supply chain dynamic capabilities. This low-level adoption of supply chain dynamic capabilities has negative consequences on the overall performance of manufacturing firms in Saudi Arabia. Therefore, there is a need to identify and conclude the causes of why the manufacturing firms in Saudi Arabia are still far from adopting and implementing supply chain dynamic capabilities. Contextually, Saudi Arabia seeks to transform itself from a petrostate to a manufacturing-based, productive economy (Nuruzzaman, 2018). Currently, manufacturing firms in Saudi Arabia contribute to only nine percent of the total GDP, a share that has remained relatively flat for several years (AlRwais, 2020). However, according to Saudi Arabia's Vision 2030, this contribution of manufacturing firms could potentially increase to 16 percent by 2030 (Saudi Vision, 2023). Moreover, the Saudi Arabian government has also proposed introducing CO2 emissions from manufacturing firms by 2030 (Yusuf & Lytras, 2023).

Nevertheless, supply chain dynamic capabilities refer to the ability of an organization within the supply chain to sense, integrate, and reconfigure its resources, processes, and technologies in response to changing market conditions, emerging opportunities, and potential disruptions (Gupta et al., 2021; Saleem et al., 2025). Supply chain dynamic capabilities involve an organization's capacity to adapt and innovate in its supply chain activities, allowing it to stay responsive to evolving business environments and maintain a competitive edge. Prior studies discussed that the supply chain dynamic capabilities are intricately linked with both supply chain agility and organizational flexibility due to their complementary and synergistic nature within the dynamic business environment (Shukor et al., 2021). Hence, supply chain dynamic capabilities refer to an organization's ability to proactively sense and respond to changes in its external environment, leveraging its internal resources and capabilities to stay competitive.

In conclusion, this conceptual paper offers a valuable foundation for understanding the mechanisms through which supply chain management contributes to firm performance in dynamic environments. It emphasizes that dynamic capabilities are not optional add-ons but essential mediators in achieving sustainable competitive advantage. Future research should empirically test proposed model using mixed-method or longitudinal designs across different manufacturing sectors in Saudi Arabia. Doing so would validate the relationships and provide actionable insights for policymakers and business leaders aiming to strengthen national manufacturing competitiveness under Vision 2030.

This study is motivated by a clear gap between what Saudi manufacturing firms need to compete under Vision 2030 and what many currently practice in their supply chains. Despite policy momentum, many firms still rely on efficiency-driven routines that work in stable settings but break down under disruption, sustainability pressure, and rapid digital change. What this really means is that performance problems in the Saudi context are not only operational; they are capability problems tied to sensing market shifts, seizing opportunities, and reconfiguring supply chain resources fast enough.

The paper contributes in three ways. First, it integrates supply chain management practices and firm performance through a dynamic capability lens, explaining not just whether SCM matters, but how and why it matters in turbulent environments. Second, it clarifies supply

chain dynamic capability as a higher-order mechanism that aligns agility and flexibility into a coherent pathway for operational, market, and financial outcomes. Third, it offers a context-specific agenda for Saudi Arabia, highlighting adoption barriers and translating the framework into testable propositions that can guide empirical work and inform managers and policymakers seeking measurable competitiveness and sustainability gains.

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