



## LITERATURE REVIEW ON THE IMPACT OF INNOVATIVENESS ON SUPPLY CHAIN MANAGEMENT

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### ABSTRACT

*The paper aims to address the vital issues of supply chain management, examining the managerial strategies that can enable businesses to withstand disruptive events and rebound from challenges with agility and minimal impact. Within these discussions, innovative strategies capable of elevating logistics and supply chain managerial efficiency, advancing green initiatives, and ensuring that these complex networks can manifest ever everlasting solution to supply chain issues. The study aims to describe the impact of innovativeness on supply chain management: A Literature Review. Methodologically, A literature review is conducted to identify and analyze publications in peer-reviewed academic journals that include contributions from different strands of management research. This paper analyzes the theoretical contributions of the supply chain literature using Gregor's (2006) framework of theory classification. It also evaluates the levels of analysis of the literature using the structural view model proposed by Skinner et al. (2006). Findings show that this research identified and analyzed various topics related to the supply chain innovation construct and showed that supply chain innovations can be studied at multiple analytical levels. The identification and analysis of relevant articles highlighted the need to conceptualize the supply chain innovation construct and develop measurement scales to operationalize it. In conclusion, the result can be applied to the decision-making process of managers regarding supply chain innovations.*

**Keywords:** Digital Transformation, Supply Chain Innovation, Systematic Literature Review

### INTRODUCTION

In the current global economy, supply chain management has become increasingly vital as it underpins international trade and commerce. This introduction discusses the evolution of supply chains from traditional methods to a contemporary environment influenced by technology and digital advancements. Recent global disruptions have highlighted the



demand for resilience in supply chains, emphasizing the importance of flexible and strong networks that can adapt to and recover from unforeseen challenges. Innovation in supply chain is conducted by updating technology to be integrated with partners to provide agile and fast responds (Shamout, 2022).

Innovativeness is acknowledged as a multifaceted process that navigates environmental and technological uncertainties to seek and implement new processes, ideas, products, and technologies catering to customer needs. As organizations form relationships with suppliers and customers or enhance internal integration, their capacity for innovativeness improves, fostering effective and efficient supply chains employing advanced systems. This increased innovativeness can lead to improved management and operations related to both information and physical flows throughout the supply chain (Harvey, 2000).

In today's highly volatile and unpredictable business environment, supply chain management faces unprecedented challenges driven by global disruptions, market fluctuations, and increasing sustainability demands. Traditional supply chain management models have struggled to cope with the complexities of modern operational risks and environmental responsibilities. Although innovativeness has been widely recognized as a vital driver of operational efficiency, resilience, and sustainable practices, its practical integration into supply chain management strategies remains underexplored in academic literature.

Moreover, inconsistencies in the conceptualization and measurement (Shamout, 2022, Theirer, 2022) of supply chain innovation constructs have resulted in a fragmented understanding of how innovativeness contributes to supply chain resilience, agility, and sustainability. This gap limits the ability of managers to make informed decisions based on standardized models and validated frameworks. Therefore, there is a critical need to systematically review existing literature on the impact of innovativeness on supply chain management, identify effective innovative strategies, and propose actionable recommendations for both scholars and practitioners.

### **Research Objectives**

1. To examine the role of innovative strategies in enhancing the operational efficiency of supply chain management.
2. To identify the innovative approaches that enable businesses to respond to disruptive events within the supply chain network.
3. To analyze the impact of innovativeness on the advancement of sustainable (green) supply chain initiatives.
4. To evaluate the conceptualization/measurement, of supply chain innovation



5. To evaluate the application of managerial decision-making to supply chain management.

## **LITERATURE REVIEW**

### **Concept of Innovativeness**

Innovativeness is crucial for enhancing quality and performance (Mone et al., 1998) and serves as a gauge for the novelty of an innovation (Garcia and Calantone, 2002). Hurley and Hult (1998) defined it as an organizational culture trait characterized by a willingness to embrace new ideas. Innovativeness indicates a proactive readiness to abandon outdated practices and explore experimental ideas, focusing on finding new opportunities rather than relying on existing strengths (Panayides and Lun, 2009).

From an organizational viewpoint, Garcia and Calantone (2002) described innovativeness as "the capacity of a new innovation to affect the firm's existing marketing resources, technological resources, skills, knowledge, capabilities, or strategy." It often enhances an organization's competitive edge in rapidly changing markets where differentiation is hard to achieve (Harvey, 2000) by promoting flexibility in building, choosing, and adapting various strategies. Innovativeness represents an actionable ability to introduce and implement creative ideas within a company (Rhee et al., 2010) and often drives organizations to integrate processes to utilize opportunities effectively (Tidd et al., 1998).

Technological innovation involves creating novel scientific methods and processes that transform into practical tools and applications, enabling adopters and organizations to seize substantial opportunities and address challenges and environmental risks (Moore, 2021). Technology innovation is part of a complex technological system designed to meet user demands, achieve their goals, and solve their problems (Theirer, 2022). The main objective of technological innovation is to foster the development of human societies and generate wealth (Zhang, 2020). Defined by Babich and Hilary (2021), technology innovation includes the creation or application of new technology aimed at maximizing efficiency and outcomes. It also refers to partially or entirely replacing existing technology with new systems to enhance goods' productivity, quality, and competitive edge (Gallino, 2018). In a competitive environment, companies must leverage technological innovations to thrive since success hinges on utilizing advanced scientific technologies (Ni, 2018).

### **Concept of Supply Chain Management (SCM)**

Supply chain management focuses on overseeing resources, information, and financial flows within a network of suppliers, manufacturers, distributors, and customers. To deliver products to clients efficiently, businesses collaborate with a broader network of external entities, including vendors, shipping firms, call centers, and warehouse operators (Hofmann, 2022). The



primary objective of supply chain management is to link all supply chains for cooperation to maximize productivity, generate value, reduce costs, and enhance customer satisfaction, thereby boosting an organization's competitive stance (Amos, 2018). As outlined by the Council of Supply Chain Management Professionals (CSCMP, 2018), SCM involves two core functions: (i) organizing, coordinating, and managing key activities that generate and deliver value to the final consumer (such as manufacturing, procurement, and logistics) and (ii) integrating and coordinating related business processes within and between organizations. The coordination of procedures and systems to facilitate the alignment of material, financial, and information flows along the SC is the "technical" implementation of these flows, whereas integration refers to the administrative and organizational issues of creating a network of primarily autonomous enterprises (Salviotti, 2018).

According to Wiley (2012), for businesses effectively managing the flow of resources, including finance, information, and materials, both into and out of their organizations is crucial for their success. This management of resources is often referred to as supply chain management or distribution. Distribution networks allow various entities to provide product services. Most individuals involved in distribution, who are classified as service personnel, serve multiple economic sectors. Technological systems are invaluable tools for organizational management. To ensure rapid and efficient product distribution, it is essential to meticulously examine and document customer records. The advent of innovative technology has transformed the area of supply chain management, empowering workers to obtain unprecedented level of improvement (patil and panpale).

However, supply chains can be long, complex, and involve multiple partners, leading to various operational issues. Such complications can result in delays, dissatisfied customers, lost revenue, and costly remedial actions. Technology is changing how supply chains function in the dynamic business environment of today by increasing process responsiveness, efficiency, and transparency. For businesses looking to remain competitive, integrating digital tools and systems is now essential rather than optional. Technology plays a crucial role in supply chain management, from logistics and inventory control to demand forecasting and supplier cooperation. This study focuses on the significance of technological systems for product distribution and monitoring.

### **Theoretical Review**

Gregor et al.'s (2006) framework for classifying theories, we assessed the theoretical contributions within supply chain innovation research, identifying various types of theories: analyzing, explaining, predicting, explaining/predicting, and design/action. Gregor et al. (2006) noted that



theories related to design and action are foundational and precede those of explanation and prediction. Our review revealed the presence of these theories in published articles on supply chain innovation, covering areas like marketing-oriented innovation, logistics-focused innovation, technological developments, operational efficiency, service effectiveness, economic viability, environmental sustainability, and social responsibility. Gregor's (2006) information systems theory classification framework can be used to comprehend and group various theories about supply chain management innovation. We may review current research and pinpoint areas in need of improvement by using this paradigm to supply chain innovation. Analytical/descriptive theory, for instance, covers studies that attempt to categorize various supply chain innovations (such as process and product innovation). Explanatory theory could include studies examining the elements that promote or impede supply chain innovation. Furthermore, a predictive theory might be one that forecasts how a certain invention would affect supply chain performance. Lastly, the design and action category would include a design philosophy for putting a new supply chain technology into practice. For instance, Cao and Zhang (2010) demonstrated the advantages of a scale designed to measure supply chain collaboration. Moreover, transforming conceptual frameworks into practical tools is valuable due to their more tangible applications. Holmstrom and Partanen (2014) provided a case study involving the F-18 Super Hornet, showcasing the integration of digital manufacturing technology to build a subsystem. Researchers need effective tools to further their work rather than repetitively developing existing concepts. Storer et al. (2014) echoed this sentiment. Basole et al. (2017) proposed a visual analytical method, suggesting that researchers and decision-makers can better identify trends, analyze data, discover outliers, and understand patterns, thereby enhancing memory, comprehension, and decision-making capabilities. To ensure research builds on previous work, supply chain innovation research should utilize an open-source approach, allowing various groups to build on each other's contributions (Belanger and Crossler, 2011).

### **Theory of Innovative Firm**

William Lazonick, an economist, introduced this theory to clarify the concept of superior performance in imperfect market conditions. The theory posits that a firm's primary role is to transform productive resources into marketable goods and services; innovation plays a vital role in this process. As a result, firms that innovate can produce higher quality products at lower costs, leading to enhanced economic performance (Susanto, 2018). Innovative firms successfully convert resources into better-quality, cost-effective goods and services, benefiting both consumers and the broader economy (Zhang, 2020).



The theory indicates that innovation can be used by firms to establish and uphold their competitive position, enabling them to thrive in their respective industries. Companies innovate not only to survive but to strengthen their competitive edge. An innovative enterprise may also pursue innovation to secure a strategic market position or to defend its market share against competitors (Schmidt, 2021). Rather than solely relying on factors like price or volume for differentiation, innovative firms leverage innovation as a competitive tool. This perspective remains relevant today, with innovation economics suggesting that a firm's innovative efforts contribute to increased output rather than merely expanding input metrics in the production cycle (Boute & Moore, 2021). By committing resources to both the quantity and quality of their offerings, innovative companies enhance their competitiveness.

This focus allows firms to develop higher-quality products and more effective organizational, production, and marketing strategies (Gallino & Moreno, 2018). An innovative firm does not allow short-term increases in costs to dominate its operations; instead, it focuses on producing high-quality goods that reduce unit costs while growing market share (Van Mieghem, 2021). Due to the varying purchasing power of different market segments, innovation allows the innovating firm to gradually infiltrate them. This gives the businesses a foundation on which to build their capacity to reach other market groups (Amos, 2019). The "theory of the innovation firm" emphasizes how a business's supply chain management can be greatly impacted by its internal innovativeness, or potential for invention. A more inventive company is better able to handle supply chain interruptions, increase efficiency, and adjust to changes. Better performance results from a higher ability to integrate with suppliers and consumers

### **Empirical Review**

Fouad et al. (2018) examined the impact of the innovation process on the performance of new products within Morocco's fish industry. The organization aims to create a modernized value chain that enhances product innovation and performance. The primary goal of the study was to evaluate how the value chain influences new product performance, particularly in the early stages of development. The study's findings indicate that speeding up innovation activities significantly improves the medium-term performance of innovative products, thereby allowing the organization to efficiently introduce high-quality products to the market.

Zhu et al. (2018) carried out a comparative analysis of various factors affecting technological innovation performance across different high-tech firms. The researchers investigated six variables using semi-parametric models on data from GEM-listed companies from 2010 to 2015. The model enabled a broader assessment of the factors influencing technological





innovation performance rather than limiting it to a single perspective. The study found that investment in research and development positively impacts organizational technological innovation performance, and that governmental support and subsidies also significantly enhance innovation outcomes in knowledge-driven industries. Additionally, technological diversity was shown to have a positive effect on organizational innovation performance.

Schniederjans (2018) explored the influence of business process innovation on quality and supply chains, aiming to evaluate how such innovations affect the relationship between supply chain performance and social quality management. This study clarified the distinction between social quality management and soft quality management while examining how varying levels of business process innovation—both radical and incremental—impact this relationship. The data was gathered through questionnaires distributed to manufacturing organizations in the United States, using hierarchical moderated regression to test the research hypotheses. The findings revealed a positive correlation between social quality management and supply chain performance, with incremental business process innovation positively moderating this relationship. Conversely, radical process innovation exhibited a negative moderating effect. The practical implications of this research help differentiate aspects of social quality management and soft quality management, simplifying the identification of which elements can enhance supply chain performance.

Huesig and Endres (2018) investigated the digital innovation process and its functionality in relation to the adoption of innovation management software by managers. The study aimed to uncover the factors that influence the acceptance of specific software tools designed to facilitate innovation management practices. Data was collected through an online questionnaire distributed to 99 managers in a German industrial organization. The findings suggested that the adoption of innovation management software positively affects innovation management, offering useful functionality for idea and portfolio management, while showing less effectiveness for idea generation and scenario planning. The results indicated that the digitalization of the innovation process through IT tools is more complex than the straightforward logic often suggested in discussions surrounding innovation management software.

Sanders and Premus (2020) conducted empirical research to examine the direct relationship between technology usage and supply chain performance. They noted that businesses could achieve operational advantages, such as lower costs and reduced cycle times, by implementing IT within supply chain management. For instance, Chrysler saved approximately \$220 million annually through the use of Electronic Data Interchange (EDI) system, which improved information flow and reduced costs (Mukhopadhyay et al., 1995).



Research involving 123 manufacturers demonstrated a strong connection between IT-oriented supply chain management systems and improved financial and operational outcomes (Dehning et al., 2017). Lai et al. (2008) discovered that the interaction between electronic integration and logistical performance primarily led to cost reductions, with minimal impact on service enhancement.

Numerous studies have indicated that factors such as geographical location, environmental influences, and organizational interactions serve as mediators or moderators in the relationship between technology usage and supply chain performance (Vijayasathya, 2019). A study of 135 companies confirmed that the environment moderates the relationship between IT utilization and supply chain management effectiveness (do Carmo, Caccia-Bava et al., 2019). Another investigation by Fawcett et al. found that information flow positively influences operational performance, with this effect being stronger when there is connectivity and willingness to share information (Fawcett et al., 2017). Thus, to enhance connectivity among supply chains, it is essential to foster trust in the information exchange process to optimize performance (Vijayasathya, 2010).

#### **Gap identified from the literature**

Based on the literature reviewed the current study identified that there is inconclusive results on the nexus between innovation/technology with supply chain management some studies found positive impact, some negative impact and others mixed results. Therefore these in conclusion motivated the current study to conducts a literature review on the impact of innovativeness on supply chain management.

#### **METHODOLOGY**

This study adopted a systematic literature review approach to examine the impact of innovativeness on supply chain management. The review focused twenty eight (28) on peer-reviewed academic journal articles, conference proceedings, and industry reports published in reputable databases such as Scopus, Web of Science, Emerald Insight, and Science Direct. The selection criteria emphasized studies that addressed innovative strategies, supply chain resilience, sustainable logistics, and managerial practices within supply chain contexts.

#### **Research Design**

The study employed a qualitative, exploratory design using a systematic literature review method. This approach enabled the identification, selection, analysis, and interpretation of existing scholarly contributions related to innovativeness in supply chain management.

##### **3.2 Source Selection and Inclusion Criteria**

A targeted search was conducted using specific keywords, including innovative supply chain management, supply chain innovation, supply chain





resilience, green supply chain, and managerial strategies in logistics. Articles published between 2010 and 2024 were considered to ensure contemporary relevance. Only peer-reviewed articles and high-impact conference papers written in English were included.

### **Theoretical Framework**

To classify and analyze the theoretical contributions, the study applied Gregor's (2006) framework of theory classification, which categorizes theories based on their purpose, ranging from theory for analysis to theory for prediction and explanation. Additionally, the study utilized the Structural View Model by Skinner et al. (2006) to assess the levels of analysis presented within the reviewed literature.

### **Data Analysis**

The selected articles were thematically analyzed, with emphasis on identifying key innovative practices, managerial strategies, and supply chain outcomes. The articles were grouped based on thematic similarities and the level of theoretical and practical contributions. Recurring themes such as resilience enhancement, operational efficiency, sustainable logistics, and digital transformation in supply chains were highlighted and critically discussed manually.

### **Findings**

1. The literature confirms that innovative strategies such as digital transformation, process re-engineering, and data-driven decision-making significantly improve operational efficiency within supply chains. This finding is line with previous findings such as the finding of Sanders and Premus (2020).
2. Innovative approaches like real-time risk assessment systems, agile logistics models, and integrated supply chain platforms have been identified as effective in managing and mitigating disruptions. This finding is line with previous findings such as the finding of Huesig and Endres (2018).
3. The adoption of green innovations, including eco-friendly packaging, sustainable sourcing, and reverse logistics, enhances environmental sustainability while maintaining supply chain resilience. This finding is line with previous findings such as the finding of Huesig and Endres (2018).
4. Current literature reflects inconsistency in the conceptualization and measurement of supply chain innovation constructs, highlighting the need for standardized models and validated measurement tools to support managerial decision-making. This finding is line with previous findings such as the finding of Sanders and Premus (2020).

### **CONCLUSION**

Supply management is a crucial system for organizations, providing



management with immediate access to reports on distribution activities. By employing computerized software to monitor supply functions, organizations can achieve enhanced management and operational efficiency. This approach allows for a more professional method of managing customer information. When customers place orders, the system helps track the status of shipments, informing them when their ordered products have been delivered. This system minimizes risks and boosts efficiency throughout the logistics and supply chain processes. Effective implementation of technological advancements can significantly improve a company's competitive edge in the global marketplace while also positively influencing customer satisfaction and overall effectiveness. Enhancing supply chain management is essential for businesses aiming to generate profits and maintain a competitive advantage over rivals.

### **RECOMMENDATIONS**

1. Managers and supply chain practitioners should prioritize the integration of innovative digital tools, predictive analytics, and agile frameworks to improve operational efficiency and competitiveness.
2. Businesses are encouraged to adopt proactive risk management innovations, including real-time disruption detection systems and agile response models, to effectively navigate supply chain challenges.
3. Organizations should invest in sustainable supply chain initiatives by embracing green innovations such as environmentally friendly logistics, energy-efficient operations, and circular economy practices.
4. Researchers and practitioners should collaborate to develop and validate comprehensive conceptual frameworks and measurement scales for supply chain innovation constructs to enhance consistency in academic and practical applications.

### **REFERENCES**

- Amos, J. (2019). Autonomous boat makes oyster run. news <https://www.bbc.com/science/environment-48216966>.
- Babich R. & Hilary J. (2021) Digital operations: Autonomous automation and the smart execution of work. *Management and Business Review* 1(1).
- Basale, L., De Moor, B. J., Gijsbrechts, J. & Boute, R. N. (2017). Reward shaping to improve the performance of deep reinforcement learning in inventory management, Available at: <http://dx.doi.org/10.2139/ssrn>.
- Belanger, Z. & Crossler, S. (2014). Artificial intelligence greening global supply chains? Exposing the political economy of environmental costs. *Review of International Political Economy*, 1–23.
- Colontone, G. B., (2002). *Blockchain beyond the hype: What is the strategic business value?* McKinsey and Company.



- CSCMP (2018). *Supply chain management terms and glossary*. Available at [http://cscmp.org/CSCMP/Educate/SCM\\_Definitions\\_and\\_Glossary\\_of\\_Terms/CSCMP/Educate/SCM\\_Definitions\\_and\\_Glossary\\_of\\_Terms.aspx](http://cscmp.org/CSCMP/Educate/SCM_Definitions_and_Glossary_of_Terms/CSCMP/Educate/SCM_Definitions_and_Glossary_of_Terms.aspx)
- Gallino, J. B. (2018). *Can Deep Reinforcement Learning Improve Inventory Management?*
- Gallino, J. B., & Moreno, L. (2018). Information systems in supply chain integration and management. *European Journal of Operational Research*, 159(2), 269–295.
- Gregor, S. (2006). The Nature of Theory in Information Systems. *MIS Quarterly*, 30(3), 611-642.
- Hallmostrom, A., & Partmona, T. (2014). Complementary theories to supply chain management. *Supply Chain Management: An International Journal*, 12(4), 284–296.
- Harvey, B. (2000). Economics of artificial intelligence: Implications for the future of work. *IZA Journal of Labor Policy* 9(1), 1–35.
- Hoofman, G. (2021). Blockchains and the economic institutions of capitalism. *Journal of Institutional Economics*, 14(4), 639–658.
- Huesing, C. (2015). *Change through digitization: Value creation in the age of Industry*. Management of Permanent Change (H. Albach, H. Meffert, and A. Pinkwart, eds.), 23–45, Wiesbaden: Springer Fachmedien.
- Hurley, M. & Hult, D. (1998). *Prediction machines: the simple economics of artificial intelligence*. Harvard Business Press.
- Lai, V. K. Tuunainen, F. & Rossi, M. (2008). *Opportunities and risks of blockchain technologies: A research agenda*. Proceedings of the 50th Annual Hawaii International Conference on System Sciences (HICSS-50), 1533–1542.
- Mane, H., Acemoglu D, Autor D, Hazell J & Restrepo P. (1998). AI and jobs: Evidence from online vacancies. *Tech. rep., National Bureau of Economic Research*.
- Moore, J. (2021), Exploring supply chain innovation. *Logistics Research*, 3(1), 3–18.
- Ni, J. (2018). *Targeted automation of order decisions using machine learning*.
- Panayides, M. & Lun, B.(2009). *Mapping the sea of opportunities: Blockchain in supply chain and logistics*. Kuhne Logistics University, Hamburg, 6891.
- Salviotti, L. M. de Rossi, & Abbatemarco, N. (2018). *A structured framework to assess the business application landscape of blockchain technologies*. Proceedings of the 51st Annual Hawaii International Conference on System Sciences 2018 (HICSS-51), 3467–3476.
- Sanders, T, & Premus, T. (1995). Block-chain: An evolving technology. *Global Journal of Enterprise Information System*, 8(4), 29–35.
- Simchi-Levi D, Schmidt W, Wei Y, Zhang PY, Combs K, Ge Y, Gusikhin O, Sanders M, Zhang D (2015) Identifying risks and mitigating disruptions in the automotive supply chain. *Interfaces* 45(5), 375–390.
- Schmidt, F. (2021) Remaining useful life estimation – a review on the statistical data driven approaches. *European Journal of Operational Research* 213(1), 1–14.



- Schniederians, V. A. (2018). *Blockchain: Grundlagen, Anwendungen und Potentiale*. Fraunhofer-Institut für Angewandte Informationstechnik FIT, Bayreuth.
- Storer J, Zhang D, Hu H, Van Mieghem J (2014) *Predicting human discretion to adjust algorithmic prescription: A large-scale field experiment in warehouse operations*. Management Science to appear.
- Susanto, H. (2018). Supply chain management and advanced planning-basics, overview and challenges. *European Journal of Operational Research*, 163(3), 575–588.
- Sternberg, H. & Baruffaldi, B. (2018). *Chains in chains: Logic and challenges of blockchains in supply chains*. Proceedings of the 51st Annual Hawaii International Conference on System Sciences 2018 (HICSS-51), 3936–3943, 2018.
- Tidd, D., Tapscott, A., & Zouari, D. (1998). How blockchain will change organizations. *MIT Sloan Management Review*, 58(2). 10–13.
- Theirer, R. K. (2022). Application of Robotic Process Automation in Shopping Malls in India. *International Journal of Advanced Research in Commerce, Management & Social Science*, 234-238.
- Vijayasarathy, L. (2020). Impact of digitalization on procurement: the case of robotic process automation. Supply Chain Forum. *An International Journal*, 185-195.
- Wiley, O. E. (2012). *The economic institutions of capitalism: firms, markets, relational contracting*. New York, NY: Free Press, 1985.
- Zheng, S. Xie, H. Dai, X. Chen, & Wang, H. (2014). Blockchain challenges and opportunities: A survey. *International Journal of Web*.