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SUPPLY CHAIN PRACTICES AND SME PERFORMANCE: A DECADE OF EVIDENCE FROM BIBLIOMETRIC AND SYSTEMATIC REVIEW

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ABSTRACT

This study integrates both bibliometric research and systematic literature review to explore supply-chain practices (SCPs) and the performance of the small-and-medium-sized enterprises (SMEs) in the last 10 years (2014–2024). The research designed is to determine existing practices, performance aspects, methodological inclinations, and new areas of research. Two-phase approach was followed in accordance with PRISMA 2020. To begin with, bibliometric mapping of the Scopus database generated 334 articles out of which 170 articles met the inclusion criteria. The set was narrowed down to 27 articles, upon which the systematic literature review was based, by subsequent quality screening; further synthesis of the results involved using thematic analysis. The review identifies four types of SCPs, i.e., traditional, sustainable/green, digital/smart, and context specific. The conventional methods with the focus on the integration of suppliers and lean management stay on the top, and the trend of the interest in sustainability and digital transformation is rising. The most common areas of studying performance are financial and operational, and the interest towards environmental and social areas is increasing. Quantitative methods are mostly used methodologically, yet the literature suggests that longitudinal, cross-country, and mixed-method studies are necessary. This paper delivers a detailed description of the effects of supply-chain practices on SME performance, identifies the gaps in the existing methodology, unveils the gaps in the research, and hypothesizes the future research and policy-making directions in the context of supply-chain management of SMEs using bibliometric mapping and systematic review.

KEYWORDS: Supply Chain Practices, SMEs, Performance, Systematic Literature Review, Bibliometric Analysis.

1. INTRODUCTION

Small and medium-sized enterprises (SMEs) form a critical component of facilitating economic growth, job creation, and innovation both in the developed and emerging economies. Their competitiveness and tenacity, however, is based on the effectiveness of their supply-chain management practices (SCPs) which is basically conditional.

Strong supply-chain management has helped SMEs to streamline their operations, reduce expenses and increase responsiveness to fluctuations in the market (Madzimure, 2020; Mafini et al., 2020). At the same time, interruptions in the world, like the COVID□19 pandemic, technological progress, and the growing environmental anxieties have highlighted the need to reconsider the supply-chain approach of SMEs to be resilient (Ramakrishna et al., 2023; Sukati et al., 2023).

The last twenty years have witnessed a significant increase in literature on supply chain practices and SME performance. There are traditional practices such as integration of suppliers, sharing of information as well as customer relationship management practices that still persist to be at the heart of SME operations.

More recently, the topic of sustainable and green practices, including eco-design, green procurement, and reverse logistics, and digital and smart practices, including IT integration, analytics, and Industry 4.0 technologies, also became the focus of research (Abdullah et al., 2023; Albhirat et al., 2023a; Al-Radaideh et al., 2023). This development is a sign of a growing understanding that competitiveness will be increasingly based on not just efficiency, but also sustainability, flexibility, and digitisation.

Irrespective of this increased interest, the literature is still disjointed. Most of the studies are methodologically cross-sectional and quantitative surveys, which restricts causal inferences and ignores how the supply-chain practices change over time (Prabhu & Srivastava, 2023; Tseng et al., 2023). Within the context, studies have been widely focusing on particular industries and geographic locations, which have not explored other sectors, including agriculture, services, and construction (Cahyono et al., 2023; Moyo et al., 2024).

Thematically, although the operational and financial results are well represented, the dimensions of environmental and social performance are relatively less systematically analysed, which point to the fact that a triple-bottom-line approach is not yet as widespread in SME-related settings (Chen, 2024; Teoh et al., 2023; Zhou et al., 2023).

To overcome these drawbacks, the present study implies two-step research that integrates The bibliometric analysis and systematic literature review (SLR).

The intellectual structure and the trends of publications in the field during the past 10 years (2014-2024) are mapped during the bibliometric phase (Phase1). Phase 2 (SLR phase) provides a deep thematic synthesis of 27 high-quality articles. These stages combined will help in an all-encompassing search of both quantitative trends and qualitative knowledge on the field.

Based on this, the research questions of the study are as follows

1.1. Phase 1: Bibliometric Analysis

- RQ1: What is the distribution of research publications in the supply-chain practices and SMEs' performance domain over the last 10 years (2014–2024)?
- RQ2: Who are the top authors contributing to this field?
- RQ3: What are the most utilized journals and publication sources?
- RQ4: Which countries contribute most significantly to publications in this domain?
- RQ5: What are the leading universities and institutions publishing on SCPs and SMEs' performance?
- RQ6: What are the most frequently used keywords and emerging research trends?

1.2. Phase 2: Systematic Literature Review (SLR)

- RQ7: What are the main supply-chain practices utilized in studying SMEs' performance?
- RQ8: Which performance dimensions (operational, financial, environmental, and social) are operationalized in SME supply-chain studies?
- RQ9: What research approaches and methodologies are employed in the study of SCPs and SMEs' performance?
- RQ10: What are the future research agendas and recommendations in the field?

By conducting a systematic study of these questions, the present study contributes to the well-understood processes through which the practices within the supply chain affect the competitiveness and sustainability of small and medium-sized enterprises.

Further, it provides policymakers, practitioners and scholars with empirically based knowledge, which can be employed in designing and managing SME supply-chain in ways that optimize their

performance.

2. METHODOLOGY

2.1. Research Design and Objectives

This paper aims to discuss how supply-chain practices (SCPs) affect the performance of small and medium-sized firms (SMEs). In order to achieve this, two-phase methodological approach was followed involving bibliometric analysis and systematic literature review (SLR).

This design allows publication trends to be quantified, at the same time synthesizing conceptual and empirical contributions, which allows constructing a detailed description of the field (Page et al., 2021; Tranfield et al., 2003).

2.2. Database Selection

Scopus has been chosen as the major data retrieval tool due to the fact that it is the biggest multidisciplinary database that covers more than 24,000 peer-reviewed journals (Burnham, 2006). In addition, Scopus provides advanced search and citation-tracking capabilities, which make it very reliable and reproducible when conducting a systematic review (Schoombee, 2023; Vignieri, 2020).

The rationale of this choice lies in the fact that previous academic research studies have proven that Scopus is a multifunctional tool to use in conducting both bibliometric and systematic reviews.

2.3 Identification of Studies

The initial search strategy employed the following query

TITLE-ABS-KEY (supply chain practices AND SMEs Performance) AND PUBYEAR > 2013 AND PUBYEAR < 2025 AND (LIMIT-TO (SUBJAREA , "BUSI") OR LIMIT-TO (SUBJAREA , "DECI") OR LIMIT-TO (SUBJAREA , "SOCI") OR LIMIT-TO (SUBJAREA , "ECON")) AND (EXCLUDE (EXACTKEYWORD , "Environmental Management") OR EXCLUDE (EXACTKEYWORD , "Environmental Performance") OR EXCLUDE (EXACTKEYWORD , "Environmental Economics") OR EXCLUDE (EXACTKEYWORD , "Environmental Technology") OR EXCLUDE (EXACTKEYWORD , "Environmental Sustainability") OR EXCLUDE (EXACTKEYWORD , "Environmental Impact")).

This search initially retrieved 334 records. After applying inclusion and exclusion criteria, the sample was narrowed to 170 records.

Due to accessibility constraints (e.g., closed access), 39 articles were downloaded in full. Following a quality assessment, 27 high-quality articles were retained for final analysis.

2.4. Screening and Inclusion Criteria

The criteria used to assess the eligibility of studies are summarized in Table 1. The PRISMA framework (Page et al., 2021) was used to document the study selection process. The stages of the review process including identification, screening, eligibility, and final inclusion are depicted in Figure 1.

Table 1: Inclusion and Exclusion Criteria.

Criteria	Inclusion criteria	Exclusion criteria
Keywords	Supply chain practices AND SMEs performance	Other fields outside SMEs/SCP focus
Years	2014–2024	Before 2014 or after 2024
Subject areas	Business, Decision Sciences, Social Sciences, Economics	Other subject areas
Language	English	Non-English
Source type	Peer-reviewed journal articles	Books, conference papers, reports

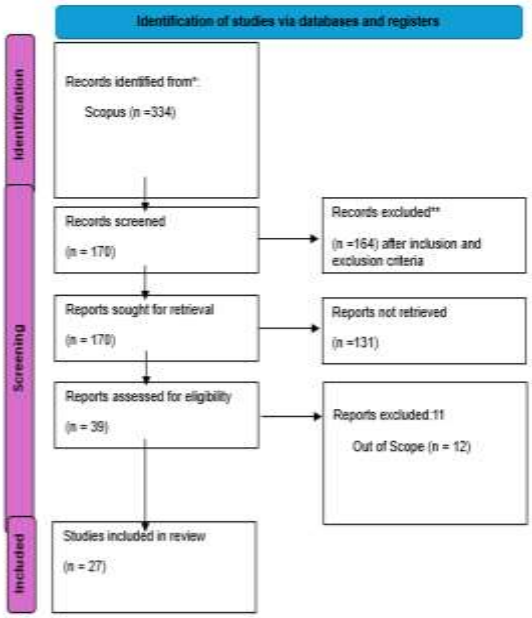

Figure 1: PRISMA Framework for Study Selection (Adapted from Page et al., 2021). Data Source: Scopus (2014–2024).

2.5. Phase 1: Bibliometric Analysis (RQ1–RQ6)

The bibliometric analysis has been taken to map the trends of publications and intellectual structures in the field. The data downloaded on Scopus was analysed with the help of descriptive statistics in Excel and RStudio and included co-authorship network, dynamic keywords, and evidence source distribution. It was an analytical phase that answered six research questions (RQ1-RQ6) with a focus on dissemination patterns, main authors, bibliographic

sources, national contribution, institutional affiliation, and thematic development.

2.6. Phase 2: Systematic literature review (RQ7–RQ10)

The next step was a systematic qualitative review of 27 articles preselected. The manuscripts have been evaluated in terms of their conceptual framework, methodological foundation, the supply-chain practices studied, performance measures considered, and the implications of supply-chain practices to small and medium-sized enterprises. Thematic coding helped to draw a line between four practice areas (traditional, sustainable/ green, digital/smart, and context-specific) and four performance domains (operational, financial, environmental, and social). This stage discussed RQ7 to RQ10 through the synthesis of findings, research gaps, and offered future research directions.

3. RESULTS

This section presents the findings of the study, organized into two phases. Phase 1 provides the bibliometric analysis (RQ1–RQ6), which defines the intellectual structure and dynamics of publication in the field. Phase 2 involves a thematically organized literature review (RQ7-10), which summarizes informative results of 27 carefully selected papers.

3.1. Phase 1: Bibliometric Analysis (RQ1–RQ6)

RQ1: What is the distribution of research publications in supply-chain practices and SMEs' performance over the last 10 years (2014–2024)?

The bibliometric analysis demonstrates the constant rise in the volume of research, which has indicated the growing academic concern about the role of supply-chain practices (SCPs) towards influencing the performance of SMEs. The search process was first able to identify 334 records and cut down to 170 articles using inclusion and exclusion criteria. These resulted in 39 full-text articles and 27 included articles after quality evaluation were included in the final review.

Publication distributions show a significant increase since 2015 when the interested has increased due to the increased concerns on digital transformation, sustainability and resiliency in SME supply chains. The most active time in terms of publications is the year 2023-2024 when several works will deal with smart supply-chain practices, green initiatives, and post-pandemic adaptations (e.g., Abdullah et al., 2023; Almohtaseb et al., 2024; Moyo et al., 2024; Saunila et al., 2024).

This trend highlights the growing appreciation of SCPs as important forces of SME competitiveness, innovation, and survival in dynamic markets.

Figure 2: Distribution of Publications on SCPs and SMEs' Performance, 2014–2024 (Data Source: Scopus; Visualized in R Studio v4.3.1).

RQ2: Who are the top authors in supply-chain practices and SMEs' performance research (2014–2024)?

The bibliometric analysis provided a number of authors whose contributions to the field were repeated. The most productive authors were JR, Kayyali M, Sun J, Xu Y, Jamshed M, Badshah A, and Jalal A, who each have two or more publications. Nevertheless, most of the authors were represented only once which means that the studies of SCPs and the performance of SMEs are still unified and spread out among various researchers and countries.

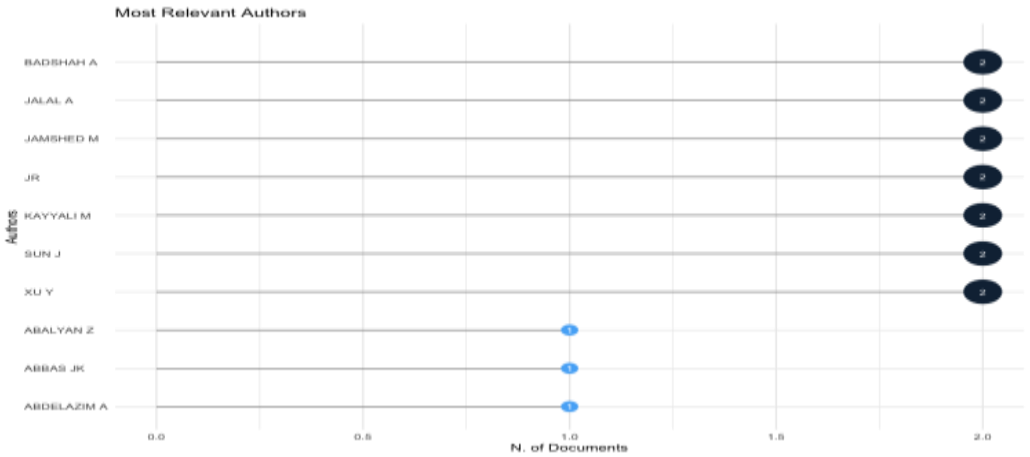

Figure 3: Top Contributing Authors in SCP–SME Research, 2014–2024 (Data Source: Scopus; Bibliometric Analysis in RStudio).

The figure shows that although some few authors are regulars, there is no single scholar who has been dominating the field. This opens up possibilities of better academic cooperation and formation of network in future studies.

RQ3: What are the most utilized journals/sources in the field of supply-chain practices and SMEs' performance (2014–2024)?

The bibliometric analysis showed that the research on supply-chain practices and the performance of SMEs are provided in a wide range of journals without one publication taking the leading position in the area.

Nevertheless, there are a number of regular journals to be found, such as Uncertain Supply Chain Management, Sustainability, International Journal of Sustainable Development and Plana as well as South African Journal of Business Management. Most of the highly cited and recent contributions are covered by these sources indicating the interdisciplinary nature of the SME supply-chain research.

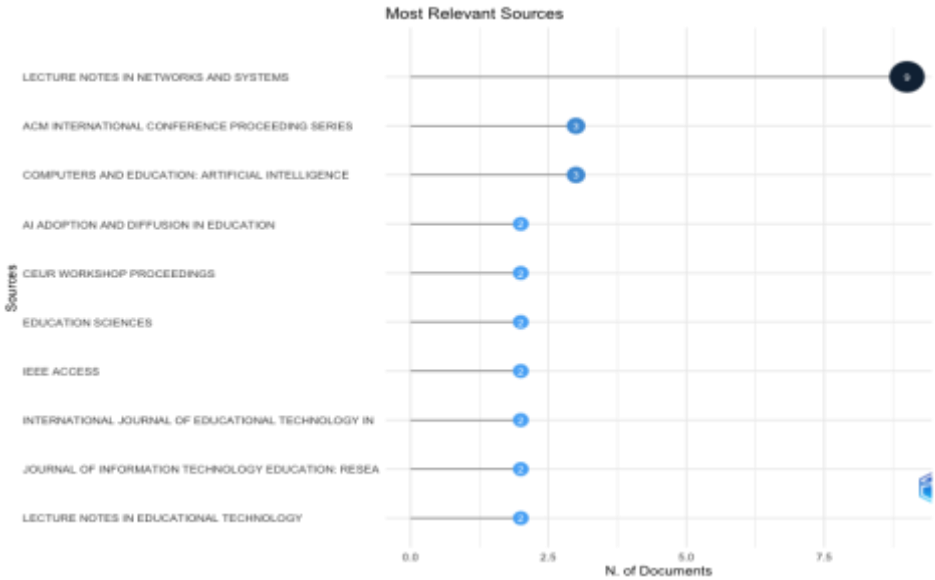

Figure 4: Most Utilized Journals Publishing SCP–SME Research, 2014–2024 (Data Source: Scopus; Visualized in RStudio).

The figure shows the dispersed but increasing interest in journals specializing in supply-chain management, sustainability and SME performance. The scatter shows chances of further amalgamation of knowledge at a handful of the top stores.

RQ4: Which countries contribute most significantly to research on supply-chain practices and SMEs' performance (2014–2024)?

The bibliometric mapping indicates that the research production is concentrated on a small

number of top countries having an impressive contribution of China, India, Malaysia, Jordan and South Africa. Most of the publications are done in these countries, both due to their strong SME industries and their increasing emphasis on the academic community on supply-chain innovation and sustainability. Contributions made by Europe and North America are relatively less, implying that emerging economies have dominated the issue.

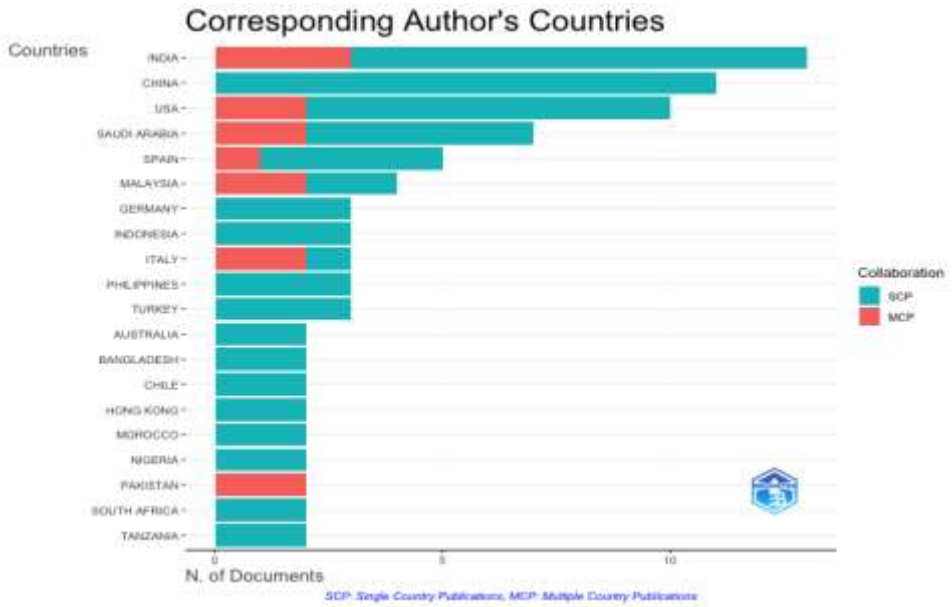

Figure 5: Top-Contributing Countries in SCP–SME Research, 2014–2024 (Data Source: Scopus).

This distribution indicates that research on SCPs and SMEs is not evenly global but is instead shaped by regions where SMEs play a particularly critical economic and developmental role.

RQ5: What are the top universities and institutions publishing on supply-chain practices and SMEs' performance (2014–2024)?

According to the institutional analysis, the research is distributed across a vast number of universities, where no single university prevails over the others. Nevertheless, the universities in Malaysia, Jordan, China, and South Africa were found to contribute repeatedly, which indicates that the universities are focused on developing SMEs and supply-chain resilience in the region. Among the active contributors, there are such institutions as Universiti Teknologi Malaysia (UTM), University of Technology and Applied Science (Oman), and Universitas Putera Batam (Indonesia).

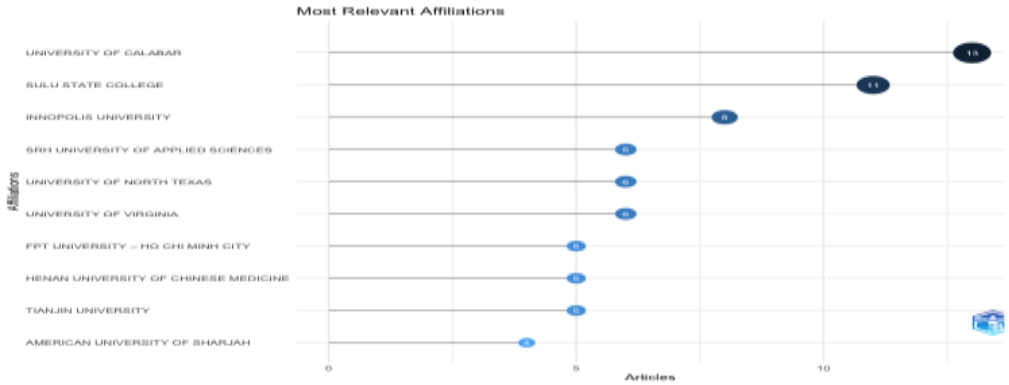

Figure 6. Top Universities and Institutions Publishing on SCP–SME Research, 2014–2024 (Data Source: Scopus).

The figure points out the fact that though the sphere remains institutional fragmented, there is a promising future with solid regional clusters in Asia and Africa, which can be used to give cross-country cooperation.

Q6: What are the most frequently used keywords

and emerging trends in research on supply-chain practices and SMEs' performance (2014–2024)?

The keywords analysis reveals the repetition of such themes as supply chain management, SMEs, performance, sustainability, innovation, integration, and digitalization. The more recent inputs focus on green supply chains, Industry 4.0, circular economy, and resilience, representing the changes toward sustainability and technological revolution in the supply chains of the SMEs.

Figure 7: Most Frequently Occurring Keywords in SCP–SME Literature, 2014–2024 (Data Source: Scopus; Co-Occurrence Map in RStudio).

The figure shows how the field has developed: the initial emphasis on efficiency and partnerships is replaced by modern-day areas of focus on sustainability, the use of digital technologies, and agility. This transition signifies that future studies would be more inclined towards incorporating green practices and improved technologies towards more competitiveness of SMEs.

3.2. Phase 2: Systematic Literature Review (RQ7–RQ10)

A systematic literature review (SLR) was performed on the set of 27 high-quality articles in order to supplement the bibliometric mapping in Phase 1. Although the bibliometric analysis (RQ1–RQ6) could be seen as a quantitative summary of the trends, the sources and intellectual structures, the SLR gives a qualitative summary of the conceptual and empirical knowledge. This two-fold strategy provides a holistic conception of the effect of supply-chain practices (SCPs) on the performance of SMEs.

The SLR was based on the PRISMA 2020 framework and utilized a thematic approach to coding to classify practices, performance dimensions, methodologies, and future research directions. All the reviewed studies were analysed in terms of years, country, method, practices and outcomes, and the information is detailed in Mapping of the reviewed studies in Appendix A, which forms the basis of the analysis in RQ7-RQ10.

RQ7: What are the main supply-chain practices utilized in studying SMEs' performance?

The review of 27 studies indicates that SMEs adopt a heterogeneous set of supply-chain practices to enhance performance, which can be grouped into four main categories. First, traditional practices such as supplier integration, strategic partnerships, customer relations, information sharing, lean and TQM methods, JIT, outsourcing, and postponement (Almohtaseb et al., 2024; Cahyono et al., 2023; Chandak et al., 2021; Jermsittiparsert & Rungsrisawat, 2019; Khalil et al., 2019; Mafini et al., 2020;Madzimure, 2020; Singagerda et al., 2024; Sukati et al., 2023) continue to dominate efficiency-oriented strategies. Second, sustainable and green practices are increasingly emphasized, including green supply chain management (eco-design, green purchasing, reverse logistics, traceability), CSR integration, green HRM, circular economy initiatives, and green logistics (Abdullah et al., 2023; Albhirat et al., 2023a; Chen, 2024; Moyo et al., 2024; Muafi & Kusumawati, 2021; Ramakrishna et al., 2023; Raza et al., 2021; Rasit et al., 2019; Singagerda et al., 2024; Teoh et al., 2023; Tseng et al., 2023; Valdez-Juárez et al., 2018; Wang et al., 2018; Zhou et al., 2023), reflecting the growing importance of environmental and social performance. Third, digital and smart practices leverage Industry 4.0 technologies, business intelligence, and IT integration to improve agility, collaboration, and decision-making, covering ERP systems, big data analytics, IoT, AI, robotics, and supply chain analytics (Abdullah et al., 2023; Al-Radaideh et al., 2023; Cahyono et al., 2023; Maleki et al., 2017; Muafi & Kusumawati, 2021; Ramakrishna et al., 2023; Saunila et al., 2024).

Finally, context-specific practices address unique institutional or sectoral requirements, including halal supply chain management, perishable food supply chains, leadership-driven agility, and regional frameworks adapted to developing economies (Cahyono et al., 2023; Moyo et al., 2024; Muafi & Kusumawati, 2021; Prabhu & Srivastava, 2023; Tseng et

al., 2023). Together, these categories highlight that SMEs employ a diverse portfolio of practices—ranging from efficiency-oriented to sustainability-driven, technology-enabled, and context-sensitive approaches—to strengthen their financial, operational, social, and environmental performance.

Overall, the evidence demonstrates that SMEs' performance is shaped by a multi-dimensional portfolio of supply-chain practices, spanning efficiency-driven, sustainability-oriented, technology-enabled, and context-specific approaches. This diversity underscores the strategic importance of tailoring SCM practices to the unique challenges and opportunities faced by SMEs in dynamic business environments.

Table 2: Categories of Supply-Chain Practices in SMEs.

Category	Key Practices	Representative Articles
Traditional practices	Supplier integration, partnerships, information sharing, lean/TQM, JIT, outsourcing, postponement	A3, A4, A5, A11, A12, A13, A21, A25, A26
Sustainable / green practices	GSCM (eco-design, green purchasing, reverse logistics), CSR integration, green HRM, circular economy, green logistics	A1, A6, A7, A9, A10, A16, A17, A18, A19, A22, A23, A24, A25, A27
Digital / smart practices	IT integration, ERP, business intelligence, analytics, smart manufacturing, Industry 4.0 (IoT, AI, robotics, big data)	A2, A8, A10, A14, A18, A20, A24, A26
Context-specific practices	Halal SCM, perishable food supply chains, leadership-driven agility, regional/country-specific models	A10, A15, A17, A26, A27

RQ8: Which performance dimensions are operationalized in SME supply-chain studies?

The review shows that SME supply-chain studies conceptualize performance through four main dimensions.

First, financial and economic performance is the most common, measured through profitability, ROI, cost savings, revenue growth, efficiency, and market share (Abdullah et al., 2023; Almohtaseb et al., 2024; Al-Radaideh et al., 2023; Cahyono et al., 2023; Chandak et al., 2021; Chen, 2024; Khalil et al., 2019; Madzimure, 2020; Maleki et al., 2017; Moyo et al., 2024; Muafi & Kusumawati, 2021; Prabhu & Srivastava, 2023; Ramakrishna et al., 2023; Raza et al., 2021; Rasit et al., 2019; Saunila et al., 2024; Singagerda et al., 2024; Sukati et al., 2023; Teoh et al., 2023; Tseng et al., 2023; Valdez-Juárez et al., 2018; Wang et al., 2018; Zhou et al., 2023).

Second, operational performance captures the efficiency of supply-chain processes, focusing on delivery reliability, lead-time reduction, logistics coordination, responsiveness, flexibility, product quality, capacity utilization, and inventory management (Abdullah et al., 2023; Almohtaseb et al., 2024; Al-Radaideh et al., 2023; Cahyono et al., 2023; Chandak et al., 2021; Khalil et al., 2019; Madzimure, 2020; Mafini et al., 2020; Moyo et al., 2024; Muafi & Kusumawati, 2021; Prabhu & Srivastava, 2023; Ramakrishna et al., 2023; Rasit et al., 2019; Singagerda et al., 2024; Sukati et al., 2023; Teoh et al., 2023; Wang et al., 2018).

Third, environmental performance reflects sustainability-oriented outcomes such as eco-efficiency, emission and waste reduction, sustainable resource use, green procurement, and compliance with environmental standards (Abdullah et al., 2023; Albhirat et al., 2023a; Almohtaseb et al., 2024; Chen, 2024; Moyo et al., 2024; Ramakrishna et al., 2023; Rasit et al., 2019; Saunila et al., 2024; Singagerda et al., 2024; Tseng et al., 2023; Valdez-Juárez et al., 2018; Wang et al., 2018; Zhou et al., 2023).

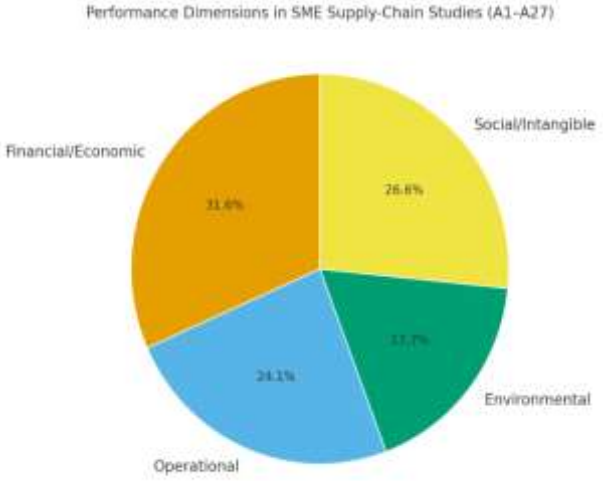

Figure 8: Categories of Supply-Chain Practices Adopted by SMEs (Based on 27 Studies Listed in Appendix A).

Finally, social and intangible performance extends the scope to stakeholders, including customer satisfaction, loyalty, employee well-being, CSR perception, reputation, working conditions,

community impact, and farmer livelihoods (Abdullah et al., 2023; Albhirat et al., 2023b; Almohtaseb et al., 2024; Cahyono et al., 2023; Chandak et al., 2021; Chen, 2024; Madzimure, 2020; Mafini et al., 2020; Moyo et al., 2024; Muafi & Kusumawati, 2021; Prabhu & Srivastava, 2023; Ramakrishna et al., 2023; Rasit et al., 2019; Saunila et al., 2024; Singagerda et al., 2024; Sukati et al., 2023; Tseng et al., 2023; Valdez-Juárez et al., 2018; Wang et al., 2018; Zhou et al., 2023). Together, these four dimensions present a multi-dimensional framework where SME performance is not only tied to financial outcomes but also operational efficiency, environmental sustainability, and social legitimacy.

RQ9: What are the research methods used when discussing SCPs and SMEs performance?

The analysis of the methodological strategies in the literature reviewed shows that there is a strong tendency towards quantitative designs. The majority of the literature is based on survey-based or cross-sectional research, often supported by the more advanced statistical methods of structural equation modelling (SEM), regression modelling, or SmartPLS platform. Examples include studies focusing on GSCM practices (Rasit et al., 2019), supplier integration (Madzimure, 2020), lean and TQM (Jermsittiparsert & Rungsrisawat, 2019), partnerships and internal processes (Khalil et al., 2019), SSCM practices in China (Wang et al., 2018), GSCM in Jordanian SMEs (Albhirat et al., 2023a), and e-procurement and supplier integration (Mafini et al., 2020). Similarly, investigations into business intelligence (Al-Radaideh et al., 2023), sustainable supply management (Raza et al., 2021), manufacturing practices (Abdullah et al., 2023), green logistics and circular economy (Zhou et al., 2023), supply-chain governance (Saunila et al., 2024), lean and postponement (Almohtaseb et al., 2024), reverse logistics (Chen, 2024), green procurement (Teoh et al., 2023), sustainable and smart supply chains (Ramakrishna et al., 2023), and halal-specific practices (Cahyono et al., 2023) all employed quantitative approaches. In total, 22 out of 27 studies (≈81%) fall within this dominant category.

The body of research that uses mixed-method designs is quite small, taking a combination of survey-based information with qualitative analysis to provide a more detailed contextual explanation. For example, studies on supply-chain agility and transformational leadership (Prabhu & Srivastava, 2023) and sustainable food supply chains in Malawi (Moyo et al., 2024) employed mixed-method designs. These account for ≈7% of the reviewed articles.

Finally, a limited number of contributions are conceptual in nature, developing theory-driven models rather than relying on empirical testing. Notable examples are the IT integration and agility study (Maleki et al., 2017), which proposed a conceptual framework using the resource-based view, and the narrative literature review on innovation-driven SSCM (Albhirat et al., 2023b). These account for ≈7% of the total.

Overall, the methodological distribution demonstrates a strong preference for quantitative, survey-based designs as the dominant approach in examining SCPs and SME performance, while the smaller proportion of mixed-method and conceptual studies signals growing recognition of the value of triangulation and theory-building in addressing the complexity of SME supply-chain management.

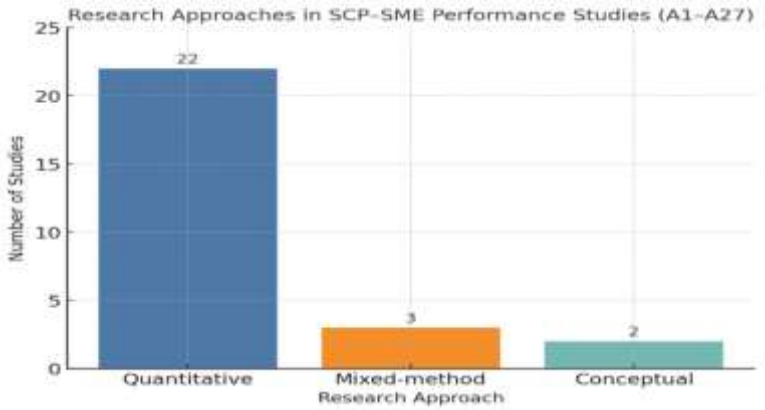

Figure 9: Research Approaches Used in SCP–SME Studies (Based on 27 Studies Listed in Appendix A).

RQ10: What are the future research agendas and recommendations?

Future research agendas on supply-chain practices and SME performance converge on five key areas: methodological advancements (longitudinal, mixed-method, multi-respondent), broader contextual scope (cross-industry, cross-country, emerging economies), sustainability and circular

economy integration, technology and digitalization, and the examination of mediators and moderators that shape SCP–performance relationships. Collectively, these recommendations highlight the need for more robust designs, broader contexts, and deeper theoretical integration to advance the field and provide actionable insights for SMEs operating in dynamic and resource-constrained environments.

Table 3: Future Research Recommendations.

Theme	Specific Recommendations	Article Labels
Methodological Advancements	Adopt longitudinal designs; employ mixed-method approaches; use probability sampling; multi-respondent data; reduce reliance on self-reports.	A5, A6, A7, A8, A9, A10, A11, A12, A14, A17, A18, A19, A20, A21, A22, A23, A24, A26, A27
Broader Contextual and Geographical Scope	Expand beyond single industries/sectors; cross-country comparisons; extend to developing/emerging economies; integrate regional/cultural contexts (halal, food, perishable SCs).	A1, A2, A3, A6, A7, A8, A9, A11, A12, A13, A14, A17, A21, A23, A24, A26, A27
Integration of Sustainability and Circular Economy	Strengthen CSR–SCM integration; examine circular economy adoption; explore product life-cycle analysis, extended producer responsibility, green transport practices.	A1, A6, A7, A9, A10, A16, A17, A18, A19, A22, A23, A24, A25, A27
Role of Technology and Digitalization	Investigate Industry 4.0 (IoT, AI, blockchain, robotics, cloud, big data); test business intelligence and analytics; explore digital traceability in halal and food supply chains.	A2, A8, A10, A14, A17, A18, A20, A24, A26
Exploring Mediators, Moderators, and New Constructs	Test mediators/moderators (innovation, social capital, institutional pressures, leadership, environmental dynamism, culture); explore SC innovation, resilience, and broader performance frameworks.	A3, A5, A7, A8, A9, A14, A15, A16, A21, A24, A26

4. DISCUSSION

The results of this research present a synthesized perspective of the role of supply-chain practices (SCP) on the performance of the SMEs, the results of both the bibliometric mapping (Phase 1) and systematic literature review (Phase 2).

4.1. Integration of Bibliometric and SLR Insights

The bibliometric analysis (RQ1–RQ6) has shown that the research activity is gradually increasing over the last 10 years and its rate is higher since 2015, and it is expected to be the highest in the next two years (Abdullah et al., 2023; Almohtaseb et al., 2024; Moyo et al., 2024; Saunila et al., 2024). The majority of the publications were China, India, Malaysia, Jordan, and South Africa (Cahyono et al., 2023; Madzimure, 2020; Sukati et al., 2023). The usage of keywords co-occurring showed a thematic shift with the traditional ones, including integration and efficiency, being replaced with sustainability, digitalization, and resilience (Al-Radaideh et al., 2023; Teoh et al., 2023; Zhou et al., 2023).

These insights were further extended to the SLR (RQ7–RQ10), indicating that SMEs are gradually adopting green initiatives (eco-design, CSR integration, reverse logistics) as well as digital practices (e-procurement, analytics, Industry 4.0 tools) in addition to maintaining traditional practices made to be efficient (supplier partnerships, lean management, information sharing) (Albhirat et al., 2023a; Rasit et al., 2019; Valdez-Juárez et al., 2018). Even though operational and financial performance are predominant in the already extant literature, the environmental and social performance dimension is gaining momentum, which is a slow transition to the triple-bottom-line orientation (Chen, 2024; Moyo et al., 2024; Tseng et al., 2023). Most of the studies have quantitative and cross-sectional designs methodologically (Mafini et al., 2020; Prabhu and Srivastava, 2023), which is why longitudinal and mixed-method designs are necessary to reflect the dynamic nature of SCPs in SMEs.

4.2. Theoretical Implications

The findings support the Resource-Based View (RBV) because they prove that SCPs are strategic resources that can boost the efficiency and competitiveness of SMEs (Madzimure, 2020). They also generalize the Dynamic Capabilities View (DCV) that highlights that the digital and green integration is a form of adaptive capabilities in allowing firms to reorganize processes when faced with uncertainty (Ramakrishna et al., 2023). In addition, the environmental and social aspect helps to support the Natural Resource-Based View (NRBV), which correlates the sustainability-focused resources with the long-term benefit of the firm (Chen, 2024; Teoh et al., 2023).

4.3. Practical Implications

To practitioners, the results emphasize the importance of the hybrid supply-chain strategy, which combines the classic efficiency with the sustainability and digital innovation. Information sharing, analytics, and green logistics can be used by SMEs to enhance their responsiveness to change and

minimize wastage of resources. It is recommended that policymakers (particularly in the emerging economies) should be motivated to support enabled environments by training, financial incentives, and infrastructure (Cahyono et al., 2023; Sukati et al., 2023). Enhancement of collaborations between universities, industry and government will enhance transfer of knowledge and adoption of technology in SME supply chains.

4.4. Contribution to the Literature

This paper contributes to the research in three main ways

1. It provides the initial integrated bibliometric + SLR synthesis of SCPSME research in the last decade.
2. It traces thematic change in terms of operational effectiveness to sustainability and digitalization (Albhirat et al., 2023a; Al-Radaideh et al., 2023).
3. It reveals the gaps in methodology and context suggesting an agenda of the future work that would include longitudinal research design, cross-country research, and diversification of sectors (Moyo et al., 2024; Prabhu and Srivastava, 2023).

All in all, the discussion indicates that the competitive advantage of SMEs is more and more based on the implementation of sustainable and digital supply-chain strategies and capabilities along with the conventional ones, which, in turn, allows the latter to attain both efficiency and resilience in the rapidly changing global environment.

5. CONCLUSION

This research paper investigated how studies focusing on supply-chain practices (SCPs) and performance of the SMEs have evolved over the last ten years (2014-2024) using a systematic literature review (SLR) with an additional bibliometric analysis. The bibliometric results showed that academic attention has steadily increased since 2015, and it also peaked in 2023-2024, especially in Asian and African countries like China, India, Malaysia, Jordan, and South Africa (Abdullah et al., 2023; Cahyono et al., 2023; Moyo et al., 2024). The shift in the direction of sustainability, digital transformation, and resilience in supply-chains is seen in the thematic evolution, where the formerly efficiency-oriented practices have changed (Al-Radaideh et al., 2023; Teoh et al., 2023; Zhou et al., 2023).

The SLR of 27 studies specifics revealed that SMEs are moving toward a hybrid model of supply-chain practices by incorporating the traditional efficiency-driven model with sustainable and digital innovations (Albhirat et al., 2023a; Rasit et al., 2019; Valdez-Juárez et al., 2018). Although the most discussed outcomes are operational and financial performance, the focus on the environmental and social one is still increasing (Chen, 2024; Tseng et al., 2023). The findings also approve the Resource-Based View (RBV) and Dynamic Capabilities View (DCV) by demonstrating that SCPs are strategic resource and dynamic capabilities to competitiveness. Sustainability integration is also consistent with the Natural Resource-Based View (NRBV), as it puts emphasis on the environmental and social aspects of performance (Chen, 2024; Teoh et al., 2023).

5.1. Limitations and Future Research

The review has a limitation of utilizing the Scopus database and the ultimate sample of 27 peer-reviewed journal articles. Though Scopus offers a multidisciplinary scope, relying on one database results in the possibility of bias of the database, since some relevant studies included in the Web of Science, Google Scholar, or regional databases could have been excluded. Moreover, this review considered only the publications in English language, and this might have omitted some useful information published in other languages.

The following studies can be thus suggested to use a multi-database and multi-lingual search to cover more and minimize possible bias. It is also recommended that further studies be done to use the longitudinal and cross-country analysis to make supply-chain practices of SMEs effectively captive of the changing and context-specific nature (Moyo et al., 2024; Prabhu and Srivastava, 2023).

5.2. Concluding Remark

Overall, this paper presents a detailed overview of the research in the field of SCPs and the performance of SMEs that were conducted within the last ten years. It provides both theoretical and management understanding and proves that the competitiveness of SMEs is more and more based on their skills to merge efficiency, sustainability and digital innovativeness in their supply-chain systems.

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APPENDIX A

Label	Authors	RQ1: supply-chain practices	RQ2: performance dimensions	RQ3: approaches	RQ4: FUTURE AGENDA\ RECOMMENDATIONS
A1	Rasit, Z., Zakaria, M., Hashim, M., Ramli, A., & Mohamed, M. (2019)	GSCM practices: eco-design, green purchasing, environmental cooperation, reverse logistics.	Sustainability performance: environmental, economic, social, and operational performance.	Quantitative survey of 85 ISO 14001–certified Malaysian SMEs (manufacturing sector).	Future research should test GSCM in other industries (e.g., agriculture, construction); assess the role of ISO 14001 certification and environmental management systems (EMS) as enablers; and examine internal organizational factors (leadership, managerial skills) that support SMEs' adoption of GSCM.
A2	Maleki Far, S., Akbari, M., &	IT integration as a supply chain practice; enhancing supply chain	Market performance (market share, profit	Conceptual/proposed model (theory-driven	Test model empirically in developing and developed

	Clarke, S. (2017)	agility (sense & respond capabilities, information sharing, ERP, ICT tools, industry support tech).	ratio, customer satisfaction, customer retention, new markets, customer loyalty, competitive advantage).	using RBV, literature review, propositions).	countries; extend to SMEs as well as large manufacturers; explore other IT competencies (e.g., IT flexibility) and their effect on operational & financial performance; compare contexts across industries and regions.
A3	Madzimure, J. (2020)	Supplier integration: collaboration, information sharing, joint decision-making, supplier partnerships, reducing opportunism.	Performance dimensions Tangible performance: cost, profits, cash turnover. Intangible performance: customer satisfaction, lead time, capacity utilization	Quantitative cross-sectional survey	Future research should broaden scope beyond Gauteng to other provinces for generalizability; incorporate other variables beyond supplier integration (e.g., marketing variables, schedule attainment, competitive performance); apply alternative performance frameworks such as SCOR model, flexibility, or output resources.
A4	Jermsittiparsert, K., & Rungsrisawat, S. (2019)	Information sharing, supplier relationships, TQM, lean practices, customer relationships, outsourcing, JIT, e-procurement, multiple sourcing, third-party logistics (3PL), strategic planning, selective sourcing, safety stock	Operational performance (efficiency, lead time reduction, customer satisfaction, resource planning)	Quantitative study	Deeper study of inhibitors and enablers of SCM–IS, need for vocational training, infrastructure improvement, and exploration of cross-country comparative insights for emerging economies.
A5	Khalil, M. K., Khalil, R., & Khan, S. N. (2019)	Strategic partnership with suppliers, level of information sharing, quality of information sharing, internal supply chain process, lean practices	Organizational performance (financial and non-financial/market factors)	Quantitative survey	Increase sample size, expand beyond five SCMPs, explore moderating variables (e.g., demand uncertainty, strategic goals), and test additional practices with innovation as mediator.
A6	Valdez-Juárez, L. E., Gallardo-Vázquez, D., & Ramos-Escobar, E. A. (2018).	Corporate Social Responsibility (CSR) integration in supply chain Sustainable supply chain management (SCM) practices (supplier selection, quality, delivery, ecological inputs) Innovation linked with SCM processes	Innovation (products, services, processes) Business image Business reputation Financial profitability	Quantitative, survey-based (143 SMEs in Mexico)	Strengthen sustainability practices through CSR–SCM integration. Adoption of ISO 14001 (environmental management) and ISO 26001 (CSR) certifications Develop green marketing, circular economy, and bioeconomy strategies. Extend research beyond single region (Mexico) to other geographies. Use more comprehensive CSR constructs (not only social dimension) Reduce reliance on self-reported data by adopting multi-source approaches.
A7	Wang, J., Zhang, Y., & Goh, M. (2018).	Internal SSCM practices: salary/compensation systems, IT management, employee participation, total quality management, innovation, ecological design, sustainable development strategy. External SSCM practices: sharing information with suppliers/distributors, external supervision mechanisms, supplier environmental assessment,	Economic performance (profitability, efficiency, cost savings) Environmental performance (pollution reduction, resource use, emissions, eco-compliance) Social performance (employee rights, working conditions,	Quantitative survey of 172 Chinese firms	SMEs should prioritize external SSCM practices (supplier collaboration, green procurement, traceability) for cost-effective sustainability. Large firms should leverage resources to invest in internal SSCM practices (innovation, quality management, eco-design). Government should actively promote SSCM, guiding

		product recovery, green procurement, product traceability.	corporate reputation, community impact).		SMEs with systems and collaboration mechanisms. Future research should include multiple respondents across supply chain actors (not only managers), expand to other industries, and test other moderators (resource integration, organizational efficiency, technological innovation). Developing countries need more empirical validation of SSCM frameworks.
A8	Albhirat, M. M., Zulkiffli, S. N. A., Salleh, H. S., & Zaki, N. A. M. (2023).	information sharing, collaboration with supply chain partners, innovation-driven SSCM, and environmental considerations integrated into SC processes	Economics: profitability, efficiency, market share. Environmental: eco-design, pollution reduction, sustainability of operations. Social: stakeholder welfare, employee well-being, societal contributions	Conceptual paper: narrative literature review	Conduct empirical validation of the conceptual framework in Jordanian SMEs. Expand research to other developing countries and global contexts. Examine mediators (e.g., social capital, entrepreneurial competencies) and moderators (e.g., government intervention, technology adoption). Explore the role of digitalization, AI, and Industry 4.0 technologies in strengthening SEO–SSCM–sustainability linkages. Use multi-respondent and longitudinal designs to reduce common method bias
A9	Albhirat, M. M., Zulkiffli, S. N. A., Salleh, H. S., & Zaki, N. A. M. (2023)	Internal GSCM (INT-GSCM): eco-design, internal environmental management. External GSCM (EXT-GSCM): environmental cooperation, green purchasing, reverse logistics.	Economic performance (profitability, cost savings, competitiveness). Environmental performance (reduced waste/emissions, eco-efficiency). Social performance (health, safety, stakeholder satisfaction)	Quantitative, cross-sectional survey of 420 Jordanian SMEs	Conduct longitudinal studies to capture sustainability changes over time. Extend research beyond Jordan Industrial Estates to other regions and countries. Apply mixed method approaches for deeper insights. Explore other potential moderators (e.g., institutional pressure, firm size, EMS adoption). Investigate additional GSCM practices (e.g., product life-cycle analysis, extended producer responsibility). Incorporate perspectives from NGOs and government to broaden analysis of SMEs' sustainability performance
A10	Muafi, M., & Kusumawati, R. A. (2021)	Green HRM (GHRM) practices (green recruitment & selection, training, empowerment, rewards, performance management). Supply Chain Organizational Learning (SCOL): team orientation, system orientation, learning orientation, memory orientation.	- Supply Chain Performance (SCP): efficiency, availability of goods, on-time delivery, supply capacity. Business performance (BP): Financial: cost, capacity utilization, inventory turnover. Non-financial: flexibility, delivery	Quantitative, survey-based study.	expand research to other provinces/countries for better generalizability. Conduct longitudinal studies rather than cross-sectional. Focus on SMEs that have fully implemented GHRM to validate results. Encourage courier SMEs to strengthen SCOL and environmental innovations. Investigate digitalization, environmentally friendly

			speed, customer satisfaction		technologies, and competitive service strategies in future models
A11	Sukati, I., Awain, A. M. S. B., & Ismaeel, R. I. (2023).	SPWMS: Strategic Partnerships with Main Suppliers SPWTC: Strategic Partnerships with Target Customers ISWSCP: Information Sharing with Supply Chain Partners ISCI: Internal Supply Chain Integration	A hybrid approach using both financials. and non-financial measures: Financial measures (e.g., profit/turnover-type outcomes) Non-financial measures (e.g., customer satisfaction, delivery/waiting time, employee-related service quality)	Quantitative, survey-based study.	Extend beyond a single SME context: vary firm size, multi-company, multi-industry, and other regions/countries. Develop advanced IT–enabled operational processes to support internal/external integration, design systems for seamless coordination between companies and suppliers. Employ longitudinal designs and richer methods (beyond cross-sectional self-reports). Deepen investigation of supply chain innovation (SCI) in the new normal under uncertainty; explore how organizations adapt mind-sets and business models post-COVID-19. Managerially, strengthen SPWMS, SPWTC, ISWSCP, and ISCI to enhance SME performance; raise awareness and capability for SCI even though moderation was not supported in this sample.
A12	Mafini, C., Dhurup, M., & Madzimure, J. (2020)	E-procurement functions: e-sourcing, e-design, e-informing, e-negotiation, e-evaluation. Supplier integration: collaboration, information sharing, long-term relationships, reducing uncertainties.	Supply Chain Performance (SCP) with two dimensions: Tangible: costs, profits, cash turnover. Intangible: customer satisfaction, capacity utilization, lead time	Quantitative, cross-sectional survey	Extend research beyond retail SMEs to other industries and provinces. Test SCP with broader frameworks (e.g., SCOR, resource–output–flexibility). Include multiple stakeholders (customers, manufacturers, suppliers) rather than only SME owners/managers. Examine additional e-procurement tools (e-payment, e-catalogue, e-tendering, e-purchasing, e-transportation). Employ probability sampling and larger samples for generalizability
A13	Chandak, A., Chandak, S., & Dalpati, A. (2021).	Supply Chain Strategy (SCS): innovative strategy, customer-oriented strategy, agile supply chain strategy. Supply Chain Flexibility (SCF): innovative/new product flexibility, process flexibility, existing product flexibility, delivery flexibility, information flexibility	Cost performance: ROI, ROI growth rate, market share, return on sales, sales growth. Logistics performance: reduced warehouse costs, reduced obsolescence, faster order processing, reduced inventory. Customer satisfaction performance: response time to queries, perceived product value, service systems, overall satisfaction, quality product at low cost	Empirical, quantitative survey	emphasize top management commitment and long-term vision in SCM strategy. Develop and apply SC flexibility aligned with business environment and future plans. Encourage Indian SMEs to adopt innovation and customer-oriented strategies to boost competitiveness. Broaden studies beyond automobile industry to test generalizability. Address limitations of single-sector and convenience sampling by using multi-sector, probability-based samples

A14	Al-Radaideh, A., Almajali, D., Ali, O., Alsmadi, K., AlWahshat, H., & Masad, F. (2023).	Supply Chain Integration (SCI): coordination and collaboration across suppliers, processes, and customers. Business Intelligence (BI): adoption of BI tools/strategies to improve data-driven decision-making in supply chains	Firm performance measured through: Operational efficiency Cost reduction Customer satisfaction Profitability (financial performance)	Quantitative, cross-sectional survey	Encourage SMEs to invest more in BI technologies and strategies. Improve SCI practices to fully leverage BI benefits. Extend research to other emerging markets and industries beyond Jordan. Employ longitudinal designs to validate causal relationships. Use multiple data sources to reduce self-report bias. Explore moderators such as organizational culture, leadership style, and HR practices. Investigate effectiveness of specific BI tools/technologies for enhancing SCI and performance
A15	Prabhu, H. M., & Srivastava, A. K. (2023).	Supply Chain Agility (SCA): Strategic alertness Strategic response capability Operational alertness Operational response capability Transformational leadership elements enabling SC agility: inspirational motivation, intellectual stimulation, individualized consideration	Financial performance: ROI, average profit, profit growth, return on sales, operating ratio. Non-financial performance: scheduled attainment, customer satisfaction, competitive performance	Mixed-method design	Extend framework validation to large firms and other countries for generalizability. Combine qualitative and quantitative methods for stronger triangulation. Explore overlapping variables via correlation analysis. Conduct multiple respondent interactions to strengthen model reliability. Highlight importance of leadership-driven SC agility as a strategic tool for SMEs in turbulent environments
A16	Raza, J., Liu, Y., Zhang, J., Zhu, N., Hassan, Z., Gul, H., & Hussain, S. (2021).	Sustainable Supply Management (SSM) practices: supplier selection based on CSR/ethical standards, environmental audits, sustainability reporting, transparency, responsible buying, and adherence to international standards (ISO 14001, ISO 26000, SA8000). Risk-focused practices: supplier performance audits, sustainability clauses in contracts, monitoring CSR issues in supply base. Dynamic practices: upstream and downstream SCM sustainability integration	Sustainability performance (SP): environmental (eco-compliance, sustainability in sourcing/production), social (CSR, stakeholder engagement, reporting), and economic (profitability, efficiency, competitiveness)	Empirical, quantitative study.	extend research to other developing markets beyond China. Conduct longitudinal studies to assess long-term dynamic capabilities. Explore other integration mechanisms (e.g., system integration, process coordination). Test additional mediators/moderators beyond SCRM and NC. SMEs should focus more on SCRM, while large firms should prioritize network capability to strengthen sustainability. Policy implications: governments and industry bodies should support SMEs in developing networking resources for sustainability
A17	Tseng, M. L., Li, S. X., Lim, M. K., Bui, T. D., Yuliyanto, M. R., & Iranmanesh, M. (2023).	Circular Supply Chain Management (CSCM) attributes: Cleaner production management (waste reduction, pollution prevention, zero-waste visions). Circular product design (eco-design, design for environment, sustainable product design).	Sustainability performance outcomes: Environmental: reduced waste, eco-efficiency, carbon emissions reduction.	Multi-method qualitative–quantitative hybrid:	SMEs should prioritize waste management practices and circular product design as key causal drivers of CSCM. Policy support needed to reduce cost/time barriers in CSCM adoption.

		Waste management practices (waste treatment capability, reuse capability, waste sorting, waste transportation). Circular procurement (sustainable procurement, green disposal practices). Reverse logistics (reuse/recycling, remanufacturing, collection). Circular management disclosure (carbon emissions, product recycling, corporate responsibility). Technology infusion/diffusion (green technology, clean technology, digitization of practice, knowledge training).	Economic: resource recovery, cost efficiency, profitability. Social: job creation, stakeholder health and safety, social responsibility		Broaden research to other developing countries beyond Indonesia. Incorporate digital technologies (IoT, blockchain, AI) for transparency and traceability in CSCM. Explore more industry-specific case studies to contextualize CSCM adoption. Conduct longitudinal studies to capture evolution of CSCM practices over time
A18	Abdullah, A., Saraswat, S., & Talib, F. (2023).	Smart manufacturing (SMP): big data analytics, additive manufacturing, robots & sensors, IoT, AI/ML, cloud computing. Green manufacturing (GMP): EMS, green design, waste treatment, 6Rs (reduce, reuse, recycle, recover, redesign, remanufacture), emission control, reverse logistics. Resilient manufacturing (RMP): information sharing, collaboration, contingency planning, multiple sourcing, flexible manufacturing, risk assessment, safety stock. Lean manufacturing (LMP): Kanban, value-stream mapping, SMED, standardized work, Six Sigma, TPM, Kaizen, 5S	Operational performance (OP): CRM effectiveness, demand/supply uncertainty management, long-term relationships with customers/suppliers, SMEs' business process effectiveness. Environmental performance (EP): EMS effectiveness, waste reduction, energy consumption/emission reduction. Social performance (SP): CSR, health and performance	Empirical, quantitative study.	SMEs must integrate SGRL practices simultaneously (rather than individually) to maximize performance. Policymakers should support SMEs with training, cost reduction programs, and digital adoption. Future studies should expand beyond Indian SMEs to other regions. Employ longitudinal studies to measure dynamic impacts over time. Explore integration with Industry 4.0 technologies for stronger performance outcomes. Combine DEA with other MCDM tools for more robust efficiency evaluations
A19	Zhou, B., Siddik, A. B., Zheng, G. W., & Masukujjaman, M. (2023).	Green Logistics Management (GLM): green education/monitoring/evaluation, green transportation & distribution, green warehousing & packaging, waste management & recycling, sustainable logistics information systems. Circular Economy Practices (CEP): reduction of input/energy, reuse of packaging/leftovers, recycling & reprocessing of waste. Supply Chain Traceability (SCT): identifying sources, tracing origins, monitoring processes, environmental performance tracking	Sustainability Performance (SP): Environmental: emission reduction, waste minimization, green resource use. Social: community health/safety, stakeholder involvement in green practices. Economics: efficiency, profitability, competitiveness	Empirical, quantitative survey.	Extend study to SMEs in other regions/industries. Explore multi-dimensional sustainability performance measures (economic, environmental, social separately). Apply covariance-based SEM (CB-SEM) for validation. Test SCT as a moderator in other relationships beyond GLM–CEP. Conduct longitudinal studies to confirm causality. Encourage policymakers and SMEs to adopt integrated GLM + CEP strategies as low-cost sustainability models
A20	Saunila, M., Ukko, J., & Jääskeläinen, A. (2024).	Supply Chain Governance mechanisms: Supply-side governance: material traceability, supplier confidence, supplier risk management. Demand-side governance: customer expectation management, feedback systems, collaborative practices.	Business performance: productivity, profitability, ROI, market share. Sustainability performance: Environmental (emission reduction, waste minimization, eco-compliance).	Empirical, quantitative study	Replicate in different contexts and countries for generalizability. Conduct longitudinal studies instead of cross-sectional. Supplement subjective survey data with objective performance measures. Explore multi-tier supply chain collaborations (beyond focal SMEs).

			Social (equality, non-discrimination, labor law compliance, working conditions)		Examine the influence of customer-driven sustainability pressures on SMEs. Study the role of digital PMM systems and Industry 4.0 technologies in governance
A21	Almohtaseb, A., Aldehayyat, J., Al Khattab, A., & Alabaddi, Z. (2024).	Strategic supplier partnerships Customer Relations management Information sharing Information quality Internal lean practices Postponement (delayed differentiation)	Operational performance (efficiency, quality, timeliness) Financial performance (profitability, sales, market share) Economic performance Sustainability performance (indirect through eccentricity)	Quantitative methodology	Strengthen innovation capabilities within SMEs to maximize SCM benefits. Consider supply chain egocentricity as a critical moderator beyond "green SCM" contexts. Apply multi-dimensional SCM practices instead of focusing on single dimensions. Extend research to diverse developing country contexts and industries beyond Jordan. Employ longitudinal studies to better test causality and capture temporal changes in SCM adoption
A22	Chen Y, 2024	Green logistics Reverse logistics (recycling, reuse, remanufacturing, waste management) Sustainable logistics integration (procurement, production, distribution)	Environmental performance (reduction of environmental impact, eco-efficiency) Social sustainability (customer satisfaction, CSR perception, stakeholder collaboration) Economic performance (cost reduction, competitiveness, profitability)	Quantitative methodology	Encourage broader adoption of reverse logistics among SMEs to enhance sustainability. Promote government incentives and regulatory frameworks to reduce barriers (e.g., high costs). Expand future research with longitudinal studies and larger, diverse samples. Strengthening collaboration between government, academia, industry, and society (Quadruple Helix model) to support sustainable logistics practices. Explore circular economy integration for SMEs beyond China
A23	Teoh, B. A., Arzaman, A. F. M., Chew, B. C., Aziz, M. S. A., Kamalrudin, M., & Chee, J. L. G. (2023).	Green Procurement (GP) Investment recovery (IR) Eco-design and packaging (EDP) Reverse logistics (RL)	Operational performance (measured by product quality, cost reductions, and flexibility)	Quantitative methodology	Expand research to other Malaysian states to improve generalizability. Use mixed-method approaches (interviews + surveys) for deeper insights. Include additional green practices (e.g., energy reduction, green manufacturing, green transportation). Increase awareness among Malaysian SMEs about the benefits of green practices. Policymakers should develop supportive regulations and guidelines for green supply chains
A24	Ramakrishna, Y., Alzoubi, H. M., & Indiran, L. (2023).	Sustainable supply chain practices: stakeholder management, sustainable supplier management,	Organizational performance measured through: Financial performance	Quantitative methodology	Expand research across multiple Indian states and other developing countries.

		value chain governance, green supply chain initiatives. Smart supply chain practices: information sharing, application of digital technologies, supply chain analytics	Stakeholder management outcomes Knowledge management capability Strategic supplier partnerships Customer relationships		Encourage SMEs to adopt affordable digital technologies and supply chain analytics. Strengthen supplier and stakeholder management for sustainability. Combine sustainable and smart strategies for resilience against disruptions. Conduct longitudinal studies to examine evolving impact over time
A25	Singagerda, F. S., Rahmawati, L., & Sabri, A. Z. S. A. (2024).	Supply chain integration (information flow, supplier collaboration, customer relationships, logistics coordination) Strategic supplier partnerships Postponement strategies Sustainable supply chain management practices (collaboration, green product design, reuse of materials)	Operational performance (efficiency, inventory management, product quality, responsiveness) Financial performance (profitability, cost reduction, revenue growth)	Quantitative descriptive research design	SMEs should enhance supply chain integration to optimize production efficiency and competitiveness. Greater emphasis on supplier collaboration, information sharing, and technology adoption. Promote sustainable supply chain practices (environmental conservation, material reuse, green design). Encourage managerial awareness about the strategic role of SCM in food and beverage SMEs. Future research could explore moderating factors (e.g., government support, technological readiness)
A26	Cahyono, Y., Purwoko, D., Koho, I. R., Setiani, A., Supendi, S., Setyoko, P. I., Sosiady, M., & Wijoyo, H. (2023).	Strategic supplier partnerships Customer relationship Management Information sharing (level and quality) Internal processes (delays / postponement) Halal-specific SCM practices: halal procurement, halal manufacturing, halal distribution, halal logistics	Organizational performance (financial metrics, market share, ROI, sales growth) Competitive advantages (price/cost, quality, delivery reliability, product innovation, time-to-market) Halal supply chain performance (compliance, integrity, traceability)	Quantitative methodology	Expand beyond employee perspectives to broader SME sectors (services, telecoms). Explore moderating role of halal certification and digital technology in SCM adoption. Extend research into cross-country halal supply chains for global generalizability. Examine long-term impacts of halal SCM practices through longitudinal studies. Strengthening collaboration between government, industry, and logistics providers in halal ecosystems
A27	Moyo, E. H., Carstens, S., & Walters, J. (2024).	Awareness (stakeholder understanding, training, incentives) Collaboration (supplier coordination, partnerships, governance initiatives) Efficiency (process streamlining, cold chain management, infrastructure improvements) Knowledge & information sharing (market access, transparency, technology adoption, traceability) Resilience (risk management, redundancy, climate-adaptive practices) Governance (policy support, SC mapping, stakeholder engagement, ethical compliance)	Environmental (waste reduction, carbon footprint minimization, eco-efficiency) Social (food security, stakeholder equity, responsible consumption, farmer livelihoods) Economic (profitability, resource optimization, competitiveness, employment generation)	Mixed methods	Develop sustainable food SC models tailored to developing-country contexts. Apply simulation and modelling to capture dynamics of perishables (e.g., bananas). Strengthening infrastructure (cold chains, roads, logistics) to reduce waste. Support SMEs with training, awareness campaigns, and credit access. Encourage government, NGOs, and private sector to collaborate in building resilient, sustainable FSC frameworks.

					Extend research beyond Malawi to other developing countries' perishable SCs