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Supply chain management and logistics in the Arab region: current status and future trends

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Abstract: The primary objective of this study is to provide a comprehensive overview of the state of research on supply chain management and logistics (SCML) in the Arab region from 2000 to 2023. One hundred ninety-five publications of different types on SCML and related topics in the Arab region published between 2000 and 2023 were reviewed and categorised using the content analysis method. The study reveals a tendency for theory verification (55%) over theory building (7%) and for empirical research (70%) over conceptual research (30%). The visibility of publications in top SCML journals is low (5%). Research collaboration at the regional and international levels (35%) is limited; academic-professional (12%) and academic-industry (9%) research collaborations are also limited. This is the first study to provide a thorough and comprehensive overview of research on SCML in the Arab region over the past two decades. Limitations, implications and lines of future research are discussed.

Keywords: supply chain management; logistics; content analysis; systematic literature review; Arab countries; Arab region.

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1 Introduction

Growing global interest in supply chain management and logistics (SCML) research has resulted in the publication of numerous conceptual and empirical studies. Although some Arab universities have begun to offer SCML studies at all levels in addition to continuing education programs and professional degrees, the vast majority of Arab institutions are

still in the process of developing these subjects. Academics and practitioners are expected to pay greater attention to SCML as its applications have recently increased across most Arab countries. As a result, the number of relevant research publications in the Arab region will increase accordingly.

The literature reviews addressed SCML research at the regional level, including Gulf Cooperation Council (GCC) countries (Durugbo et al., 2020), Africa (El Baz et al., 2019), Asia (Wu et al., 2017), and at the global level (Chen et al., 2023; Liao et al., 2023; Zamani et al., 2023; Pham et al., 2023; Albqowr et al., 2024; Altay et al., 2024; Culot et al., 2024; Gelagay and Werke, 2024; Hmouda et al., 2024; Shahzadi et al., 2024; Sharabati and Jreisat, 2024), sustainable supply chain management (SSCM) practices in developing countries (Jia et al., 2018; Sánchez-Flores et al., 2020; Atstāja and Mukem, 2024), and green supply chain management (GSCM) practices (Razak and Ibrahim, 2020).

Although extensive research in many Arab countries has led to several publications on these topics, whether from a conceptual or empirical perspective, there is still a lack of an up-to-date and comprehensive picture of SCML research in the Arab region. Most importantly, the sociocultural norms of the Arab region differ from those of Western and Eastern regions. For instance, a number of researchers have shown that national culture has a significant impact on SCML practices (e.g., Kristal et al., 2011; Flynn et al., 2013; Gupta and Gupta, 2019). Additionally, there is a need for SCML research within non-Western setting (e.g., El Baz et al., 2019). To address this knowledge gap, the present study investigates the status of SCML research in the Arab region, which differs from Western and Eastern regions in many aspects, over the 2000–2023 period with respect to the following: the most and least researched themes, the most and least used research design (quantitative, qualitative, mixed), the most and least used research types (empirical vs. conceptual), the most and least used methods of data collection and techniques of data analysis, the most and least preferred research purposes (theory building vs. theory verification), number of authors and co-authorship, authors' profile (academic, professional, and joint authorship), research trends in publications, and Arab countries with high and low or no SCML publications. The objectives of this study are therefore to:

- 1 Identify the main characteristics of research on SCML in the Arab region over the 2000–2023 period.
- 2 Identify the limitations of the published literature on SCML in the Arab region over the 2000–2023 period.
- 3 Envisage the future requirements for research on SCML in the Arab region.

The remainder of this study is organised as follows: the next section presents the literature review, followed by the methodology section. The following section presents the results and discussion, followed by the conclusions, which includes implications, limitations, and a future research agenda.

2 Literature review

Academic publications that provide a comprehensive overview of SCML research in the Arab region are lacking. However, several literature reviews have addressed a variety of

issues related to SCML research in regional and international contexts. Table 1 shows previous worldwide literature reviews related to SCML.

Table 1 literature reviews related to SCML

<i>Reference</i>	<i>Main findings</i>
Albqowr et al. (2024)	A systematic literature review on big data analytics (BDA) in SCML was conducted using 44 papers published between 2016 and 2020. The study outlined the benefits of using BDA in SCML, reported the challenges facing BDA application in SCML, and identified the determinants of successful implementation.
Altay et al. (2024)	A systematic literature review was conducted using 43 papers published between 2011 and 2021. The main objective was to identify gaps in the literature on innovation in humanitarian supply chains (IHSCs) and to develop a proper framework for future research. The results showed that research on IHSCs is still in its infancy.
Atstāja and Mukem (2024)	Using 38 papers published between 2012 and 2023, the study conducted a bibliometric analysis and a systematic review on SSCM in the oil and gas (OG) industry in developing countries (DCs). The selected papers were classified according to a number of criteria. The study concluded that SSCM in the OG industry in DCs is still not well explored by researchers.
Culot et al. (2024)	A systematic literature review of empirical studies on AI in SCM was conducted. A total of 123 articles published between 2010 and April 2024 were reviewed and analysed. The studies were classified according to publication year, publication journal, country, industry, methodology, underpinning theory, adopted AI model, used data, and supply chain operations reference process.
Gelagay and Werke (2024)	A systematic literature review was conducted to explore the relationship between green human resource management (GHRM) and green supply chain management (GSCM). A total of 30 studies published over the 2016–2023 period were analysed. These studies were classified based on publication year, publication journal, research methodology, country of study, and industry. The findings revealed a growing interest in understanding the relationship between GHRM and GSCM practices and their impact on sustainable performance. Most of the reviewed studies utilised quantitative survey methods and were conducted in developing countries.
Hmouda et al. (2024)	A systematic literature review on SSCM in energy production was carried out. A total of 97 papers published between 2006 and May 2022 were reviewed and analysed. The reviewed papers were classified according to publication year, energy sources, geographical focus, methodologies, and journal outlets. The study concluded that literature on SSCM in energy production is rare and unbalanced.
Shahzadi et al. (2024)	Employing a systematic literature review approach, the study reviewed literature on AI integration in SCM using 68 papers published between 2004 and 2023. The reviewed papers were classified according to publication year, publication journal, and research method. The study developed a theoretical framework and identified drivers, barriers, and outcomes of AI adoption in SCM.
Sharabati and Jreisat (2024)	A systematic literature review on the factors affecting blockchain technology (BCT) adoption and implementation in SCM was conducted using 23 articles published from 2016 to 2022. The study outlined the main benefits, limitations, and challenges facing the adoption of BCT in SCM. It also highlighted the factors affecting BCT application in SCM.

Table 1 literature reviews related to SCML (continued)

<i>Reference</i>	<i>Main findings</i>
Chen et al. (2023)	Through a systematic literature review approach, 61 articles published over the 1992–2022 period were reviewed and classified. The main purpose of the study was to identify the main themes of sustainable leather supply chains. Five themes were identified: drivers, practices, barriers, enablers, and outcomes.
Liao et al. (2023)	A systematic literature review on the construction supply chain (CSC) was conducted using 456 articles published over the 1998–2021 period. The findings suggested that CSC resilience received inadequate attention despite its importance in achieving CSC stability in uncertain situations.
Zamani et al. (2023)	A systematic literature review of AI and BDA research in supply chain resilience (SCR) was conducted using 31 articles published between 2016 and 2021. These articles were classified in terms of publication year, publication journal, industry, data collection techniques, and research methods. The results highlighted SCR phases (readiness, response, recovery, adaptability) that BDA and AI have shown to enhance, and the claimed benefits of using AI and BDA for SCR.
Pham et al. (2023)	Applying a systematic review approach, 30 papers published from 2000 to 2020 on supply chain risk management (SCRM) in construction were reviewed. Descriptive and content analyses were applied to analyse the selected papers. Descriptive analysis was used to classify the selected papers according to publication year, publication journal, country of research, and research methods, while content analysis was used to classify the selected papers according to types of risk.
Durugbo et al. (2020)	The complexity and orientation of the supply chain management (SCM) research literature in GCC countries, along with the findings related to regional supply chains that can be drawn from this study, are the two main research topics addressed by a systematic review. In this work, an orientation theory, a cultivation theory, and an organic view of the supply chain were developed.
Sánchez-Flores et al. (2020)	A systematic literature review on SSCM issues in many sectors in emerging economies was conducted using 56 articles published from April 2010 to April 2020. The results show that: 1 academics and practitioners now have a better understanding and are becoming more interested in SSCM 2 empirical research and mixed research methods were widely used alongside SEM 3 top management leadership and government support are critical factors for the success of SSCM in emerging economies.
Razak and Ibrahim (2020)	A total of 100 articles on GSCM practises published from 2000 to 2019 were analysed and categorised using a content analysis method. Results show that green purchasing was the most frequently covered topic in publications about GSCM practices in 2015. Surveys and cross-sectional research were the most frequently used research methods in most publications published in Asia.
El Baz et al. (2019)	A systematic review of SCML in Africa using 110 articles published between 1994 and 2016, shows that most research on logistics and SCM focuses on operational aspects and incorporates concepts from marketing, strategic management, organisational behaviour, and micro- and macroeconomics. Moreover, theory-based studies can be divided into: 1 theory-addressing 2 theory-conforming studies.

Table 1 literature reviews related to SCML (continued)

<i>Reference</i>	<i>Main findings</i>
Jia et al. (2018)	For the systematic review of the study on SSCM practices in developing countries, 85 papers published from 2000 to 2016 were used. The primary articles were theoretical, empirical, and literature reviews, while the topics of drivers, barriers, and mechanisms were determined for each country.
Wu et al. (2017)	A content analysis of 260 articles on logistics management in Asia published from 2003 to 2013 was conducted. A social network analysis revealed a collaborative research network structure. Article publication was influenced by place of publication, year of publication, research collaboration, research method, research design, data analysis method, unit of analysis, field of study, industry, region, and theoretical perspective.

Based on the above mentioned literature reviews, the following conclusions are drawn. First, literature reviews on SCML research in Arab contexts are lacking. Second, few literature reviews used the content analysis method (CAM) to classify the reviewed literature on SCML. Third, most of the literature reviews used few criteria to categorise and analyse literature on SCML. Fourth, most of the literature reviews used peer-reviewed journal papers only.

3 Methodology

This study uses the CAM to study and classify publications on SCML in the Arab region from 2000 to 2023. The CAM has been described by numerous scholars, e.g., as a methodological tool for systematic analysis and classification of qualitative data in various formats (Krippendorff, 2018) or as a quantitative, systematic analysis of new features (Neuendorf, 2017). The CAM has been successfully used in the classification and analysis of SCML literature (Mir et al., 2018; Duan et al., 2020; Razak and Ibrahim, 2020), BCT (Chandel et al., 2024), and total quality management (TQM)/quality management (QM) (e.g., Evans et al., 2014; Yousef, 2024). In this review study, the following procedures were applied to classify the existing SCML literature in the Arab region based on CAM adapted from Ibrahim et al. (2015):

Step 1 Publication time horizon

The study covers publications on SCML in the Arab region published between 2000 and 2023. Prior to 2000, there were no publications available online; therefore, the beginning year was 2000.

Step 2 Database selection

Google Scholar and several academic databases were used to identify and retrieve relevant publications.

Step 3 Eligible publication identification

This study includes articles from academic journals and conference proceedings, book chapters, working papers, group projects, and case studies, as well as published theses and dissertations on SCML, and other related topics in Arab

countries. The study includes only English-language publications that are available as full-text documents online.

Step 4 Publication selection

The search terms for the online retrieval include Arab countries, supply chain management, supply chain sustainability, supply chain technologies and logistics, transportation management, purchasing, procurement, distribution and pricing strategies, and project management as related terms. One hundred ninety-five publications were selected.

Step 5 Publication classification and analysis

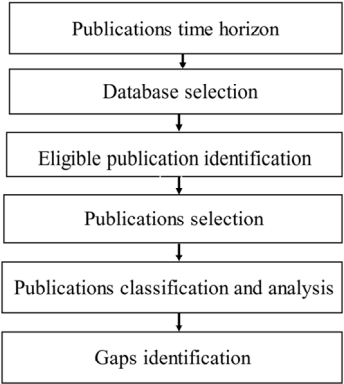
Criteria such as research theme, research type (empirical vs. conceptual), research design (quantitative, qualitative, and mixed), data analysis technique, data collection method, year of publication, country of study, number of authors and co-authorship patterns, authors' profiles, research purpose (theory building vs. theory), citations, and sample size were used to classify and analyse the selected publications.

Step 6 Gaps identification

After classifying and analysing the selected publications, their limitations were outlined, and recommendations to address these limitation were provided.

Figure 1 displays the steps of CAM.

Figure 1 CAM steps



4 Results and discussion

4.1 Characteristics of research on SCML in the Arab region from 2000 to 2023

4.1.1 Research theme

Table 2 summarises research themes that have received much attention in Arab countries' publications on SCML over the past 23 years, including:

- 1 green supply chains, GSCM, green procurement, green purchasing, and green logistics (20 publications)
- 2 e-procurement, e-procurement in construction, construction and public housing procurement, and procurement system and public procurement system (12 publications)
- 3 sustainability, sustainable supply chain, SSCM, sustainable supply chain agility, sustainable reverse supply chain, and sustainable procurement (11 publications)
- 4 supply chain integration (10 publications)
- 5 outsourcing/logistics outsourcing (10 publications)
- 6 purchasing practices/purchasing intension/purchasing behaviour (10 publications).

The growing interest in these themes may be due to increased attention in many Arab countries to environmental issues and the benefits of green supply chains and logistics, sustainable practices, and compliance with international environmental standards.

Table 2 SCML publications classified by research theme

<i>Theme</i>	<i>n</i>
Green supply chain management (GSCM)/green supply chain	12
Outsourcing/logistics outsourcing	10
Supply chain (SC) integration	10
Purchasing practices/purchase intension/purchasing behaviour	10
Green procurement/green purchase/green logistics	8
Logistics/logistics performance/logistics performance index	6
Supply chain management (SCM)/e-SCM	6
e-procurement/e-procurement in construction	6
Benchmarking	5
Sustainable SCM/sustainable sc/sustainable SC agility	5
Sustainability/Sustainable reverse SC	4
SCM performance/SC performance	4
Project management (PM)/PM communication/PM information system	4
Halal food supply chain/meat supply chain	3
Healthcare supply chain/SCM in healthcare/pharmacies	3
Procurement in construction/procurement of public housing	3
Procurement system/public procurement (PP)/PP system	3
SC agility/leanness/Lean SCM	3
SC partner selection/partners relationship/partners trust building	3
SC technology/smart SC/SC network	3
SCM/SC in small and medium enterprises	3
Transportation/transportation capacity allocation	3
Automotive supply chain	2
Buyer-supplier relationships	2

Source: Author

Table 2 SCML publications classified by research theme (continued)

<i>Theme</i>	<i>n</i>
e-government procurement	2
Food SC/food purchasing	2
Global logistics hub/logistics hub	2
GSCM/drivers/enablers	2
Logistics service providers	2
Modern inventory management practices/inventory management	2
Pricing policies/pricing decisions	2
Reverse logistics	2
SC responsive (responsiveness)	2
SC strategies	2
SCM approaches/SCM capabilities	2
Service SC/service SC resilience	2
Supplier selection	2
Supply chain	2
Sustainable procurement/sustainable public procurement	2
Trade logistics	2
Triple-A SC	2
Air shipment	1
Best SCM practices	1
Cold chain logistics	1
Desalination and power supply chain	1
Environment supply chain	1
Export SCM	1
Green supply chain in hotels	1
Horizontal logistics collaboration	1
Humanitarian logistics	1
Information flow in supply chain	1
Inland waterways logistics	1
Integrated logistics hub	1
Internal supply chain	1
International sourcing	1
IT in supermarket chains	1
Labour supply chain	1
Local content and procurement requirement	1
Logistics information system	1
Logistics management requirement	1
Logistics professionals	1
Logistics SCM	1
Logistics spaces	1
Maritime transport	1

Source: Author

Table 2 SCML publications classified by research theme (continued)

<i>Theme</i>	<i>n</i>
Reverse SCM	1
SC collaboration	1
SC relationships	1
SC resilience	1
SC risk/SC risk management	1
SC security	1
SCM and competitiveness	1
SCM in the construction	1
SCM information system	1
SCM practices and financial performance	1
Solid waste SC	1
Sustainable logistics service quality	1
Textile/apparel SC	1
Transport and logistics cluster	1
Transport infrastructure and logistics	1
<i>Total</i>	<i>195</i>

Source: Author

In the Arab region, research on several current research themes in SCML, such as AI in SCM, machine learning (ML) in SCM, blockchain (BC) and SCM, digital SCM, internet of things (IoT) in SCM, and BDA in logistics and SCM is lacking. In addition, little attention has been paid to global logistics and supply chains, which should be of high importance in the era of globalisation. Therefore, these themes should receive greater attention from both academics and practitioners in the Arab region.

4.1.2 Research design

Regarding the research designs used in SCML research, 123 publications (63.0%) used quantitative research design, 59 publications (30.0%) used qualitative research design, and 13 publications (7.0%) used mixed (triangulated) research design. A number of relevant previous studies conducted in different settings (e.g., Razak and Ibrahim, 2020; Sánchez-Flores et al., 2020; Yousef, 2024) reported similar findings. The results suggest that qualitative and mixed-method research designs require further attention, as they are valuable for theory development (Jasti and Kodali, 2014).

Table 3 SCML publications classified by research design

<i>Research design</i>	<i>n</i>	<i>%</i>
Quantitative	123	63.0
Qualitative	59	30.0
Mixed (quantitative and qualitative)	13	7.0
<i>Total</i>	<i>195</i>	<i>100.0</i>

Source: Author

4.1.3 Year of publication

Between 2000 and 2006, only 11 publications were published on SCML; this may be due to their relative unpopularity in the early 2000s. Starting in 2010, the number of publications increased but fluctuated over the 2010–2023 period, indicating an increasing research interest in SCML practices among academics in the Arab region. This in turn, has led to the inclusion of these topics in higher education programs in these countries. Meanwhile, publications on SCML are increasing worldwide, reflecting the importance and significant contributions of these practices to business promotion and economic production (e.g., Jasti and Kodali, 2015; El Baz et al., 2019).

Table 4 SCML publications classified by year of publication

<i>Year of publication</i>	<i>n</i>
2000	1
2001	1
2002	0
2003	1
2004	0
2005	3
2006	5
2007	4
2008	2
2009	3
2010	7
2011	9
2012	11
2013	7
2014	11
2015	9
2016	10
2017	16
2018	14
2019	18
2020	9
2021	29
2022	17
2023	8
<i>Total</i>	<i>195</i>

Source: Author

4.1.4 Country of study

The UAE ranked first with 74 publications (37.9%), followed by Egypt (n = 33, 16.9%), Jordan (n = 23, 11.8%), Saudi Arabia (n = 20, 10.3%), Morocco (n = 8, 4.1%), and Kuwait (n = 7, 3.6%). This result is consistent with the findings of Yousef (2024) who

reported that the UAE, Jordan, Saudi Arabia, and Egypt have the highest number of publications in QM. There were few or no publications in the remaining Arab countries. As this study examined only English-language publications, certain Arab countries may appear to have few or no publications due to their preference for publishing in other languages, such as Arabic or French. It may also be due to the fact that SCML is not yet widely taught in universities and practiced in industry in these countries. Therefore, additional institutional initiatives are needed to increase interest in SCML among academics and professionals in these countries.

Table 5 SCML publications classified by country of study

<i>Country</i>	<i>n</i>
UAE	74
Egypt	33
Jordan	23
Saudi Arabia	20
Morocco	8
Kuwait	7
Gulf Cooperation Council (GCC) countries	5
Middle East and North Africa (MENA)	3
Arab countries/Arab gulf countries	3
Iraq	3
Oman	3
Lebanon	3
Sudan	2
Tunisia	2
Egypt/UAE	1
Oman/Qatar	1
Oman/Tunisia	1
Palestine	1
Qatar	1
Yemen	1
Algeria	0
Bahrain	0
Comoros	0
Djibouti	0
Libya	0
Mauritania	0
Somalia	0
Syria	0
Total	195

Source: Author

Table 6 SCML publications (journal articles and conference papers) classified by methods of data collections

<i>Methods of data collection</i>	<i>n</i>	<i>%</i>
Questionnaire survey	102	53.9
Documentation reviews	30	15.9
Semi-structured interviews	27	14.3
Case studies	20	10.6
Not mentioned	7	3.7
Observation	2	1.1
Focus groups	1	0.53
<i>Total</i>	<i>189*</i>	<i>100%</i>

Note: *Most articles used more than one method of collecting data.

Source: Author

4.1.5 *Methods of data collection*

One hundred and two papers (53.9%) used questionnaire surveys, 30 (15.9%) used documentation reviews, 27 (14.3%) used semi-structured interviews, and 20 (10.6%) used case studies. This result shows that questionnaire surveys are the predominant tool in the Arab region to collect data for SCML studies. These results are in line with several previous relevant studies (Soni and Kodali, 2012; El Baz et al., 2019; Yousef, 2024). It was noticed that focus groups, field assessments, experiments, observation, and panel studies are rarely used for collecting data. Therefore, it is important for Arab SCML researchers to move away from traditional methods of data collection and use the latest methods to improve the quality of their publications. It was also found that a limited number of papers used multiple methods of data collection ($n = 36$, 21.7%). To improve the quality of data collected, and in turn, the reliability of findings and conclusions, there is a need for using more than one method of data collection.

4.1.6 *Techniques of data analysis*

Sixty-two journal articles and conference papers (39.2%) used simple techniques of data analysis, such as descriptive statistics and simple regression analysis. In contrast, 96 journal articles and conference papers (60.8%) used advanced techniques of data analysis, such as SEM, multiple/stepwise/hierarchical/OLS regression analyses, exploratory and confirmatory factor analyses, ANOVA/MANOVA, mathematical modelling, AHP, and interpretive structural modelling/fuzzy interpretive structure modelling. In some publications, advanced analytical techniques were used in addition to descriptive analysis. The results of this study support the findings of other previous studies (Giunipero et al., 2008; Sachan and Datta, 2005), which reported that descriptive analysis was the most preferred basic technique of data analysis, whereas regression analysis is considered an advanced technique of data analysis. The results also revealed that the CAM was rarely used in SCML research in the Arab region. This result is consistent with the findings of Mir et al. (2018), who reported that content analysis is not widely used in quantitative research in SCM.

Table 7 SCML publications (journal articles and conference papers) classified by techniques of data analysis

<i>Techniques of data analysis</i>	<i>n</i>	<i>%</i>
<i>Basic techniques of data analysis</i>		
Descriptive statistics	56	35.4
Simple regression model	6	3.8
Subtotal	62	39.2
<i>Advanced techniques of data analysis</i>		
Multiple/stepwise/hierarchical/OLS regression model	19	12.0
Structural equation model (SEM)	31	19.6
Mathematical model	7	4.4
Analytical hierarchy process (AHP)	5	3.2
ANOVA/MANOVA	13	8.2
Exploratory factor analysis/confirmatory factor analysis	15	9.5
Interpretive structural modelling/fuzzy interpretive structure modelling	3	1.9
Simulation	2	1.3
Data envelopment analysis (DEA)	1	0.6
Subtotal	96	60.8
<i>Total</i>	<i>158*</i>	<i>100%</i>

Note: *Most articles used more than one technique.

Source: Author

4.1.7 Number of authors

Table 8 shows co-authorship patterns in the Arab region. The study found that 84 journal articles (56.8%) and 11 conference papers (61.1%) usually had two to three co-authors. Moreover, 33 journal publications (22.3%) and one conference paper (5.6%) had more than three authors. These results are consistent with the findings of Wu et al. (2017), who reported that 62.0% of the papers studied were co-authored by two or three authors. Co-authorship usually leads to high productivity and high-quality research publications (Wu et al., 2017; Shehatta and Mahmood, 2016). Co-authorship patterns in the Arab region were either within the same institution, different institutions in the same country, or with foreign institutions. The study of 129 SCML publications (journal articles and conference papers) in the Arab region revealed that the co-authors of 84 publications (65.1%) were from institutions in the same country, while the co-authorship of 45 publications (34.9%) was a research collaboration between local, regional, and international researchers. This result is consistent with the findings of a number of previous studies (Maware et al., 2022; Yousef, 2024), which found that authorship from a single country predominated over authorship from multiple nations. Therefore, it is necessary to promote research collaboration between Arab researchers and their international colleagues to increase the quality and visibility of publications.

There was limited academia-industry research collaboration, as only 11 articles (8.5%) of the 129 articles co-authored by two or more authors reflected academia-industry research collaboration. Thus, academia-industry research collaboration needs to

be encouraged to improve the expertise and experience of scholars in the Arab region and to bridge the gap between theory and practice.

Table 8 SCML publications (journal articles and conference papers) classified by number of authors

<i>Number of authors</i>	<i>Journal articles</i>		<i>Conference papers</i>	
	<i>n</i>	<i>%</i>	<i>n</i>	<i>%</i>
1	31	20.9	6	33.3
2	47	31.8	8	44.4
3	37	25.0	3	16.7
4	13	8.8	1	5.6
5	9	6.1	0	0
6	6	4.1	0	0
7	4	2.7	0	0
8	0	0	0	0
9	1	0.70	0	0
<i>Total</i>	<i>148</i>	<i>100%</i>	<i>18</i>	<i>100%</i>

Source: Author

4.1.8 Authors’ profiles

Regarding the authors’ profiles of 129 publications, 112 (86.8%) were authored by academics, 2 (1.6%) were authored by professionals, and 15 (11.6%) had joint authorship. This finding supports the views of Sreedharan and Raju (2016), Niñerola et al. (2021) and Yousef (2024), who reported that about 70%, 88%, and 82% of authors are academics, respectively. According to these results, more collaboration between professionals and academics is needed to improve the skills, expertise, and understanding of Arab scholars and bridge the gap between theory and practice.

Table 9 SCML publications (journal articles and conference papers) co-authored by two or more authors classified by authors’ profile

<i>Authors profile</i>	<i>n</i>	<i>%</i>
Academic	112	86.8
Professional	2	1.6
Both	15	11.6
<i>Total</i>	<i>129</i>	<i>100%</i>

Source: Author

4.1.9 Research type and purpose, citations, and sample size

Regarding the research type, 103 (69.6%) of the 148 journal articles were empirical and 45 (30.4%) were conceptual. Similar findings were reported by a number of previous studies (Elbaz and Iddik, 2020; Sánchez-Flores et al., 2020; Yousef, 2024). Empirical research is important for developing new theories and testing existing ones (Flynn et al., 1990; Soni and Kodali, 2012) and, in turn, deserves more attention. However, care should

be taken to balance empirical and theoretical research. Theoretical research is important to develop new theories or improve existing theories in the fields of SCM and logistics, and therefore should not be underestimated.

Regarding the research purpose, 92 journal articles (62.2%) were based on theories, whereas 82 articles (55.4%) were for theory verification and 10 (6.8%) were for theory building, while 56 articles (37.8%) had no theoretical basis. Thus, theory verification is preferable to theory building. This result is consistent with the findings of several studies (e.g., Liu and McKinnon, 2016; El Baz et al., 2019; Yousef, 2024). The result, however, is in contrast with those of a number of previous studies (e.g., Soni and Kodali, 2012; Bhatia and Gangwani, 2021), which found more preference for theory building over theory verification. It was found that the widely used theory-based research was mainly developed in the West, which is irrelevant to the sociocultural environment of developing countries, including the Arab region. Therefore, it is necessary to develop or modify SCM and logistics theories to fit the norms of the country.

Table 10 SCML journal articles classified by research type and purpose, citations, and sample size

<i>Research type</i>	<i>n</i>	<i>%</i>
Empirical	103	69.6
Conceptual	45	30.4
Total	148	100%
<i>Research purpose</i>		
Theory building	10	6.8
Theory verification	82	55.4
None	56	37.8
Total	148	100%
<i>Citations</i>		
< 100	138	93.2
100 – < 300	7	4.7
300 – < 500	1	0.7
500 and above	2	1.4
Total	148	100%
<i>Sample size</i>		
< 100	38	25.7
100 – < 300	40	27.0
300 – < 500	22	14.9
500 and above	5	3.4
Not mentioned or not applicable	43	29.0
Total	148	100%

Source: Author

With respect to citations, it was found that 138 (91.7%) of the published journal articles have fewer than 100 citations. Such low citation counts might be because the topics covered are not current topics of interest. For instance, Ding and Cronin (2011) argued

that how frequently a topic is cited by other publications could be an indication of its merit and reputation.

In terms of sample size, the sample size in 78 (about 52.7%) journal articles was up to 300 respondents. This indicates that the results of these studies are largely reliable, as the reliability of the results usually increases as the sample size increases.

4.1.10 Publication journal

Table 11 shows the venues and the number of papers in which a total of 148 articles were published. These journals were from various fields and domains covering applications of SCML, including business and management, engineering, education, economics, information systems, marketing, operations research, and operations management. Of the 148 articles, only 8 articles (5%) were published in leading SCM and logistics journals (i.e., *International Journal of Physical Distribution & Logistics Management*, *The International Journal of Logistics Management*, *Supply Chain Management: An International Journal*, *Supply Chain Forum: An International Journal*). This result shows that publications in the Arab region should meet the quality standards and requirements of reputable academic publishers, which in turn requires the selection of current topics of interest to the SCML research community.

Table 11 SCML journal articles classified by publication journal

<i>Publication journal</i>	<i>n</i>
<i>Uncertain Supply Chain Management</i>	6
<i>Benchmarking: An International Journal</i>	4
<i>Business Process Management Journal</i>	4
<i>Sustainability</i>	4
<i>International Journal of Business and Management</i>	3
<i>International Journal of Logistics Systems and Management</i>	3
<i>The International Journal of Logistics Management</i>	3
<i>International Business Research</i>	2
<i>International Journal of Physical Distribution & Logistics Management</i>	2
<i>Renewable and Sustainable Energy Reviews</i>	2
<i>Supply Chain Forum: An International Journal</i>	2
<i>Technological Forecasting and Social Change</i>	2
<i>Advances in Mechanical Engineering</i>	1
<i>Agricultural Economics Review</i>	1
<i>American Journal of Operations Research</i>	1
<i>Antipode</i>	1
<i>Asian Journal of Management Cases</i>	1
<i>BAU Journal-Health and Wellbeing</i>	1
<i>Bulletin of the World Health Organization</i>	1
<i>Energy Conversion and Management</i>	1
<i>Environment and Planning D: Society and Space</i>	1

Source: Author

Table 11 SCML journal articles classified by publication journal (continued)

<i>Publication journal</i>	<i>n</i>
<i>European Journal of Business and Management</i>	1
<i>European Journal of Scientific Research</i>	1
<i>European Journal of Sustainable Development</i>	1
<i>GeoJournal</i>	1
<i>Industrial Engineering Letters</i>	1
<i>Industrial Management & Data Systems</i>	1
<i>International Journal of Agriculture, Forestry and Plantation</i>	1
<i>International Journal of Business and Economic Affairs</i>	1
<i>International Journal of Business Performance Management</i>	1
<i>International Journal of Civil Engineering and Technology</i>	1
<i>International Journal of Construction Management</i>	1
<i>International Journal of Construction Supply Chain Management</i>	1
<i>International Journal of Consumer Studies</i>	1
<i>International Journal of Finance, Business, Economics, Marketing and Information Systems</i>	1
<i>International Journal of Heritage, Tourism, and Hospitality</i>	1
<i>International Journal of Information Systems and Supply Chain Management</i>	1
<i>International Journal of Integrated Supply Management</i>	1
<i>International Journal of Logistics Economics and Globalization</i>	1
<i>International Journal of Logistics Research and Applications</i>	1
<i>International Journal of Management</i>	1
<i>International Journal of Management Research and Development</i>	1
<i>International Journal of Mathematical, Engineering and Management Sciences</i>	1
<i>International Journal of Procurement Management</i>	1
<i>International Journal of Productivity and Performance Management</i>	1
<i>International Journal of Retail & Distribution Management</i>	1
<i>International Journal of Supply Chain Management</i>	1
<i>International Journal of Urban and Regional Research</i>	1
<i>International Marketing Review</i>	1
<i>Journal for the Advancement of Performance Information and Value</i>	1
<i>Journal of Advanced Research in Business and Management Studies</i>	1
<i>Journal of Alexandria University for Administrative Sciences</i>	1
<i>Journal of Applied Business Research</i>	1
<i>Journal of Business & Economic Policy</i>	1
<i>Journal of Business & Industrial Marketing</i>	1
<i>Journal of Business Ethics</i>	1
<i>Journal of Cleaner Production</i>	1

Source: Author

Table 11 SCML journal articles classified by publication journal (continued)

<i>Publication journal</i>	<i>n</i>
<i>Journal of Enterprise Information Management</i>	1
<i>Journal of Global Information Technology Management</i>	1
<i>Journal of Hospitality and Tourism Management</i>	1
<i>Journal of Knowledge Management</i>	1
<i>Journal of Management and Strategy</i>	1
<i>Journal of Management and Training for Industries</i>	1
<i>Journal of Marketing Channels</i>	1
<i>Journal of Marketing Technology Management</i>	1
<i>Journal of Public Procurement</i>	1
<i>Journal of Supply Chain Management: Research and Practice</i>	1
<i>Journal of Turkish Operations Management</i>	1
<i>Knowledge and Process Management</i>	1
<i>Net Journal of Business Management</i>	1
<i>Paradigm</i>	1
<i>Social Responsibility Journal</i>	1
<i>South African Journal of Business Management</i>	1
<i>Supply Chain Management: An International Journal</i>	1
<i>Sustainable Development</i>	1
<i>The Electronic Journal of Information Systems in Developing Countries</i>	1
<i>The International Journal of Business Management and Technology</i>	1
<i>The Arab Journal of Specific Education</i>	1
<i>Theoretical Economics Letters</i>	1
<i>Thunderbird International Business Review</i>	1
<i>Transnational Marketing Journal</i>	1
<i>Uluslararası Afro-Avrasya Araştırmaları Dergisi</i>	1
<i>World Economy</i>	1
<i>World Review of Science, Technology and Sustainable Development</i>	1
<i>AIMS Agriculture and Food.</i>	1
<i>American Journal of Industrial and Business Management</i>	1
<i>Arab Economic and Business Journal</i>	1
<i>Civil Engineering Journal</i>	1
<i>Decision Making: Applications in Management and Engineering</i>	1
<i>Energies</i>	1
<i>Environmental Science and Pollution Research</i>	1
<i>Frontiers in Education</i>	1
<i>Global Business & Management Research</i>	1
<i>Heliyon</i>	1

Source: Author

Table 11 SCML journal articles classified by publication journal (continued)

<i>Publication journal</i>	<i>n</i>
<i>IBusiness</i>	1
<i>Indian Journal of Economics and Business</i>	1
<i>International Journal of Business and Management Invention</i>	1
<i>International Journal of Excellence in Government</i>	1
<i>International Journal of Lean Six Sigma</i>	1
<i>International Journal of Marketing, Communication and New Media</i>	1
<i>International Journal of Online Marketing (IJOM)</i>	1
<i>International Journal of Qualitative Studies in Education</i>	1
<i>International Journal of Service Science, Management, Engineering, and Technology</i>	1
<i>International Journal of Tourism and Hospitality Management</i>	1
<i>ISRA International Journal of Islamic Finance</i>	1
<i>Journal of Enterprising Communities: People and Places in the Global Economy</i>	1
<i>Journal of International Consumer Marketing</i>	1
<i>Journal of Islamic Marketing</i>	1
<i>Journal of Pharmaceutical Policy and Practice</i>	1
<i>Journal of Positive School Psychology</i>	1
<i>Journal of Retailing and Consumer Services</i>	1
<i>Journal of the Mechanical Behavior of Materials</i>	1
<i>Laws</i>	1
<i>L'Egypte Contemporaine</i>	1
<i>Logistics</i>	1
<i>New Political Economy</i>	1
<i>Polish Journal of Management Studies</i>	1
<i>Social Marketing Quarterly</i>	1
<i>Tourism and Hospitality Research</i>	1
<i>Transnational Marketing Journal</i>	1
<i>Transportation Letters</i>	1
<i>Tropical Scientific Journal</i>	1
<i>VINE Journal of Information and Knowledge Management Systems</i>	1
<i>Total</i>	<i>148</i>

Source: Author

4.1.11 Other SCM and logistics publications

Over the past 23 years, 18 conference papers have been presented, but only 12 have been published in peer-reviewed international conference proceedings. This indicates that SCML research in the Arab region has a low profile and Arab academics contribute little to global SCML research. Furthermore, there are 8 master's theses and 11 dissertations related to the Arab region published by postgraduate programs in Arab universities. This reflects a similar research situation in these topics and limited practice in the business

sectors, showing that SCML research is not yet well established in either area. Therefore, significant efforts are needed to highlight the importance of SCML from academic and professional perspectives.

Table 12 Other SCML publications

<i>Other SCML publications</i>	<i>n</i>	<i>%</i>
Conference papers	18	38.3
PhD/DBA dissertation	11	23.4
MSc/MBA thesis	8	17.0
Book chapters	5	10.6
Working papers	2	4.3
Case studies	2	4.3
Group projects	1	2.1
<i>Total</i>	<i>47</i>	<i>100%</i>

Source: Author

4.2 Limitations of the published literature on SCML in the Arab region from 2000 to 2023

The followings are the limitations of currently published literature on SCML in Arab contexts:

- 1 There is a lack of research in the Arab region on several current research topics in SCML, such as AI in SCM, ML and SCM, BC and SCM, digital SCM, IoT and SCM, and big data analytics in logistics and SCM. Additionally, global supply chains and logistics have received low attention despite their importance.
- 2 Methods of data collection, such as experiments, focus groups, field assessments, observation, and panel studies are rarely used in SCML research.
- 3 Techniques of data analysis, such as AHP, DEA, interpretive structural modelling, mathematical modelling, and simulation modelling are rarely used.
- 4 In the Arab region, theory-building research is limited.
- 5 Triangulated research design and conceptual research types are not widely used.
- 6 There is a lack of longitudinal research.
- 7 Multiple data collection methods are not widely used.
- 8 There is a lack of SCML theories and/or customised theories that accommodate the contexts of Arab countries.
- 9 Academic-professional research collaboration and academic-industry research collaboration are limited.
- 10 There are not many regional and international research collaborations.
- 11 Publication in high-impact international journals in the field is very low.
- 12 A number of Arab countries had a limited number of studies in SCML.

13 There are not many conference articles and PhD dissertations.

4.3 Future requirements of research on SCML in the Arab region

The followings are future requirements of research on SCML in Arab contexts:

- 1 Arab academics should increase their focus on contemporary topics such as the integration of advanced technologies such as AI, ML, BC, IoT, and big data analytics in SCML, which have received limited attention in the past two decades.
- 2 Arab researchers should be aware of the importance of writing high quality research papers to ensure publication in high-impact international journals in the field.
- 3 There is a need for longitudinal studies. These studies consider changes over time, and in turn, provide more reliable findings and conclusions.
- 4 The increase in SCML research activities and the publication of their results in various peer-reviewed international journals could lead to SCML knowledge becoming more popular among academics, professionals, and postgraduate programs, which could foster collaboration between industry and academia.
- 5 There is a need to either develop SCML theories or modify the existing ones to make them relevant to the socio-cultural environment of Arab countries.
- 6 Research collaboration between Arab scholars and scholars from countries whose research in SCML is advanced has to be encouraged, in order to share current information, increase the visibility of their research contributions internationally, and keep them updated.
- 7 There is a need for research that uses advanced methods of data collection and techniques of data analysis. Such research will have more chances of publication in top journals in the field.
- 8 Conceptual research is essential for theory development. For example, Jasti and Kodali (2014) noted that conceptual methodologies are often applied to theory-building. Therefore, additional attention needs to be devoted to this type of research.
- 9 Triangulated research design deserves extra attention as it is of significant value for developing new theories.
- 10 Academic-professional research collaboration deserves additional attention. Such collaboration facilitates the development of SCML fields.
- 11 There is a need for more research that uses multiple methods of data collection. Usually, using two or more methods of data collection leads to producing high-quality publications. This, in turn, increases the chance of publishing in high-impact international journals in the field.
- 12 SCML research and practices in Arab countries with few or no publications must be publicised. This can be done through creating awareness of the importance of and interest in the SCML domain among researchers and practitioners in Arab nations.

Such a strategy is expected to result in more studies being conducted, and consequently more publications.

5 Conclusions

Using content analysis, this study comprehensively reviewed SCML publications in the Arab region from 2000 to 2023 and identified future research directions and trends. It was found that SCML research in the Arab region is relatively underdeveloped compared to global trends. The contribution of Arab researchers to the global SCML field remains limited, both in terms of publications volume and presence in high- impact international journals.

This study makes several significant contributions to the field of SCML, particularly in the context of the Arab region:

- 1 It provides researchers and practitioners in the Arab region and elsewhere with a thorough and comprehensive overview of the status of research on SCML in the Arab region over the past two decades.
- 2 It identifies gaps that exist in currently published research on SCML in the Arab region and offers ways of dealing with such gaps.
- 3 It updates and extends literature reviews on the SCML domain, specifically addressing research conducted outside Arabic contexts.

5.1 Implications

5.1.1 Implications for research

This study contributes to the existing body of knowledge in SCML by offering insights specific to the Arab region, which is often underrepresented in global SCML literature. Key theoretical contributions include:

- 1 The results of this study identified several research gaps that need to be addressed. Moreover, as this study is exploratory and descriptive, researchers in Arab countries can use it as a starting point for future in-depth and analytical studies in the SCML domain.
- 2 The findings of this study help researchers in the Arab region and elsewhere to become more informed of research designs, research types, research purposes, methods of collecting data, techniques of analysing data that are commonly and those that are rarely used within Arab contexts in the SCML domain, and research themes that have been overlooked over the past two decades and, therefore, should receive more attention in the future.
- 3 Researchers in the Arab region are also aware of the need to develop new theories in the SCML domain or adapt existing ones to accommodate Arabic contexts. They are also aware of the need to enhance the contributions of Arab scholars to the SCML domain worldwide in terms of research quality and quantity. One strategy to achieve this goal is to strengthen research collaborations at the regional and international levels.

5.1.2 Implications for practice

The study's findings offer practical applications for SCML practitioners and policymakers in the Arab region:

- 1 Practitioners are now aware of the types of SCML problems that have recently received much attention in the Arab region. The results show that industry-academia research collaboration is minimal. Therefore, more industry-academia research collaboration is needed as linking theory and practice is mutually beneficial.
- 2 The study also shows that academic-professional research collaboration is currently limited, so more efforts are needed to strengthen such collaboration to reduce the gap between theory and practice as blending theory and practice will benefit the discipline.
- 3 This study will allow educators and curriculum designers to focus on topics that have already been extensively researched, as evidenced by recent relevant publications.
- 4 Educators could use the findings to develop new courses, restructure existing courses, or create instructional materials and curricula.

5.2 Limitations and future research agenda

- 1 Only English-language publications were examined in this study, as no databases indexing Arabic publications are currently accessible. Therefore, it would be useful for future studies to consider both Arabic and English publications.
- 2 The CAM has some disadvantages. It is necessary to optimise its reliability by combining it with other approaches such as bibliometric analysis, systematic review, and the like.
- 3 Future studies could expand the search terms and academic databases used in this study to provide more insights into SCML while increasing the number of their publications.
- 4 There is a need for studies that investigate in-depth empirical research on SCML in an Arabic context. Such studies are of great importance for building and verifying theories in SCML fields.
- 5 There is a need for studies that investigate in-depth SCML research collaborations (i.e., academic-industry collaborations, academic-professional collaborations, and collaborations among academics at the national, regional, and international levels) in the Arab region.
- 6 There is a need for studies that investigate whether research on SCML in the Arab region has developed a theoretical basis.
- 7 This study investigates the main attributes of research on SCML in Arabic contexts at the aggregate level. Thus, there is a need for studies that investigate these attributes at the country level.

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