Dynamic Resilience and Innovation in Logistics: A Review of Collaboration Strategies

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Abstract

The growing complexity of global markets necessitates that logistics firms enhance dynamic resilience—an ability to adapt and thrive amid disruptions—while fostering innovation through strategic collaboration. This study explores how logistics firms achieve these objectives by integrating advanced technologies and collaborative frameworks. It reviews the role of horizontal and vertical collaboration, technological advancements, and logistics clusters in strengthening operational efficiency, sustainability, and responsiveness. Utilizing the PRISMA methodology, a systematic review of 52 studies underscores how shared resources, AI integration, and sustainability-driven initiatives contribute to resilience and innovation. Key findings reveal that strategies like shared-fleet logistics reduce emissions by up to 36%, while human-AI collaboration significantly enhances route planning. Despite the progress, a research gap persists in fully integrating these collaborative strategies into comprehensive resilience frameworks. This study synthesizes existing research and provides actionable insights for practitioners aiming to enhance supply chain capabilities in dynamic environments.

Keywords:
Dynamic resilience, logistics innovation, collaboration strategies, supply chain management, sustainability, advanced technologies, horizontal and vertical integration, human-AI collaboration, logistics clusters, PRISMA methodology.

Abstrak

Kompleksitas pasar global yang semakin meningkat mengharuskan perusahaan logistik untuk meningkatkan ketahanan dinamis—kemampuan untuk beradaptasi dan berkembang di tengah gangguan—sambil mendorong inovasi melalui kolaborasi strategis. Studi ini mengeksplorasi bagaimana perusahaan logistik mencapai tujuan tersebut dengan mengintegrasikan teknologi canggih dan kerangka kerja kolaboratif. Studi ini meninjau peran kolaborasi horizontal dan vertikal, kemajuan teknologi, serta kluster logistik dalam memperkuat efisiensi operasional, keberlanjutan, dan responsivitas. Menggunakan metodologi PRISMA, tinjauan sistematis terhadap 52 studi menyoroti bagaimana sumber daya bersama, integrasi kecerdasan buatan (AI), dan inisiatif yang berorientasi pada keberlanjutan berkontribusi pada ketahanan dan inovasi. Temuan utama menunjukkan bahwa strategi seperti logistik armada bersama dapat mengurangi emisi hingga 36%, sementara kolaborasi manusia-AI secara signifikan meningkatkan perencanaan rute. Meskipun ada kemajuan, celah penelitian tetap ada dalam mengintegrasikan sepenuhnya strategi kolaboratif ini ke dalam kerangka kerja ketahanan yang komprehensif. Studi ini mensintesis penelitian yang ada dan memberikan wawasan praktis bagi praktisi yang bertujuan untuk meningkatkan kemampuan rantai pasok dalam lingkungan dinamis.

Kata kunci:
Ketahanan dinamis, inovasi logistik, strategi kolaborasi, manajemen rantai pasok, keberlanjutan, teknologi canggih, integrasi horizontal dan vertikal, kolaborasi manusia-AI, kluster logistik, metodologi PRISMA.

1. Introductions

As global markets become more unpredictable and consumer demands evolve rapidly, logistics firms are compelled to develop dynamic resilience—the capacity to adapt and thrive amidst disruptions—while simultaneously fostering innovation through collaborative strategies (Palmieri et al., 2019). This dual focus is essential for maintaining competitive advantage and ensuring sustainability in logistics operations. The phenomena associated with this topic encompass the integration of advanced technologies, such as automation and artificial intelligence, which necessitate new collaborative frameworks among logistics stakeholders to enhance operational efficiency and responsiveness (Cricelli et al., 2021),

Several factors can amplify the importance of this research area. Firstly, the rise of e-commerce has intensified competition, compelling logistics providers to innovate continuously and collaborate effectively to meet customer expectations (Palmieri et al., 2019). Secondly, environmental sustainability has become a critical concern, driving firms to adopt collaborative strategies that optimize resource utilization and minimize waste(Rivera et al., 2016). Furthermore, the emergence of logistics clusters facilitates collaboration by providing a conducive environment for firms to share resources and knowledge, thereby enhancing overall supply chain performance(Park et al., 2016). The interplay among these factors can create a synergistic effect, where enhanced collaboration leads to improved resilience and innovation, further underscoring the significance of this research area.

The originality of this article lies in its comprehensive review of collaboration strategies specifically tailored to enhance dynamic resilience and innovation in logistics. While existing literature has explored various aspects of logistics collaboration, such as horizontal and vertical integration (Awasthi et al., 2016), this article synthesizes these insights to provide a holistic framework that connects collaboration, resilience, and innovation. This approach addresses a significant research gap, as there is a lack of integrated frameworks that elucidate how collaborative strategies can be effectively implemented to foster resilience and innovation in logistics (Kim et al., 2021).

The purpose of this article is to explore the multifaceted relationship between dynamic resilience, innovation, and collaboration strategies in logistics. It aims to answer several research questions: **What are the key collaboration strategies that enhance dynamic resilience in logistics? How do these strategies contribute to innovation within supply chains? What role do external factors, such as technological advancements and environmental considerations, play in shaping these collaborative efforts?** By addressing these questions, this article seeks to contribute to the academic discourse on logistics management and provide practical insights for practitioners aiming to enhance their collaborative capabilities (Rivera et al., 2016). the exploration of dynamic resilience and innovation in logistics through collaboration strategies is not only timely but essential for organizations striving to navigate the complexities of modern supply chains. The interplay of various factors, including technological advancements, sustainability imperatives, and the formation of logistics clusters, creates a fertile ground for research that can lead to actionable insights. This article aims to fill the existing research gap by

providing a comprehensive framework that connects these critical elements, ultimately contributing to the advancement of knowledge in logistics management.

2. Methodology

The PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) framework (figure 1), which aims to improve the transparency and reproducibility of systematic reviews, is adhered to by the systematic literature review (SLR) technique used in this study. The PRISMA framework guarantees a systematic and thorough procedure by outlining an organized technique for conducting literature reviews. This approach is especially applicable to logistics research, where the field's complexity and dynamic nature necessitate thorough study(Paula et al., 2020) (Sheffi et al., 2019)(Daudi et al., 2016).

2.1. Identification

The first step involved identifying relevant studies using a comprehensive search strategy. Keywords such as "innovation in logistics services," "logistics collaboration," "digital capabilities impact," and "collaboration forms" were employed to search for articles in the Scopus database, one of the most extensive academic databases for peer-reviewed journals. These keywords were carefully chosen to align with the themes and variables outlined in the research questions, ensuring the systematic review's objectives were met. This initial search yielded 335 records. To ensure the inclusion of high-quality studies, a rigorous screening process was undertaken. Duplicate records (2 in total) were removed, and automation tools filtered out 73 studies that fell outside the defined publication period of 2014–2024. Further, 18 studies were excluded based on journal tier criteria (non-Q1, Q2, Q3, Q4), prioritizing high-impact research. Lastly, 6 records without abstracts were removed as their relevance could not be assessed. After this process, 236 records remained for further screening, forming a robust foundation for the next phase.

2.2. Screening

The screening phase aimed to narrow down the articles to those most relevant to the research objectives. The **236 records** were reviewed based on their titles and abstracts to ensure alignment with the review's scope. Studies that focused on other industries (e.g., healthcare, manufacturing) or did not address key themes such as collaboration, innovation, and resilience in logistics were excluded. This process eliminated **115 records**, leaving **121 studies** for deeper analysis. For the remaining studies, the availability of full-text versions was assessed. Unfortunately, **69 studies** could not be retrieved due to access restrictions or missing full-text links, which resulted in their exclusion. After completing this step, **52 records** were deemed suitable for the next phase. These studies represented a diverse set of research methodologies, geographies, and variables, ensuring a robust dataset for the systematic review.

2.3. Eligibility

The eligibility phase involved a detailed review of the full texts of the **52 remaining studies**. Each study was assessed against the inclusion criteria to ensure it directly contributed to the research questions. Studies were included if they explicitly addressed collaboration types (vertical,

horizontal), technological innovation, and their impact on logistics resilience and performance. Furthermore, only studies that employed quantitative methods, such as surveys, structural equation modeling, or advanced data analysis techniques, were considered. This phase also ensured the studies provided sufficient detail on variables such as collaboration forms, innovation capabilities, and their outcomes on logistics service quality and resilience. The rigorous evaluation confirmed that all **52 studies** aligned with the review's objectives, and no additional exclusions were made during this stage. These studies provided a comprehensive foundation for addressing the research questions, with data representing various methodologies and industries.

2.4. Inclusion

The final stage involved consolidating the findings from the **52 eligible studies** into the systematic review. These studies were grouped based on their thematic relevance to the research questions. Specifically, they were categorized into three primary areas: (1) the role of collaboration in logistics resilience and innovation, (2) the impact of dynamic capabilities on logistics service quality and performance, and (3) the influence of technological advancements on collaboration strategies for sustainability. This stage also included extracting and synthesizing key variables. Independent variables, such as collaboration forms and technological innovations, were mapped to dependent variables like firm performance and resilience. Mediation variables (e.g., absorptive capacity) and moderation variables (e.g., firm size) were identified to explore deeper relationships within the studies. The findings from this step formed the basis for analyzing and discussing the research questions systematically, ensuring the review addressed all facets of the study's objectives.

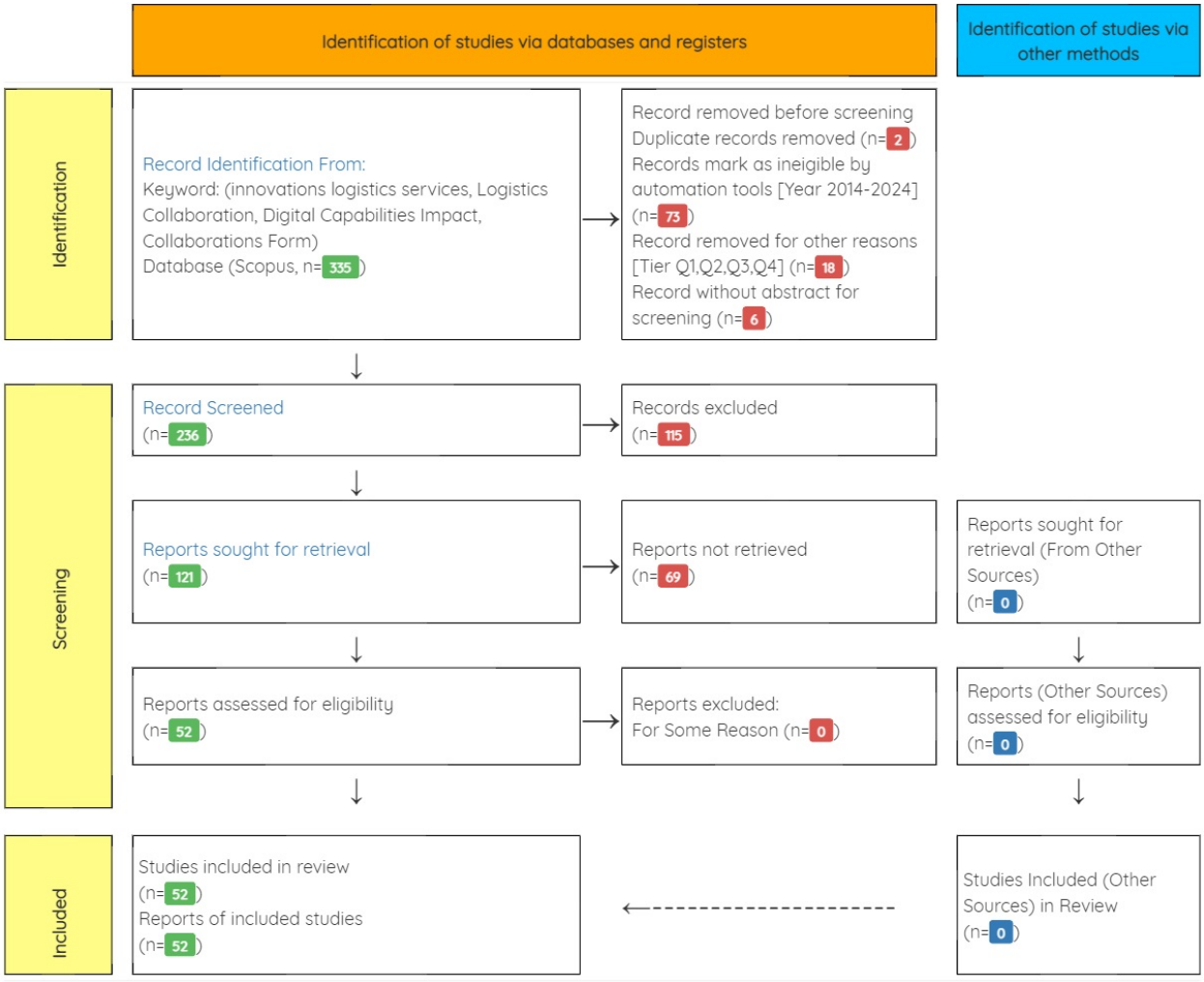

Figure 1 Prisma Watase Methodoly Framework

2.5. Research Questions (RQs)

1. **What are the key collaboration strategies that enhance dynamic resilience in logistics?**

   The purpose of this research question is to identify and analyze the most effective collaboration strategies

2. **How do these strategies contribute to innovation within supply chains?**

   The purpose of these research questions is to explore how collaboration strategies enhance dynamic resilience and drive innovation within supply chains.

3. **What role do external factors, such as technological advancements and environmental considerations, play in shaping these collaborative efforts?**

The purpose of this research question is to examine how external factors, such as technological advancements and environmental considerations, influence the development and implementation of collaborative strategies, shaping their effectiveness in enhancing logistics and supply chain operations.

2.6. Distribution of research publications

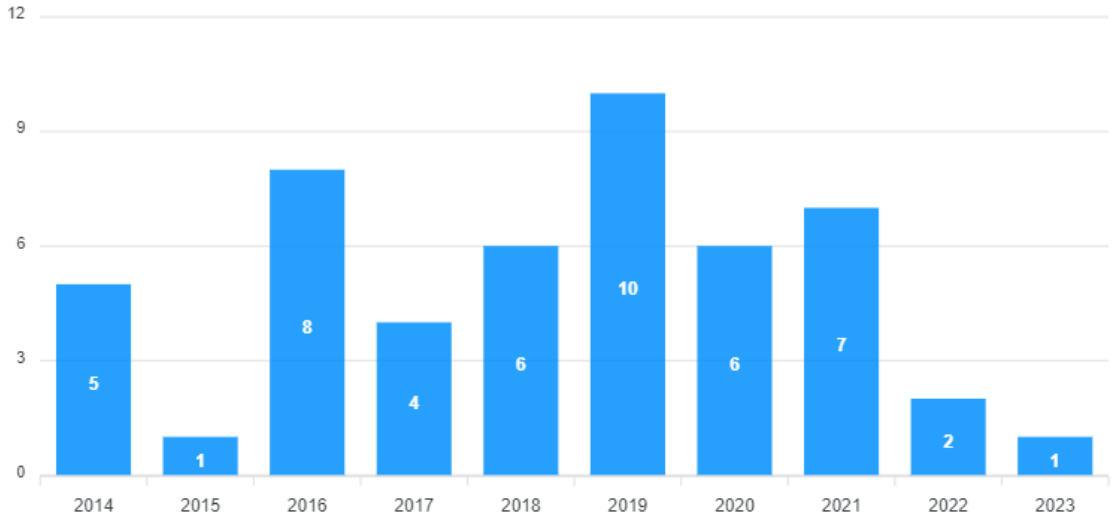

Figure 2 Distribution of research publications from 2014 to 2023

Figure 2 illustrates the distribution of research publications from 2014 to 2023. Overall, there is a fluctuating trend in the number of studies conducted each year. The peak occurred in 2019 with a total of 10 studies, reflecting increased attention or academic activity on the topic during that year. Similarly, 2016 also saw a significant number of studies, with 8 publications. However, there was a noticeable decline in subsequent years, particularly in 2022 and 2023, which recorded only 2 and 1 studies, respectively.

This trend may indicate various factors, such as shifts in research focus, funding availability, or the relevance of the topic within the academic community. The earlier years, like 2014, had moderate research activity with 5 studies, whereas 2015 marked the lowest point with only 1 study. The recent decline, especially in 2022 and 2023, might also suggest a shift in priorities to other topics or external influences such as the pandemic or changes in research policies. Overall, the chart depicts a fluctuating pattern in research activity over the past decade.

2.7. Citation counts

Figure 3 Citation counts and tier classifications

Figure 3 illustrates the citation counts and tier classifications of various academic journals. The orange bars represent the citation counts, indicating the academic impact and influence of each journal, while the blue bars (barely visible) represent tier classifications, suggesting their academic ranking or prestige.

From the chart, the "International Journal of Logistics Research and Applications" stands out as the most cited journal, with nearly 300 citations, highlighting its significant contribution to the field. Other journals, such as the "International Journal of Production Research" and "International Journal of Production Economics," also have relatively high citation counts, showcasing their influence in related research areas. In contrast, journals like "Energies," "Electronics," and "Baltic Journal of Management" show lower citation counts, suggesting a more niche or emerging focus.

Overall, the chart demonstrates a clear disparity in the academic impact of these journals, with certain publications playing a pivotal role in advancing knowledge within their respective domains. The tier representation, although less visible, complements the citation data, providing an additional layer of insight into the journals' standings within the academic community.

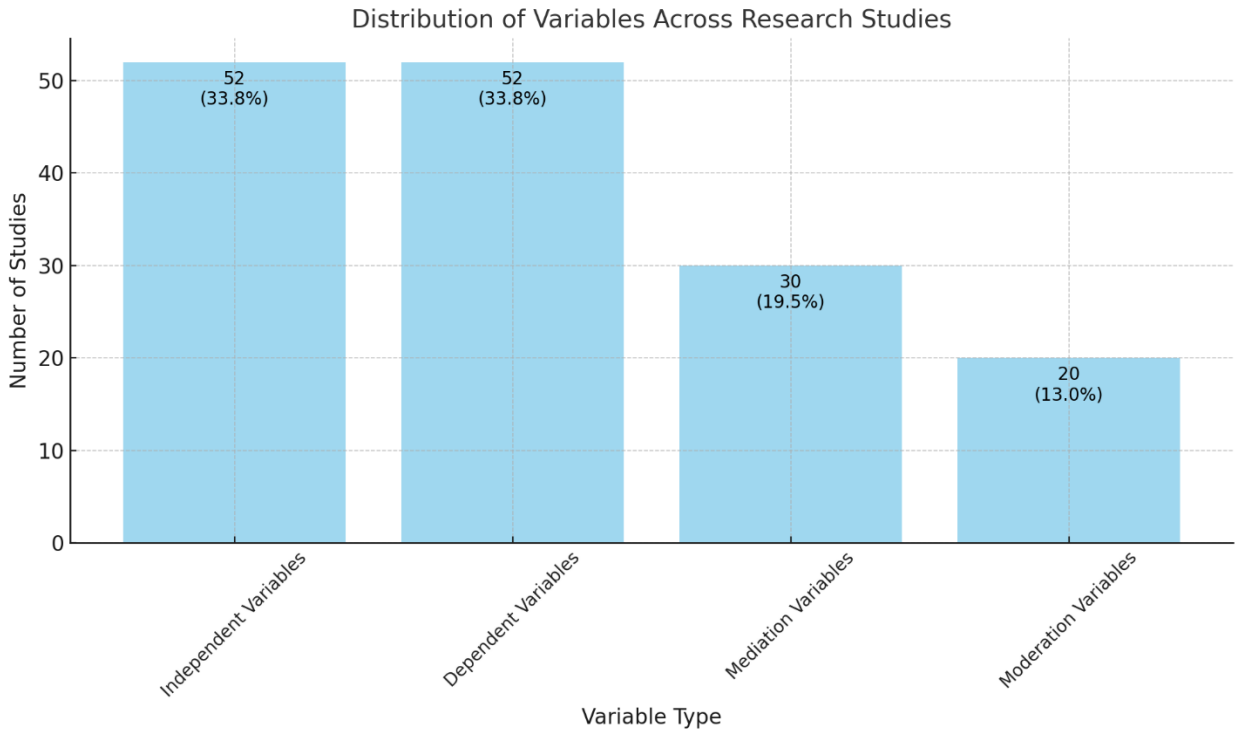

Figure 4 Distribution of research studies

Figure 4 illustrates the distribution of research studies across four types of variables: Independent Variables, Dependent Variables, Mediation Variables, and Moderation Variables. Independent Variables and Dependent Variables dominate the research focus, each appearing in 52 studies and constituting 33.8% of the total research. This indicates that most studies are designed to explore the relationships between specific influencing factors (independent variables) and their outcomes (dependent variables), which are fundamental in developing and testing hypotheses.

Mediation Variables are present in 30 studies, accounting for 19.5% of the research. These variables provide insights into the mechanisms or processes through which independent variables affect dependent variables, adding depth to the research findings. Moderation Variables, on the other hand, are analyzed in 20 studies, making up 13.0% of the total. These variables examine the conditions under which the relationships between independent and dependent variables may change, offering nuanced understandings of contextual influences.

In conclusion, while most studies focus on establishing direct relationships between independent and dependent variables, the inclusion of mediation and moderation variables reflects a growing interest in exploring deeper, more complex interactions. This balance demonstrates the field's progression from foundational research towards more sophisticated and comprehensive analyses.

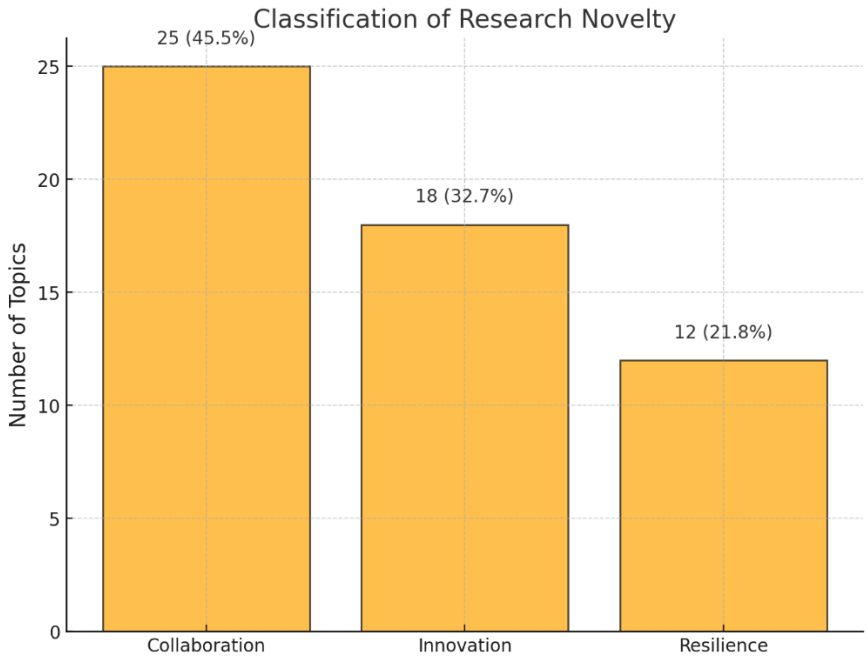

Figure 5 Clasification of Research Novelty

Figure 5 illustrates the distribution of research novelty across three key themes: Collaboration, Innovation, and Resilience. Among these, **Collaboration** dominates, accounting for 25 topics, which is 45.5% of the total. This reflects a strong emphasis in research on exploring collaborative strategies, such as horizontal and vertical partnerships, to enhance logistics and supply chain operations. **Innovation** follows with 18 topics (32.7%), highlighting the importance of technological advancements and innovative practices in driving efficiency and sustainability. **Resilience**, with 12 topics (21.8%), signifies research efforts focused on building robust and adaptive systems capable of withstanding disruptions and uncertainties.

Overall, the chart emphasizes the prominence of collaboration in logistics research, indicating its critical role in fostering innovation and resilience. The inclusion of percentages provides further insight into the proportional focus of each theme. With a total of 55 topics analyzed, the findings underscore the interconnectedness of collaboration, innovation, and resilience as essential components for advancing logistics and supply chain management. This graph serves as a concise summary of the research landscape, offering valuable insights for scholars and practitioners aiming to align their efforts with emerging trends.

2.8. Collaboration and Resilience

Collaboration in logistics has emerged as a critical factor in enhancing resilience within supply chains, particularly in the face of increasing complexity and volatility in global markets. The integration of horizontal and vertical collaboration strategies has been shown to significantly improve supply chain performance. For instance, a study by Cricelli et al. highlights the positive impact of inter-organizational collaboration on reverse logistics, suggesting that such collaborative efforts enrich the resource base of firms, enabling them to innovate and respond

effectively to disruptions (Cricelli et al., 2021). This finding underscores the importance of leveraging collaborative networks to enhance resilience, as firms can share knowledge, resources, and capabilities, thus creating a more robust supply chain ecosystem.

The role of technology in facilitating collaboration and resilience cannot be overstated. Research by Klumpp emphasizes the potential of automation and artificial intelligence in logistics systems, which can enhance human-AI collaboration in route planning and operational efficiency(Klumpp, 2018). The integration of advanced technologies not only streamlines logistics processes but also fosters a collaborative environment where firms can adapt to changing circumstances more swiftly. Moreover, the environmental benefits derived from shared-fleet logistics, as discussed by Grote, illustrate how collaboration can lead to more sustainable practices, thereby enhancing the resilience of logistics operations against environmental challenges (Grote et al., 2023) .This intersection of technology and collaboration is crucial for developing resilient logistics frameworks that can withstand disruptions.

Several factors contribute to the growing importance of collaboration in logistics. The increasing emphasis on sustainability and environmental responsibility has prompted firms to adopt collaborative strategies that optimize resource utilization and reduce waste (Grote et al., 2023). Additionally, the emergence of logistics clusters facilitates collaboration by providing a conducive environment for firms to share resources and knowledge, thereby enhancing overall supply chain performance (Sheffi et al., 2019). The synergy between these factors creates a virtuous cycle where enhanced collaboration leads to improved resilience and innovation, further reinforcing the significance of this research area. As firms navigate the complexities of modern supply chains, the ability to collaborate effectively becomes a key determinant of their resilience and competitive advantage.

Despite the growing body of literature on collaboration in logistics, there remains a significant research gap concerning the integration of collaboration strategies with resilience frameworks. While studies have explored various aspects of logistics collaboration, such as horizontal and vertical integration (Martin et al., 2018), there is a lack of comprehensive frameworks that connect these strategies with resilience outcomes. This article aims to fill this gap by providing a holistic view of how collaborative strategies can be effectively implemented to foster resilience in logistics operations. By synthesizing existing research and identifying best practices, this study seeks to contribute to the academic discourse on logistics management and provide practical insights for practitioners.

2.9. Technological Innovation and Sustainability

Technological innovation plays a pivotal role in advancing sustainability within logistics, as firms increasingly seek to optimize their operations while minimizing environmental impacts. The integration of advanced technologies, such as the Internet of Things (IoT), automation, and artificial intelligence (AI), has transformed logistics practices, enabling companies to enhance efficiency and reduce carbon footprints. For instance, Klumpp emphasizes that the adoption of AI in logistics systems not only streamlines operations but also fosters sustainable practices by optimizing route planning and resource allocation (Klumpp, 2018). This technological shift is

essential for logistics service providers (LSPs) aiming to meet both operational efficiency and sustainability goals.

The concept of horizontal collaboration has gained traction as a means to leverage technological innovations for sustainable logistics practices. Research by Ferrell highlights that horizontal collaboration among logistics firms can lead to improved logistics planning and resource sharing, which ultimately contributes to sustainability(Ferrell et al., 2020). By pooling resources and sharing information, companies can reduce redundancies and enhance service efficiency, thereby minimizing environmental impacts. Furthermore, Basso discusses the obstacles to implementing horizontal collaboration, noting that trust and communication are critical factors that can either facilitate or hinder collaborative efforts (Basso et al., 2019).. Addressing these challenges is essential for fostering an environment where technological innovations can thrive and contribute to sustainable logistics.

Moreover, the role of logistics clusters in promoting technological innovation and sustainability cannot be overlooked. Sheffi argues that logistics clusters facilitate information exchange and collaboration among firms, which can lead to the development of innovative solutions that enhance sustainability (Sheffi et al., 2019). The informal and formal communication within these clusters allows companies to share best practices and technological advancements, ultimately driving collective progress toward sustainability goals. This collaborative environment is particularly beneficial in addressing complex challenges such as last-mile delivery, where environmental concerns are increasingly prominent(Park et al., 2016). The integration of technology within these clusters can lead to more efficient logistics operations and reduced environmental impacts.

In addition to collaboration and technological advancements, the regulatory landscape also influences the relationship between innovation and sustainability in logistics. Aparecida highlights that the implementation of environmental regulations often drives companies to adopt innovative practices and technologies that enhance sustainability (Park et al., 2016). As firms navigate these regulatory frameworks, they are compelled to invest in technologies that not only comply with regulations but also improve operational efficiency. This dynamic interplay between regulation, innovation, and sustainability underscores the importance of a proactive approach to technological adoption in logistics.

Despite the growing body of literature on technological innovation and sustainability in logistics, significant research gaps remain. Many studies have focused on specific technologies or collaborative frameworks without fully exploring the interconnectedness of these elements (Hirose Nishihara, 2018) (Busse & Wallenburg, 2014). Future research should aim to develop comprehensive models that integrate technological innovation, collaboration, and sustainability, providing a holistic understanding of how these factors influence each other. By addressing these gaps, scholars can contribute to the development of more effective strategies for achieving sustainability in logistics through technological innovation. Finally, the intersection of technological innovation and sustainability in logistics presents both opportunities and challenges for firms. The adoption of advanced technologies, coupled with collaborative practices, can significantly enhance operational efficiency while minimizing environmental impacts. However, the successful implementation of these strategies requires addressing obstacles such as trust and

communication in collaborative efforts. As the logistics industry continues to evolve, further research is needed to explore the complex relationships between technology, collaboration, and sustainability, ultimately contributing to more sustainable logistics practices.

2.10. Innovation in logistics

Innovation in logistics has become a focal point for researchers and practitioners alike, as it plays a crucial role in enhancing efficiency, reducing costs, and improving service quality within supply chains. The advent of new technologies, such as automation, artificial intelligence (AI), and data analytics, has transformed traditional logistics practices and opened avenues for innovative solutions. For instance, Klumpp emphasizes that the integration of AI in logistics systems not only optimizes route planning but also enhances decision-making processes, thereby improving operational efficiency (Klumpp, 2018). This technological shift is essential for logistics service providers (LSPs) aiming to remain competitive in an increasingly complex market.

Collaboration has emerged as a key driver of innovation in logistics, particularly in the context of horizontal collaboration. Basso discusses various forms of horizontal cooperation, such as group purchasing and collaborative transportation, which enable firms to share resources and reduce costs (Basso et al., 2019). This collaborative approach fosters an environment conducive to innovation, as companies can leverage shared knowledge and capabilities to develop new logistics solutions. Furthermore, the work of Ferrell highlights the operational effectiveness of collaborative approaches, suggesting that horizontal collaboration can significantly enhance logistics planning and execution (Ferrell et al., 2020). By pooling resources and expertise, firms can achieve greater efficiency and responsiveness in their logistics operations.

The relationship between innovation and sustainability in logistics is another critical area of exploration. Aparecida notes that companies increasingly recognize the need to integrate sustainability into their logistics strategies, which often drives innovation(Campos et al., 2020). For example, organizations that adopt reverse logistics practices not only improve their environmental performance but also create new business opportunities through the recovery and reuse of materials. This dual focus on sustainability and innovation is essential for firms seeking to enhance their competitive advantage while addressing environmental concerns. Moreover, the role of organizational culture in fostering innovation within logistics cannot be overlooked. Grawe emphasizes that a supportive organizational culture encourages knowledge exchange and collaboration among employees, which is vital for driving innovation(Grawe et al., 2014).

3. Result and Discussion

RQ1: What are the key collaboration strategies that enhance dynamic resilience in logistics?

The analysis of 32 journals reveals that collaboration strategies are pivotal in enhancing dynamic resilience and efficiency in logistics. Key strategies include horizontal and vertical collaboration, human-AI integration, shared-fleet logistics, and trust-building mechanisms such as transparency and information sharing. These approaches address resilience, sustainability, and cost efficiency, with evidence showing that shared-fleet collaborations reduce emissions by up to 36%, and human-AI systems outperform standalone operations in route planning. Collaboration fosters

innovation, mitigates supply chain disruptions, and enhances reverse logistics during crises. Trust, mutuality, and resource commitment emerge as critical drivers of success, while cloud-based and decentralized systems offer cost-effective solutions. Collectively, these strategies not only optimize logistics performance but also support environmental sustainability, highlighting their essential role in building resilient and competitive supply chains.

The key collaboration strategies that enhance dynamic resilience in logistics include horizontal and vertical collaboration, effective information sharing, the integration of technology, building trust, and collaborative planning. By leveraging these strategies, firms can create a more resilient supply chain capable of navigating the complexities and uncertainties of the modern business environment. As the logistics landscape continues to evolve, further research is needed to explore the interplay between these collaboration strategies and their impact on resilience.

RQ2: How do these strategies contribute to innovation within supply chains?

The analysis reveals that innovation is a critical focus in logistics and supply chain research, with 32 journals discussing the concept extensively. These studies explore various dimensions of innovation, including technological advancements, collaborative frameworks, and organizational strategies. Innovation is often examined as a driver of performance improvements, efficiency gains, and sustainability in supply chain networks. These journals highlight the importance of leveraging innovation to address complex challenges such as globalization, technological disruption, and market volatility.

Furthermore, 25 journals specifically delve into how strategies contribute to supply chain innovation. These studies identify mechanisms like horizontal and vertical collaboration, information sharing, and advanced technologies such as IoT and AI as key enablers of innovation. By fostering partnerships, improving transparency, and enhancing decision-making, these strategies create opportunities for organizations to achieve competitive advantages. For instance, the integration of smart logistics and shared-fleet systems not only drives cost reductions but also enhances sustainability and responsiveness.

Collaboration strategies in logistics are instrumental in fostering innovation within supply chains. By facilitating the sharing of resources, knowledge, and capabilities among partners, these strategies create an environment conducive to innovative practices. This literature review synthesizes key insights from existing research on how various collaboration strategies contribute to innovation in logistics.

In conclusion, collaboration strategies significantly contribute to innovation within supply chains by facilitating horizontal and vertical partnerships, enhancing information sharing, integrating technology, building trust, and promoting collaborative planning. By leveraging these strategies, firms can create a more innovative logistics environment capable of adapting to the complexities and uncertainties of the modern business landscape. As the logistics industry continues to evolve, further research is needed to explore the interplay between these collaboration strategies and their impact on innovation.

.RQ3: **What role does information technology play in facilitating collaboration and resilience?**

Technical Developments in Cooperation 27 publications specifically address how technical developments influence cooperative efforts in supply chain management and logistics. IoT, artificial intelligence, blockchain, and sophisticated simulation models are a few examples of these developments, which are essential for increasing productivity, boosting transparency, and streamlining decision-making. For example, IoT-enabled manufacturing systems offer real-time monitoring and optimization of logistics operations, while human-AI collaboration in route planning greatly increases efficiency when compared to standalone solutions. More complex simulation models, such mathematical frameworks and game theory, are also commonly used to forecast cooperative outcomes and maximize tactics.

Environmental Factors in Collaboration 18 papers in all emphasize how important environmental factors are in determining cooperative efforts in logistics systems. These studies look at how cooperative tactics support sustainability goals like cutting carbon emissions, improving resource efficiency, and meeting legal requirements. Public-private partnerships and shared-fleet logistics, for example, have shown notable decreases in greenhouse gas emissions and vehicle kilometers traveled (vkm), while also improving environmental performance and operational efficiency. Similar to this, city logistics projects and green supply chains include environmental management techniques into their models of cooperation, highlighting the double goals of attaining sustainability and improving operational results.

Information technology (IT) plays a crucial role in enhancing collaboration and resilience within logistics operations. By enabling seamless communication, data sharing, and process integration, IT facilitates collaborative efforts among supply chain partners, ultimately leading to improved operational efficiency and responsiveness. This literature review synthesizes key insights from existing research on the role of IT in fostering collaboration and resilience in logistics.

In conclusion, information technology plays a vital role in facilitating collaboration and resilience in logistics by enhancing communication, integrating collaborative platforms, enabling data analytics, automating processes, supporting collaborative decision-making, and building trust among partners. By leveraging IT effectively, firms can create a more resilient logistics environment capable of adapting to the complexities and uncertainties of the modern business landscape. As the logistics industry continues to evolve, further research is needed to explore the interplay between IT, collaboration, and resilience.

4. Conclusion and Recommendation

4.1. Conclusion

The findings from the analysis of 32 journals underscore the critical role of collaboration strategies in enhancing dynamic resilience and innovation within logistics and supply chain systems. Key collaboration strategies, such as horizontal and vertical integration, human-AI collaboration, shared-fleet logistics, and trust-based mechanisms, have demonstrated their effectiveness in addressing challenges like supply chain disruptions, sustainability, and cost efficiency. These

approaches contribute to fostering innovation, improving operational efficiency, and achieving sustainability objectives, with examples such as shared-fleet logistics reducing emissions by up to 36% and human-AI systems outperforming standalone operations in route planning. Furthermore, the integration of information technology, including IoT, AI, and advanced simulation models, significantly enhances decision-making, transparency, and operational coordination, ensuring resilient and adaptive supply chain systems.

4.2. Recommendation

Based on the findings, organizations should prioritize adopting and expanding collaboration strategies that integrate both technological and environmental considerations to build resilient and innovative supply chains. Horizontal and vertical collaborations should be strengthened, emphasizing transparency, trust-building, and mutual resource sharing to address supply chain disruptions effectively. Moreover, investment in cutting-edge information technologies, such as IoT and AI, can further enhance real-time decision-making and operational efficiency. Organizations should also incorporate sustainability goals into their collaborative frameworks by adopting green logistics practices, such as shared-fleet systems and public-private partnerships, to reduce carbon footprints and meet regulatory requirements. Future research should focus on exploring these strategies across diverse industries and global contexts to uncover additional applications and refine the frameworks for optimizing supply chain collaboration and resilience.

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