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The Potential Effects of Green Supply Chain Management Practices on GSCM Performance: A Systematic Literature Review[1*]

Yeşil Tedarik Zinciri Yönetimi Uygulamalarının GSCM Performansı Üzerindeki Potansiyel Etkileri: Sistematik Bir Literatür İncelemesi

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Abstract

This paper seeks to conduct a comprehensive literature review regarding the effects of Green Supply Chain Management (GSCM) practices on GSCM performance to synthesize findings. The objective is to present an integrated analysis that encompasses both general findings and particular outcomes that may differ based on various factors, including industry and country. A systematic literature review of 45 papers in peer-reviewed academic journals published from 2017 to Feb. 2023 is conducted. Additionally, the methodology of article selection is delineated through the utilization of the PRISMA flow diagram. The majority of the 45 papers support that GSCM practices effect directly GSCM performance. However, this support varies when examined dimensionally. Also, to increase intelligibility and clarity, information about the author(s) (year), method, sector, country, whether or not involved for both practice and performance dimensions, and finally findings for the 45 papers are given in tables briefly. Then, a synthesis of the gathered information is presented. In essence, this study furnishes precise and current insights that can guide organizational decision-making and strategic actions.

Keywords: *Green supply chain management, GSCM practices, GSCM performance*

JEL codes: *M11*

Öz

Bu çalışma, Yeşil Tedarik Zinciri Yönetimi (YTZY) uygulamalarının YTZY performansı üzerindeki etkilerine ilişkin kapsamlı bir literatür taraması yaparak bulguları sentezlemeyi amaçlamaktadır. Amaç, hem genel bulguları hem de sektör ve ülke dahil olmak üzere çeşitli faktörlere göre farklılık gösterebilecek belirli sonuçları kapsayan entegre bir analiz sunmaktır. Hakemli akademik dergilerde 2017'den Şubat 2023'e kadar yayınlanan 45 makalenin sistematik bir literatür taraması yapılmıştır. Ayrıca, makale seçim metodolojisi PRISMA akış diyagramı kullanılarak tanımlanmıştır. 45 makalenin çoğunluğu YTZY uygulamalarının doğrudan YTZY performansını etkilediğini desteklemektedir. Ancak, bu destek boyutlar özelinde incelendiğinde değişiklik göstermektedir. Ayrıca, anlaşılabilirliği ve açıklığı artırmak için, 45 makalenin yazar(lar)ı (yıl), yöntemi, sektörü, ülkesi, hem uygulama hem de performans boyutları için içerip içermediği ve son olarak bulguları hakkında bilgiler tablolar halinde kısaca verilmiştir. Daha sonra, toplanan bilgilerin bir sentezi sunulmuştur. Özünde bu çalışma, kurumsal karar alma ve stratejik eylemlere rehberlik edebilecek güncel içgörüler sunmaktadır.

Anahtar Kelimeler: *Yeşil tedarik zinciri yönetimi, YTZY uygulamaları, YTZY performansı*

JEL kodları: *M11*

[1] This study is generated from the PhD. thesis entitled 'Green Supply Chain Management and Performance Measurement Model Development' supervised by Prof. Dr. Halil Savaş and presented by Zinnet Karakaş-Kelten at Pamukkale University, Social Sciences Institute, Business Administration Doctoral Program.

INTRODUCTION

While pursuing economic development, the social balance must be taken into account to strike the right balance between the economy, the environment, and the benefit to society (Chien and Shih, 2007). In this sense, United Nations described 17 Sustainable Development goals including "zero hunger, clean water and sanitation, affordable and clean energy, decent work and economic growth, industry, innovation and infrastructure, sustainable cities, and communities, responsible consumption and production, climate action, life below water, life on land", etc. (https://sdgs.un.org). Also, consumer awareness towards environmentally friendly products and processes has increased (Mitra and Datta, 2014). This increasing awareness puts pressure on businesses regarding their choices because consumer behaviour has significant effect on operations of the business, especially in sustainability issues. In the ligh of this shift, organizations reconsider their traditional supply chain models. Therefore, there is a growing need to integrate choices from an environmental perspective into Supply Chain Management (SCM) research and practice (Srivastava, 2007). Besides, environmentally sensitive business practices are increasingly being addressed by both researchers and practitioners (Sarkis, 2003).

Adding the "green" component to SCM involves addressing the impacts and relationships between SCM and the natural environment (Hervani et al., 2005; Srivastava, 2007; Kim and Rhee, 2012). Green supply chain management (GSCM) is recognized as an environmental innovation that aims to minimize or eliminate waste in processes such as product design, material procurement and selection, production process, delivery of the final product, and end-of-life management, including hazardous chemicals, emissions, energy, and solid wastes (Chin et al., 2015).

GSCM is a result of the development of environmental management (Jabbour et al., 2014) and has emerged as an important organizational performance to reduce environmental risk (Wu et al., 2011). However, businesses that add "green" to their supply chain are mostly limited by the inability to justify the cost of this situation (Luthra et al., 2014). Economic globalization, increasing resource scarcity, and environmental corruption make GSCM an approach that provides a significant competitive advantage for organizations (Zhu et al., 2008b). Furthermore, adaptation to GSCM practices (GSCMP) improves the organization's skills to sustain the environment and strengthen the organization's economic existence (Green Jr. et al., 2012).

As a management approach, GSCM is operationalized within enterprises through some practices like Internal Environmental Management (IEM), Green Purchasing (GP), Customer Cooperation (CC), Eco-Design (ECO), Investment Recovery (IR), etc. (Zhu et al. (2005); Hervani et al. (2005); Chien and Shih (2007); Eltayeb et al. (2011); Kafa et al. (2013); Luthra et al. (2014); Zhang et al. (2017) more citations exist in Table-3). There exists numerous papers studying these practices from different perspectives in the literature. Moreover, only a small percentage of them discussed the performance perspective (see Table-3). This situation is thought to be insufficient to give organizations enough clarity to comprehend how they might use GSCMP to enhance their performance. Establishing the connection between GSCMP and performance clear will facilitate the ability to make decisions leading to solutions. Providing focused and up-to-date information that will help the organization make decisions and take

action is the main motivation of this study. Furthermore, the research questions (RQ) are determined as related to the aim as follows:

RQ-1: Does it support the effects of GSCMP on GSCM performance?

RQ-2: Does the decision to support these effects change when effects are analyzed for each dimension of GSCMP and GSCM performance?

RQ-3: Does the decision to support these effects change when effects are viewed by country and sector?

This paper aims to make a literature review to understand whether or not the effects of GSCMP on GSCM performance exist, and whether the effects change according to the sector, country, etc. An initial literature review was conducted to identify the gap in the literature consisting of GSCMP and GSCM performance literature review papers. In the literature, most of the papers performed the literature review with Scopus, little is Web of Science (WoS), and for the process until 2017. Thus the gap is defined as literature review with WoS database and after 2017 process. Our study is a significant and original because of directly fullfill the gap in the literature.

This study made several contributions to existing literature. Firstly, the scope of the study was defined with GSCMP and performance. By investigating these relationships, this study gave responses to the need for more refined information on the businesses. Furthermore, it analyzed the change in the effects of GSCMP on GSCM performance according to the sector, country, etc., enabling businesses to access information regarding this relationship under similar and different conditions. This offered businesses the opportunity to make more realistic comparisons. Finally, literature review was conducted in two stages, first with an initial literature review to identify the gap in the literature covering GSCMP and GSCM performance literature review papers, which led to the determination of the main literature review criteria. Then, the main review, performed to compensate the gap, contributed to the expansion and updating of the literature scope, and also guided further theory development.

The following parts of the study respectively elaborate the concepts of GSCMP and GSCM performance, the research methodology and analysis process, findings, and discussion and limitations, under specific titles.

1. THEORETICAL BACKGROUND

1.1. Green Supply Chain Management Practices

GSCM is rising as a new systematic approach and has become an essential factor for today's business activities because shifting in environmental requirements stimulate more focus on improving environmental management strategies for the supply chain (Seman et al., 2012). The GSCMP content is discussed differently in the literature, and covers many practices like Internal Environmental Management, Green Purchasing, Customer Cooperation, Eco-Design, Investment. Recovery, Green Manufacturing, Green Distribution, and Reverse Logistics. Related papers with these eight practices are shown in Table-1.

Within the scope of this study, five practices (IEM, GP, CC, ECO, IR), which were the most preferred practices as can be seen in Table-1, were discussed.

Internal Environmental Management (IEM): the efforts to develop GSCM as a strategic corporate imperative with the commitment and support from the top and middle managers (Green Jr. et al., 2012). Yildiz-Çankaya and Sezen (2019) define it as the development of an organization's environmental goals and protection policies.

Green Purchasing (GP): a collection of supply-side practices that a company uses to choose suppliers in an efficient manner based on their environmental competencies, technical and environmental design capabilities, environmental performance, ability to develop environmentally friendly products, and to support the focus of business' environmental goals (Chin et al., 2015). GP covers three green practices, also supporting ISO-14000 acquirement: Suppliers' selection by environmental criteria, environmental cooperation with suppliers and 3R (reduce, reuse, recycle) in the purchasing process (Kafa et al., 2013).

Customer Cooperation (CC): collaborating with clients to create sustainable production processes that result in green packaging and ecologically friendly products (Zhu et al., 2008a). To minimize the negative environmental impacts of logistics activities and offers, CC focuses on collaborative efforts between the firm and its customers (Chan et al., 2012).

Eco-Design (ECO): a tool that addresses product functioning while reducing life cycle environmental implications to help businesses operate better environmentally (Zhu and Sarkis, 2004). The products' initial design has a major impact on the degree to which it can be reused, regenerated, recycled, incinerated, or destroyed (Linton et al., 2007). Therefore, the product should be designed to be environmentally friendly at the initial stage (Kafa et al., 2013).

Investment Recovery (IR): providing economic benefits as well as whole activities like helping to protect natural resources, saving energy, and reducing the damage to the environment by disposing expired products (Yildiz-Çankaya and Sezen, 2019). Moreover, IR covers the strategic use of recycling, redistribution, and resaling to obtain more value from the materials and products (Chan et al., 2012).

Table 1: GSCMP Related Papers

GSCMP	*Author(s)*
Internal Environmental Management (IEM)	Zhu and Sarkis (2004); Zhu et al. (2005); Zhu et al. (2007); Zhu et al. (2008a); Zhu et al. (2008b); Zhu et al. (2010); Green Jr. et al. (2012); Lee et al. (2012); Zhu et al. (2012); Chin et al. (2015); Masa'deh et al. (2017); Al-Ma'aitah (2018); Choi et al. (2018); Diaz and Saeed (2018); Foo et al. (2018); Zanin et al. (2018); Wang and Dai (2018); Farradia et al. (2019); Namagembe et al. (2019); Yildiz-Çankaya and Sezen (2019); Zaid et al. (2019); Ahmed et al. (2020); Pan, et al. (2020); Pinto (2020); Sahoo and Vijayvargy (2021); Firmansyah et al. (2021); Sarwar et al. (2021); Afum et al., (2021); Silva et al., (2021); Huang et al., (2021); Assumpção et al. (2022); El Khoury et al. (2022); Azam et al. (2022); Amjad et al. (2022); Habib et al. (2022); Park et al. (2022); Fu et al. (2023)
Green Purchasing (GP)	Hervani et al. (2005); Zhu et al. (2007); Zhu et al. (2008b); Zhu et al. (2010); Wu et al. (2011); Eltayeb et al. (2011); Chan et al. (2012); Kim and Rhee (2012); Kafa et al. (2013); Jabbour et al. (2014); Mitra and Datta (2014); Govindan et al. (2015); Geng et al. (2017); Masa'deh et al. (2017); Sundram et al. (2017); Zhang et al. (2017); Al-Ma'aitah (2018); Choi et al. (2018); Epoh and Mafini (2018); Mafini and Loury-Okoumba (2018); Petljak et al. (2018); Farradia et al. (2019); Jermsittiparsert et al. (2019); Namagembe et al. (2019); Roespinoedji et al. (2019); Sahoo et al. (2019); Yildiz-Çankaya and Sezen (2019); Yu et al. (2019); Zaid et al. (2019); Ahmed et al. (2020); Kurniawan et al. (2020); Li et al. (2020); Pinto (2020); Sahoo and Vijayvargy (2021); Firmansyah et al. (2021); Sarwar et al. (2021); Fianko et al. (2021); Silva et al. (2021); Uddin (2021); Huang et al. (2021); Afzal and Hanif (2022); Assumpção et al. (2022); Azam et al. (2022); Santoso et al. (2022); Habib et al. (2022); Park et al. (2022); Khan et al. (2022); Fu et al. (2023); Suleiman (2023)
Customer Cooperation (CC)	Zhu et al. (2005); Zhu et al. (2007); Zhu et al. (2008a); Zhu et al. (2008b); Zhu et al. (2010); Eltayeb et al. (2011); Chan et al. (2012); Green Jr. et al. (2012); Lee et al. (2012); Jabbour et al. (2014); Govindan et al. (2015); Laari et al. (2016); Geng et al. (2017); Sundram et al. (2017); Zhang et al. (2017); Choi et al. (2018); Foo et al. (2018); Namagembe et al. (2019); Yu et al. (2019); Ahmed et al. (2020); Kurniawan et al. (2020); Pan et al. (2020); Pinto (2020); Sahoo and Vijayvargy (2021); Silva et al. (2021); Huang et al. (2021); Afzal and Hanif (2022); Assumpção et al. (2022); Amjad et al. (2022); Park et al. (2022)
Eco-Design (ECO)	Zhu and Sarkis (2004); Zhu et al. (2005); Zhu et al. (2007); Zhu et al. (2008a); Zhu et al. (2008b); Zhu et al. (2010); Wu et al. (2011); Eltayeb et al. (2011); Ateş et al. (2012); Green Jr. et al. (2012); Kafa et al. (2013); Luthra et al. (2014); Mitra and Datta (2014); Choi and Hwang (2015); Govindan et al. (2015); Fernanado and Uu (2017); Geng et al. (2017); Sundram et al. (2017); Al-Ma'aitah (2018); Choi et al. (2018); Diaz and Saeed (2018); Epoh and Mafini (2018); Foo et al. (2018); Zanin et al. (2018); Farradia et al. (2019); Namagembe et al. (2019); Sahoo et al. (2019); Zaid et al. (2019); Ahmed et al. (2020); Li et al. (2020); Pinto (2020); Sahoo and Vijayvargy (2021); Fianko et al. (2021); Silva et al. (2021); Uddin (2021); Huang et al. (2021); Afzal and Hanif (2022); Assumpção et al. (2022); Amjad et al. (2022); Park et al. (2022)
Investment Recovery (IR)	Zhu and Sarkis (2004); Zhu et al. (2005); Zhu et al. (2007); Zhu et al. (2008a); Zhu et al. (2008b); Zhu et al. (2010); Chan et al. (2012); Green Jr. et al. (2012); Zhu et al. (2012); Choi and Hwang (2015); Sundram et al. (2017); Zhang et al. (2017); Al-Ma'aitah (2018); Foo et al. (2018); Namagembe et al. (2019); Yildiz-Çankaya and Sezen (2019); Kurniawan et al. (2020); Sahoo and Vijayvargy (2021); Sarwar et al. (2021); Silva et al. (2021); Assumpção et al. (2022); Azam et al. (2022); Amjad et al. (2022)
Green Manufacturing	Hervani et al. (2005); Chien and Shih (2007); Lin et al. (2011); Green Jr. et al. (2012); Kim and Rhee (2012); Kafa et al. (2013); Mitra and Datta (2014); Laari et al. (2016); Geng et al. (2017); Mafini and Loury-Okoumba (2018); Roespinoedji et al. (2019); Yildiz-Çankaya and Sezen (2019); Pinto (2020); Firmansyah et al. (2021); Sarwar et al. (2021); Uddin (2021); Afzal and Hanif (2022); Azam et al. (2022); Habib et al. (2022)
Green Distribution	Hervani et al. (2005); Kim and Rhee (2012); Kafa et al. (2013); Luthra et al. (2014); Mitra and Datta (2014); Al-Ma'aitah, (2018); Yildiz-Çankaya and Sezen (2019); Firmansyah et al. (2021); Uddin (2021); Azam et al. (2022); Santoso et al. (2022)
Reverse Logistics	Hervani et al. (2005); Chien and Shih (2007); El Saadany et al. (2011); Eltayeb et al. (2011); Kim and Rhee (2012); Kafa et al. (2013); Mitra and Datta (2014); Govindan et al. (2015); Geng et al. (2017); Choi et al. (2018); Epoh and Mafini (2018); Mafini and Loury-Okoumba (2018); Farradia et al. (2019); Sahoo et al. (2019); Zaid et al. (2019); Li et al. (2020); Pinto (2020); Suleiman (2023); Assumpção et al. (2022)

1.2. Green Supply Chain Management Performance

GSCM design requires operational and environmental performance measurement systems, include financial and non-financial qualitative and quantitative measures, to support the identification of green and non-green activities (El Saadany et al., 2011). Therefore, GSCM performance's main constructs are related to environmental practices, and customers, suppliers and focal companies performances (Dey and Cheffi, 2013).

A performance measurement requirement in GSCM arises for regulatory, marketing, and competitiveness reasons. The main purposes of this measurement are; external reporting (economic rent), internal control (better management of the business), and internal analysis (continuous improvement and better understanding of the business) (Hervani et al., 2005). The scope of GSCM performance is addressed differently in the literature, and given by classifying in Table-2.

The most preferred variables Environmental performance, Operational performance, Economic performance, as can be seen in Table-2, were also treated in this study.

Environmental performance (EP): reduction environmental impact by saving energy and reducing of waste, pollution, and emissions (Ateş et al., 2012; Geng et al., 2017). Moreover, EP helps invest in internal measures to reduce environmental impact through environmentally friendly product and process design, production processes, and logistics processes (Ateş et al., 2012).

Economic performance (EcP): objective and perceived growth in sales, profit, and market share, while generally referring to profitability (Geng et al., 2017). According to Lin et al. (2011), Positive Economic Performance (PEcP) is associated with a reduction in material purchasing costs, energy consumption, waste treatment fees, and waste disposal costs; while Negative Economic Performance (NEcP) is measured by an increase in investments, operational costs, and procurement costs of environmentally friendly materials.

Operational performance (OP): Operations form the basis for efficient production and distribution that generates financial income (Lin et al., 2011). GSCM improves OP by enhancing product and process design's efficiency to minimize waste through better coordination and collaboration with suppliers and customers. Thus, operational improvements can occur throughout a supply chain (Zhu et al., 2012).

Table 2: List of papers about performance measurement scopes

Content of Performance	*Author(s)*
Environmental, operational, economic, organizational performance	Akandere (2019); Habib et al. (2022)
Environmental, operational, economic, social performance	Younis et al. (2016); Geng et al. (2017); Sahoo and Vijayvargy (2021)
Environmental, operational, negative economic, positive economic performance	Zhu et al. (2005); Zhu et al. (2007); Lin et al. (2011)
Environmental, operational, economic performance	Zhu et al. (2008a); Zhu et al. (2012); Dey and Cheffi (2013); Al-Ma'aitah, (2018); Zaid et al. (2019); Amjad et al. (2022)
Environmental, operational, organizational performance	Green Jr. et al. (2012)
Environmental, operational performance	Lee (2015); Fernanado and Uu (2017); Sundram et al. (2017); Wu et al. (2020); Yang et al. (2022)
Environmental, economic, social performance	Chin et al. (2015); Wang and Dai (2018); Yildiz-Çankaya and Sezen (2019); Pattnaik and Pattnaik (2019); Hussain et al. (2019); Firmansyah et al. (2021); Sarwar et al. (2021); Suleiman (2023); Kholaif and Ming (2022); Khan et al. (2022)
Environmental, economic, business performance	Abdallah and Al-Ghwayeen (2020)
Environmental, economic performance	De Giovanni and Esposito Vinzi (2012); Zhang et al. (2017); Petljak et al. (2018); Zanin et al. (2018); Ahmed et al. (2020); Pan et al. (2020); Pinto (2020); Silva et al. (2021); Huang et al. (2021); Ardakani et al. (2023)
Environmental, financial, social performance	Bag et al. (2021)
Environmental, financial performance	Chien and Shih (2007); Laari et al. (2016); Kalyar et al. (2020); Hashmi and Akram (2021); Afum et al. (2021)
Environmental, purchasing performance	Large and Thomsen (2011)
Environmental, export performance	Al-Ghwayeen and Abdallah (2018)
Environmental performance	Ateş et al. (2012); Diaz and Saeed (2018); Epoh and Mafini (2018); Farradia et al. (2019); Namagembe et al. (2019); Jermsittiparsert et al. (2019); Sahoo et al. (2019); Yu et al. (2019); Kurniawan et al. (2020); Shou *et al.* (2020); Darwish et al. (2021); Fianko et al. (2021); Uddin (2021); El Khoury et al. (2022); Fu et al. (2023); Suleiman (2023)
Operational efficiency, financial, customer service performance	Kim et al. (2011)
Operational, financial performance	Stekelorum et al. (2021)
Operational, business performance	Agyabeng-Mensah et al. (2021)
Operational performance	Yu et al. (2014); Mafini and Loury-Okoumba (2018); Roespinoedji et al. (2019); Nguyet et al. (2020); Huo et al. (2021); Khan et al. (2022); Salandri et al., (2022); Santoso et al. (2022)
Financial, green performance	Mirghafoori et al. (2017)
Financial performance	Zhang *et al*. (2019); Yu et al. (2021); Kong et al. (2021)
Green performance	Zhao and Nie (2007); Jabbour et al. (2014); Tuni et al. (2018); Sari and Suslu (2018)
Organizational performance	Vijayvargy et al. (2017); Malviya and Kant (2020)
Economic performance	Mitra and Datta (2014); Akhtar (2019); Agyabeng-Mensah (2020); Park et al. (2022)
Business/Firm performance	Lee et al. (2012); Choi and Hwang (2015); Kirchoff et al. (2016); Zhang et al. (2020); Visamitanan and Assarut (2021); Afzal and Hanif (2022)
Corporate performance	Younis and Sundarakani (2020); Younis et al. (2020)
Market-based, operation-based, accounting-based performance	Golicic and Smith (2013)
GSCM performance	Olugu et al. (2009); Kim and Rhee (2012); Rehman et al. (2016); Roehrich et al. (2017); Cherrafi et al. (2018); Kerdpitak (2019): Balon (2020); Choudhary and Sangwan (2021); Kalpande and Toke (2020)

2. METHODOLOGY

Systematic literature review (SLR) is a method for identifying, selecting, and evaluating the research field, and presenting the synthesized findings not only to researchers and academics but also to practitioners and policymakers (Denyer and Tranfield, 2009). According to Khan et al. (2003), SLR process involves five stages: Framing the question, identifying relevant work, assessing the quality of papers, summarizing the evidence, and interpreting the findings. In the present study, Figure-1 provides an overview for SLR stages.

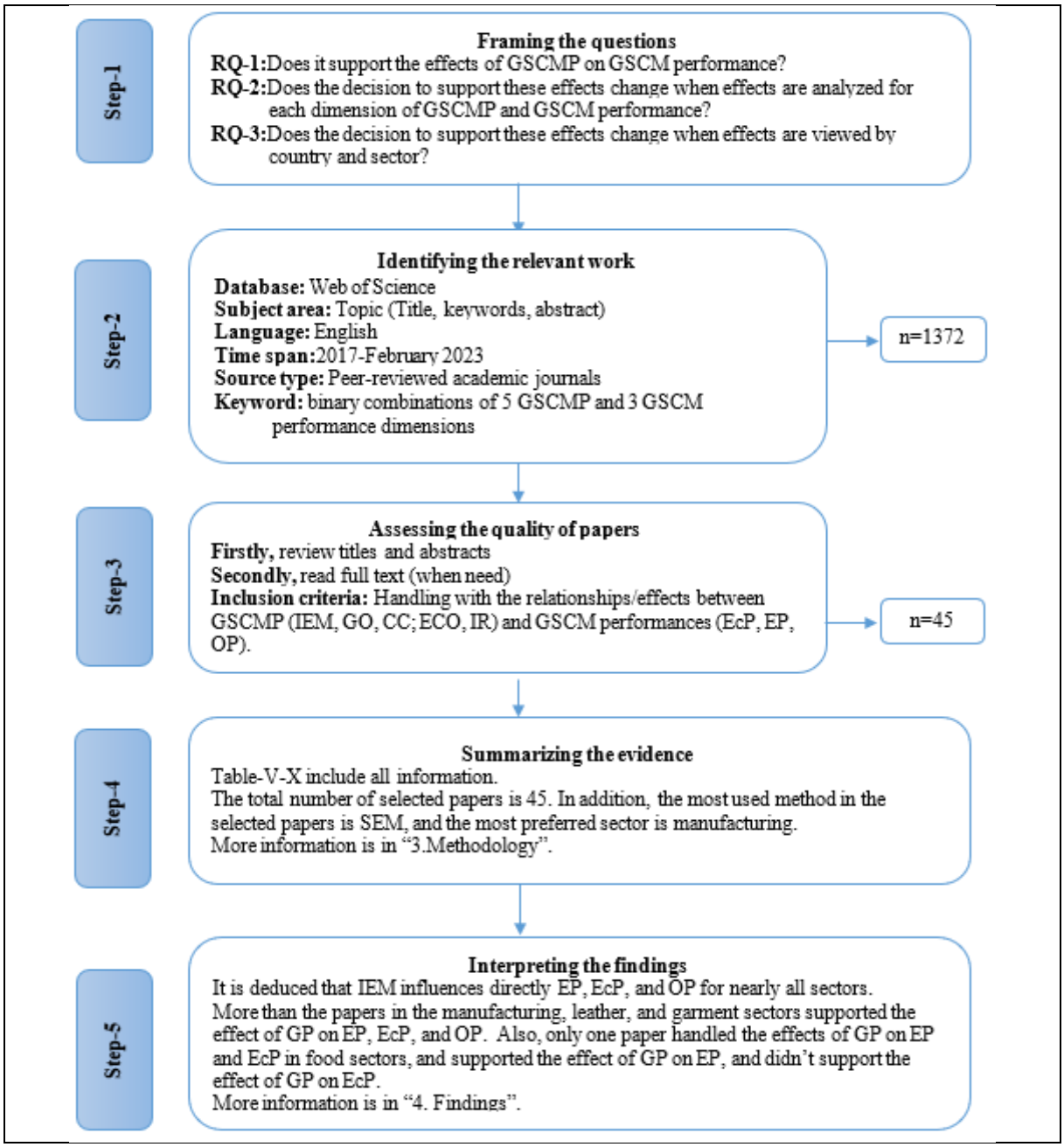

Figure 1: SLR steps

We conducted two literature reviews. The aim of the first literature review is to identify the gap in the literature. The results of the first review enabled us to correctly define the scope of my main research area, and the second and the actual literature review was performed.

To define the relevant papers and thus the gap in this research area, first literature review criteria were as follows: the database was WoS (Because its citation analysis is faster and includes more articles (Falagas et al. (2008)); the source field was the topic (title, abstract, and keywords); the keyword is "green supply chain AND performance"; document type was literature review; no year limit. 335 papers were reached in this review. Initially, the abstracts and, if necessary, the full texts of these papers were analyzed. Seven literature review papers whose keywords include at least "green supply chain AND performance" were selected. Relevant information concerning these seven papers is given in Table-3.

Table-3 shows that many papers made review in Scopus, but not considered 2017 and beyond. Thus, in the second and actual literature review, to review different databases, WoS was preferred. Additionally, it was selected that the coverage period as 2017-2023, the search area as the "Topic (title, abstract, keywords)", the most preferred and comprehensive one, the keywords as binary combinations of five GSCMP and three GSCM performance dimensions to elaborate the literature within the scope of selected all dimension. In other words, the keywords were "internal environmental management and environmental performance", "internal environmental management and economic performance", "internal environmental management and operational performance", "green purchasing and environmental performance", etc.

When "internal environmental management and environmental performance" was searched, 813 different papers were listed. When the search was repeated with different keywords, such as "customer cooperation and economic performance" or "eco-design and operational performance", the results included the same papers obtained with other searches. By using the "merge lists" feature of WoS, the results of all keyword searches were integrated, and 1372 different papers were listed on 10.02.2023. The categorization of the these papers according to their disciplines is presented in Table-4.

Table 3: Detailed summary of previous literature review articles on GSCM

Author(s)	Keywords	Search Year(s)	Database(s)	Search area	Number of publications covered
Sharma and Gandhi (2016)	Green Supply Chain Practices, Green Supply Chain Performance	Until 2015	Science Direct, ProQuest, EBSCO		229
Cazeri et al. (2017)	Green supply chain AND performance measurement, Green supply chain AND performance assessment, Green supply chain AND maturity, Green supply chain AND measurement model, Green supply chain AND key performance indicators	2007-2017	WoS, Emerald, Scopus, Wiley, SciELO Periódicos Capes	Title, abstract, keywords	40
Geng et al. (2017)	Combinations of country/region (China, Taiwan, India, Malaysia, Indonesia, Thailand, and South-Korea), GSCM practices (e.g. green purchasing, eco-design), and performance outcomes (e.g. performance, outcome, and benefit)	1996-March 2015	ABI/INFORM, Scopus, Emerald, Business Source Premier, Science Direct	Title, abstract, keywords	50
Balon (2020)	Green supply chain management, GSCM, supply chain pressures, supply chain practices, supply chain performance	1999-2014	Scopus	Title, abstract, keywords	150
Choudhary and Sangwan (2021)	Green OR environmental OR sustainable AND supply chain AND pressure OR enabler OR driver OR critical success factor OR motivation OR practice OR performance OR assessment OR evaluation OR benchmarking OR measurement	Until the end of 2018	Scopus	Title	189
Mishra et al. (2017)	Supply chain, green, environmental, sustainable, sustainability, ecological, and performance measures	1995-2016	Scopus	Title, abstract, keywords	653
Tuni et al. (2018)	Supply chain AND sustainab OR environment OR green AND assess OR measure OR metric OR performance OR indicator AND quanti OR decision OR method OR model	Until the end of 2015	Scopus, WoS		78

Table 4: The disciplines of the 1372 papers listed by WoS

Subject area	Record Count
Management	462
Environmental Sciences	325
Green Sustainable Science Technology	319
Business	317
Environmental Papers	255
Engineering Environmental	154
Engineering Industrial	113
Engineering Manufacturing	86
Operations Research Management Science	79
Business Finance	76
Economics	71
Regional Urban Planning	29
Computer Science Interdisciplinary Applications	24
Public Environmental Occupational Health	21
Energy Fuels	20
Engineering Chemical	20
Information Science Library Science	20
Development Papers	19
Hospitality Leisure Sport Tourism	18
Transportation	17
Engineering Multidisciplinary	16
Ethics	16
Social Sciences Interdisciplinary	15
Multidisciplinary Sciences	14
Computer Science Information Systems	13
Total	2519
Source:WoS	

Table 4 shows that The "Management" discipline is the most comprehensive one in this review followed by "Environmental Sciences", "Green Sustainable Science Technology", "Business", etc. It can be observed from Table-4 that the total number of papers from different disciplines is greater than 1372 because one paper can be categorized under different disciplines.

Figure-2 illustrates a trend of the papers by publication year. There has been a consistent upward trajectory in the number of published papers since 2017. The lower publication frequency for 2023 can be attributed to its being in the early months of the year.

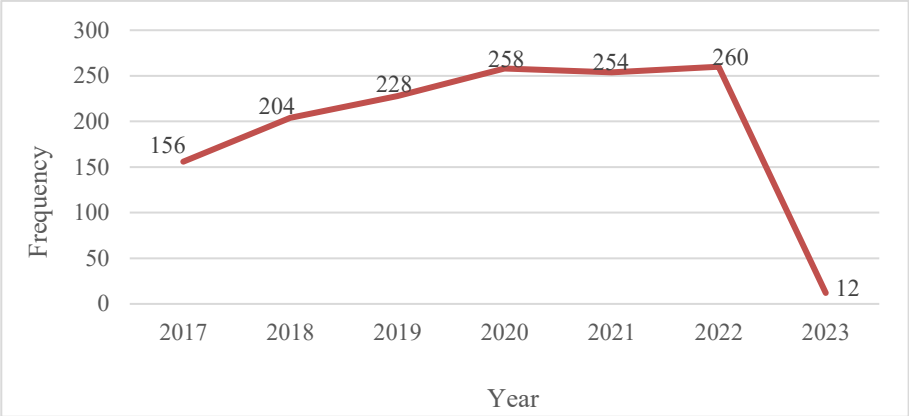

Figure 2: Results by the Year

Moreover, Figure-3 presents the document-type percentages of papers. Upon analyzing the percentages, 92% of the papers were articles, published in academic journals.

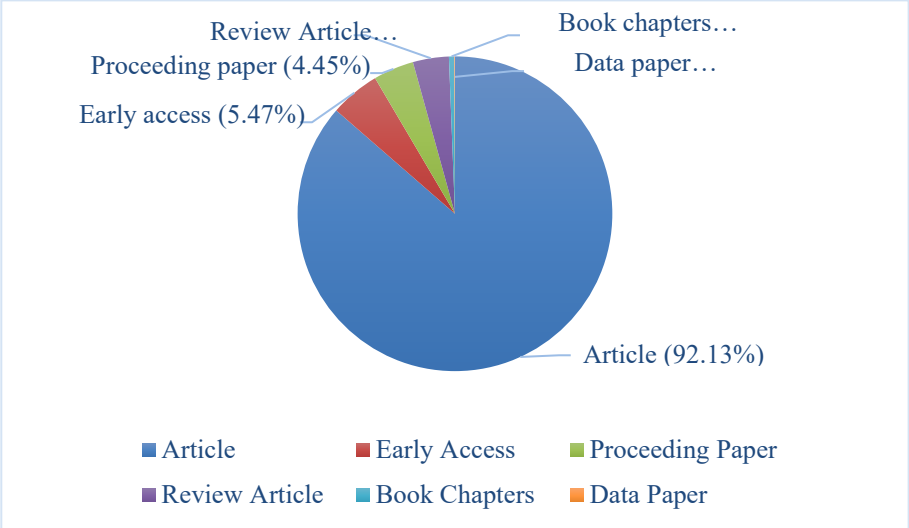

Figure 3: Results by Type

The initial ten percentage values based on the countries where the papers were published are given in Figure-4.

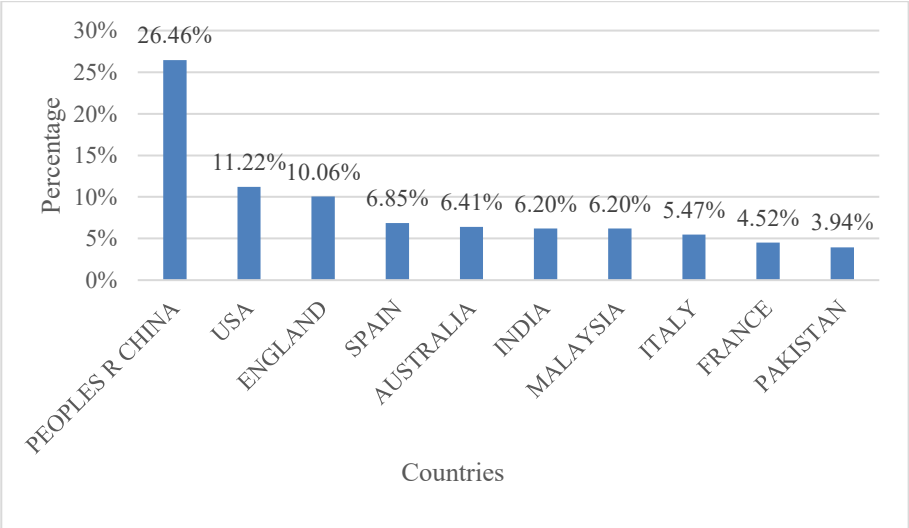

Figure 4: Results by countries

According to Figure-4, China has the highest number of research papers published followed by the United States, England, and other countries.

Among 1372 different articles, which reached in yje second and main literature review, only those that focus at least one of the dimensions of GSCMP, and GSCM performance were selected. In the paper selection process, Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA), designed by Page et al. (2021) in 2009, facilitates the transparent reporting of the purpose, methods, and conclusions of systematic reviews by authors. Subsequently, Yadav et al. (2024) outlined the PRISMA flow diagram. The flow diagram prepared for this study is given in Figure 5.

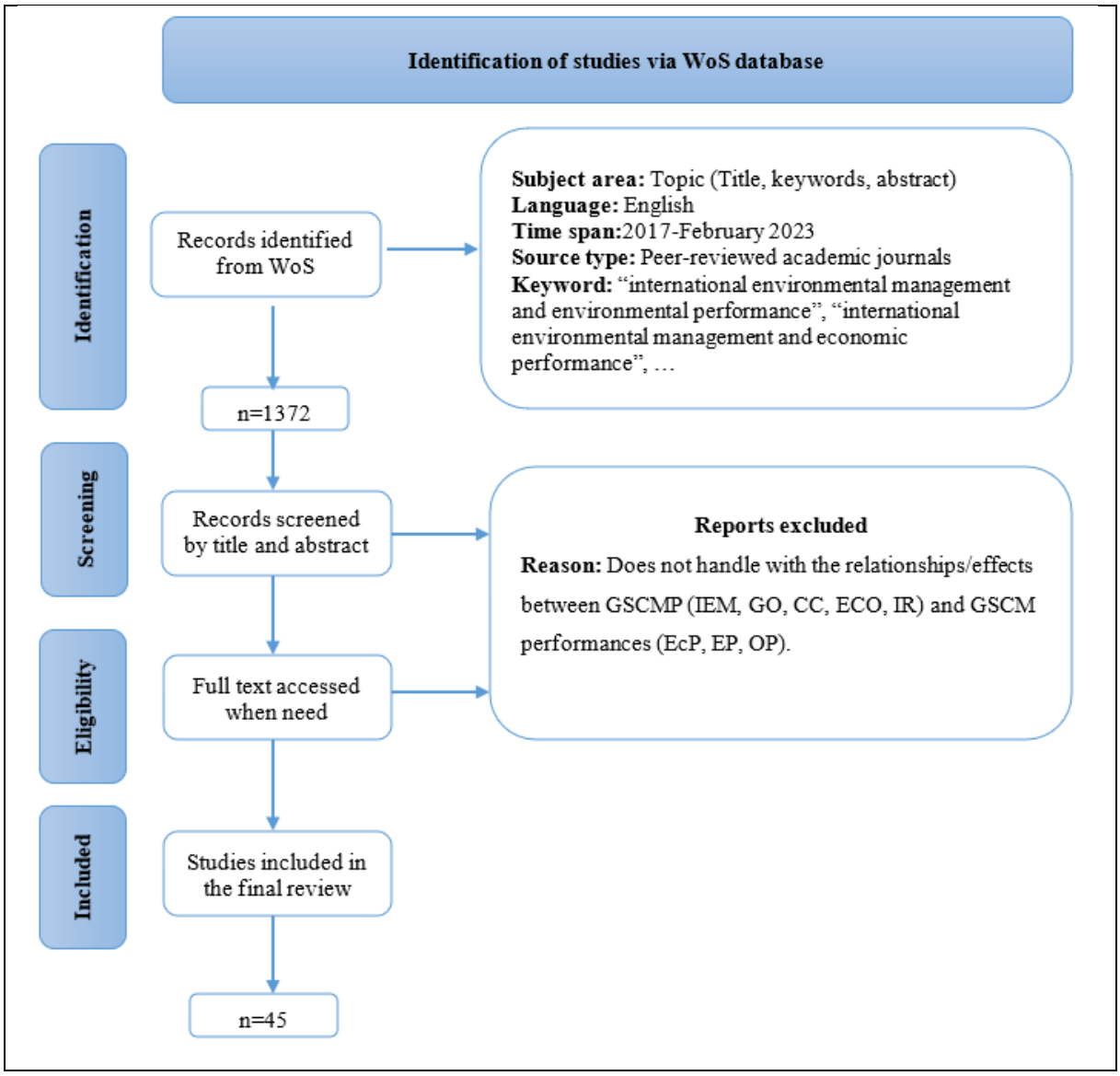

Figure 5: PRISMA Flow diagram of the article selection

The selected papers provided information on the author(s) and publication year, methodology used, sector of study, country, and whether both practice and performance dimensions were considered. These details, along with the variables studied and their findings, are presented in Tables-5-10. The tables specifically show the literature review on the relationship or effect between GSCMP and GSCM performance, categorized by year of publication.

Tables 5: Literature Review (2022-2023)

Author(s)	Method	Sector	Country	IEM	GP	CC	ECO	IR	EP	EcP	OP	Findings
Fu et al. (2023)	Meta-analysis			*		*			*			IEM→EP (+), GP→EP (+) IEM has the most significant effect.
Suleiman (2023)	SEM	Tourism	Tanzania		*				*	*		GP→EP (+)
Amjad et al. (2022)	PLS-SEM	Leather	Pakistan	*	*	*	*	*	*	*	*	IEM→EP (+), GP→EP (+), CC→EP (+), ECO→EP (+), IR→EP (+), IEM→EcP (+), GP→EcP (+), CC→EcP (-), ECO→EcP (-), IR→EcP (-), IEM→OP (+), GP→OP (+), CC→OP (+), ECO→OP (+), IR→OP (-)
El Khoury et al. (2022)	Regression and SEM	Companies	G-20 countries	*					*			IEM→EP (+)
Habib et al. (2022)	SEM	Garment	Bangladesh	*	*				*	*	*	IEM→EP (+), GP→EP (+), IEM→EcP (+), GP→EcP (+), IEM→OP (+), GP→OP (+)
Khan *et al*. (2022)	SEM	Manufacturing	Pakistan		*				*	*		GP→EP (+), GP→EcP (+)
Park *et al*. (2022)	SEM	Electronics	South-Korea	*	*	*	*			*		IEM→EcP (+), GP→EcP (-), CC→EcP (+), ECO→EcP (+)
Santoso et al. (2022)	PLS-SEM	Manufacturing	Indonesia		*						*	GP→OP (+)

*:mentioned in related paper, (+):significant effect exist, (-):significant effect doesn't exist

Tables 6: Literature Review (2021)

Author(s)	Method	Sector	Country	IEM	GP	CC	ECO	IR	EP	EcP	OP	Findings
Afum et al. (2021)	PLS-SEM	Petroleum, gas, mining, agriculture	Ghana	*					*			IEM→EP (+)
Darwish et al. (2021)	SEM	Hydrocarbon	Bahrain	*	*	*			*			IEM→EP (+), GP→EP (+), CC→EP (+), Green-innovation has a significant moderator role in this.
Fianko et al. (2021)	SEM	Construction	Ghana		*		*		*			GP→EP (+),ECO→EP (-)
Firmansyah et al. (2021)	Regression	Private-public	Indonesia	*	*				*	*		IEM→EP (-), GP→EP (-), IEM→EcP (-), GP→EcP (-),
Huang et al. (2021)	SEM	Electric-Electronic	Taiwan	*	*	*	*		*	*		IEM→EP (+), GP→EP (+), CC→EP (+), ECO→EP (+), IEM→EcP (+), GP→EcP (+), CC→EcP (+), ECO→EcP (+), EP→EcP (+)
Khan and Yu (2021)	PLS-SEM	Manufacturing	Pakistan	*			*		*	*	*	IEM→EP (+), ECO→EP (+), ECO→EcP (+), EP→EcP (+), EP→OP (+), EcP→OP (+)
Sahoo and Vijayvargy (2021)	SEM	Manufacturing	India	*	*	*	*	*	*	*	*	IEM→EP (-), GP→EP (-), CC→EP (+), ECO→EP (+), IR→EP (+), IEM→EcP (-), GP→EcP (-), CC→EcP (-), ECO→EcP (-),IR→EcP (-), IEM→OP (-), GP→OP (-), CC→OP (+), ECO→OP (+), IR→OP (-), EP→EcP (+), OP→EcP (+), EP→OP (+)
Sarwar et al. (2021)	Regression	Organizations	Pakistan	*	*			*	*	*		IEM→EP (+), GP→EP (+),IR→EP (+), IEM→EcP (+), GP→EcP (+),IR→EcP (+)
Silva et al. (2021)	Fuzzy-set Qualitative-Comparative Analysis	Manufacturing	United-Kingdom	*	*	*	*	*	*	*		GSCMP are some of the sufficient conditions to achieve high EP, EcP. IEM is a core condition.
Uddin (2021)	SEM	Manufacturing	Bangladesh	*	*		*		*			IEM→EP (+), GP→EP (+),ECO→EP (+), ECO→IEM→EP (+), GP→IEM→EP (-)

*: mentioned in related paper, (+):significant effect exist, (-):significant effect doesn't exist

Tables 7: Literature Review (2020)

Author(s)	Method	Sector	Country	IEM	GP	CC	ECO	IR	EP	EcP	OP	Findings
Ahmed et al. (2020)	SEM	Manufacturing	Pakistan	*	*	*	*		*	*		IEM→EP (+), GP→EP (+), CC→EP (+), ECO→EP (+), IEM→EcP (-), GP→EcP (+), CC→EcP (+), ECO→EcP (-), EP→EcP (+)
Kalyar et al. (2020)	Hayes' PROCESS	Textile	Pakistan		*	*	*		*			GP→EP (+), CC→EP (+), ECO→EP (+)
Kurniawan *et al.* (2020)	PLS-SEM	Manufacturing	Indonesia		*	*		*	*			GP→EP (+), CC→EP (-), IR→EP (+)
Li et al. (2020)	PLS-SEM	Organizations	China		*		*	*	*			ECO→GP (+), ECO→IR (+), GP→EP (+), ECO→EP (-), IR→EP (-)
Pan et al. (2020)	Regression	Manufacturing	China	*		*			*	*		IEM→EP (+), CC→EP (+), IEM→EcP (-), CC→EcP (+)
Pinto (2020)	Interview	Manufacturing	Portuguese	*	*	*	*		*	*		IEM→EP (+), GP→EP (+), CC→EP (+), ECO→EP (+), IEM→EcP (-), GP→EcP (-), CC→EcP (-), ECO→EcP (-)

*:mentioned in related paper, (+):significant effect exist, (-):significant effect doesn't exist

Tables 8: Literature Review (2019)

Author(s)	Method	Sector	Country	IEM	GP	CC	ECO	IR	EP	EcP	OP	Findings
Farradia et al. (2019)	PLS-SEM	Petrochemical	Indonesia	*	*		*		*			IEM→EcP (+), GP→EcP (-), ECO→EcP (+)
Jermsittiparsert et al. (2019)	SEM	Manufacturing	Indonesia		*				*			GP→EP (+)
Namagembe et al. (2019)	SEM	Manufacturing	Uganda	*	*	*	*	*	*			IEM→EP (+), GP→EP (-), CC→EP (-), ECO→EP (+), IR→EP (-)
Pattnaik and Pattnaik (2019)	SEM	Manufacturing	United-Kingdom		*				*	*	*	GP→EP (-), GP→EcP (+), EP→OP (-), EcP→OP (+)
Roespinoedji et al. (2019)	SEM	Manufacturing	Indonesia		*						*	GP→OP (+)
Sahoo et al. (2019)	Regression	Manufacturing	India		*		*		*			GP→EP (-), ECO→EP (-)

Author(s)	Method	Sector	Country	IEM	GP	CC	ECO	IR	EP	EcP	OP	Findings
Yildiz-Çankaya and Sezen (2019)	SEM	Manufacturing	Türkiye	*	*			*	*	*		IEM→EP (+), GP→EP (-), IR→EP (+), IEM→EcP (+), GP→EcP (+), IR→EcP (+)
Yu et al. (2019)	SEM	Organizations	China		*	*			*			GP→EP (+), CC→EP (+)
Zaid et al. (2019)	PLS-SEM	Manufacturing	Palestine	*	*		*		*	*	*	IEM→EP (+), GP→EP (+), ECO→EP (+), IEM→EcP (+), GP→EcP (+), ECO→EcP (+), IEM→OP (+), GP→OP (+), ECO→OP (+)

*: mentioned in related paper, (+):significant effect exist, (-):significant effect doesn't exist

Tables 9: Literature Review (2018)

Author(s)	Method	Sector	Country	IEM	GP	CC	ECO	IR	EP	EcP	OP	Findings
Al-Ma'aitah, (2018)	Regression	Construction	Jordan	*	*		*	*	*	*		IEM→EP (-), GP→EP (-), ECO→EP (-), IR→EP (+), IEM→EcP (-), GP→EcP (-), ECO→EcP (-), IR→EcP (+)
Diaz and Saeed (2018)	PLS-SEM	Manufacturing	Peru	*			*		*			IEM→EP (+), ECO→EP (-)
Epoh and Mafini (2018)	SEM	SME	South-Africa		*		*		*			GP→EP (+), ECO→EP (+)
Fang and Zhang (2018)	Meta-Analysis			*	*	*	*	*	*	*	*	IEM→EP (+), GP→EP (+), CC→EP (+), ECO→EP (+), IR→EP (+), IEM→EcP (+), GP→EcP (+), CC→EcP (+), ECO→EcP (+), IR→EcP (+), IEM→OP (+), GP→OP (+), CC→OP (+), ECO→OP (+), IR→OP (+) EP→EcP (+), EP→OP (+), OP→EcP
Mafini and Loury-Okoumba (2018)	SEM	Manufacturing	South-Africa		*						*	GP→OP (+)
Petljak et al. (2018)	PLS-SEM	Food	Croatia		*				*	*		GP→EP (+), GP→EcP (-), EP→EcP (+)
Wang and Dai (2018)	PLS-SEM	Firms with ISO-14001, ISO-9001	China	*					*	*		IEM→EP (+), IEM→EcP (-), EP→EcP (+)

Zanin et al. (2018)	Correlation	The largest companies	Brazil	*			*		*	*		IEM→EP (+), ECO→EP (+) IEM→EcP (-), ECO→EcP (-)

*: mentioned in related paper, (+):significant effect exist, (-):significant effect doesn't exist

Tables 10: Literature Review (2017)

Author(s)	Method	Sector	Country	IEM	GP	CC	ECO	IR	EP	EcP	OP	Findings
Fernando and Uu (2017)	PLS-SEM	Organizations	Malaysia				*		*		*	ECO→EP (+), ECO→OP (-), ECO→EP→OP (+) EP→OP (+)
Masa'deh et al. (2017)	SEM	Tourism (Otels)	Jordan	*	*					*	*	IEM→EcP (-), GP→EcP (-), EcP→OP (+)
Sundram et al. (2017)	Regression	Manufacturing	Malaysia		*	*	*	*	*		*	GP→EP (-), CC→EP (-), ECO→EP (+), IR→EP (+), GP→OP (+), CC→OP (+), ECO→OP (-), IR→OP (+)
Zhang *et al*. (2017)	Factor analysis	Firms adopt GSCM	China		*	*		*	*	*		GP→EP (+), CC→EP (-), IR→EP (+), GP→EcP (+), CC→EcP (+), IR→EcP (+)

*: mentioned in related paper, (+):significant effect exist, (-):significant effect doesn't exist

Upon examination of Tables-5-10, it is evident that there were two papers scheduled for 2023, six for 2022, ten for 2021, six for 2020, nine for 2019, eight for 2018, and four for 2017, resulting in a total of 45 selected papers. Additionly, in the selected papers, the most used method was SEM and the most favored sector was manufacturing followed by tourism, food, leather, electric-electronics, agriculture, textile, food, construction, garment, etc. Additionally, the countries where the research was conducted were also documented, with a majority of papers originating from Indonesia and Pakistan, succeeded by China, Malaysia, Ghana, Jordan, South-Africa, India, United-Kingdom, etc. Furthermore, the selected papers discussed IEM 27 times, GP 36 times, CC 17 times, ECO 23 times, IR 12 times, EP 40 times, EcP 24 times, and OP 13 times. The majority of the publications in Tables-5-10 support that GSCMP affects GSCM performance. RQ-1 can be answered in the affirmative in light of the findings.

3. DISCUSSIONS

Upon reviewing the selected papers, it was deduced that IEM influences directly EP, EcP, and OP for nearly all sectors (Fang and Zhang, 2018; Zaid et al., 2019; Yildiz-Cankaya and Sezen, 2019; Farradia et al., 2019; Darwish et al., 2021; Habib et al., 2022; Fu et al., 2023). Besides, Al-Ma'aitah (2018) studied on the construction sector and didn't support the effect of IEM on EP and EcP. Masa'deh et al. (2017) researched on the tourism sector and not confirmed the effect of IEM on EcP. Moreover, Sahoo and Vijayvargy (2021) was the only study that refused the effects of IEM on OP, and studied the manufacturing industry,

More than the papers in the manufacturing, leather, and garment sectors supported the effect of GP on EP, EcP, and OP. Also, only one paper handled the effects of GP on EP and EcP in food sectors, and confirmed the effect of GP on EP, but not on EcP (Petjlak et al., 2018). Likewise, two papers worked on the effects in tourism sectors, one supported the effects of GP on EP (Suleiman, 2023) and other didn't support the effect of GP on EcP (Masa'deh et al., 2017).

The effects of CC on EP and EcP were supported by papers in nearly all sectors (Yu et al., 2019; Pinto, 2020; Ahmed et al., 2020; Silva et al., 2021; Huang et al., 2021; Park et al., 2022; Fu et al., 2023). Moreover, there were no papers that didn't support the effect of CC on OP. The papers supporting the effect were in the manufacturing and leather sectors (Sundram et al., 2017; Sahoo and Vijayvargy, 2021; Amjad et al., 2022).

The majority of studies across various sectors have found evidence supporting the impact of ECO on EP (Zanin et al., 2018; Zaid et al., 2019; Namagembe et al., 2019; Kalyar et al., 2020; Uddin, 2021; Silva et al., 2021; Khan and Yu, 2021). Half of the papers in the manufacturing sector supported the effect of ECO on EcP (Zaid et al., 2019; Khan and Yu, 2021; Silva et al., 2021), other half didn't (Ahmed et al., 2020; Pinto, 2020; Sahoo and Vijayvargy, 2021). Additionly, the papers in the electronic (Huang et al., 2021) and petrochemical (Farradia et al., 2019) sectors confirmed the effect of ECO on EcP. However, a construction-related article refuted the impact of ECO on EP and EcP (Al-Ma'aitah, 2018). Moreover, the papers' majority in the leather and manufacturing sectors evidenced the effect of ECO on OP (Zaid et al., 2019; Sahoo and Vijayvargy, 2021; Amjad et al., 2022).

The effects of IR on EP and EcP were supported by most of the papers in the manufacturing and construction sectors (Zhang et al., 2017; Sundaram et al., 2017; Yildiz-Cankaya and Sezen, 2019; Kurniawan et al., 2020; Sarwar et al., 2021). Furthermore, there existed one paper to

support (Sundram et al., 2017) and one to not support (Sahoo and Vijayvargy, 2021) the effect of IR on OP in the manufacturing sector.

Nearly all of the selected papers confirmed the effect of EP on EcP (Fang and Zhang, 2018; Petjlak et al., 2018; Wang and Dai, 2018; Huang et al., 2021; Khan and Yu, 2021; Sahoo and Vijayvargy, 2021). The effect of EP on OP was supported by some papers (Ferrando and Uu, 2017; Fang and Zhang, 2018; Khan and Yu, 2021; Sahoo and Vijayvargy, 2021), while the study by Pattnaik and Pattnaik (2019) didn't support it. Additionally, EcP influenced OP (Masa'deh et al., 2017; Pattnaik and Pattnaik, 2019; Khan and Yu, 2021), and OP influenced EcP (Fang and Zhang, 2018; Sahoo and Vijayvargy, 2021).

These 45 papers were also examined on the base of some countries. For Indonesia, the effects of IEM and CC on EP were not confirmed, but the effects of GP and IR on EP were confirmed (Kurniawan et al., 2020; Firmansyah et al. 2021). Also, GP had an insignificant, and ECO had a significant effect on EcP (Farradia et al., 2019; Firmansyah et al. 2021). For OP, there existed supporting papers only for GP's effect (Roespinoedji et al., 2019; Santoso et al., 2022). In addition, for Pakistan, the effects of every GSCM practice on EP were supported (Kalyar et al., 2020; Sarwart et al., 2021; Amjad et al., 2022). The effect of GP on EcP was also supported (Khan et al., 2022), but there existed no strong evidence to support the other GSCMP's effect on EcP (Ahmed et al., 2020; Khan and Yu, 2021; Amjad et al., 2022). Moreover, the effects of GSCMP other than IR on OP were supported (Amjad et al., 2022). For China, the effects of IEM, GP, CC on EP and EcP was found to be significant (Zhang et al., 2017; Pan et al., 2020). However, there existed no paper examining the effects of GSCMP on OP. For Malaysia, the effects of GP and ECO on EP, and the effects of GP, CC, and IR on EcP were confirmed. Nevertheless, the effects of CC and IR on EP, and the effect of ECO on OP were not confirmed. Besides, there existed no paper handled with IEM (Fernando and Uu, 2017; Zhang et al., 2017).

Consequently, when the findings were analyzed for each dimension of GSCMP and GSCM performance, the effect was occasionally confirmed and sometimes disputed. Moreover, the determination to confirm or deny varied among countries and sectors. Given the findings, both RQ-2 and RQ-3 can be answered in the affirmative.

A few studies with similar features but also different aspects have been found in the current literature. Sharma and Gandhi (2016) categorized the papers in the literature between 1999-2014 according to their main focus. One of the categories identified was GSCM with 11 papers. Furthermore, Cazeri et al. (2017) categorized the papers based on sustainable development dimensions up to 2017. The categories on which the analysis was based are economic, social, and environmental. On the other hand, our primary emphasis in the analysis was on GSCMP and performance post 2017.

Geng et al. (2017) investigated the correlation between GSCMP and performance through meta-analysis. ECO and CC were practices that are considered in common with our study. Hovewer, our study varied in terms of other practices. The current study found that CC was positively correlated with EP but not significant. Our study didn't confirm this finding. However, ECO was positively correlated with EP, which is the common finding. Although this study supported that all GSCMP were positively correlated with EcP, our study confirmed this result for ECO in manufacturing and leather sectors but has no evidence for CC. Additionly, all GSCMP were positively correlated with EP. This was particularly evident for

CC in our study. It was observed to overlap with the ones for CC in our study. However, we could not establish this correlation for ECO in sectors like construction.

Balon (2020) summarized the literature output focusing on performance, practices, and pressures of GSCM. Our study shares some similar variables with this study such as OP, EP, ECO, and IEM. In addition, Choudhary, and Sangwan (2021) researched GSCMP and performance dimensions, which aligned with our study as well. Besides, our study made a significant contribution by changing the database and updating the year limit of this study. Examining the relationships between these variables was not a used perspective for Balon (2020) and Choudhary, and Sangwan (2021), making it difficult to compare their findings with ours.

Mishra et al. (2017) reported that the literature focusing on the measurement of GSCM performance was underdeveloped. The inclusion of 45 articles in our study further confirmed this observation. In other words, the number of articles in GSCM performance literature after 2017 still seems underdeveloped. Moreover, Tuni et al. (2018) provided an important implication which was that the dominant methods used for GSCM performance measurement were mathematical programming and analytical models. In contrast to these findings, our study found that SEM is actually the most commonly preferred method.

CONCLUSION

Integrating environmental issues into the supply chain is critical to promoting sustainability and improving operational efficiency. This approach, known as Green Supply Chain Management (GSCM), not only addresses ecological concerns, but also aligns with the sustainability of modern business practices for long-term success. By incorporating environmental considerations into the supply chain, organizations can minimize waste, reduce emissions and improve resource utilization. This is an critical aspect for an even more sustainable future.

This paper aims to conduct a systematically literature review on GSCMP and GSCM performance. This review process is based on SLR methodology outlined by Khan et al. (2003) and PRISMA flow diagram. The review results in this study show that GSCM practices have an effect on GACM performance. Besides, existence of this effects change when analyzed in the level of subdimensions, and vary according to sector and country. Thus, all research questions in this study are approved.

Increased emphasis on managerial support and commitments will be beneficial to adopt environmentally friendly practices, to become more competitive environmentally, to concentrate more on reusing, reclycling, and disposing, to have less costs for consumption, fines paid because of accidents, and waste treatment. Furthermore, businesses can establish agreements with their shareholders both to ensure the safety of the adaptation process and to spread this adaptation. Public awareness and the company's environmental image can both be enhanced by concentrating advertising on environmental viewpoints.

While acknowledging its limitations, this study made a significant effort to accomplish its goals. Initially, the scope of the literature review may have been limited by the heavy dependence on strict filtration and narrow keyword-based selection criteria. For a more comprehensive understanding, future researchers should broaden their selection criteria to

include a wider spectrum of relevant studies. Secondly, because the study only focused on GSCMP and performance, the sample size was restricted. Future studies should include other facets of GSCM beyond practice and performance, such as drivers/pressures, motivational factors, obstacles, and preparation stages. Notwithstanding these drawbacks, the research framework is still beneficial and provides useful information to help decision-makers create well-informed strategies.

Therefore, we anticipate that these findings and recommendations will be beneficial to academics by encouraging more study into the field of GSCMP and performance monitoring as well as industry professionals to enhance the performance.

Disclosure Statements

Researchers' Contribution Rate Statement
The authors declare that they have contributed equally to this article.

Researchers'Conflict of Interest Statement
The authors declare that there is no potential conflict of interest in this study.

Ethical Statement of Researchers
The authors declare that all stages of this study were conducted in accordance with research and publication ethics, and that ethical principles and scientific citation standards were fully observed.

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