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The Impact of Digital Technology Adoption on Supply Chain Performance: A Systematic Literature Review.

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Abstract

This paper presents a Systematic Literature Review (SLR) about using digital technologies in supply chain management. Today, digital technologies play a crucial role in supply chain management and consequently in business performance. To address this topic, we used Scopus and Web of Science as databases to find a total of 2,883 articles with two textual queries. Through the PRISMA protocol, we ultimately identified 15 papers, which we subsequently analyzed using NVivo. This reduced number is unfortunately justified by a lack of empirical studies or rather articles that utilize quantitative methods. After analyzing the corpus, we found that the most important topics are: the digitalization of the supply chain, Industry 4.0, and the impact of new technologies such as blockchain, the Internet of Things, and artificial intelligence on supply chain performance. This comprehensive literature review is based on in-depth analysis of the full texts within NVivo. Our results highlight the key methodologies employed by the authors, with a notable emphasis on quantitative research methods. The most prominent methodology identified in the literature is Structural Equation Modeling (SEM) and surveys/questionnaires, which facilitate consensus building among experts in the field. Additionally, various digitalization techniques, including blockchain and IoT, are frequently discussed as transformative tools for enhancing supply chain efficiency and effectiveness. By synthesizing these findings, this study contributes to a deeper understanding of how digital technologies can optimize supply chain processes. The insights gained from this review can guide practitioners and researchers in making informed decisions regarding the adoption and implementation of digital solutions in supply chains.

Keywords : SLR, Digitalization, Supply chain, Performance.

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Introduction

In recent years, the landscape of supply chain management has undergone significant transformation driven by the rapid advancement of digital technologies. Technologies such as blockchain, the Internet of Things (IoT), and artificial intelligence (AI) have emerged as critical enablers, reshaping operational processes and enhancing overall performance. The digitalization of supply chains not only promises improved efficiency and responsiveness but also fosters innovation and resilience in an increasingly competitive global market. As businesses strive to leverage these technologies, understanding their implications becomes essential for both practitioners and researchers.

Despite the growing body of literature addressing digital technologies in supply chain management, there remains a notable gap in systematic literature reviews (SLRs) that comprehensively analyze this topic. While numerous studies have explored individual technologies or specific aspects of digitalization, a cohesive synthesis of empirical evidence is lacking. This gap presents a challenge for organizations seeking to make informed decisions regarding the adoption and implementation of digital solutions. The scarcity of systematic literature reviews focusing specifically on the digitalization of supply chains hinders a comprehensive understanding of the broader impacts and interconnections between various digital technologies and supply chain performance. Without such an examination of existing research, practitioners may struggle to identify best practices and critical factors influencing successful digital transformations.

The motivation behind this systematic literature review is to fill this void by analyzing existing research on the impact of digital technology adoption on supply chain performance. By consolidating and evaluating the findings from relevant studies, this review aims to provide valuable insights into the methodologies employed, the key themes addressed, and the overall state of knowledge in this field. The primary objective of this review is to identify and examine the critical factors influencing the digitalization of supply chains and their effects on operational performance. Through this analysis, we aim to contribute to a deeper understanding of the current landscape and to highlight future research directions. Ultimately, this study seeks to support both practitioners and scholars in navigating the complexities of digital transformation in supply chain management.

This paper addresses the topic of digital technology adoption in supply chain management, with the objective of conducting a systematic literature review (SLR) to evaluate its impact on operational performance. To achieve this, the article is structured as follows: the first section

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outlines the methodology and databases used for article selection; the second section presents the main results of the literature analysis; the third section discusses the key findings and their implications; and finally, the conclusion highlights future research directions.

1. Methods

1.1. Requests

In our research, we formulated two textual queries: ”Digitalization” and ”Supply Chain” as well as ”Digital Technologies” and ”Supply Chain.” These queries allowed us to collect a significant number of articles and brought us closer to the topic we wish to study. A well-crafted textual query is the key to successful and relevant research. To explain this query further, digitalization refers to the process of converting analog information into a digital format, which facilitates the integration of digital technologies into various processes and operations. It encompasses the use of digital technologies to improve, streamline, and innovate workflows and services. Digitalization transforms traditional business practices by enabling real-time data access, automation of tasks, and enhanced communication across various channels. This shift not only improves operational efficiency but also fosters new business models and opportunities for innovation. Digital technologies are the tools and systems that enable digitalization and include a wide range of innovations such as cloud computing, artificial intelligence (AI), the Internet of Things (IoT), big data analytics, and blockchain. These technologies provide organizations with the ability to collect, store, analyze, and leverage data in ways that enhance decision-making processes, improve customer experiences, and optimize supply chain operations. On the other hand, the supply chain is defined as the network of all entities involved in producing, delivering, and consuming a product, including suppliers, manufacturers, distributors, retailers, and customers. It encompasses the entire lifecycle of a product, from the sourcing of raw materials to the delivery of the final product to the end consumer. Effective supply chain management involves coordinating and integrating these various components to ensure efficiency, reduce costs, and enhance customer satisfaction. By utilizing this query, we can understand the relationship between these two concepts—digitalization and supply chain—and the impact each has on the other. Specifically, exploring how digital technologies facilitate the digitalization of supply chain processes can reveal insights into enhancing supply chain performance and resilience.

1.2. Scientific Data bases

Regarding the databases we utilized as resources, we employed two significant databases: Scopus and Web of Science. These databases are essential for our research as they allow us to

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collect a substantial number of articles. Scopus is a comprehensive abstract and citation database that covers a wide array of disciplines, offering access to a vast collection of peer-reviewed literature, conference proceedings, and patents. Its rigorous indexing and citation analysis capabilities are invaluable for tracking the impact of published works and ensuring the credibility of the research we incorporate. Similarly, Web of Science is a leading research database that provides access to high-quality scholarly content across various fields. It includes multiple citation indexes, enabling researchers to perform citation analysis and gauge the influence of articles within their respective domains. By leveraging these reputable databases, we ensured the relevance and quality of the articles we gathered for our systematic literature review. Utilizing Scopus and Web of Science not only facilitated a thorough exploration of existing literature but also helped us to identify key trends, methodologies, and gaps in the research on digitalization in supply chain management.

1.3. PRISMA

To systematically process and accurately quantify our references, we utilized the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) method, illustrated in the diagram below. PRISMA is a widely accepted framework that guides researchers in conducting systematic reviews and meta-analyses. The PRISMA methodology emphasizes transparency and reproducibility in research by providing a clear and structured approach to reporting the selection process of studies. It consists of a four-phase flow diagram, which includes:

1. Identification: This phase involves searching for relevant studies in databases, yielding an initial number of records identified through database searches and other sources.

2. Screening: In this phase, duplicates are removed, and the remaining studies are screened based on predetermined inclusion and exclusion criteria. This step ensures that only the most relevant articles are considered for further evaluation.

3. Eligibility: This phase involves a thorough review of the full texts of the remaining studies to determine their eligibility based on the set criteria. Studies that do not meet these criteria are excluded from the review.

4. Inclusion: Finally, the number of studies included in the systematic review is reported. This final count represents the articles that are deemed relevant and meet the research objectives.

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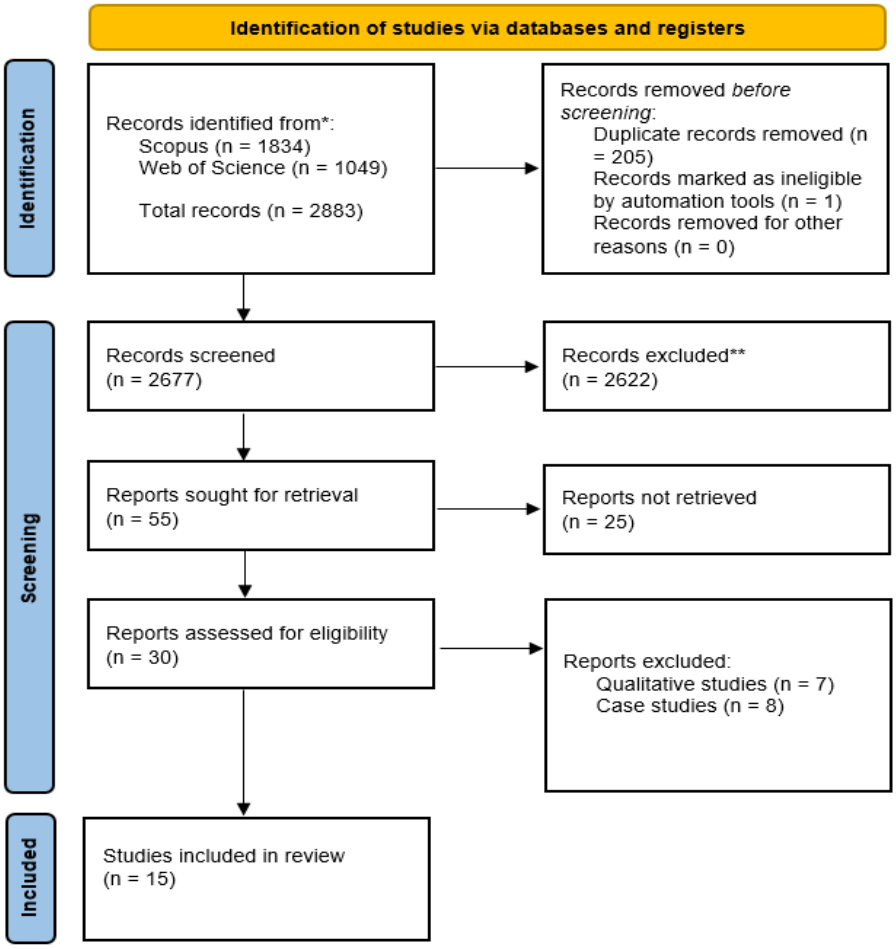
Figure N°1 : PRISMA 2020 flow diagram for new systematic reviews which included searches of databases and registers only



Source : Developed by the authors

By applying the PRISMA method, we ensured a rigorous and transparent selection process for our systematic literature review, allowing for a clear understanding of how we arrived at the final set of articles analyzed. Although the inclusion criteria focused on empirical studies using quantitative or structured mixed methods, two papers employing rigorous qualitative methodologies (i.e., a Delphi-based scenario study and a multiple case study) were retained due to their methodological clarity and relevance to the research objective.

1.4. Pre-processing Cleaning

In the pre-processing stage, we concentrated on cleaning the data collected from the selected articles to ensure that our analysis was based on high-quality and relevant information. This involved removing duplicates, irrelevant content, and inconsistencies, thereby enhancing the reliability of our findings. A key technique employed during this stage was the creation of a

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word cloud, which visually represents the frequency of words, highlighting commonly used terms. This tool is crucial for identifying prominent themes within the literature and allows us to easily discern patterns related to digitalization in supply chain management. Word clouds provide an immediate visual summary of the content, facilitating a quick understanding of key topics. They also help identify gaps in research, prompting further exploration of less prominent themes for future studies. Overall, the pre-processing cleaning step and the use of word clouds were vital for refining our dataset and enhancing our analytical process, contributing to a more comprehensive systematic literature review.

This word cloud presents the essential keywords of our research, allowing us to identify the topics already addressed by the authors in the results articles. Terms such as ”supply chain,” ”technologies,” ”digital,” and others indicate that we are on the right track.

Figure N°2 : Word cloud before cleaning

Source : Generated with NVivo

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Figure N° 3 : Word cloud after cleaning

Source : Generated with NVivo

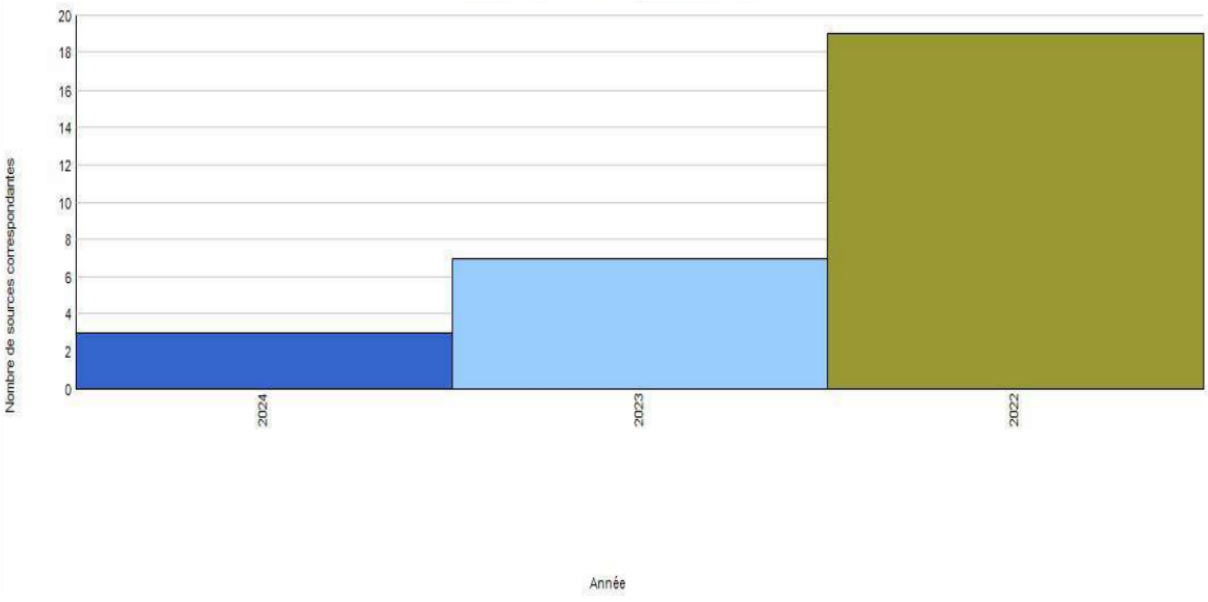
2. Results

2.1. Corpus Presentation

The corpus comprises 15 articles primarily employing quantitative methodologies, with a minority adopting mixed-method approaches. Key trends include the use of Structural Equation Modeling (SEM) for analyzing relationships and Delphi methods for expert consensus building.

2.1.1. Co-occurrence analysis

Figure N°4 : Reference: Year - Sources by Attribute Value



Source : Generated with VOSviewer

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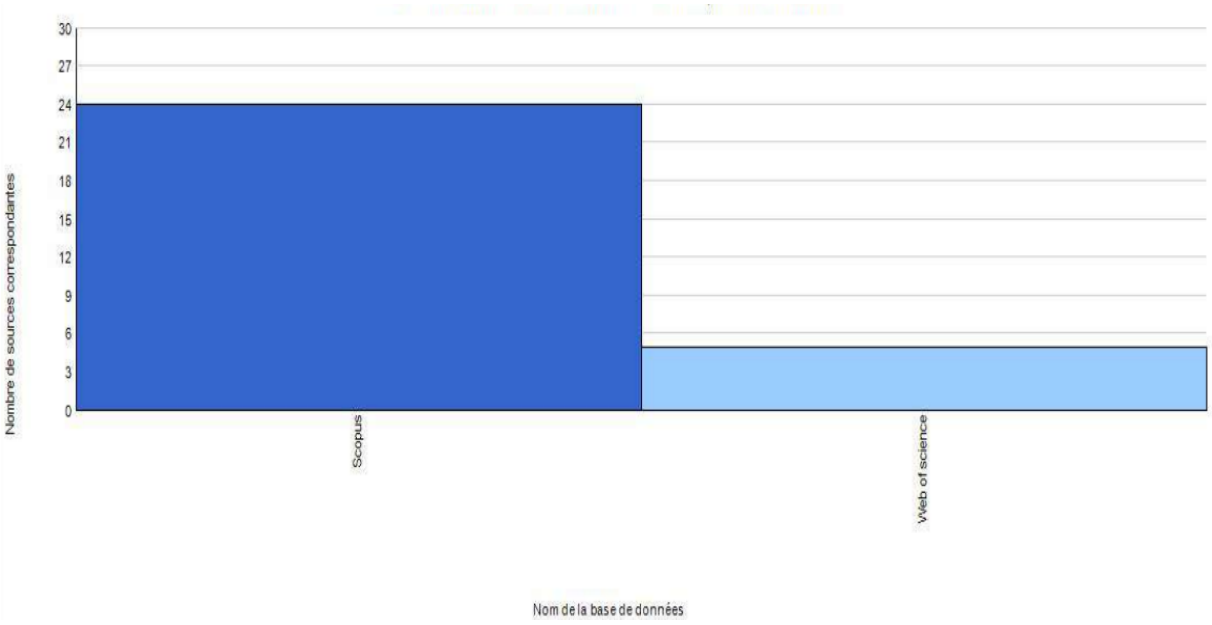
The objective of this graph is to identify the number of publications per year. It illustrates the trends in scientific output related to digital technologies in supply chain management over time. Notably, the graph indicates a substantial increase in publications in 2022, reflecting heightened interest and research activity in this area during that year. This surge could be attributed to the growing importance of digital transformation in supply chains, driven by factors such as technological advancements and the need for businesses to adapt to changing market conditions. In contrast, the graph reveals a sharp decline in the number of publications in 2024, indicating a potential decrease in research activity or interest in the subject. This decline could raise questions about the ongoing relevance of digital technologies in supply chain management or suggest that the field may be transitioning to new topics of research. Overall, this graph provides valuable insights into the research landscape, highlighting periods of increased focus and potential gaps in scholarly activity.

Figure N°5 : Reference : Database Name – Sources by Attribute Value



Source : Generated with VOSviewer

This graph allowed us to identify the number of publications by database. It shows that Scopus has a higher number of references related to our topic, while Web of Science has fewer. The significant difference in publication volume between the two databases indicates that Scopus may provide a more comprehensive collection of articles on the subject of digital technologies in supply chain management. This could be due to Scopus's broader coverage of journals, including those that focus on niche areas within the field. On the other hand, the lower number of references in Web of Science may suggest that it has a more selective approach to the journals

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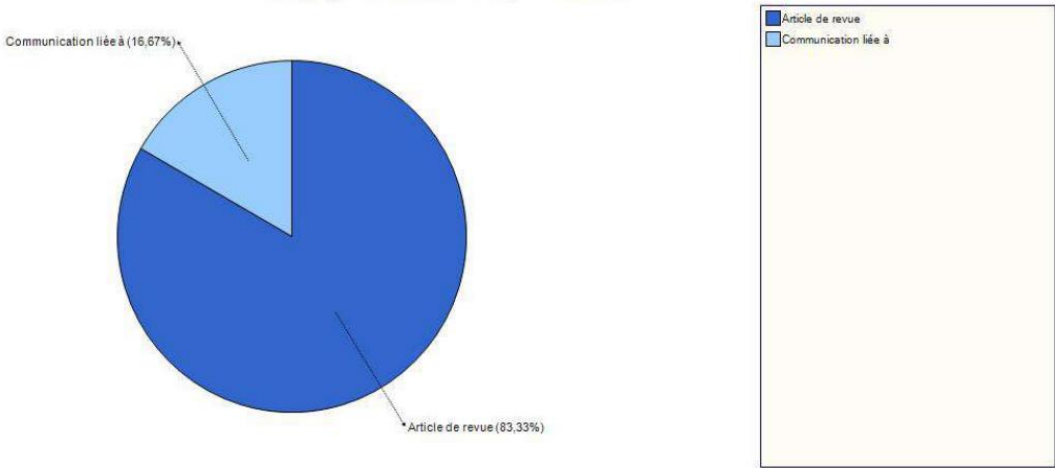
it indexes, potentially limiting the available literature. This disparity highlights the importance of choosing the right databases for research, as different databases may capture varying levels of scholarly output. The findings encourage researchers to consider multiple sources to ensure a thorough review of the literature on their topics of interest.

Figure N°6 : Reference: Type of Source – Sources by Attribute Value



Source : Generated with VOSviewer

This graph illustrates the number of publications on the subject of digitalization in supply chain management by type of reference, specifically distinguishing between journal articles and conference papers. The data indicates that journal articles comprise the majority of publications in this area, reflecting their significance in advancing academic discourse on digital technologies and their impact on supply chain performance. Journal articles typically undergo a rigorous peer- review process, ensuring the credibility and quality of the research presented. This makes them a preferred source for comprehensive studies and theoretical frameworks within the context of digitalization in supply chain management. In contrast, conference papers, while also valuable, tend to present preliminary findings or ongoing research projects to a specialized audience. The higher number of journal articles suggests a robust foundation of established research in this domain, which can serve as a basis for further exploration and development of digital technologies in supply chains. The predominance of peer-reviewed literature in this graph emphasizes the importance of journal articles in shaping the current landscape of research on digitalization in supply chains. This highlights the need for researchers and practitioners to prioritize these sources when seeking a deeper understanding of how digital

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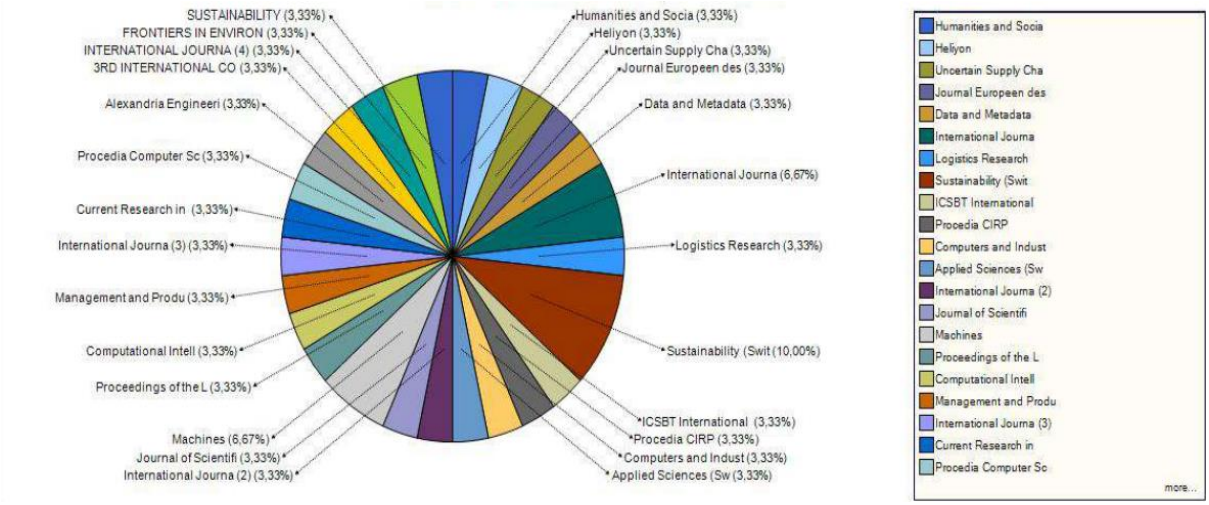
technologies can enhance supply chain performance. Overall, the findings underscore the critical role of academic research in informing best practices and strategies for leveraging digitalization in supply chain management.

Figure N°7 : Reference: Secondary Title – Sources by Attribute Value



Source : Generated with VOSviewer

This graph illustrates the journals with the highest and lowest number of publications related to digitalization in supply chain management. Among them, Sustainability stands out as the leading journal, having published a significant number of articles on this topic. The prominence of Sustainability in this field indicates its role as a critical platform for disseminating research that explores the intersection of digital technologies and sustainable practices in supply chains. This journal's focus on sustainability aligns well with the growing emphasis on environmentally friendly and socially responsible supply chain strategies. In contrast, other journals may show a lower publication rate in this area, suggesting that they either cover a broader range of topics or are less focused on the specific interplay between digitalization and supply chain management. The disparity in publication frequency among these journals highlights the importance of selecting relevant sources for research. The high volume of publications in Sustainability not only reflects the increasing interest in this subject but also underscores the need for ongoing exploration of how digital technologies can contribute to sustainable supply chain practices. Researchers and practitioners should consider this journal as a primary resource for gaining insights into the latest developments and innovations in the field.

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Figure N°8 : Percentage Distribution of Publications by Source Title

International Journal of Information Management Data Insights	3,33%
Journal of Scientific and Industrial Research	3,33%
Machines	6,67%
Proceedings of the LACCEI international Multi-conference for Engineering, Education and Technology	3,33%
Computational Intelligence and Neuroscience	3,33%
Management and Production Engineering Review	3,33%
International Journal of Intelligent Networks	3,33%
Current Research in Environmental Sustainability	3,33%
Procedia Computer Science	3,33%
Alexandria Engineering Journal	3,33%
3RD INTERNATIONAL CONFERENCE ON INDUSTRY 4.0 AND SMART MANUFACTURING	3,33%
INTERNATIONAL JOURNAL OF ASIAN BUSINESS AND INFORMATION MANAGEMENT	3,33%
FRONTIERS IN ENVIRONMENTAL SCIENCE	3,33%
SUSTAINABILITY	3,33%

Source : Generated with NVivo

This table is very important for identifying which journal is most aligned with our research for potential article submissions. It highlights the journals that focus on topics relevant to our study, such as digitalization and supply chain management. By analyzing the publication trends and thematic orientations of these journals, we can strategically select where to submit our work. Journals that consistently publish articles on digital technologies and supply chains are more likely to attract readership interested in our findings and insights. Additionally, understanding which journals are most active in this area helps us position our research within the broader academic discourse, ensuring that our contributions are relevant and impactful. Ultimately, this table serves as a valuable resource for guiding our publication strategy and enhancing the visibility of our research within the academic community.

For the journal that publishes the most, we will verify the indexing information using Scimagojr and the Web of Science's MLJ:

Figure N°9 : the indexing information of the most published journal

SDB	Journal	Indexé	H index	Coverage	Publisher	Domain	IF	N Citation	N Document	Self citation	Classification
scopus	Machines 20751702	Oui	34	2013 - 2023	Multidisciplinary Digital Publishing Institute (MDPI)	Computer Science (miscellaneaus) Control and Systems Engineering Electrical and Electronic Engineering Industrial and Manufacturing Engineering Mechanical Engineering	0.474	4533	1091	456	Q2
Web of science		Oui		2013 - 2023	MDPI, ST ALBAN-ANLAGE 66, BASEL, SWITZERLAND, CH-4052	Engineering, Mechanical | Engineering, Electrical & Electronic Mechanical Engineering Engineering	0.63				

Source : Scimagojr and the Web of Science's MLJ

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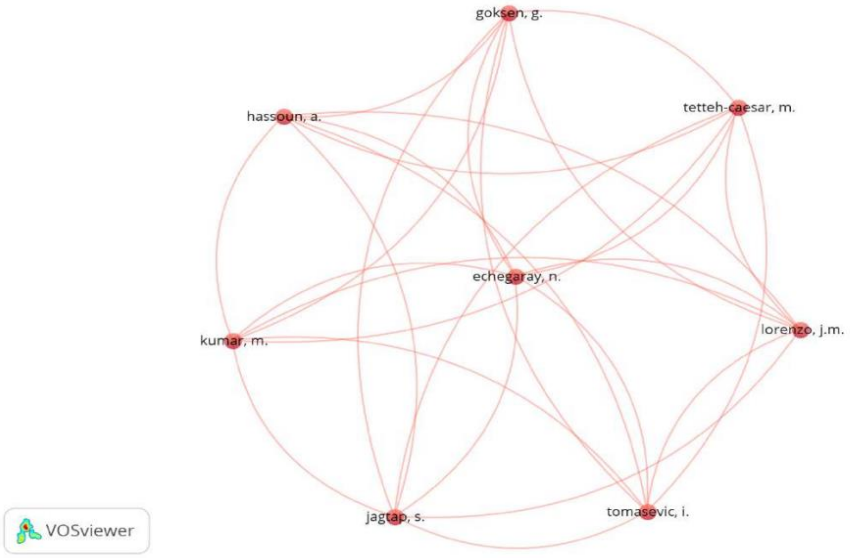
2.1.2. Co- autorship analysis

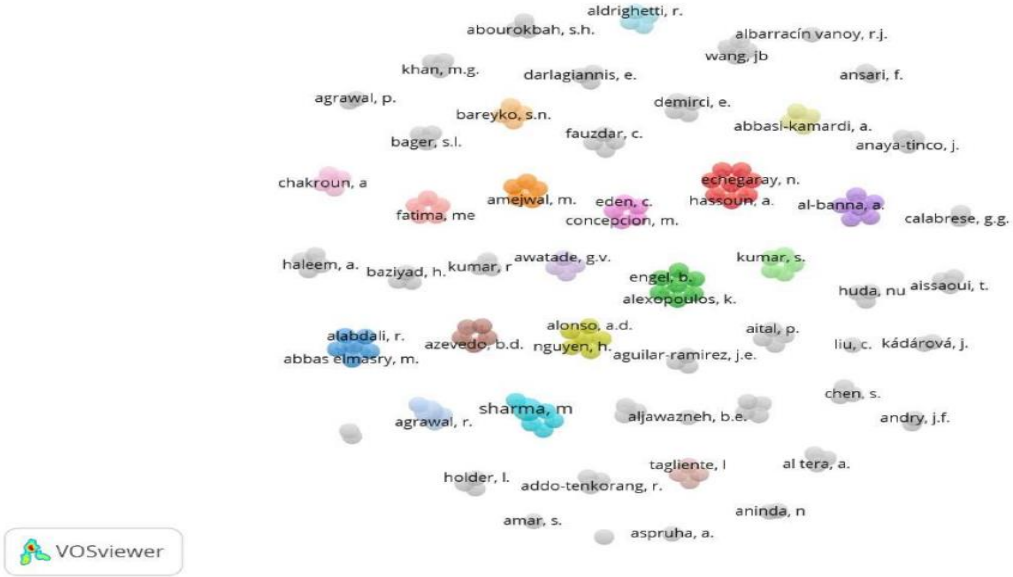
Figure N°10 : Diagram of Authors Who Collaborate Together



Source : Generated with VOSviewer

This diagram illustrates the network of authors who have collaborated on publications related to our research topic. It highlights clusters of researchers who work closely together, indicating potential research partnerships or collaborative efforts within the field. The size of each cluster may reflect the strength and frequency of collaboration, with more significant nodes representing more prolific partnerships. This kind of visualization can help identify key influencers or thought leaders in the domain and map out potential networks for future research.

Figure N°11 : Diagram of Authors Who Do Not Collaborate Together



Source : Generated with VOSviewer

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This diagram showcases authors who work independently or have not collaborated with others in the dataset. It highlights the diversity of individual research efforts within the field. The absence of collaboration could indicate a variety of factors, such as different research focuses, methodologies, or geographical isolation. Understanding these independent efforts is essential for recognizing gaps in the literature and identifying opportunities for future collaborations.

2.2. Descriptive statistics

The article ”Conceptual Awareness Levels of Digital Logistics Among Turkish University Students” by Adem Emre et al. explores the conceptual awareness levels of Turkish university students re- garding digital logistics. A quantitative approach was used to collect data through a questionnaire, revealing a limited understanding of digital logistics concepts and highlighting the need to improve educational programs. In”Supply Chain Digitalization and Performance: A Moderated Mediation of Supply Chain Visibility and Supply Chain Survivability,” Abdelwahab Al Tera and Ahmad Alzubi examine the impact of supply chain digitalization on performance, considering visibility and survivability. The quantitative approach based on structural equation modeling shows that digitalization enhances supply chain performance, mediated by visibility and resilience. In ”The Mediating Role of Supply Chain Digitization in the Relationship Between Supply Chain Agility and Operational Performance,” Bahjat Eid Aljawazneh investigates how supply chain digitization influences the relationship between agility and operational performance. Using a quantitative method, the author finds that digitization plays a significant mediating role, enhancing both agility and performance. The article by Johanes F. Andry titled ”Critical Factors of Supply Chain Based on Structural Equation Modelling for Industry 4.0” identifies critical factors for an effective supply chain within the framework of Industry 4.0. Through structural equation modeling, it highlights several key factors such as technological innovation and inter-company collaboration. Prakash Agrawal and Rakesh Narain, in their study ”Analysis of Enablers for the Digitalization of Supply Chain Using an Interpretive Structural Modelling Approach,” analyze the enablers of supply chain digitalization. The interpretive structural modeling approach used allows for the identification of elements such as technological infrastructure and personnel training as essential. The article on”Automated Trucks and the Future of Logistics: A Delphi-Based Scenario Study” examines the impact of automated trucks on the future of logistics. Based on a scenario study using the Delphi method, it suggests major transformations in logistics operations with implications for safety and efficiency. In ”Role of Absorptive Capacity, Digital Capability, Agility, and Resilience in Supply Chain Innovation Performance,” Safinaz H.

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Abourokbah et al. explore how absorptive capacity and other digital factors influence innovation in the supply chain. The empirical approach reveals that these capabilities play a crucial role in innovation and performance. Muhammad Gufran Khan presents a smart warehouse management system in ”Smart Warehouse Management System: Architecture, Real-Time Implementation, and Prototype Design.” This research, based on the design and implementation of a prototype, shows improvements in operational efficiency and inventory management. Shashank Kumar and Rakesh D. Raut, in their article ”Implementation Barriers of Smart Technology in Indian Sustainable Warehouse Using a Delphi-ISM-ANP Approach,” analyze the barriers to the implementation of smart technologies in sustainable warehouses in India. A Delphi method combined with analytic network process (ANP) allows for the identification of obstacles such as cost and lack of technical skills. In ”Bibliometric Analysis of Industry 4.0 in the Supply Chain: An Exploratory Approach,” Juan Anaya-Tinco et al. explore the evolution of research on Industry 4.0 in the context of supply chains, conducting a bibliometric analysis that shows exponential growth in publications, highlighting the increasing importance of the subject. The article ”Blockchain-Based Supply Chain System for Olive Fields Using WSNs” by Oussama Ghorbel et al. discusses the application of blockchain for supply chain management in olive fields. An approach based on wireless sensor networks (WSNs) indicates an improvement in traceability and operational efficiency. Laura Lachvajderov´a and Jaroslava K´ad´arov´a, in ”Industry 4.0 Implementation and Industry 5.0 Readiness in Industrial Enterprises,” examine the implementation of Industry 4.0 and readiness for Industry 5.0 in industrial enterprises. Their empirical study shows that many companies are lagging in the transition to Industry 5.0. Caihong Liu, with his article”Risk Prediction of Digital Transformation of Manufacturing Supply Chain Based on Principal Component Analysis and Backpropagation Artificial Neural Network,” focuses on predicting risks associated with the digital transformation of manufacturing supply chains. Using principal component analysis and a backpropagation artificial neural network, he identifies potential risks to improve supply chain management. Finally, the article”Supply Chain Digitalization and Operational Performance” by Niken Aninda and Etikah Karyani explores the link between supply chain digitalization and operational performance, with a quantitative method showing a positive correlation between digitalization and improved performance. In ”Resource-Based Theory Perspective in the Textile Industry: The Impact of the Digital Supply Chain on Operational Performance,” Feng Men et al. analyze the impact of digital supply chains on operational performance in the textile

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industry, revealing that optimizing digital resources is crucial for enhancing operational performance.

3. Discussion

This systematic literature review provides key insights into the adoption of digital technologies in supply chain management, based on a corpus of 15 empirical studies. The findings reveal a strong emphasis on digital transformation as a performance driver, supported by various methodological approaches, technological scopes, and contextual analyses.

While most of the selected studies employed structured quantitative methods, such as SEM, ANP, or descriptive statistical analyses, two studies followed rigorously designed qualitative approaches: one based on a structured Delphi protocol, and the other using a multiple case study applied to a supply chain context. Their inclusion was justified by their methodological rigor and strong alignment with the objectives of this review.

A significant portion of the studies adopt quantitative methodologies, particularly Structural Equation Modeling (SEM), to examine the relationships between digital technologies and supply chain performance. For instance, Al Tera et al. (2024) and Aljawazneh (2024) demonstrate how digitalization positively influences performance, with mediating variables such as visibility, survivability, and agility playing critical roles. Similarly, Andry & Gunawan (2023) explore critical success factors for Industry 4.0-enabled supply chains, identifying technological integration and inter-firm collaboration as major enablers of performance.

From a capabilities-based perspective, Abourokbah et al. (2023) show that absorptive capacity, digital capability, agility, and resilience significantly enhance supply chain innovation performance. These dynamic capabilities are crucial for adapting to rapid technological changes and disruptions. In the same vein, Agrawal & Narain (2023) use an Interpretive Structural Modelling (ISM) approach to identify enablers such as leadership commitment, IT infrastructure, and employee readiness as foundational to successful digital transformation.

The thematic scope of the reviewed literature covers both strategic and technological aspects. Anaya Tinco et al. (2022) conduct a bibliometric analysis revealing a growing concentration of research on Industry 4.0 technologies, underscoring the academic momentum behind digital transformation. This trend is reflected in sector-specific applications, such as the meat industry, where Echegaray et al. (2022) discuss how technologies like IoT and automation (Meat 4.0) improve traceability, safety, and productivity.

Emerging technologies, such as blockchain and WSNs, are explored by Ghorbel et al. (2022), who developed a blockchain-based system for olive field supply chains, enhancing

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transparency and operational efficiency. Similarly, Khan et al. (2022) propose a smart warehouse management system with real-time data integration, demonstrating practical improvements in inventory accuracy and responsiveness.

Simulation and AI-based approaches also appear in the literature. Liu (2022) applies principal component analysis and neural networks to model the risks of digital transformation in manufacturing supply chains, demonstrating how predictive analytics can support decision-making under uncertainty. Meanwhile, Jamwal et al. (2022) highlight the potential of deep learning to support sustainability in manufacturing, linking AI capabilities to Industry 4.0 outcomes.

Sustainability emerges as a transversal theme. Joshi & Sharma (2022) focus on the role of digital supply chains during the COVID-19 pandemic, showing that digital tools not only improve performance but also support resilience and sustainable operations. Similarly, Kehayov et al. (2022) demonstrate how artificial intelligence in procurement and manufacturing enhances efficiency and enables more responsive supply networks.

From an organizational change perspective, Kumar et al. (2022) identify key barriers to the adoption of smart technologies in sustainable warehouses, such as cost, lack of technical skills, and resistance to change. Their use of the Delphi-ISM-ANP approach offers a structured framework to prioritize interventions.

Finally, Lachvajderová & Kádárová (2022) investigate Industry 4.0 implementation and Industry 5.0 readiness in industrial enterprises. Their findings reveal a maturity gap, suggesting that while many companies are advancing digital initiatives, they are not yet fully prepared for the human-centric and sustainable dimensions of Industry 5.0.

Overall, this review confirms that digital technologies—ranging from blockchain, AI, IoT, and deep learning to smart systems—offer clear benefits for performance, visibility, agility, and sustainability in supply chains. However, the studies also highlight challenges related to organizational readiness, integration complexity, and long-term alignment with sustainability goals. Future research should focus on further understanding these barriers and investigate how digital maturity and technological adoption jointly shape supply chain resilience and innovation.

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Conclusion

This systematic literature review has illuminated the critical role of digital technologies in transforming supply chain management. By synthesizing findings from 15 selected articles, we have identified key themes such as the digitalization of supply chains, the advent of Industry 4.0, and the transformative impacts of technologies like blockchain, the Internet of Things (IoT), and artificial intelligence on supply chain performance. Our analysis underscores the predominance of quantitative methodologies, particularly Structural Equation Modeling (SEM), while also recognizing the need for qualitative insights to capture the nuances of organizational behavior in the face of digital transformation. Moreover, the incorporation of simulation studies demonstrates the potential for predictive analytics to inform decision-making processes within supply chains. Despite the considerable advancements documented in the literature, gaps remain, particularly regarding the long-term implications of digital technology adoption for sustainability within supply chains. As organizations increasingly pursue sustainable practices, further research is warranted to explore how digital solutions can support these goals effectively. In conclusion, this review not only contributes to a deeper understanding of the dynamics of digitalization in supply chains but also provides a foundation for future studies that can bridge the existing gaps. By fostering interdisciplinary research and collaboration, scholars and practitioners can better navigate the complexities of digital transformation, ultimately driving enhanced performance and sustainability in supply chain management.

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