Materials Today: Proceedings 69 (2022) 535–542

Contents lists available at ScienceDirect

Materials Today: Proceedings

journal homepage: www.elsevier.com/locate/matpr

A systematic review of green supply chain management practices in firms

Rajat Gera [a], Priyanka Chadha [b,*], Manmeet Bali Nag [b], Sahiba Sharma [a], Heena Arora [a], Anjum Parvez [c], Lebedinskaya Yuliya Sergeevna [d]

[a] School of Management and Commerce, K R Mangalam University, Sohna Rd, Sohna Rural, Haryana 122103, India
[b] School of Management and Commerce, Manav Rachna University, Faridabad, Haryana 121004, India
[c] Divison of Research & Innovation, Uttaranchal Universit, Dehradhun 248807, India
[d] Departments of Economics and Management, Vladivostok State University of Economics and Service, 690014, Vladivostok, Gogol, Russia

ARTICLE INFO

Article history:
Available online 24 September 2022

Keywords:
Green
Supply Chain Management
Practices
Review
PRISMA
Adoption
Organizational performance

ABSTRACT

The article aims to systematically review the current state of empirical research in past five years i.e. 2018–2021 on Green supply chain management practices (GSCMP) published in high quality indexed journals. Based on content analysis of the 39 articles extracted through systematic approach, findings of the articles selected for the study were categorized into inductively derived themes of "green supply chain management practices (GSCMP)", "GSCMP and organizational performance" "GSCMP adoption" and "supplier participation". The landscape of GSCM research has been dominated by the manufacturing sector (mostly automotive, electronics, electrical sectors) and large companies. Financial, social and marketing performance outcomes of GSCMP have not been adequately researched. The scope of definition of GSCMP has expanded to multiple stakeholders and activities. The effects of specific internal and external GSCM practices on organizational performance are heterogeneous and moderated by contextual factors their concurrent effects on need to be further researched. A conceptual model of GSCMP implementation is proposed based on empirical findings of the selected articles. Conclusions and implications for research and practice are drawn and future research directions identified.

Selection and peer-review under responsibility of the scientific committee of the International Conference on Design and Applications of Multifunctional Materials, Interfaces and Composites.

1. Introduction

Green Supply Chain Management practices (GSCMP) is a management technique with objective of making supply chain eco-friendly, without adversely affecting organizational objectives. The emergent concept has evolved over past two decades and has been receiving higher scholarly and practitioner attention. The definition and concept of green supply chain management (GSCM) and sustainable supply chain management (SSCM) is differentiated [1].GSCM [2] is defined as the "integration of environmental thinking into supply-chain management, including product design, material sourcing and selection, manufacturing processes, delivery of the final product to the consumers and end-of-life management of the product" [3] whereas SSCM is extension of the concept of GSCM by integration of the social, economic and environmental dimensions with it [1].Fig. 1.

A review of literature reviews on GSCM practices reveals that published reviews are limited in scope, perspective and methods. Current review papers on GSCMP include a review of organizational theories [4], state-of-the-art review of literature [3], bibliometric analysis [5], review of performance measures (Sharma et al., 2017) which are broad in their scope of article selection as they include conceptual, conference, opinion papers, book chapters and review papers.

The evolution of GSCM over 10 years was tracked and it was surmised that number of articles published on GSCM were significantly high [6] but a review of empirical findings in literature could not be accessed by the authors.

Literature reviews have a critical role in scholarship [20] since knowledge syntheses is indispensable to summarize and synthesize the current state of research on a topic, determine the interpretable trends or patterns in the subject area, aggregate

* Corresponding author.
E-mail address: priyanka03chadha@gmail.com (P. Chadha).

https://doi.org/10.1016/j.matpr.2022.09.312
2214-7853/
Selection and peer-review under responsibility of the scientific committee of the International Conference on Design and Applications of Multifunctional Materials, Interfaces and Composites.

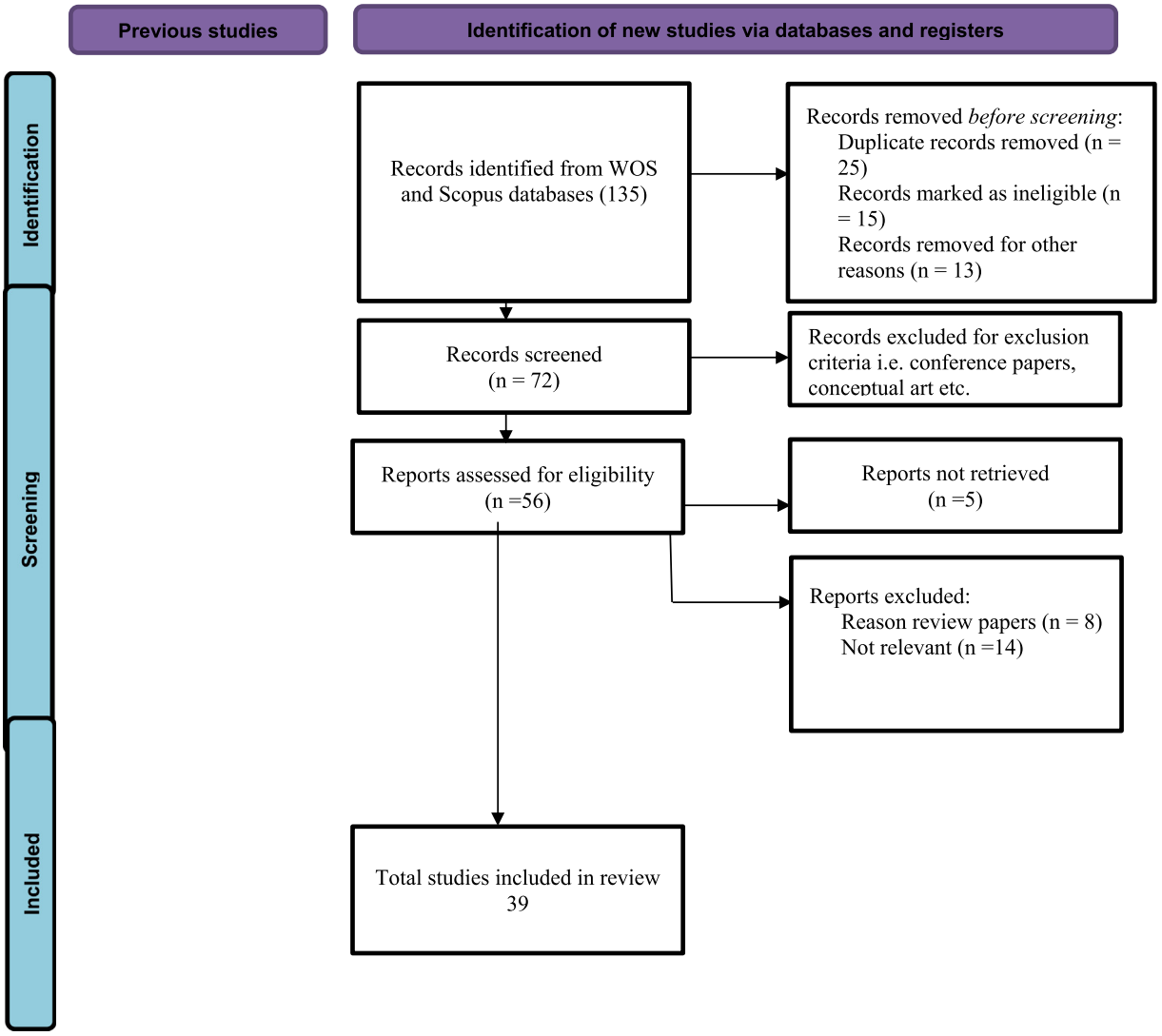

Fig. 1. PRISMA Model.

empirical findings specific to a narrow research question, generate new frameworks and theories, and identify topics or questions for further investigation [21].

This study aims to systematically review the recent published findings of empirical research on GSCM practices by categorizing and synthesizing the findings of selected articles in past five years into the four identified themes for this literature review study. The research questions which this study aims to address are:

- What is the current state of empirical research on GSCM practices in literature?
- What is the motivating factors driving adoption of GSCMP?
- How are GSCMP related with organizational performance?
- What are the researches issues deserving future scholarly pursuit?

The paper is organized as follows. A literature review is followed by methodology and discussion of findings as per the identified themes. Conclusions and implications for researchers and practitioners are drawn and future research directions suggested.

2. Literature Review:

GSCM: Green supply chain management is defined as comprising of green design, green purchasing, green production, green distribution, logistics marketing and reverse logistics activities [3]. GSCM practices include activities of design, supply, production, assembly, packaging, logistics and distribution [7].

Green supply chain management comprises of the four dimensions of internal environmental management, external practises, and eco-design and investment recovery [2]. GSCM can be evaluated as green practices within six categories (green production and packaging consisting of reduction of wastes and hazardous substances, selection of clean transport methods and use of recyclable and reusable packaging, environmental participation dimension including development of an environmental management system and environmental training programs; green marketing, involving sponsorship activities for environment, environmental labelling, company web site; green supplier comprising cooperation with the supplier on environmental issues and supplier selection on environmental criteria; green stock (sales of excess, scrap and used materials) and green design (eco-friendly product design) [8].

3. Methodology

The aim of this literature review is to summarize and categorize extant literature on GSCM practices from 2018 onwards. This study employs a content analysis methodology. A Preferred Reporting Items for Systematic Reviews and meta-Analyses (PRISMA) approach is adopted to extract the relevant articles for review. The approach followed is of exploratory review. Exploratory reviews are employed for a problem or research domain which is emerging, poorly understood and/or when relevant empirical research is limited in scope (Walker et al., 2012). Descriptive literature review methodology is adopted to examine, as well as classify the prevailing literature on GHRM into diverse focus extents and to recognize ways for forthcoming research. This review methodology encompasses four stages involving art search, article selection, categorization of findings, and analysis of findings.

3.1. Art search

Initially, the keywords of "Green" AND "Supply Chain Management," OR "("environmental") AND "supply chain" AND "Practices" were applied to extract articles from Scopus and WoS indexed databases (restricted to title, abstracts and keywords of the articles).

Scopus is a bibliographic database of scientific, multidisciplinary and international literature created by Elsevier in November 2004, which has performed analysis of citations since 1996 and provides a complete view of the worldwide research production. It contains over 53 million references (21 million records prior to 1996 going back to 1823) published in more than 21,000 scientific journals (2600 titles of direct access). It also includes 390 commercial publications, 370 series of books, 5.5 million papers, 25.5 million patents or 376 million websites. It offers a greater selection of journals, [22] and has better coverage of Social Sciences (23 %) compared to other databases, [23] until the appearance in November 2004 of the SciVerse Scopus database by the publisher Elsevier, Web of Science (WoS) by Thomson Reuters Institute of Scientific Information (ISI), was the only one with bibliographic databases capable of compiling data at a large scale and producing statistics based on bibliometric indicators, being thus the main sources of bibliometric data [24]. Studies have generally found a good correlation between WoS and Scopus due to the large number of journals (54 % in the case of Scopus and 84 % for WoS) indexed by both databases [25].

3.2. Article selection

Filters applied were English language articles, closed source, previous 4 years (2018–2021), business and management and empirical. From the 135 articles initially extracted from the literature search, 56 articles were selected for the review study after excluding conceptual articles, conference papers, opinion articles, duplicate articles, book chapters. Articles that were considered as irrelevant to this study were excluded by two academic experts based on their review of content (findings, discussion and conclusions) of extracted articles which resulted in final selection of 39 articles..

Categorization of findings:

In the third step, the findings of selected articles were synthesized into the four inductively derived themes from evaluation of the content of the selected articles by two academic experts. The themes selected for this review study are GSCM practices; GSCMP and organizational performance; GSCM practices adoption; and supplier participation.

3.3. Analysis of findings

The findings were then categorized and discussed within the identified themes and critical issues deserving further analysis were identified to generate insights for scholars and practitioners. A model of GSCMP implementation is proposed based on the findings of this study.

4. Discussion of Findings:

Most of the studies on empirical research in GSCMP are concentrated in S. Asian countries of China, India, Taiwan, S. Korea, Malaysia, Pakistan with from Europe (Portugal), USA, Africa (Egypt) and Middle East (UAE) which is also reflective of the top ten manufacturing hubs in the world in terms of global manufacturing output: China (28.7 %),USA – 16.8 %, Japan (7.5 %), Germany (5.3 %), India (3.1 %), S. Korea (3 %), Italy (2.1 %),France (1.9 %),United Kingdom (1.8 %) and Indonesia(1.6 %), (https://globalupside.com/top-10-manufacturing-countries-in-the-world/). The review shows a significant increase in number of publications on GSCMP between 2018 and 2021: 2021 (13), 2020 (11), 2019 (8), 2018 (7). Leading journals which have published on GSCMP are "Benchmarking: An International journal", "Industrial market management: and "International Journal of Productivity and Performance Management" which reflect the interdisciplinary and *trans*-disciplinary character of the subject.

Organization theories form the theoretical basis of most of the studies with "Resource based view" as the most prevalent theoretical perspective adopted by the scholars. GSCMP research is embedded in theoretical perspectives from supply chain management, sustainability and organization behaviour. The most prevalent theoretical frameworks adopted by scholars in their studies on GSCMP are stakeholder involvement theory, diffusion of innovation theory and Institutional theory which indicates the people focussed approach of GSCMP. Hence, GSCMP is at early stage of theoretical evolution with organizational theories being the dominant epistemology in research on this subject.

Empirical research in GSCMP is dominated by quantitative techniques (for example structural equation modelling (SEM), multinomial logistics regression, ordinal regression, discriminant analysis, and econometric techniques), qualitative methods (for example case studies) and mixed methods which combine quantitative and qualitative research methods. Hence, a positivist approach dominates GSCMP research which is grounded in theoretical bases from other disciplines especially organizational theory.

Most studies have measured the perceptions and behaviours of organizations top management, Human resource managers, purchase managers, and external suppliers and customers. Marketing, informational technology and finance employees within organizations and government agencies, lawmakers, and other external stakeholder's perceptions have been evaluated in few studies. The perspective of specific internal and external stakeholders has been considered by scholars depending on the GSCM practices being evaluated in the study which limits the scope of the theoretical development of the subject.

4.1. Definition of GSCMP

The definition of GSCMP has evolved over period of time given the dynamic nature of the concept. The scope of GSCMP has expanded in recent years to include customers, suppliers, government agencies and varied practices which are strategic or operational, policy based or implementation related and internal or external to the firm. Collaborative and integrative practices are also being evaluated in recent GSCMP research. However, the most

popular definitions of GSCMP which have been adopted by scholars are as follows:

[26] Defined environmental supply chain management as addition of activities related to recycling, reducing and reuse of materials to purchase functions. [27] Defined as GSCM as integrating environmental thinking into supply chain management (SCM). [3] Defined GSCM as adding "green" component to SCM. GSCM can be defined as integrating environmental thinking into supply chain management, including product design, material sourcing and selection, manufacturing processes, delivery of the final product to the consumers as well as end-of-life management of the product after its useful life [3].

4.2. GSCM practices

GSCM practices have been categorized by scholars on various dimensions of internal and external to the organization, core and peripheral to the organizational strategy, functional and cross functional, strategic and operational in nature. However, the integration of internal with external GSCM practices and core with peripheral GSCM practices is becoming important for effective performance results. Very few studies have investigated the integrative and concurrent effects of the selected practices and the trade -offs involved when these practices are implemented together.

Sustainable procurement practices, buyer involvement, buyer supplier relationship, supplier relational norms, customer investment, customer cooperation, key supplier involvement, are examples of external GSCM practices while eco design, technology utilization, recycling and reuse are some of the internal GSCM practices being researched. GSCM practices which have been extensively investigated in empirical research are green sourcing, eco-design, purchase, green design, internal environmental management, disassembly, recycling and reuse, green procurement process, (RFID) Radio Frequency Identification, technology utilization, green customer cooperation, key suppliers involvement at design stage, reverse logistics," "minimizing waste" and "ISO 14001″). Hence, research on GSCMP has been confined to specific activities, techniques and types of firms which may not encompass the broader applicability of the concept to society and environment.

4.3. GSCMP and organizational Performance:

The relationship of GSCMP with environmental or green performance results is empirically established in various studies, though the relationship with operational, economic, financial and other performance outcomes is not consistent. GSCMP have been shown to have positive impact on both EP and operational performance in some studies. Studies show that eco-design, operations management, managerial orientation and supplier's involvement at early stage can improve operational performance along with environmental performance. Wastage and losses can be reduced through efficient eco-design and key suppliers involvement at design stage. Disassembly, recycling and reuse options are cost-effective for the organisation. Lean management practices of Kaizan and Innovation management can positively impact economic performance, environmental performance and competitive performance through GSCMP, [28].

The effects of GSCM dimensions and practices on specific performance outcomes are contingent on the context. Management dimension of GSCMP has significant and positive affect on competitive advantage while the green environment and equipment dimension enhanced operational performance in a study of quick service restaurants in Egypt [29]. Operations management enhanced green performance of companies for environmental benchmarking involving the complete supply chain while green technology adoption had no impact on manufacturing SMEs environmental sustainability [13]. Study of food chains of Brazil demonstrated the importance of managerial orientation for green performance of companies and supply chain sustainability [30]. GSCM practices of suppliers had differential impact on environmental performance based on the type of practice being considered, [31]. Low carbon supply chain practices.

Few studies have evaluated the impact of GSCM on corporate reputation, branding, corporate image and innovation. Selection of suppliers based on their environmental performance was found to benefit corporate reputation in a study by [32] Partner social responsibility was moderator of the relationship of specific investments with green supply chain innovation performance and knowledge transfer with performance [33].

The relationship between GSCMP and firm (business and individual) outcomes is moderated and mediated by various psychological factors (for example environment attitude, customer learning, calculative commitment, self-efficacy employee engagement) and organizational factors (for example green organization image, public pressure, firm size, firm type (national or exporting).However, the moderating and mediating effects are contingent to the specific practices and their outcomes.

Interaction between environment attitude and the employees' engagement influences GSCM practices, in a study on automobile manufacturing industry in India [11]. Internal green process innovation and customer learning contributes to green customer cooperation which is moderated by calculative and affective commitment of management [12]. Green self-efficacy mediates the relationship between knowledge seeking and knowledge production with green supply chain management [34]. Product flexibility fit is related to GSCMP and public pressure has positive moderating effect on the relationship [35]. EP varies with firm size and firm type, whether it its national or exporting. Larger firms are proactive and adopt GSCM for competitive advantage while smaller firms are reactive and implement GSCMP in response to regulatory pressures, [36]. Internal and external corporate social responsibility (CSR) positively impacts green supply chain management and firm performance which is positively moderated by big-data analytics capability (Wang et al, 2020). Joint implementation of Internal green supply chain practices (IGSCP),green human resource management (GHRM) and supply chain environmental cooperation (SCEC) positively effects firm performance (FP), [37]. Owners/managers intention toward green mediates the green initiatives and environmental sustainability link though green technology adoption does not affect manufacturing SMEs environmental sustainability [38].

4.4. Adoption of GSCM practices (GSCMP)

Very few studies have empirically researched adoption of GSCMP by service firms. Both internal and external factors motivate forms to adopt internal and external GSCMP. External and internal stakeholders also have positively impacted GSCMP adoption especially of micro, small and medium enterprises (MSME). Adoption of GSCMP by firms may be unsuccessful due to coercive techniques by governments as compared to informative techniques. The factors influencing successful adoption of GSCMP are context specific and dependent on the firm size, resource availability, capabilities and willingness of stakeholders, both within and external to the firm.

Adoption of GSCM practices in firms is driven by internal factors (for example prior experience with hazardous inputs and environmental management systems, firm size, tangible resources and capabilities, organizational support, social capital, leadership, internal stakeholders, GHRM (Green Human Resource Management) and external forces (for example normative and mimetic

pressures, institutional pressures, external stakeholders, SCEC (Supply chain environmental co-operation), government involvement). Leadership and institutional pressures have positively influenced adoption of internal green practices and external green collaboration [17].

A study by [16] empirically proved that external forces of normative and mimetic pressure and internal factors of tangible resources and capabilities significantly induce adoption green supply chain practices by manufacturing companies in Sri Lanka while coercive pressure and intangible resources do not have much impact. Implementation of GHRM (Green Human Resource Management) and SCEC (Supply chain environmental co-operation could trigger adoption of IGSCP (Internal green supply chain practices) to improve performance of manufacturing companies. The same study also showed that implementation of only IGSCP may have negative affect on the firms market and financial performance. Adoption of green SCM practices may have differential effect on performance outcomes which may be positive for environmental and operational performances but negative for economic performance [39].

Some of the motivating factors of GSCMP adoption by firms and other stakeholders (example suppliers) in literature are societal pressures or social capital, customer needs and preferences, institutional environment and environmental regulations, behavioural factors of green motivation, top management support, strategic factors of board structure and diversity. However, the integrated impact of internal and external drivers on GSCMP implementation is higher than individual impact of each factor. Various internal and external factors lead to GSCMP implementation by firms. External forces of institutional pressure, stakeholder pressure, customer preferences, government involvement, and Internal factors of employee engagement, employee attitude, top management support, position of the firm in the supply chain (downstream or upstream) have been found to significantly impact GSCM practices implementation by organizations. Normative drivers involving stakeholder pressure were evidenced as the greatest drivers of GSCM practice in a study on solar energy companies in South Egypt [40].

However, external and internal pressures were not significant drivers of implementation of GSCMP in micro, small and medium enterprises (MSME's) in a study in India. Collaboration with customers, competitors, legislative agencies, literacy and training of employees and top management support were considered as important measures for implementation of GSCM practices by MSME's [41]. Firm's internal driving force has positive association with demand uncertainty and negative association with competition and supply uncertainties while firms' external driving force has positive association with competition and supply uncertainties and negative association with demand uncertainties. Green sourcing practices are motivated by customer needs and preferences for the green products and services. Social capital mechanisms motivate partners to initiate strategic initiatives for GSCMP, especially if drivers for co-innovations adoption and supply chain (SC) sustainability are shared by managers [10]. Cost and customer drivers have effect on internal and external green practices, and subsequently environmental performance (EP).Successful implementation of green purchasing is influenced by supplier's coercive pressure, environmental focus and socio-cultural responsibility in a study [42]. Hence, various internal and external factors are motivational drivers of GSCMP adoption though their effects on GSCMP implementation are heterogeneous and contextual.

4.5. Supplier participation

External factors are most significant drivers of GSCMP adoption by suppliers while social pressures and internal factors don't have much influence. However, suppliers may have to manage paradoxes due to adoption of specific GSCM practices. For example, in a study, buyer dependency had negative effect on performance outcomes due to supplier's adoption of GSCM practices under institutional pressures [14].

Supplier's implementation of GSCM practices of green sourcing and eco-design are influenced by coercive forces and voluntary behaviours related to their institutional environment. Institutional drivers motivate adoption of green sourcing by suppliers; however buyer dependence has adverse effect on performance outcome of green sourcing [14]. An empirical research of GSCMP in 150 Iranian suppliers of automobile industry concluded that most significant drivers of supplier participation are society, environmental regulations, customer investment, and customer requirements [9]. However, supplier readiness and relational norms don't have much of an effect on supplier participation [9]. Commercial values of green purchasing and social and political obligations promote adoption of green purchasing in SCM practice [18].Green sourcing by firms is not dependent on firm size, scale of purchasing, or government environmental regulations but self-motivated by firms customers preferences, CSR or drive for competitive advantage, in a study in S Korea(Min et al, 2019). Firm's purchase volume can pressure its supplier to adopt the environmental programs [15] as evidenced in a study of Multi National Enterprises. Study of textile and apparel manufacturers in Taiwan shows that green supply chain management (GSCM) drivers (organizational support, social capital and government involvement) have impact on adoption of GSCM practices (green purchasing, cooperation with customers, eco-design) by suppliers.

4.6. Model of GSCMP Implementation

A model of GSCMP implementation is proposed based on the research findings. According to the model, internal and external GSCMP are drivers of internal and external GSCMP adoption which subsequently impact individual and organizational performance outcomes (Environmental, economic and operational) with internal and external moderators influencing the GCSMP-performance relationship. Environmental performance outcomes mediate the effects of GSCMP on economic and operational performance outcomes (Fig. 2).

5. Conclusions and implications

The aim of this paper is to review the empirical research findings of GSCMP in published literature between 2018 and 2021 to map the state of research and identify strands for future research. The papers were extracted through systematic process (PRISMA) and evaluated within the themes of GSCM practices, adoption of GSCMP and supplier participation, through process of analyses of the content of the selected papers. The results show that specific GSCM practices and their antecedents and consequences have received higher attention in research with focus on operations, sourcing, GHRM functions compared to GSCM practices related to green marketing, green technology, green customer relationship management and green innovation.

Most studies are selective towards the manufacturing sector (largely automotive, electronics, electrical sectors) in regions of Asia, USA and Europe. Environmental performance outcomes of GSCMP have received higher research interest while GSCMP drivers of financial, economic, operational, marketing and innovation performance outcomes have yet to be appropriately researched.

The results show that the scope of the definition of GSCMP has expanded to include multiple internal and external stakeholders and multiple activities along the life cycle of the product. GSCMP

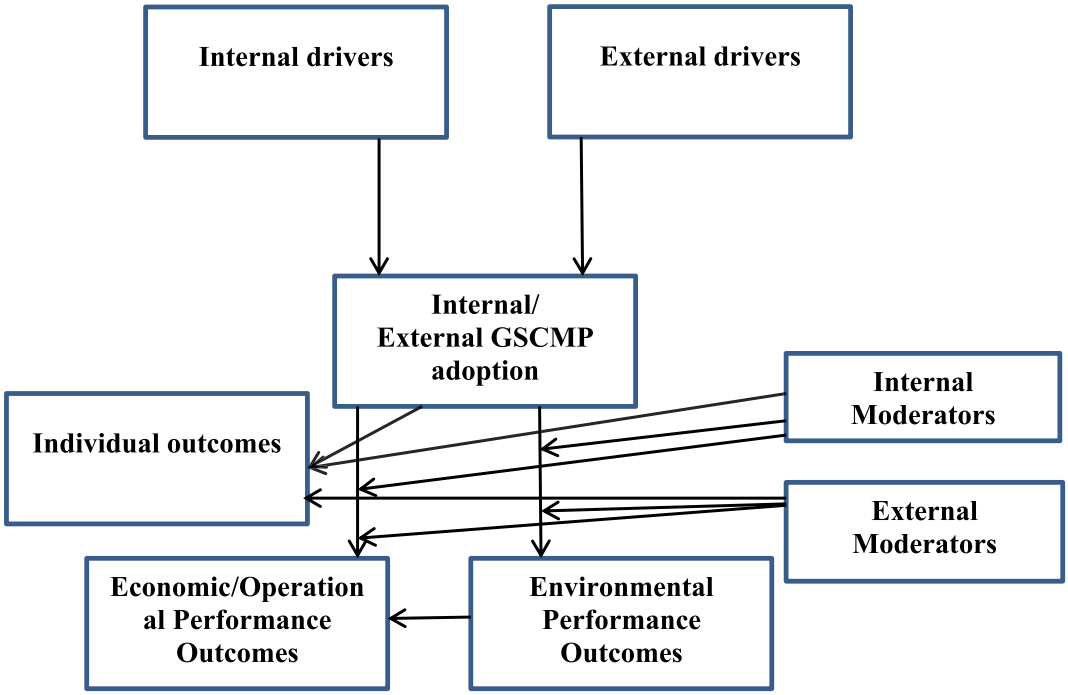

Fig. 2. Model of GSCMP Implementation (Developed for this Study).

is a dynamic and multi-dimensional concept with strategic and operational aspects involving multiple stakeholders within the organization and external to the organization. The scope of GSCMP research has also expanded to linking of internal and external GSCM practices.

The specific practices of GSCM which have been researched are limited and may not reflect the broad compass of activities and techniques within the scope of the concept. Internal activities related to financing, investment, marketing, research, may not have been considered in GSCMP research. External activities of collaboration and partnerships with various supply chain stakeholders need to be explored further within the scope of GSCMP.

While various internal and external drivers of GSCMP implementation have been identified, their integrated impact and consequences such as trade-offs need further research. The effects of internal and external drivers of GSCMP implementation are heterogeneous and context specific.

The review shows that specific GSCM practices have positive effects on multiple performance outcomes of EP, economic performance and operational performance. The effects of GSCMP on performance outcomes are not consistent and may even have opposite effects on organizational and societal performance measures which may need further research. Several studies show inconsistent effects of GSCMP on organizational outcomes which indicate that the effects may be contextual and specific to the practice.

Integrated effect of Internal and external drivers of GSCMP adoption is higher than effects of internal or external drivers. External factors interact with internal factors to drive GSCMP adoption by firms. Various psychological factors of employees and customers and organizational factors moderate and mediate the linkage of GSCMP with performance outcomes. GSCMP have heterogeneous effects on firm performance outcomes. Specific GSCM practices may lead to differentiated and opposite performance outcomes for organization and between organization and society.

While external factors have greater impact on supplier participation in GSCMP of firms, they may have to manage the inherent paradox of adverse performance outcomes on account of GSCMP adoption. Supplier sourcing practices of firms are determined by customer preferences and competitive pressures and therefore, suppliers with environmental practices may be preferred.

5.1. Theoretical Implications

A contingency based model of GSCMP is proposed based on the review study of empirical literature published in recent years, 2018–2021. The review provides support for application of stakeholder stake-holder involvement theory, diffusion of innovation theory and Institutional theory in GSCMP adoption and implementation. A conceptual model of GSCMP implementation is proposed (Fig. 2) based on the findings of the review paper. This study aims to advance the theoretical and conceptual evolution of GSCMP implementation and adoption by integrating the empirical research findings in recent years.

5.2. Managerial Implications

Practitioners can apply the model (Fig. 2) to evaluate, design and implement GSCMP for their organization. The empirical findings provide direction and guidance to practitioners for developing and implementing GSCMP which are effective and linked with performance outcomes. The contextual factors to be evaluated and applied in implementation and adoption of GSCMP are identified from this study.

5.3. Future research Directions

The following areas for future research are suggested based on gaps identified in the research paper.

Scope of Research can be expanded geographically (countries beyond S Asia, Europe, and USA), and to different industry sectors (beyond manufacturing, automobile, electronics, ceramics, textiles) and beyond manufacturing to services (airlines, energy,

power, telecommunications, food service, hospitality and healthcare).

Internal and external GSCMP can be studied for their concurrent effects on organizational performance. Research on integrated effects of internal and external drivers of GSCMP implementation would generate insights into the trade-offs and heterogeneous impact of these factors. The effects of these factors are varied and context specific which needs further investigation into the conceptual factors, moderating and mediating constructs and variables which drive GSCMP implementation and adoption by firms.

Various stakeholders perceptions and behaviours and their relationship with adoption of GSCMP and effects on organizational performance may be evaluated in future studies.

Green performance measures related to marketing i.e. customer satisfaction, customer loyalty, continuance intentions; branding (brand image, brand equity, brand personality); financial performance (financial ratios, share value, economic value added); related to the firm and across the supply chain may be incorporated for future studies.

Theoretically and empirically validated scales may be developed for measuring GSCMP and firm and SCM performance. There are conflicting results of some GSCMP on economic performance of firms which may be further investigated.

Future research may be conducted from other organizational theory perspectives (for example Social Network Theory (SNT), Transaction Cost Economics (TCE) theory, Information theories (asymmetric information or signalling theory) by aligning the organizational dimension of GSCMP with the theoretical perspective. For example, environmental development by middle and senior level managers to implement environmentally oriented practices may be investigated from the theoretical lens of complexity theory complexity theory, by suggesting how to resolve challenges of implementing such practices by managing organizational complexities related to size and relationships with employees, suppliers and customers [43].

CRediT authorship contribution statement

Rajat Gera: Writing – original draft. **Priyanka Chadha:** Conceptualization, Formal analysis. **Manmeet Bali Nag:** Methodology. **Sahiba Sharma:** . **Heena Arora:** . **Anjum Parvez:** Investigation, Validation. **Lebedinskaya Yuliya Sergeevna:** Supervision, Writing – review & editing.

Data availability

No data was used for the research described in the article.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Further reading

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