

Advances in Supply Chain Coordination: A Bibliometric Review of Coordination Mechanisms, Technologies, and Emerging Trends

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Abstract

Purpose – Supply chain coordination is crucial to organizational performance and is a major challenge. This study performs a bibliometric review of SCC literature over the last 20 years, examining articles to determine coordination methods, problems, trends, and suggestions for improving supply chain performance.

Design/methodology/approach – A bibliometric analysis of 1997 publications from 2003 to 2023 was performed using VOSviewer for author, citation, and keyword co-occurrence visualization. A systematic review of highly cited SCC studies was used to determine coordination mechanisms in practice.

Findings – The research defines five coordination mechanisms: (1) Supply Chain Contracts, (2) Information Sharing, (3) Joint Decision-making, (4) Information Technology, and (5) Emerging Technologies. It discovers a large body of research on SCC but notes gaps in cross-industry implementation and the integration of new technologies.

Research limitations/implications - This study relies solely on the Web of Science Database for citation information, and some important research could be left out. Moreover, it provides one point of reference for researchers and experts for improved SCC.

Practical implications – Supply chain managers can learn from this research on coordination mechanisms and performance. It provides insights for future studies, especially to the service sector and consulting organizations embracing new technology.

Social implications – Improved coordination across supply chain networks will ensure maximum resource utilization, hence higher profitability and enhanced service reach., benefiting both the organizations and society.

Originality/value – The paper provides bibliometric insights on two decades' worth of SCC literature, concluding with common coordination mechanisms for supply chain performance. It is a guide for practitioners and scholars with prevailing trends and future research directions.

Keywords: Supply Chain Coordination, Bibliometric Analysis, VOS viewer, Coordination Mechanisms, Emerging Technologies, Supply Chain Performance

1. Introduction

Supply chain coordination (SCC) is vital for businesses and thus the need of quality research has been continuously increasing day-by-day, particularly as global markets and interconnectedness continue to grow. In today's competitive landscape, effective cooperation across logistics operations is crucial for organizational success. Coordination is commonly defined as the process through which channel partners—ranging from suppliers to end consumers—work together to achieve shared goals, ensuring smooth functioning across the

supply chain. The reciprocal relationships between these partners form the foundation for effective coordination, making it a focal point of supply chain management (SCM).

Despite the extensive research on supply chains and their interrelationships, there is a notable gap in high-quality studies that specifically address the coordination mechanisms within supply chains. Most existing studies examine supply networks and their relationships, but few provide a comprehensive understanding of the mechanisms that facilitate effective coordination. The article is an attempt to bridge the gap through a bibliometric literature analysis of the past 20 years of research on SCC, combining systematic literature review (SLR) with bibliometric analysis using VOSviewer software. Through this approach, we explore the development of coordination mechanisms in supply chains, identifying the key contributors, publications, and trends in the field. The significance of SCC is underscored by the growing body of literature, and the findings from this study suggest that the research on SCC is not only extensive but also continuously evolving. Other databases, similar to Web of Science (WoS), also contribute significantly to the understanding of the degree of integration, cooperation, and collaboration in supply chains. While keyword-based analysis presents challenges in linking variables to the full extent of their relevance for SCC, our investigation highlights the presence of multiple interconnected areas within the domain that warrant further exploration.

For effective coordination, it is crucial to align the processes, roles, and structures within the supply chain to its overall objectives. The supply chains are dynamic in nature, characterized with constant changes in demand-patterns, supply conditions, and technological advancements, presents significant challenges for efficient system coordination. Supply chain members must collaborate as a unified system, working together to enhance overall performance and deliver value to the customer. However, despite the acknowledgment of the importance of coordination, efforts to address this challenge have largely been fragmented, with studies often focusing on isolated functions rather than the coordination mechanisms in the supply chains.

The field of SCC research is not new, but the potential for further investigation remains vast. While coordination mechanisms are easier to document conceptually, their practical application presents ongoing challenges. Organizations continue to seek innovative solutions to improve coordination with their supply chain partners, but achieving effective coordination is far from straightforward. This paper, through its bibliometric analysis, seeks to provide a holistic understanding of the coordination mechanisms in supply chains, laying the groundwork for future research that can address the complexities of these processes in practice.

2. Theoretical Foundations & Scope of the Study

2.1 Supply Chain Coordination

Supply Chain Coordination (SCC) is a critical component of Supply Chain Management (SCM), encompassing the processes by which autonomous organizations within a supply chain synchronize their operations to achieve superior performance. The concept of coordination is well-established in academic literature, serving as the backbone for efficient operations across complex supply networks. Malone and Crowston (1994) define coordination as the management of interdependencies among participants, aimed at achieving shared objectives. Within SCM, this coordination is vital due to the intricate interdependencies among suppliers, manufacturers, distributors, and retailers, all of whom must work together to optimize the flow of goods, services, and information.

Mentzer et al. (2001) assert that effective SCM requires strategic oversight of the movement of goods, services, and information across the supply chain, from suppliers to the final consumer. Coordination in this context enables the seamless integration of these flows, reducing inefficiencies and enhancing responsiveness. As global competition intensifies due to factors like globalization and outsourcing, organizations are increasingly

required to adopt more integrated operations to remain competitive (Chopra & Meindl, 2003). This integrated approach fosters collaboration among supply chain partners, optimizing operations, reducing costs, and improving service delivery. The importance of SCC is also highlighted by various scholars who have sought to define and characterize its role in supply chains. Some of the popular definitions have been compile in Table.1 given below:-

Table.1: Supply Chain Coordination Definations (SCC)

SCC-Definitions	Author
"Effective supply chain coordination involves the integration of collaborative strategies, such as real-time data sharing and joint decision-making, to mitigate disruptions, optimize resource allocation, and improve overall network resilience."	Wang et al. (2020)
"The process of aligning goals, sharing resources, and coordinating activities across supply chain partners to collectively respond to market demands while minimizing risks and costs."	Yu et al. (2019)
"Supply chain coordination refers to managing interdependencies between various entities within the supply chain, ensuring that decisions are aligned across the network to reduce inefficiencies and enhance value creation."	Ivanov et al. (2018)
"Supply chain coordination is achieved by leveraging shared information and collaborative tools to integrate decision-making across all partners, resulting in improved service levels, reduced costs, and enhanced responsiveness."	Dubey et al. (2017)
"Coordination in supply chains entails the strategic alignment of processes and flows among multiple supply chain actors, focusing on joint planning and synchronized operations to optimize shared goals and improve performance."	Stadtler (2015)
"Supply chain coordination refers to aligning the decisions of supply chain members to optimize joint performance by sharing information, collaborating on forecasting, production, and distribution, and balancing conflicting interests."	Fayezi et al. (2012)
"Coordination can be achieved when the supply chain members jointly minimize the operating costs and share the benefits after jointly planning the production and scheduling policies"	Hill and Omar (2006)
"Where two or more parties in the supply chain jointly plan a number of promotional activities and work out synchronized forecasts, on the basis of which the production and replenishment processes are determined".	Larsen et al. (2003)
"Given the nature of the interdependencies between units, coordination is necessary prerequisite to integrate their operations to achieve the mutual goal of the supply chain as a whole as well as those of these units".	Simatupang et al. (2002)
"The ability of logistics function to integrate interrelated supply chain activities across different lines of organizational authority and responsibility".	Ballou et al. (2000)
"A particular degree of relationship among chain members as a means to share risks and rewards that result in higher business performance than would be achieved by the firms individually".	Lambert et al. (1999)

Source: Compiled by Authors

Hence, it is appropriate to say, *“supply chain coordination is a systematic process bringing the supply chain members together for joint planning, forecasting and replenishments of the orders through the supply chains, and sharing of the information, resources, risks & rewards among the members towards achieving greater supply chain performances.”*

These definitions collectively emphasize that SCC is not merely a logistical process but a strategic alignment of objectives and resources aimed at optimizing performance of entire supply-chain network. Therefore, its

essential for supply-chain members to integrate their operations, share critical information, and align their objectives to achieve mutual success.

2.2 Scope of the Study and Contribution

This article offers an extensive-bibliometric analysis w.r.t last twenty-years of research on *Supply Chain Coordination* (SCC), sourced from Web-of-Science (WoS) databases. While significant research is done in the broader field of *Supply-Chain-Management* (SCM) and related topics such as coordination, cooperation, collaboration, sustainable-SCM, green-technologies, and closed loop supply chains, limited work has specifically focused on SCC. Although bibliometric studies have been conducted on SCM topics – *supply-chain-integration* and *Internet-of-Things* in supply chains, few studies have concentrated exclusively on SCC & Coordination-mechanisms using VOSviewer. Notably, a recent bibliometric analysis covering the years 2005 to 2020 used CiteSpace software (published in 2022), but to the best of our knowledge, no recent analysis has comprehensively covered the last two decades of literature on SCC, particularly using VOSviewer software.

The novel contributions of this paper are outlined below:

- ❖ This study provides an in-depth bibliometric review of SCC research spanning the past two decades, offering insights into key contributors, trends, and patterns in the field.
- ❖ This study applies VOSviewer, a sophisticated bibliometric software tool, to analyse SCC literature drawn from the WoS database, focusing on 1,997 published articles from 2003 to 2023. The analysis covers various types of publications, including 1,896 journal articles, 92 review articles, 65 early access papers, 9 editorial materials, and 2 book chapters, representing a comprehensive overview of the academic contributions to SCC.
- ❖ By utilizing network visualization through VOSviewer, the present study identifies the prominent researchers, researches, and journals in SCC research in the past two decades. This includes examining their publication patterns, citation counts, and contributions to the field.
- ❖ The study also identifies the most critical factors driving SCC research, based on co-occurring keyword and citation analyses, providing a visual representation of the emerging themes and topics that have shaped the field.

3. Methodology and classification

3.1 Research Questions

The focus area of this analysis is to attempt in answering following research questions (RQs) related to the evolution and future potential of SCC by examining literature from the past two decades using VOSviewer:-

RQ-1. How has research on Supply Chain Coordination (SCC) evolved in last two decades?

The volume of publications in this field reveals the growth trajectory of the subject area. Yearly data were gathered from the Web of Science database to analyse trends in supply chain coordination.

RQ-2. Which authors, organizations, and countries play a leading role in contributing to the field of supply chain coordination (SCC)?

Insights into prolific contributors assist researchers in strengthening their expertise through collaborations. This can be analysed by examining factors such as the number of publications, citations per document, and bibliometric coupling. Leading contributors serve as a valuable resource, guiding researchers and deepening their understanding of the subject area.

RQ-3. What are the most highly cited documents on the supply chain coordination?

The most impactful research in this field provides valuable insights into current research trends. This can be assessed through citation analysis, citations per document, and bibliometric coupling with other studies, authors, organizations, and countries. Therefore, identifying these key research papers is crucial in bibliometric analysis.

RQ-4. What are the current research themes in the literature on supply chain coordination?

The prevailing themes in existing literature assist researchers in identifying key areas within the field while also minimizing research redundancy.

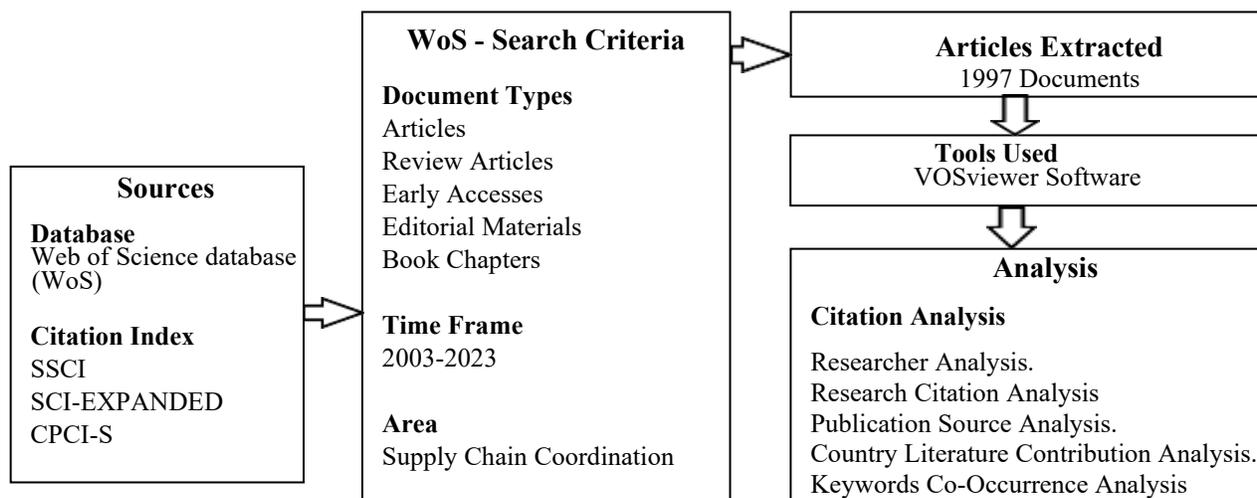
RQ-5. What are the potential future research directions in supply chain coordination?

Future research directions in the field open opportunities for expanding subject areas. They help identify research gaps and provide insights into the implications of findings for upcoming studies.

3.2 Research Methodology

For bibliometric analysis, a dataset of 1,997 articles published between 2003 and 2022 (with additional early access articles for 2024) was sourced from the Web of Science (WoS) database. The research team began by extracting and examining bibliometric data to track the development of published research over the years, using the Web of Science citation report to visualize trends and patterns. The full WoS database was downloaded by September 2022 to ensure the most up-to-date data for this analysis. The search was conducted using a broad filter for the term "supply chain coordination," encompassing all fields and categories available in the WoS database. The analysis focused exclusively on publications from three key WoS indexes: Science-Citation-Index-Expanded (SCIEXPANDED), Conference-Proceedings-Citation-Index-Science (CPCI-S), and Social-Science-Citation-Index (SSCI). The dataset also included 65 early access articles, which are currently under review and are expected to be published in 2024. The **Figure No.1** below provides a detailed illustration of the unified process flow used to conduct the analysis for this study, offering a clear overview of the methodology applied to track and assess the research trends within the domain of supply-chain coordination.

Figure 1: Bibliometric Analysis - Process Schematics



Source: Authors own work

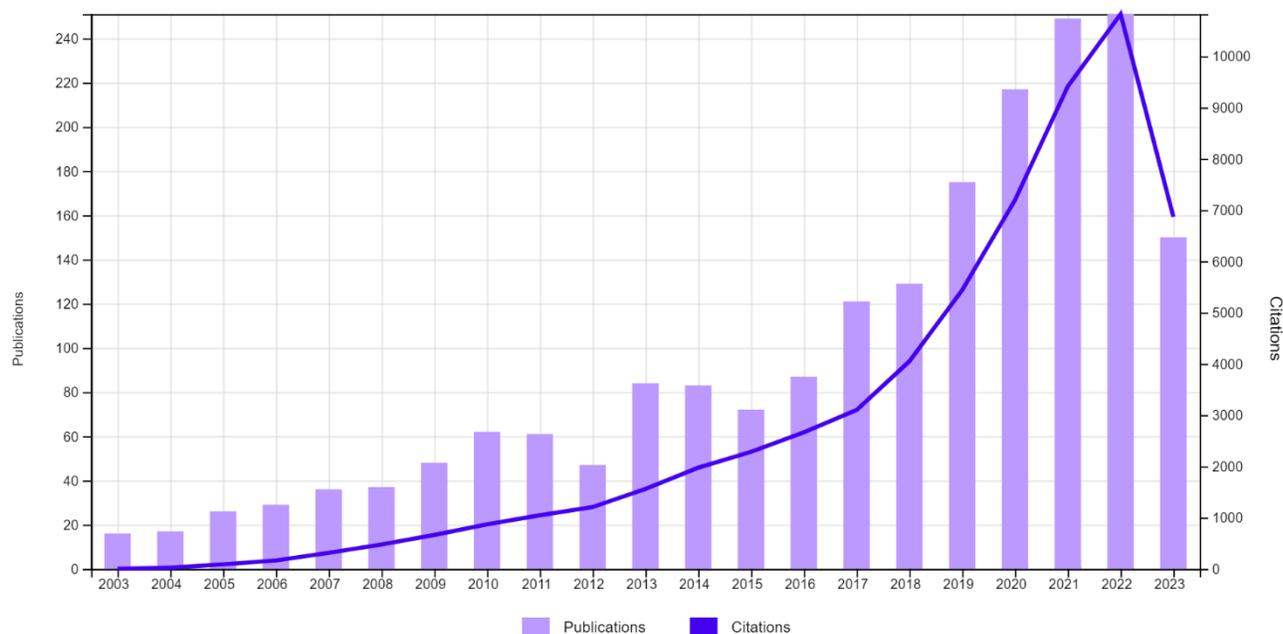
For bibliometric analysis in this study, VOSviewer software was utilized, a robust tool designed for visualizing and analysing bibliographic data through network diagrams. VOSviewer facilitates the examination of the parameters discovered from the database, including citations, bibliographies, and keywords, offering a comprehensive overview of research patterns. The software generates network diagrams that illustrate the relationships between different entities in the dataset, such as authors, keywords, and publications. The strength of these connections is determined by the level of commonality between the linked entities. For example, if two entities share a common research focus, co-authorship, or citation patterns, their connection in the network is stronger. The analysis includes co-occurrence and citation analysis of the keywords, researchers, journal sources, number of documents and role of countries across the 1,997 articles from the WoS database. This network visualization not only helped identify key trends and patterns but also highlighted the significant contributors and their interconnections. “Version 1.6.19” of VOSviewer, released in January, 2023, was used for this analysis which can be downloaded from the official VOSviewer website.

4. Analysis

4.1 Development Trend Analysis

The volume of journal papers published on a particular topic indicates its significance, research potential, business needs and overall contribution of the research to the academic field. Fluctuations in the number of published papers reflect shifts in the scientific focus and the growing attention toward a specific area of study. As the body of knowledge expands, it is often mirrored by an increase in the number of publications. The growth trajectory of SCC as a research domain is evident, with a notable rise in both the number of published articles and the frequency of citations to those papers. This trend is illustrated in **Figure No. 2**, which is sourced from the Web of Science citation report, highlighting the progression of SCC research over the past two decades.

Figure 2: Publications Over Time & their Citations Trends



Source: Web of Science Citation Report - Times Cited and Publications Over Time

As a result, it is anticipated that SCC's significance among scholars and organisations will continue to grow in the years to come.

4.2 Bibliometric Analysis

Bibliographic analysis is a well-established and rigorous technique for evaluating large volumes of scientific data. It serves as a method for exploring and analysing the research landscape in a given field. According to Cancino et al. (2017), bibliometric analysis provides a concise overview of the knowledge base, summarizing key research findings and trends. It involves examining books, journals, and other scholarly publications, drawing conclusions based on factual data. Bibliometrics has gained popularity as a comprehensive method for identifying and assessing substantial collections of research literature (Fang et al., 2022). As noted by Asgari et al. (2017), bibliometric techniques offer structured analysis of published researches along with facilitating research inquiries, identifying emerging trends, and pinpoint influential studies. Moreover, bibliometric analysis utilizes graphical methods to visualize data, enhancing the interpretation of research dynamics.

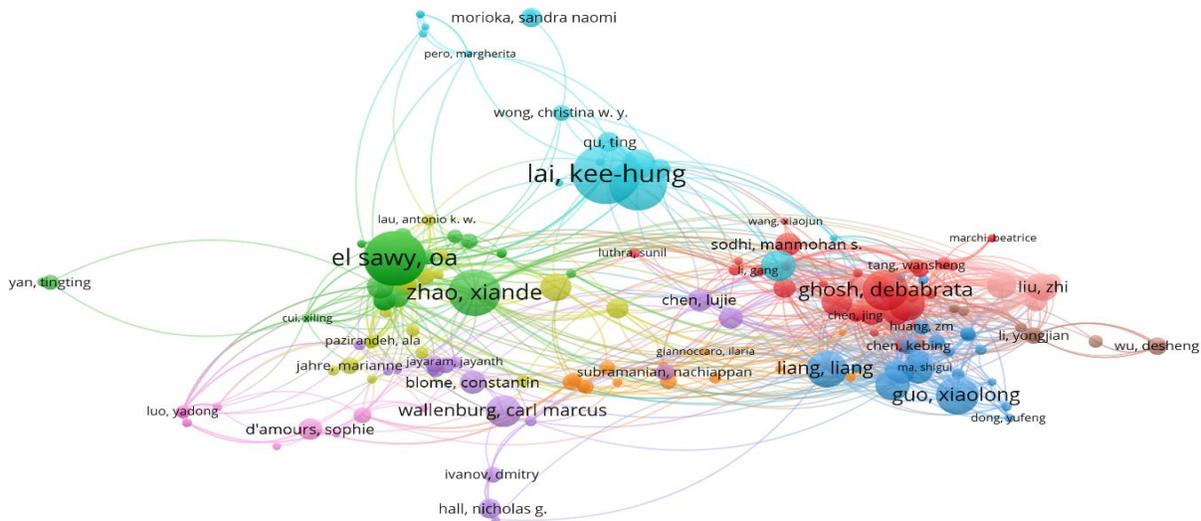
In this study, the bibliometric analysis focuses on the Web-of-Science (WoS) database, employing the following types of analysis:

1. **Researcher Analysis.**
2. **Research Citation Analysis.**
3. **Publication Source Analysis.**
4. **Country-Literature Contribution Analysis.**
5. **Keyword Co-Occurrence Analysis.**

4.2.1 Researcher Analysis

The 1997 research papers extracted from the WoS database involved contributions from 5230 authors, irrespective of their citation counts. A set of filters was applied to refine the analysis. Specifically, the analysis focused on authors who had published at least two documents and accumulated a minimum of 100 citations. After applying these filters, 207 authors were selected from the original 5230. Among these 207 authors, 182 were identified based on their network link strengths, as illustrated in **Figure 3**. The VOSviewer network visualization map reveals that the author with the highest number of citations is Lai, Kee-Hung, with 888 citations (represented by a sky-blue circle). The second-highest citations were held by El Sawy, OA, Gosain, S, and Malhotra, A, each with 801 citations. Zhu, Qinghua ranked third with 754 citations. In terms of the highest number of published articles, the distribution shows a different trend. Huo, Baofeng emerged as the most prolific author, with 14 published articles. Following closely were Zhao, Xiande (with 12 articles) and He, Yong (with 11 articles). Notably, the top 20 authors collectively contributed to 8.16% of the total 1997 articles published in last twenty-years. Further exploring the contributions, the analysis categorized the top 100 authors based on their combined impact in the field of SCC. This ranking was determined by both the number of citations and the volume of published works. **Table No. 2** provides an overview of the top 20 researchers, highlighting their citations for individual researches & overall citations with highest number of publications on SCC.

Figure 3: Top Twenty most Cited Researchers



Source: Authors own work using VOSviewer software

Table.2: Top twenty Authors with highest citations & most published papers in the domain.

Rank	Author	Documents	Citations	Rank	Author	Documents	Citations
1	“Lai, Kee-Hung”	6	888	1	“Huo, Baofeng”	14	339
2	“El Sawy, Oa”	2	801	2	“Zhao, Xiande”	12	688
3	“Gosain, S”	2	801	3	“He, Yong”	11	292
4	“Malhotra, A”	2	801	4	“Choi, Tsan-Ming”	10	279
5	“Zhu, Qinghua”	4	754	5	“Gou, Qinglong”	10	444
6	“Zhao, Xiande”	12	688	6	“Liang, Liang”	9	526
7	“Ghosh, Debabrata”	4	584	7	“Jia, Fu”	8	303
8	“Guo, Xiaolong”	6	554	8	“Rasti-Barzoki, Morteza”	8	335
9	“Liang, Liang”	9	526	9	“Wang, Chuanxu”	8	243
10	“Monostori, L.”	2	519	10	“Cheng, T. C. E.”	7	445
11	“Vancza, J.”	2	519	11	“Govindan, Kannan”	7	153
12	“Heydari, Jafar”	7	465	12	“Heydari, Jafar”	7	465
13	“Wallenburg, Carl Marcus:	2	461	13	“Hua, Zhongsheng”	7	284
14	“Cheng, T. C. E.”	7	445	14	“Huang, George Q.”	7	123
15	“Gou, Qinglong”	10	444	15	“Liu, Weihua”	7	169
16	“Geng, Yong”	2	415	16	“Liu, Zhi”	7	371
17	“Sarkis, Joseph”	3	398	17	“D'amours, Sophie”	6	307
18	“Zhang, Juan”	6	382	18	“De Giovanni, Pietro”	6	323
19	“Hong, Zhaofu”	2	382	19	“Guo, Xiaolong”	6	554
20	“Sheu, Jiuh-Biing”	5	373	20	“Hafezalkotob, Ashkan”	6	109

Source: Authors own work using VOSviewer software

**Table 3: Top Research Publication Analysis –
(top high impact articles in previous two decades and their concise report)**

Rank	Authors	Cited	Publication Title	Journal/ Source	Keywords	Publisher	Coordination Problem	Coordination Mechanism	Methodology	Performance Measure
1	Frank, Alejandro German; Dalenogare, Lucas Santos; Ayala, Nestor Fabian (2019)	976	Industry 4.0 technologies: Implementation patterns in manufacturing companies	International Journal of Production Economics	Industry 4.0; Smart Manufacturing; digital transformation; manufacturing companies	Elsevier	Industry 4.0 adoption patterns	Conceptual framework (front-end and base technologies)	Survey	Adoption levels of front-end and base technologies
2	Benjaafar, Saif; Li, Yanzhi; Daskin, Mark (2013)	765	Carbon Footprint and the Management of Supply Chains: Insights From Simple Models	IEEE Transactions on Automation Science And Engineering	Carbon emissions; carbon footprint; climate control; environmental policy; operations models; supply chain collaboration and coordination	IEEE-Inst Electrical Electronics Engineers Inc	Carbon emission integration	Operational decision-making models	-	Impact of carbon reduction on cost and emissions
3	Malhotra, A; Gosain, S; El Sawy, OA (2005)	562	Absorptive capacity configurations in supply chains: Gearing for partner-enabled market knowledge creation	MIS Quarterly	knowledge management; supply chain; absorptive capacity; interorganizational information systems; configuration approaches; rich information; process modularity	Soc Inform Manage-Mis Res Cent	Value innovation in supply chains	Information sharing and knowledge creation	Absorptive capacity lens, cluster analysis	Partner-enabled market knowledge creation and operational efficiency
4	Kulp, SC; Lee, HL; Ofek, E (2004)	520	Manufacturer benefits from information integration with retail customers	Management Science	supply chain management; information integration; collaboration	Inst Operations Research Management Sciences	Information integration between manufacturers and retailers	Conceptual framework	Empirical survey	Impact of integration techniques on manufacturer profitability
5	Ghosh, Debabrata; Shah, Janat (2015)	507	Supply chain analysis under green sensitive consumer demand and cost sharing contract	International Journal of Production Economics	Green supply chains; Cost sharing contract; Channel coordination; Game theory	Elsevier	Green supply chain initiatives	Cost sharing contract	Game theoretic approach	Influence on product greening levels, prices, and profits

6	Balcik, Burcu; Beamon, Benita M.; Krejci, Caroline C.; Muramatsu, Kyle M.; Ramirez, Magaly (2010)	493	Coordination in humanitarian relief chains: Practices, challenges and opportunities	International Journal of Production Economics	Coordination; Cooperation; Relief chains; Humanitarian logistics; Disasters	Elsevier	Coordination in humanitarian relief chains	Coordination practices in disaster relief	-	Challenges in coordination and evaluation of coordination practices
7	Golicic, Susan L.; Smith, Carlo D. (2013)	433	A Meta-Analysis of Environmentally Sustainable Supply Chain Management Practices and Firm Performance	Journal of Supply Chain Management	environmental sustainability; supply chain management; firm performance; meta-analysis	Wiley	Environmental sustainability in supply chain management	Meta-analysis of over 20 years of research	Meta-analysis	Link between environmental supply chain practices and firm performance
8	Wieland, Andreas; Wallenburg, Carl Marcus (2013)	433	The influence of relational competencies on supply chain resilience: a relational view	International Journal of Physical Distribution & Logistics Management	Relational competencies; Supply chain management; Risk management; Supply chain resilience; Supply chain agility; Supply chain robustness	Emerald Group Publishing Ltd	Resilience in supply chain management	Relational competencies, resilience, and customer value	Survey data, structural equation modelling	Effects of communicative, cooperative, and integrative relationships on resilience and customer value
9	Monostori, L.; Vancza, J.; Kumara, S. R. T. (2006)	418	Agent-based systems for manufacturing	CIRP Annals-Manufacturing Technology	agent; multi-agent systems; manufacturing	Elsevier	Agent-based computation in manufacturing	Agent technologies in manufacturing	Comprehensive survey	Potential applications and benefits of agent technologies in manufacturing
10	Hong, Zhaofu; Guo, Xiaolong (2019)	370	Green product supply chain contracts considering environmental responsibilities	Omega-International Journal of Management Science	Sustainable supply chain management; Channel coordination; Environmental responsibilities; Green product design; Green marketing	Pergamon-Elsevier Science Ltd	Cooperation contracts in green product supply chain	Price-only, green-marketing cost-sharing, and two-part tariff contracts	Analytical modelling	Environmental performance of supply chain under different cooperation contracts

11	Swami, S.; Shah, J. (2013)	338	Channel coordination in green supply chain management	Journal of The Operational Research Society	distribution; channel integration; green supply chain management; supply chain coordination; environment	Taylor & Francis Ltd	Coordination in Greening of operations in a supply chain.	Wholesale Price, Retail Price and Greening Effort,	-	Optimal Greening Efforts & the green sensitivity ratios and greening cost ratios.
12	Zhu, Qinghua; Sarkis, Joseph; Lai, Kee-hung (2012)	335	Examining the effects of green supply chain management practices and their mediations on performance improvements	International Journal of Production Research	environmental management; supply chain management; coordination theory; mediation; organisational performance; operations strategy	Taylor & Francis Ltd	Green supply chain management (GSCM)	Coordination theory	Survey data, mediation analysis	Environmental, economic, and operational performance
13	Shen, Weiming; Hao, Qi; Yoon, Hyun Joong; Norrie, Douglas H. (2006)	335	Applications of agent-based systems in intelligent manufacturing: An updated review	Advanced Engineering Informatics	agents; multi-agent systems; intelligent manufacturing; distributed manufacturing systems	Elsevier Sci Ltd	Agent technology in manufacturing	Agent technology application	Review	Achievements and key issues in agent-based manufacturing systems
14	Bloom, David E.; Cadarette, Daniel (2019)	331	Infectious Disease Threats in the Twenty-First Century: Strengthening the Global Response	Frontiers In Immunology	global health; global health systems; infectious disease; outbreak; epidemic; pandemic; antimicrobial resistance (AMR); pandemic preparedness and response	Frontiers Media Sa	Global health system coordination	Coordination practices in global health system	-	Effectiveness of the global health system against infectious disease threats
15	Xu, Xiaoping; He, Ping; Xu, Hao; Zhang, Quanpeng (2017)	326	Supply chain coordination with green technology under cap-and-trade regulation	International Journal of Production Economics	Cap-and-trade; Production; Green technology; Supply chain coordination; Wholesale price contract; Cost sharing contract	Elsevier	Cap-and-trade regulation in supply chain	Cap-and-trade regulation	Analytical modelling	Production, emission abatement, and cost-sharing contracts under cap-and-trade regulation

16	Hall, NG; Potts, CN (2003)	306	Supply chain scheduling: Batching and delivery	Operations Research		Inst Operations Research Management Sciences	Coordinated decision making in supply chain scheduling	Cooperative decision making	Dynamic programming algorithms, intractability analysis	Overall scheduling and delivery cost minimization
17	Wu, Ing-Long; Chuang, Cheng-Hung; Hsu, Chien-Hua (2014)	305	Information sharing and collaborative behaviours in enabling supply chain performance: A social exchange perspective	International Journal of Production Economics	Supply chain management; Social exchange theory; Information sharing; Collaboration; Supply chain performance	Elsevier Science BV	Social exchange theory in supply chain	SET-based variables	Empirical study	Relationships among trust, commitment, reciprocity, power, information sharing, collaboration, and supply chain performance
18	Zhu, Qinghua; Geng, Yong; Lai, Kee-hung (2010)	296	Circular economy practices among Chinese manufacturers varying in environmental-oriented supply chain cooperation and the performance implications	Journal of Environmental Management	Environmental-oriented supply chain; cooperation; Chinese manufacturers; Circular economy; Empirical study; Performance	Academic Press Ltd-Elsevier Science Ltd	Circular economy and environmental-oriented supply chain cooperation (ESCC)	ESCC and circular economy	Cluster analysis, MANOVA	Implementation of circular economy practices and environmental-economic performance
19	Hastig, Gabriella M.; Sodhi, ManMohan S. (2020)	292	Blockchain for Supply Chain Traceability: Business Requirements and Critical Success Factors	Production And Operations Management	supply chain traceability systems; blockchain; thematic analysis; stakeholders; business requirements; critical success factors	Wiley	Supply chain traceability systems	Traceability system implementation	Thematic analysis	Business requirements and critical success factors for implementing traceability systems
20	Chen, Lujie; Zhao, Xiande; Tang, Ou; Price, Lydia; Zhang, Shanshan; Zhu, Wenwen (2017)	292	Supply chain collaboration for sustainability: A literature review and future research agenda	International Journal of Production Economics	Literature review; Triangulation technique; Sustainability; Supply chain collaboration	Elsevier	Sustainability collaboration in supply chain	Sustainability collaboration	Systematic literature review, bibliometric analysis	Links between sustainability collaboration and economic, environmental, and social performance”

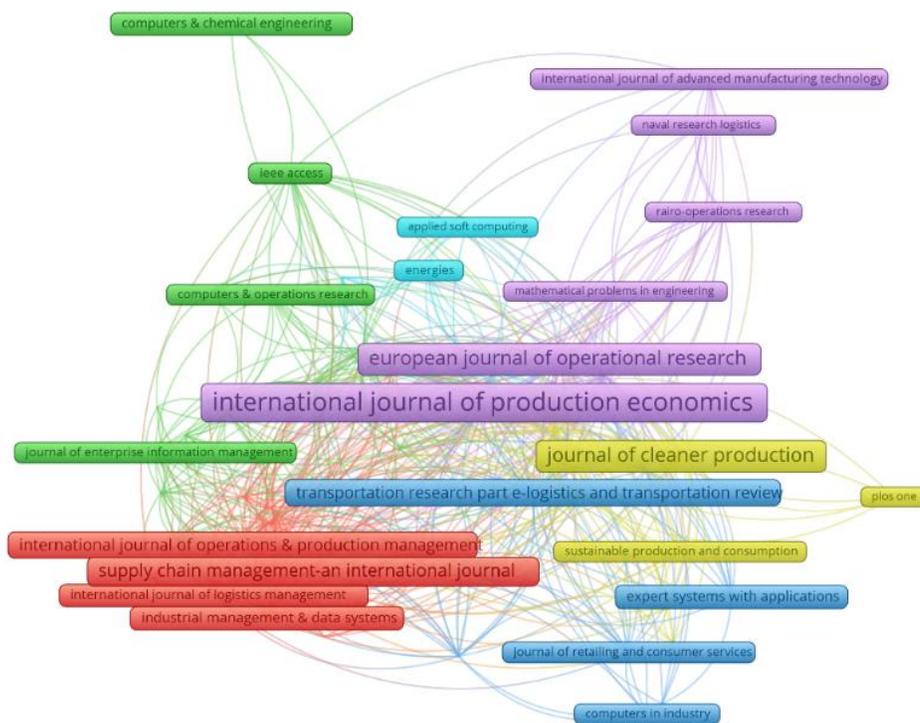
Source: Compiled by Author

4.2.3 Publication Source Analysis

Further, an analysis was conducted on the bibliographic-network of journals publishing the SCC researches among the 1997 articles picked from the WoS database. For this analysis, ‘citation’ was taken as the type of analysis, and the unit as ‘sources. To refine the results, the network was filtered to include only sources that had a minimum of five documents and at least 100 citations. This approach led to the identification of 54 sources from a total of 443, meeting the specified criteria. Among these sources, the “*International Journal of Production Economics*” emerged as the top-most journal, contributing 147 papers with a total of 8,908 citations. This journal’s dominance in the field reflects its significant impact on Supply Chain Coordination research. Following closely behind is the “*European Journal of Operational Research* and the *Journal of Cleaner Production*”, with 79 documents and 3,914 citations, and 65 documents and 3,383 citations, respectively. These journals play a pivotal role in advancing research in this domain.

Other notable contributors include “*Sustainability*” and the “*International Journal of Production Research*”, with 119 and 87 documents, respectively. These journals secured second & third ranks respectively based on the number of publications in SCC. Collectively, the top 20 journals account for 48.52% of all publications in the SCC field within the studied database, highlighting their central role in shaping the direction of research. **Table No. 4 and Table No. 5** provides a list of the top-twenty journals, categorized based on the highest number of publications and citations. A network visualization map of these journals is shown in **Figure. 5**, offering a visual representation of the interconnectedness and influence of these key sources in the SCC research landscape. This analysis not only showcases the leading journals in the field but also provides insights into the academic discourse driving the evolution of SCC research.

Figure 5: Top Twenty Publication Source Analysis



Source: Authors own work using VOSviewer software

Table. 4: Top Twenty Most Cited Publication Source Analysis

“Rank	Source	Documents	Citations
1	International Journal Of Production Economics	147	8908
2	European Journal Of Operational Research	79	3914
3	Journal Of Cleaner Production	65	3383
4	International Journal Of Production Research	87	3134
5	Supply Chain Management-An International Journal	51	2314
6	Computers & Industrial Engineering	72	1764
7	International Journal Of Operations & Production Management	34	1645
8	Transportation Research Part E-Logistics And Transportation Review	37	1501
9	Journal Of Operations Management	16	1474
10	Omega-International Journal Of Management Science	18	1426
11	International Journal Of Physical Distribution & Logistics Management	18	1405
12	Production And Operations Management	25	1092
13	Sustainability	119	1071
14	Journal Of Supply Chain Management	12	953
15	Management Science	7	858
16	Production Planning & Control	34	789
17	Journal Of The Operational Research Society	24	743
18	Journal Of Management Information Systems	7	687
19	Industrial Management & Data Systems	35	672
20	Decision Sciences	14	585

Table. 5: Top Twenty Sources with highest Number of Publications

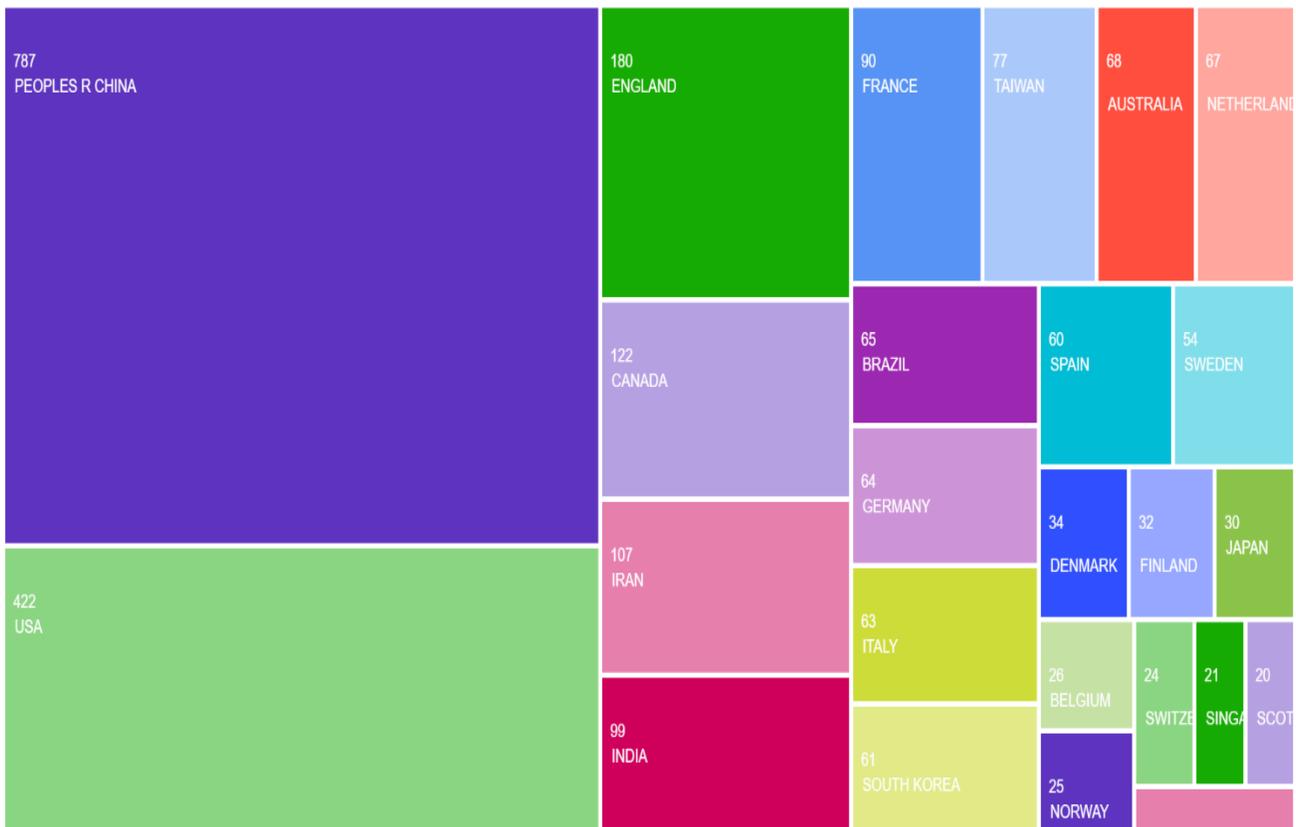
Rank	Source	Documents	Citations
1	International Journal Of Production Economics	147	8908
2	Sustainability	119	1071
3	International Journal Of Production Research	87	3134
4	European Journal Of Operational Research	79	3914
5	Computers & Industrial Engineering	72	1764
6	Journal Of Cleaner Production	65	3383
7	Supply Chain Management-An International Journal	51	2314
8	Transportation Research Part E-Logistics And Transportation Review	37	1501
9	Annals Of Operations Research	36	553
10	Industrial Management & Data Systems	35	672
11	International Journal Of Operations & Production Management	34	1645
12	Production Planning & Control	34	789
13	Production And Operations Management	25	1092
14	Journal Of The Operational Research Society	24	743
15	Mathematical Problems In Engineering	24	102
16	IEEE Access	23	225
17	Rairo-Operations Research	22	104
18	International Journal Of Logistics Management	19	314
19	Omega-International Journal Of Management Science	18	1426
20	International Journal Of Physical Distribution & Logistics Management	18	1405”

Source: Authors own work using VOSviewer software

4.2.4 Country Literature Contribution Analysis

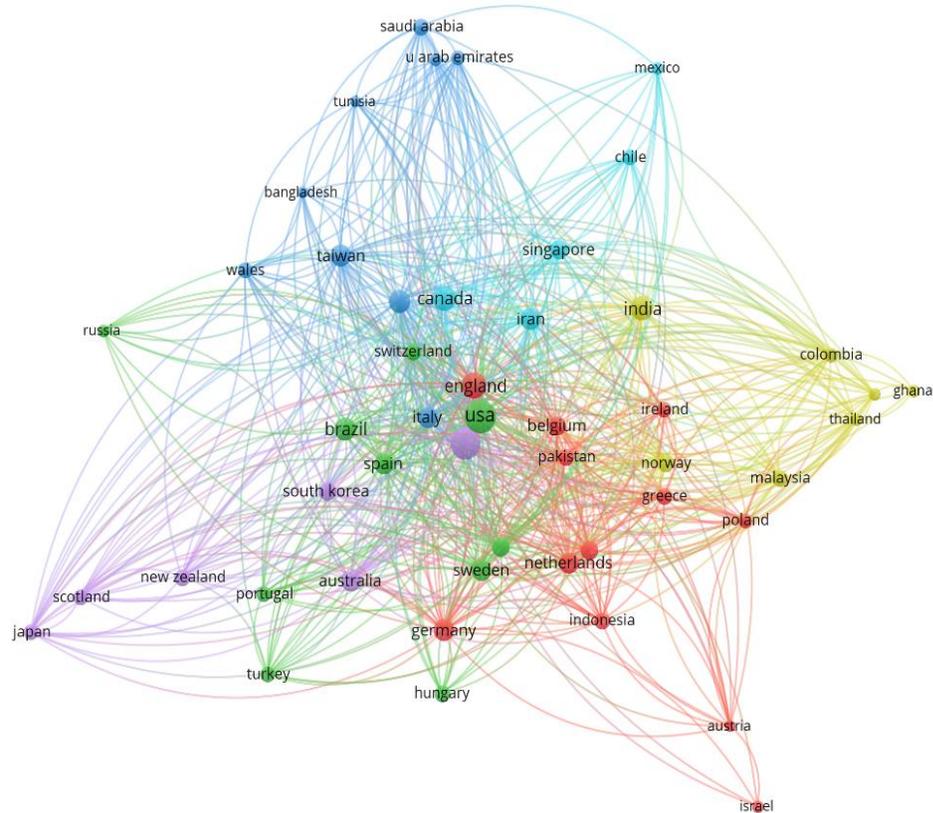
Country-literature contributions towards the SCC research were also analysed through the identification of the bibliometric-network of the top cited author's country of origin using VOSviewer. For this analysis, 'citation' was taken as the type of analysis, and 'countries' as the unit. To refine the results, the network was filtered by setting a minimum threshold for countries, where the number of published documents should be at least five, and the minimum number of citations per country should be no less than 100. With these criteria in place, 50 countries from a total of 95 were identified as meeting the thresholds. The findings reveal that People's Republic of China is the leading country in SCC research, contributing 787 published articles and receiving a total of 17,754 citations. This dominance highlights China's significant involvement in the advancement of SCC studies. Following China, the United States ranks second with 422 published articles and 19,660 citations, indicating a robust contribution to the field. England takes the third spot, with 180 published articles and 6,255 citations, reflecting its solid presence in the SCC research domain. The analysis of the top 20 countries with the highest citation counts further emphasizes the global nature of SCC research illustrated in **Figure 6: Top Country-wise Contribution in Research Publication in the domain** Given below. These countries, collectively, have played a pivotal role in shaping the direction of supply chain coordination studies. The top 20 ranking of the countries, citations-wise and published articles-wise, is presented below, showcasing the most influential contributors to the SCC literature. This country-specific bibliographic analysis not only underscores the geographical distribution of SCC research but also highlights the leading nations shaping the future of supply chain coordination through their academic contributions as illustrated in Figure 7: Network-map.

Figure 6: Top Country-wise Contribution in Research Publication in the domain



Source: Web of Science Citation Report

Figure 7: Top Country-wise Contribution Network-map

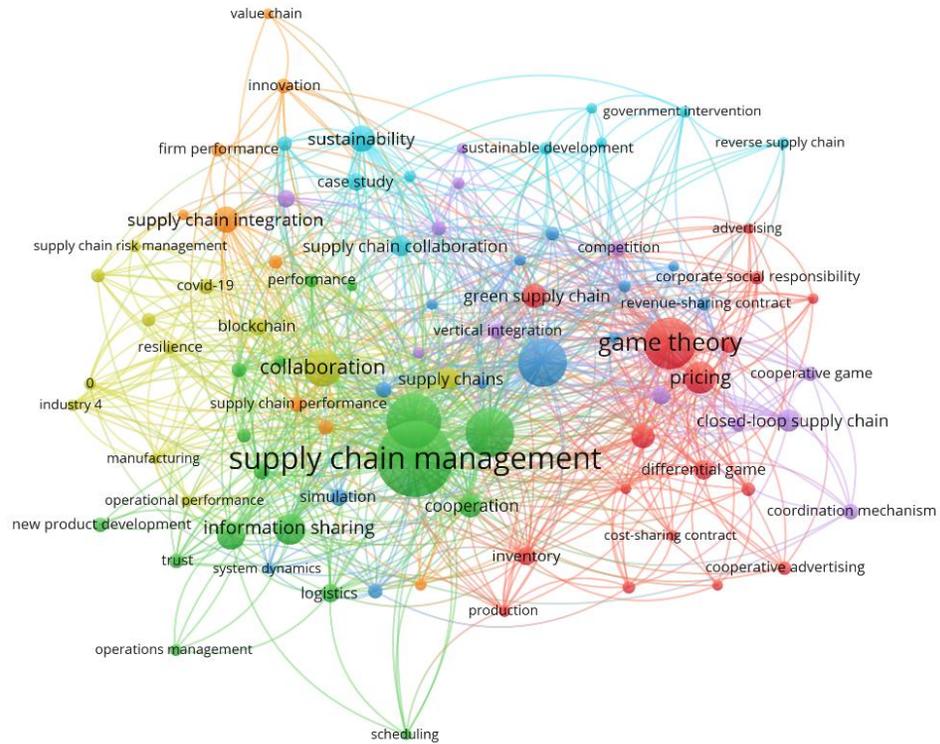


Source: Authors own work using VOSviewer software

4.2.5 Keywords Co-Occurrence Analysis

To identify the most significant research areas within the domain of Supply Chain Coordination (SCC), a comprehensive keyword analysis was conducted. The objective was to explore the frequency of keyword occurrences across the WoS database related to SCC. For this analysis, the co-occurrence method was employed, with author keywords serving as the unit of analysis. The network was restricted to keywords that appeared at least 10 times across the dataset. As a result, 90 keywords were identified that met this threshold from a total of 5,169 keywords. To assess the relevance and interconnections between these keywords, the total-link-strength of their co-occurrence is calculated by VOSviewer. The higher the link strength, the stronger the relationship between the two co-occurring keywords, indicating their significant association within the SCC field. This analysis provides valuable insights into the key themes and research areas in SCC. The bibliographic network, which visualizes these interconnections, highlights the most central and influential topics in the literature, shaping the direction of current and future research in supply chain coordination. The findings are represented in **Figure 8**, which illustrates how the various topics in SCC are linked and how they have evolved over time, guiding researchers towards underexplored areas for further investigation.

Figure 8: Top Keywords Co-Occurrence Analysis on the published research



Source: Authors own work using VOSviewer software

Some of the most frequent keywords used include supply chain management, game theory, coordination, pricing, information sharing, integration, sustainability, cooperation, closed-loop supply chain, collaboration, channel coordination, inventory management, vertical integration, information technology, innovation, outsourcing, trust, revenue-sharing contract, cooperative advertising, firm performance, governance, supply chain resilience, carbon emission reduction, remanufacturing, information asymmetry, risk management, carbon tax, demand uncertainty, government intervention, industry 4.0, operational performance, reverse supply chain, vendor managed inventory, buyer-supplier relationships, contract coordination, cost-sharing contract, differential games, dual-channel, green supply chain management, optimization, price competition, scheduling, system dynamics, value chain and vertical coordination.

The keywords that have greatest number of co-occurrences have been collated, and list of Top 20 Keywords is prepared in the **Table.6** below.

Table. 6: Top Twenty Keywords Co-occurrences

"S. No.	Keyword	Occurrences	Total Link Strength
1	Supply Chain Management	286	274
2	Supply Chain	160	183
3	Game Theory	147	203
4	Coordination	132	196
5	Supply Chain Coordination	129	118
6	Collaboration	84	127
7	Pricing	64	112
8	Information Sharing	61	87
9	Integration	51	60
10	Supply Chain Integration	46	43
11	Sustainability	46	72
12	Green Supply Chain	39	51
13	Cooperation	37	63
14	Stackelberg Game	37	38
15	Closed-Loop Supply Chain	33	40
16	Supply Chain Collaboration	29	27
17	Differential Game	26	27
18	Inventory	25	42
19	Logistics	25	32
20	Channel Coordination	23	37"

Source: Authors own work using VOSviewer software

5. Findings & Content Analysis

This research reviewed the advancements in SCC systematically, leveraging bibliometric analysis and VOSviewer software to examine contributions from various authors, publishers, countries, and key research themes. The study successfully highlighted significant trends, contributions, and findings, offering actionable insights for both academic and practical purposes.

The progression of SCC research has been substantial, with a marked increase in publications over the past two decades. Notably, in 2022 alone, nearly 250 articles were published, reflecting the growing recognition of SCC's pivotal role in enhancing inter-firm relationships and optimizing supply chain performance. This rise underscores how businesses and researchers are acknowledging the value of advanced coordination mechanisms for navigating the complexities of global supply-chains, particularly in volatile environments.

Bibliometric analysis revealed a decentralized contribution pattern among authors. Prominent contributors like 'Lai, Kee-Hung,' 'El Sawy, OA,' and 'Gosain, S' were identified as having the highest citations, showcasing their significant influence in the domain. Meanwhile, 'Huo, Baofeng,' 'Zhao, Xiande,' and 'He, Yong' emerged as prolific authors with the largest number of publications. These findings emphasize the diverse and collaborative nature of SCC research, fostering multidisciplinary approaches for catering to complexities and challenges in the supply-chains.

The "International Journal of Production Economics" emerged as the leading journal in the field, with 147 articles and 8,908 citations, showcasing its centrality to the SCC discourse. Frank et al.'s (2019) seminal work on Industry 4.0 technologies, which garnered 976 citations, exemplifies the critical intersection of digital

transformation and SCC. Journals like the "European Journal of Operational Research" and "Journal of Cleaner Production" also contributed significantly, further enriching the body of knowledge.

Country-wise, China led the field with 787 articles and 17,754 citations, reflecting its dominant role in SCC research, followed by the USA and England. These contributions highlight the concentrated efforts in economically advanced regions while underscoring the untapped potential in underrepresented areas like Africa and South America. Addressing these regional gaps could uncover novel insights into localized supply chain dynamics and improve global coordination.

Keyword co-occurrence analysis revealed core themes such as 'Supply Chain Management,' 'Coordination,' 'Collaboration,' and 'Performance.' Emerging areas like Industry 4.0, sustainability, and green supply chains reflect the shifting priorities of researchers towards integrating technological advancements and environmental considerations into supply chain strategies. These trends suggest an evolving research landscape that prioritizes innovation and resilience.

The findings emphasize the necessity of shifting from traditional dyadic frameworks to more comprehensive macro perspectives. This transition involves addressing critical elements such as trust, governance structures, and power dynamics. Additionally, businesses must navigate complex multi-partner relationships, demanding tailored strategies for effective coordination and optimal performance. The study's insights highlight the importance of adopting dynamic coordination mechanisms that align with contemporary supply chain needs.

5.1 Coordination Mechanisms in Supply Chains

Coordination mechanisms are vital tools in supply chain management (SCM) that enable organizations to manage interdependencies, synchronize objectives, and improve overall efficiency within the supply-chain. These mechanisms provide a foundation towards collaboration, risk mitigation, and enhancement of supply-chain performance. The need for effective coordination has been increasingly recognized in the literature, with scholars such as Tsay (1999), Cachon and Fisher (2000), and Disney and Towill (2003) emphasizing their role in addressing risks, reducing inefficiencies, and fostering cooperative behavior across supply chain partners. In particular, these processes are instrumental in managing demand variability, optimizing production schedules, and improving inventory management, ensuring that supply chain functions align to achieve common goals.

Over the years, numerous studies have explored the impact of various coordination mechanisms. For example, research by Chung et al. (2010) and Biswas et al. (2016) highlighted the primary objective of SCC mechanisms is to build enduring partnerships that foster profitability and long-term performance improvements. By ensuring that stakeholders in the supply chain work towards aligned objectives, these mechanisms mitigate risks and optimize resource allocation, enabling supply chains to better manage uncertainty and respond effectively to market dynamics. As the supply chain landscape grows more complex, especially with the rise of global supply networks, integrating these coordination mechanisms has become increasingly important for achieving competitive advantages.

Arshinder et al. (2011) categorize SCC mechanisms into several key strategies that are critical for achieving operational alignment and integration, particularly in volatile and complex market environments. These mechanisms include information exchange, joint replenishment strategies, vendor managed inventory (VMI), collaborative planning, forecasting, and replenishment (CPFR), and various forms of contractual agreements. These coordination techniques are foundational for ensuring that supply chain members operate cohesively, even in the face of external disruptions or unpredictable market conditions. Broadly the coordination mechanisms can be classified under five categories (1) Supply Chain Contracts - Buyback-Contracts, Revenue-Sharing Contracts & Quantity Flexibility Contracts (2) Information Sharing - Point-of-Sale (POS) Data Sharing (3) Joint Decision-Making – CPFR & VMI models (4) Information Technology (IT) – Blockchain & Cloud Computing and (5)

5.1.1 Supply Chain Contracts - Supply chain contracts are crucial coordination instruments that align incentives among supply chain stakeholders, enabling them to better handle uncertainties related to demand fluctuations, production delays, and price volatility. Various contract types serve to address these challenges, including repurchase agreements, revenue sharing-contracts, and quantity-flexibility contracts.

- ❖ **Buyback-Contracts:** Buyback contracts enabled the retailers to return unsold-goods to suppliers at a predetermined price, helping both parties manage inventory surpluses and demand variability. Research by Padmanabhan et al. (1997) and Zou et al. (2004) demonstrates how such contracts enable retailers to reduce the risks of overstocking while providing suppliers with greater control over inventory. This mechanism allows retailers to focus on fulfilling customer demand without absorbing the full risk of unsold goods.
- ❖ **Revenue-Sharing Contracts:** These contracts align the goals of suppliers and retailers by allowing retailers to purchase goods at discounted rates in exchange for sharing a percentage of their revenue with the supplier. This arrangement motivates retailers to increase order volumes, reducing the likelihood of stockouts, while simultaneously benefiting suppliers from the increased sales. Cachon and Lariviere (2005) and Giannoccaro and Pontrandolfo (2004) emphasize the effectiveness of these contracts in managing risk, particularly in markets with unpredictable demand patterns.
- ❖ **Quantity Flexibility Contracts:** Quantity flexibility contracts enable retailers to adjust their orders based on revised demand projections. This flexibility reduces the risk of carrying excess inventory for retailers, while suppliers benefit from being able to adjust their production schedules to meet actual demand. According to Pyke and Cohen (1993), such contracts improve the agility of supply-chains, helping them to better address the changing market conditions.

These various forms of contracts have been the subject of extensive research, underscoring their critical role in mitigating risks associated with demand uncertainty and enhancing the overall coordination within supply chains. Studies by Cachon (2003) and Höhn (2010) further illustrate how these mechanisms enable better coordination, especially in decentralized supply networks where demand is volatile.

5.1.2 Information Sharing - Information sharing has been long accepted and agreed upon as one of the most effective ways to improve cooperation among supply-chain channel-partners. By sharing of the real-time data of the inventory-levels, production-schedules, lead-times, and demand-forecasts, organizations can make more informed decisions, leading to reduced inefficiencies and improved performance across the supply-chain. Studies by Simatupang-Sridharan (2002) and Simchi-Levi et al. (2000) demonstrate how such transparency enhances collaboration and synchronization, ultimately improving the responsiveness across supply-chains.

One notable advantage of information sharing is its ability towards mitigation of the bullwhip effect, where an even little fluctuations in consumer's demand leads to larger, disproportionate fluctuations in orders along the supply chain, resulting in either excess inventory or stockouts. Lee (2000) suggests that sharing real-time demand data helps partners synchronize their production schedules and inventory levels, thereby stabilizing the supply-chain and reducing the adverse effects of the bullwhip-effect. Zou et al. (2004) and Piplani-Fu (2005) also demonstrate that accurate information sharing leads to better demand forecasting, lower inventory costs, and improved service levels.

- ❖ **Point-of-Sale (POS) Data Sharing:** An increasingly popular form of information exchange, POS data sharing allows retailers to provide suppliers with real-time sales data. This enables suppliers to adjust production and inventory levels according to actual consumer demand, mitigating the risks of stockouts and overstocking. Studies by Dejonckheere et al. (2004) and Lee et al. (1999) show that POS data sharing helps significantly reduce the bullwhip effect and enhances forecasting accuracy.

However, despite these benefits, information sharing is not without its challenges. Trust is a critical factor in determining the extent to which supply chain partners are willing to share sensitive data, particularly when concerns about competitive advantage arise. Additionally, technological issues, such as incompatible IT systems and data security concerns, can hinder the smooth flow of information. Future research should focus on strategies to overcome these barriers, including the development of standardized data-sharing protocols and the establishment of stronger trust-based relationships among supply chain partners.

5.1.3 Joint Decision-Making - Joint decision-making is a critical coordination mechanism that facilitates collaboration among supply chain stakeholders in areas such as inventory management, production planning, procurement, and logistics. By working together to make decisions, supply chain participants can better align their strategies and reduce inefficiencies across the entire system. Yang and Wee (2002) emphasize that joint decision-making allows organizations to synchronize their goals, optimize resource use, and minimize operational disruptions.

- ❖ **Collaborative Planning, Forecasting, and Replenishment (CPFR):** CPFR is a prominent joint decision-making model in SCM. It enables supply chain partners to collaborate on promotional efforts, demand forecasting, and replenishment scheduling, leading to more accurate forecasts, reduced inventory levels, and improved service levels. Danese (2011) and Fliedner (2003) have demonstrated the success of CPFR in industries characterized by significant demand volatility, such as consumer products and electronics.
- ❖ **Vendor-Managed Inventory (VMI):** VMI shifts the inventory management responsibility from the retailer to the supplier, allowing the supplier to control production schedules and replenishment orders based on real-time demand data provided by the retailer. Disney and Towill (2003) show that VMI reduces stockouts, enhances order fulfilment rates, and optimizes inventory management across the supply chain.

Effective joint decision-making requires a high-degree of trust and collaboration between partners. The success of these systems depends on the willingness of organizations to share critical information, align their goals, and work toward common objectives. Future research should examine how emerging-technologies, like artificial-intelligence (AI) and machine-learning, can enhance decision-making frameworks, enabling more dynamic and responsive supply-chain-management.

5.1.4 Information Technology (IT) - The Information-Technology (IT) roles in facilitating SCC is well-documented. Technologies - Electronic Data Interchange (EDI), Enterprise Resource Planning (ERP), and Advanced Planning and Scheduling (APS) systems enable real-time data sharing, improving the visibility of operations and enhancing decision-making within supply chains (Verwijmeren et al., 1996; Wilson, 1995). IT systems promote coordination by reducing lead times, improving responsiveness, and offering greater visibility into supply chain activities.

- ❖ **Blockchain:** The advent of blockchain technology has transformed SCC by providing a secure, transparent, and immutable transaction record, thereby enhancing trust among supply chain participants

and enable real-time-tracking of payments and goods. Blockchain reduces transaction costs, enhances traceability, and minimizes fraud (Saber et al., 2019; Wang et al., 2020).

- ❖ **Cloud Computing:** It facilitates real-time data sharing and collaboration, enabling businesses to access and synchronize information across the supply chain. Gunasekaran et al. (2017) and Marston et al. (2011) highlight that cloud computing enhances agility, reduces IT infrastructure costs, and improves supply chain responsiveness.

Despite these advancements, challenges related to data security, system compatibility, and high implementation costs remain significant barriers. Future research should explore solutions to these challenges, particularly focusing on how emerging technologies like AI, IoT, and blockchain can further enhance supply chain coordination.

5.1.5 Emerging Technologies in Supply Chain Coordination - Innovative technologies – artificial-intelligence (AI), machine-learning, the Internet-of-Things (IoT), and blockchains, have revolutionised SCC by providing real-time data-acquisition, predictive-analytics, and decentralized decision-making capabilities. These technologies offer unprecedented opportunities for enhancing coordination and performance across the supply chain.

- ❖ **AI and Machine-Learning:** AI-driven predictive-analytics has enabled supply chain managers to improve decision-making accuracy, enhance responsiveness, and mitigate risks related to demand variability (Wang et al., 2020; Choi et al., 2019). Machine learning algorithms can detect disruptions within the supply chain and propose proactive mitigation strategies, enhancing overall operational efficiency and reducing potential downtime.
- ❖ **Internet of Things (IoT):** IoT technology, relying on interconnected devices and intelligent sensors, provides real-time insights into supply chain operations. IoT solutions enable better decision-making, predictive maintenance, and supply chain agility by tracking inventory levels, monitoring transportation conditions, and ensuring production equipment is functioning optimally (Ben-Daya et al., 2019). Studies by Al-Turjman (2018) and Liu et al. (2019) highlight the transformative potential of IoT in improving collaboration and visibility across the supply chain, thus enhancing overall performance.
- ❖ **Blockchain:** Blockchain continues to revolutionize supply chain coordination by offering secure, clear, and immutable records of the transactions. This technology boosts trust between supply chain partners, providing real-time-tracking of goods, enhancing payment transparency, and reducing fraud. Researchers like Kshetri (2018) and Narayanan et al. (2015) have highlighted blockchain's ability to reduce transaction costs and improve supply chain traceability, making it a critical tool for modern supply chain coordination.

Although these emerging technologies integrated hold a significant promise in enhancing coordination, there remain challenges to be addressed. Data privacy issues are concerns, cybersecurity risks, and the high cost of implementing these technologies in existing infrastructure could slow their widespread adoption. Further research should focus on how organizations can overcome these barriers and fully leverage these technologies to maximize the benefits they offer in improving supply-chain-coordination. The coordination mechanism identified under several researches by various researches over past few years is compile in **Table No. 7** below:

Table.7: Coordination Mechanisms in Practice

“Coordination Mechanisms	Authors
Supply chain contracts (Buyback, Revenue sharing, Quantity, Quantity flexibility & discounts)	Stank and Goldsby (2000), Zou et al., (2004), Piplani and Fu (2005), Hill and Omar (2006), Yang and Wee (2002)
Information technology (Email, Internet, EDI, ERP/Applications & POS data)	Wilson (1995), Verwijmeren et al. (1996), Lee et al. (1999), Themistocleous et al. (2004), Caglino et al. (2005), Fin (2006), Liu et al. (2005)
Information sharing (Demand, Inventory, Lead time, Production schedule, Capacity & Cost)	Zou et al., (2004), Piplani and Fu (2005), Simchi-Levi et al. (2000), Lee (2000), Pyke et al. (2000), Simatupang and Sridharan (2002)
Joint decision making (Cost consideration, Replenishment, Forecasting, Ordering, Service Levels & Policies)	Yang and Wee (2002), Lu (1995), Boyaci and Gallego (2002), Barron, (2007), Haq and Kannan (2006), Jayaraman and Pirkul (2001), Pyke and Cohen (1993), Chandra and Fisher (1994), Ganeshan (1999), Jang et al. (2002), Yang and Wee (2002), Hwang et al. (2005)
Blockchain Technology (Real-time tracking, Immutable records, Trust enhancement)	Saberi et al. (2019), Wang et al. (2020), Kshetri (2018)
Artificial Intelligence and Machine Learning (Demand forecasting, Supplier selection, Predictive analytics)	Dubey et al. (2020), Ivanov et al. (2021), Choi et al. (2019)
Collaborative Planning, Forecasting, and Replenishment (CPFR) (Joint planning, forecasting, and inventory management)	Danese (2011), VICS (2010), Flidner (2003), Singhry (2015)
Vendor-Managed Inventory (VMI) (Inventory management by suppliers, Replenishment planning, Stock-level optimization)	Cheung & Lee (2002), Sari (2008), Claassen et al. (2008), Disney & Towill (2003)
Internet of Things (IoT) (Real-time data collection, Smart sensors, Predictive maintenance)	Ben-Daya et al. (2019), Al-Turjman (2018), Liu et al. (2019)
Cloud Computing (Shared information platforms, Scalability, Data synchronization)	Gunasekaran et al. (2017), Marston et al. (2011), Dastjerdi&Buyya (2016)
Risk Sharing Contracts (Cost-sharing, Flexible contracts, Risk mitigation)	Jin et al. (2015), Yu et al. (2019), Narayanan et al. (2015)
Collaborative Logistics & Shared Transportation (Joint distribution, Shared transport assets)	Pan et al. (2013), Crujssen et al. (2007), Dolgui & Proth (2013)
Supply Chain Resilience Mechanisms (Scenario planning, Flexible sourcing, Backup suppliers)	Ivanov et al. (2018), Pettit et al. (2019), Scholten & Schilder (2015)”

Source: Compiled by Authors

6. Practical Implications

The practical-implications of the study are multifaceted, offering great value for supply chain practitioners and decision-makers. Businesses can apply these insights to enhance coordination with suppliers and customers, thereby addressing inefficiencies and achieving seamless supply chain operations. Emerging technologies such as

blockchain, artificial-intelligence (AI), and the Internet-of-Things (IoT) have a transformative potential for improving SCC.

Blockchain technology is capable of providing transparency and high trust among supply chain partners by enabling secure, immutable transaction records. This innovation is particularly valuable in industries like food safety and pharmaceuticals, where traceability is critical. AI further enhances SCC by optimizing demand forecasting, supplier selection, and inventory management. For example, predictive analytics powered by AI can mitigate risks associated with demand variability, enabling supply chains to respond swiftly to market changes. IoT, with its interconnected devices and real-time data acquisition, offers improved visibility and monitoring, enhancing decision-making across supply chain operations.

Industry-specific implications include strategies tailored to unique challenges. In healthcare, SCC mechanisms can mitigate supply disruptions, ensuring the timely delivery of critical medical supplies, as evidenced during the COVID-19 pandemic. The retail sector can benefit from collaborative planning, forecasting, and replenishment (CPFR), reducing overstock and improving alignment with consumer demand. Similarly, the automotive industry can address challenges like carbon emissions and resource scarcity by adopting sustainability-focused coordination mechanisms and vertical integration strategies. These industry-specific recommendations provide actionable frameworks for businesses to improve operational efficiency and sustainability.

7. Theoretical and Social Implications

Theoretically, this study advances the understanding of SCC by aligning its findings with established frameworks such as the ‘resource-based view’, ‘transaction cost theory’, and ‘network theory’. By integrating these frameworks, the study elucidates how coordination mechanisms enhance supply chain resilience, operational efficiency, and innovation. For instance, transaction cost theory explains how effective coordination reduces transaction costs and uncertainties, while network theory highlights the significance of interconnected relationships in fostering collaboration and performance.

Socially, SCC holds immense potential to address broader societal challenges. Improved coordination can promote sustainable practices, reducing waste and enhancing resource efficiency. This is particularly relevant in addressing global concerns like climate change and resource depletion. Additionally, equitable coordination mechanisms can improve labour conditions, especially in global supply chains that involve workers from developing countries. For example, fair revenue-sharing agreements and transparent practices can foster trust and equitable growth among supply chain partners.

The findings also underscore SCC’s role in building resilient supply chains that can withstand disruptions, thereby contributing to economic stability and societal well-being. As global supply chains become more interconnected, the adoption of SCC practices can drive inclusive growth and ensure equitable access to goods and services.

8. Limitations & Future Research

This study offers significant insights; however it has thresholds. The reliance on the Web of Science database, though robust, may have excluded significant contributions from other databases like Scopus or Google Scholar. Integrating multiple databases for future-researches may provide a more thorough perspective. Additionally, the use of fixed citation thresholds may have overlooked emerging works from newer scholars or underrepresented regions, limiting the scope of the analysis.

Sector-specific studies are crucial for uncovering unique coordination challenges and solutions. Industries like consulting, education, and government services warrant separate analyses, given their distinct supply chain

dynamics. For instance, consulting firms face challenges related to knowledge-sharing and project coordination, while education supply chains must address the equitable distribution of resources.

Future research should also explore the intersection of SCC with macroeconomic and geopolitical factors. Events like trade wars, regulatory changes, and global crises have profound implications for supply chain coordination. Investigating how SCC mechanisms can mitigate these disruptions will provide valuable insights. Additionally, emerging technologies like IoT, AI, and blockchain offer vast research opportunities to understand their integration into SCC frameworks. These technologies can address gaps in automation, real-time monitoring, and predictive analytics, driving innovation and efficiency.

9. Conclusion

To conclude, this research provides a complete view of SCC research through bibliometric literature review, highlighting key trends, influential contributors, and emerging research areas. The findings emphasize the importance of adopting advanced coordination mechanisms to navigate the complexities of global supply chains. By integrating technological advancements, sector-specific strategies, and sustainability principles, SCC research can address critical global challenges, fostering resilience, innovation, and equitable growth.

The study contributes to both theoretical and practical domains, offering actionable insights for practitioners and advancing the academic understanding of SCC. As supply chains become increasingly interconnected and dynamic, the adoption of SCC practices will be crucial in building resilient, efficient, and sustainable supply chains that benefit businesses, societies, and environment at large.

Conflict of Interests

The authors wish to clearly state that they have no conflicts of interest or competing interests in connection with this research paper. At every stage—from designing the study to analysing the findings and writing the manuscript—no individual, organization, or company mentioned in the research has influenced the process in any way. The authors have no financial ties, direct or indirect, nor any personal, institutional, or professional associations that could affect the research outcomes. All work presented here has been carried out independently and objectively, ensuring that the findings and conclusions are based solely on the authors' own scholarly analysis and judgement.

References

1. Al-Turjman, F. (2018). *Edge computing for the internet of things: A practical approach*. Springer.
2. Arshinder, Kanda, A., & Deshmukh, S. G. (2007). Supply chain coordination issues: an SAP-LAP framework. *Asia Pacific Journal of Marketing and Logistics*, 19(3), 240-264.
3. Ballou, R. H., Gilbert, S. M., & Mukherjee, A. (2000). New managerial challenges from supply chain opportunities. *Industrial Marketing Management*, 29(1), 7-18.
4. Bandyopadhyay, P. K., & Kim, B. (2022). A framework for supply chain coordination strategy in Indian engineering manufacturing and automobile sectors. *Benchmarking: An International Journal*, 29(2), 573-595.
5. Barron, J. M. (2007). Competition and information in the market for used durables. *Journal of Industrial Economics*, 55(2), 187-214.

6. Ben-Daya, M., Hassini, E., & Bahroun, Z. (2019). Internet of Things and supply chain management: A literature review. *International Journal of Production Research*, 57(15-16), 4719-4742. <https://doi.org/10.1080/00207543.2017.1402140>
7. Boyaci, T., & Gallego, G. (2002). Coordinating pricing and inventory replenishment policies for one wholesaler and one or more geographically dispersed retailers. *International Journal of Production Economics*, 77(2), 95-111. [https://doi.org/10.1016/S0925-5273\(01\)00145-0](https://doi.org/10.1016/S0925-5273(01)00145-0)
8. Cachon, G. P. (2003). Supply chain coordination with contracts. In S. Graves, T. de Kok (Eds.), *Handbooks in operations research and management science: Supply chain management* (Vol. 11, pp. 227-339). Elsevier.
9. Cachon, G. P., & Fisher, M. (2000). Supply chain inventory management and the value of shared information. *Management Science*, 46(8), 1032-1048.
10. Cachon, G. P., & Lariviere, M. A. (2005). Supply chain coordination with revenue-sharing contracts: Strengths and limitations. *Management Science*, 51(1), 30-44.
11. Caglino, R., Fin, L., & Guercini, S. (2005). An EDI implementation process in a retail supply chain: A longitudinal case study. *Supply Chain Forum: An International Journal*, 6(2), 16-26. <https://doi.org/10.1080/16258312.2005.11517138>
12. Chandra, C., & Fisher, M. L. (1994). Coordination of production and distribution planning. *European Journal of Operational Research*, 72(3), 503-517. [https://doi.org/10.1016/0377-2217\(94\)90424-3](https://doi.org/10.1016/0377-2217(94)90424-3)
13. Cheung, K. L., & Lee, H. F. (2002). The inventory benefits through vendor-managed inventory. *Transportation Research Part E: Logistics and Transportation Review*, 38(6), 431-446. [https://doi.org/10.1016/S1366-5545\(02\)00024-9](https://doi.org/10.1016/S1366-5545(02)00024-9)
14. Choi, T. M., Wallace, S. W., & Wang, Y. (2019). Big data analytics in operations management. *Production and Operations Management*, 27(10), 1868-1883.
15. Claassen, M. J. T., van Weele, A. J., & van Raaij, E. M. (2008). Performance outcomes and success factors of vendor-managed inventory (VMI). *Supply Chain Management: An International Journal*, 13(6), 406-414. <https://doi.org/10.1108/13598540810905645>
16. Cruijssen, F., Cools, M., & Dullaert, W. (2007). Horizontal cooperation in logistics: Opportunities and impediments. *Transportation Research Part E: Logistics and Transportation Review*, 43(2), 129-142. <https://doi.org/10.1016/j.tre.2005.09.007>
17. Danese, P. (2011). Towards a unified framework for supply chain collaboration: A literature review. *Supply Chain Management: An International Journal*, 16(5), 313-330. <https://doi.org/10.1108/13598541111155682>
18. Dastjerdi, A. V., & Buyya, R. (2016). Fog computing: Helping the internet of things realize its potential. *Computer*, 49(8), 112-116. <https://doi.org/10.1109/MC.2016.245>

19. Disney, S. M., & Towill, D. R. (2003). Vendor-managed inventory and bullwhip reduction in a two-level supply chain. *International Journal of Operations & Production Management*, 23(6), 625-651. <https://doi.org/10.1108/01443570310476617>
20. Dubey, R., Gunasekaran, A., Childe, S. J., & Papadopoulos, T. (2017). Green supply chain management enablers: Mixed methods research. *Sustainable Production and Consumption*, 10, 72-88.
21. Dubey, R., Gunasekaran, A., Childe, S. J., & Papadopoulos, T. (2020). Blockchain applications in supply chains, transport and logistics: A systematic review of the literature. *International Journal of Production Research*, 58(7), 2063-2081. <https://doi.org/10.1080/00207543.2019.1650976>
22. Fahimnia, B., Sarkis, J., & Davarzani, H. (2015). Green supply chain management: A review and bibliometric analysis. *International Journal of Production Economics*, 162, 101-114.
23. Fayezi, S., O'Loughlin, A., & Zutshi, A. (2012). Agency theory and supply chain management: A structured literature review. *Supply Chain Management: An International Journal*, 17(5), 556-570.
24. Fin, L. (2006). How information systems contribute to the improvement of purchasing and supply chain management. *Journal of Purchasing and Supply Management*, 12(3), 153-162. <https://doi.org/10.1016/j.pursup.2006.09.001>
25. Flidner, G. (2003). CPFR: An emerging supply chain tool. *Industrial Management & Data Systems*, 103(1), 14-21. <https://doi.org/10.1108/02635570310456850>
26. Ganeshan, R. (1999). Managing supply chain inventories: A multiple retailer, one warehouse, multiple supplier model. *International Journal of Production Economics*, 59(1-3), 341-354. [https://doi.org/10.1016/S0925-5273\(98\)00100-5](https://doi.org/10.1016/S0925-5273(98)00100-5)
27. Giannoccaro, I., & Pontrandolfo, P. (2004). Supply chain coordination by revenue sharing contracts. *International Journal of Production Economics*, 89(2), 131-139.
28. Gunasekaran, A., Subramanian, N., & Papadopoulos, T. (2017). Information technology for competitive advantage within logistics and supply chains: A review. *Transportation Research Part E: Logistics and Transportation Review*, 99, 14-33. <https://doi.org/10.1016/j.tre.2016.12.008>
29. Haq, A. N., & Kannan, G. (2006). Design of an integrated supplier selection and multi-echelon distribution inventory model in a built-to-order supply chain environment. *International Journal of Production Research*, 44(10), 1963-1985. <https://doi.org/10.1080/00207540500362147>
30. Hill, T., & Omar, A. (2006). Achieving supply chain excellence through technology innovation: Supply chain management perspectives. *International Journal of Production Research*, 44(16), 3411-3439. <https://doi.org/10.1080/00207540600702524>
31. Höhn, H. (2010). *Coordination of decentralized supply chains by contracts*. Springer.

32. Hwang, H. B., Hong, S. L., & Xie, N. (2005). Managing the responsiveness of the supply chain using improved constraint-based scheduling. *International Journal of Production Research*, 43(9), 1871-1897. <https://doi.org/10.1080/0020754042000292162>
33. Ivanov, D., Dolgui, A., Sokolov, B., Ivanova, M., & Rozhkov, M. (2018). Disruption-driven supply chain coordination via real-time recovery policies. *International Journal of Production Research*, 56(1-2), 489-507.
34. Jang, W., Jayaraman, V., & Chen, K. (2002). Coordinated replenishment and production planning for multiple items. *International Journal of Production Economics*, 76(3), 245-256. [https://doi.org/10.1016/S0925-5273\(01\)00124-8](https://doi.org/10.1016/S0925-5273(01)00124-8)
35. Jayaraman, V., & Pirkul, H. (2001). Planning and coordination of production and distribution facilities for multiple commodities. *European Journal of Operational Research*, 133(2), 394-408. [https://doi.org/10.1016/S0377-2217\(00\)00231-4](https://doi.org/10.1016/S0377-2217(00)00231-4)
36. Jin, M., Wang, Y., & Sun, L. (2015). Risk-sharing contracts in supply chains: Review and future research directions. *International Journal of Production Research*, 53(16), 4951-4963. <https://doi.org/10.1080/00207543.2015.1030460>
37. Kanda, A., & Deshmukh, S. G. (2008). Supply chain coordination: perspectives, empirical studies and research directions. *International journal of production Economics*, 115(2), 316-335. <https://doi.org/10.1016/j.ijpe.2008.05.011>
38. Kotzab, H., Darkow, I. L., Bäuml, I., & Georgi, C. (2019). Coordination, cooperation and collaboration in logistics and supply chains: a bibliometric analysis. *Production*, 29, e20180088.
39. Kshetri, N. (2018). Blockchain's roles in meeting key supply chain management objectives. *International Journal of Information Management*, 39, 80-89. <https://doi.org/10.1016/j.ijinfomgt.2017.12.005>
40. Lambert, D. M., Cooper, M. C., & Pagh, J. D. (1999). Supply chain management: Implementation issues and research opportunities. *The International Journal of Logistics Management*, 10(1), 1-19.
41. Larsen, T. S., Schary, P. B., Mikkola, J. H., & Kotzab, H. (2003). *Managing the global supply chain*. Copenhagen Business School Press.
42. Lee, H. L. (2000). Creating value through supply chain integration. *Supply Chain Management Review*, 4(4), 30-36.
43. Li, Z. P., Wang, J. J., Perera, S., & Shi, J. J. (2022). Coordination of a supply chain with Nash bargaining fairness concerns. *Transportation Research Part E: Logistics and Transportation Review*, 159, 102627.
44. Liu, C., Zhang, Z., & Liu, L. (2019). A review of Internet of Things (IoT) technologies for supply chain management. *Computers in Industry*, 107, 250-262. <https://doi.org/10.1016/j.compind.2018.12.007>

45. Liu, H., Kumar, S., & van der Vaart, T. (2005). An integrative framework for the adoption of e-business in logistics. *International Journal of Logistics Management*, 16(2), 187-213. <https://doi.org/10.1108/09574090510634556>
46. Lu, H. F. (1995). Joint decision-making in integrated production and distribution systems. *International Journal of Production Research*, 33(6), 1485-1498. <https://doi.org/10.1080/00207549508904729>
47. Malone, T.W. and Crowston, K., 1994. The interdisciplinary study of coordination. *ACM Computing Surveys (CSUR)*, 26(1), pp.87-119.
48. Marston, S., Bandyopadhyay, S., Zhang, J., & Ghalsasi, A. (2011). Cloud computing: The business perspective. *Decision Support Systems*, 51(1), 176-189. <https://doi.org/10.1016/j.dss.2010.12.006>
49. Moharana, H. S., Murty, J. S., Senapati, S. K., & Khuntia, K. (2012). Coordination, collaboration and integration for supply chain management. *International Journal of Interscience Management Review*, 2(2), 46-50.
50. Narayanan, V. G., Raman, A., & Singh, J. V. (2015). The impact of incentives and bundling on sales of vertically differentiated products: Evidence from a field experiment. *Management Science*, 61(10), 2456-2471.
51. Pan, S., Ballot, E., & Fontane, F. (2013). The reduction of greenhouse gas emissions from freight transport by merging supply chains. *International Journal of Production Economics*, 143(1), 86-94. <https://doi.org/10.1016/j.ijpe.2010.10.023>
52. Pettit, T. J., Croxton, K. L., & Fiksel, J. (2019). The evolution of resilience in supply chain management: A retrospective on ensuring supply chain resilience. *Journal of Business Logistics*, 40(1), 56-65.
53. Piplani, R., & Fu, Y. (2005). Coordination mechanisms for a supply chain with downward demand substitution. *International Journal of Production Economics*, 93-94, 341-354. <https://doi.org/10.1016/j.ijpe.2004.06.024>
54. Pyke, D. F., & Cohen, M. A. (1993). Performance characteristics of stochastic integrated production-distribution systems. *European Journal of Operational Research*, 68(1), 23-48. [https://doi.org/10.1016/0377-2217\(93\)90309-L](https://doi.org/10.1016/0377-2217(93)90309-L)
55. Saberi, S., Kouhizadeh, M., Sarkis, J., & Shen, L. (2019). Blockchain technology and its relationships to sustainable supply chain management. *International Journal of Production Research*, 57(7), 2117-2135.
56. Sari, K. (2008). Inventory inaccuracy and performance of collaborative supply chain practices. *Industrial Management & Data Systems*, 108(4), 495-511. <https://doi.org/10.1108/02635570810868396>
57. Scholten, K., & Schilder, S. (2015). The role of collaboration in supply chain resilience. *Supply Chain Management: An International Journal*, 20(4), 471-484. <https://doi.org/10.1108/SCM-11-2014-0386>
58. Simatupang, T. M., & Sridharan, R. (2002). The collaborative supply chain. *International Journal of Logistics Management*, 13(1), 15-30. <https://doi.org/10.1108/09574090210806333>

59. Singhry, H. B. (2015). The effect of supply chain technology, supply chain collaboration and innovation capability on supply chain performance. *International Journal of Production Economics*, 165, 35-43. <https://doi.org/10.1016/j.ijpe.2015.03.005>
60. Srivastava, M. K. (2017). Coordination mechanisms for supply chain: A review. *Journal of Supply Chain Management Systems*, 6(4), 22-32.
61. Stadtler, H. (2015). Supply chain management: An overview. In H. Stadtler, C. Kilger, & H. Meyr (Eds.), *Supply chain management and advanced planning* (pp. 3-28). Springer.
62. Stank, T. P., & Goldsby, T. J. (2000). A framework for transportation decision making in an integrated supply chain. *International Journal of Logistics Management*, 11(2), 15-25. <https://doi.org/10.1108/09574090010806047>
63. Suharmono, M., Alexandri, M., Sumadinata, R., & Muhyi, H. (2022). Outsourcing in supply chain: A bibliometric analysis. *Uncertain Supply Chain Management*, 10(4), 1501-1508.
64. Themistocleous, M., Irani, Z., & Love, P. E. D. (2004). Evaluating the integration of supply chain information systems: A case study. *European Journal of Operational Research*, 159(2), 393-405. [https://doi.org/10.1016/S0377-2217\(03\)00446-9](https://doi.org/10.1016/S0377-2217(03)00446-9)
65. Verwijmeren, M., van der Vlist, P., & van Donselaar, K. (1996). Networked inventory management information systems: Materializing supply chain management. *International Journal of Physical Distribution & Logistics Management*, 26(6), 16-31. <https://doi.org/10.1108/09600039610125160>
66. VICS. (2010). Collaborative Planning, Forecasting and Replenishment (CPFR): An overview. *Voluntary Interindustry Commerce Standards Association*. Available at: https://www.gsl.org/docs/gsmc/cpfr_overview.pdf
67. Wang, Y., Singgih, M., Wang, J., & Rit, M. (2020). Making sense of blockchain technology: How will it transform supply chains? *International Journal of Production Economics*, 211, 221-236. <https://doi.org/10.1016/j.ijpe.2019.02.002>
68. Wilson, G. (1995). How firms use the Internet to manage their supply chains. *International Journal of Physical Distribution & Logistics Management*, 25(6), 73-77. <https://doi.org/10.1108/09600039510083512>
69. Xue, J., Zhang, W., Rasool, Z., & Zhou, J. (2022). A review of supply chain coordination management based on bibliometric data. *Alexandria Engineering Journal*, 61(12), 10837-10850.
70. Yang, J., & Wee, H. M. (2002). A collaborative inventory system with permissible delay in payments for deteriorating items. *International Journal of Production Economics*, 77(2), 161-172. [https://doi.org/10.1016/S0925-5273\(01\)00135-1](https://doi.org/10.1016/S0925-5273(01)00135-1)

71. Yu, W., Chavez, R., Jacobs, M., & Feng, M. (2019). Data-driven supply chain capabilities and performance: A resource-based view. *Transportation Research Part E: Logistics and Transportation Review*, 131, 288-305.
72. Zou, Z., Ye, H., & Sheng, Z. (2004). Supply chain contracts under stochastic demand environments. *Journal of Systems Science and Systems Engineering*, 13(3), 355-372. <https://doi.org/10.1007/s11518-004-0210-9>