

THE DRIVERS AND BARRIERS OF GREEN SUPPLY CHAIN MANAGEMENT IMPLEMENTATION: A REVIEW

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Abstract: Due to environmental degradation such as climate change, increased CO₂ and GHG emission and all other problems threatening the world and its existence. Firms now are forced to think about integrating environmental thinking into their business operations in order to satisfy their stakeholders. Therefore, several organizations start developing environmental management strategies such as green practices overall their business operations, and since the supply chain concerns the product from its initial processing of raw material until the delivery to the customer there has been an emergency to integrate environmental thinking within this function. This paper aims to review the literature on the drivers and barriers influencing GSCM implementation. A total of 60 elements that englobe 28 drivers, and 32 barriers were identified from the selected literature where only the highest weightage factors are discussed. As results, Financial and cost related factors, Customers and Regulatory related factors seemed to behave simultaneously in both directions.

1 Introduction

Currently and all over the past decades, governments, organizations, companies, communities, policymakers, individuals and researchers are all increasingly focused on the subject of sustainable development [1] due to the environment degradation such as climate change, pollution, increased CO₂ and GHG emission, global warming, and all other problems threatening the world and the human race existence [2-5]. Nevertheless, several efforts have been made by international agencies and national governments in order to protect and reduce these challenges [4] as results, industries and manufacturing firms are the first to face these problems due to their involvement as being a major actor in making natural, environmental and ecological issues [1,6]. However, these issues turned out to be critical and crucial for firms in order to satisfy their stakeholders requests such as customers, authorities, workers and associations that are increasingly requesting from firms to include environmental and social sustainability in their business operations and to fit in with the environmental standards [5,7].

In this manner, so as to keep up the same level of production and at the same time to respond to their stakeholder's requests, firms must adapt an alternative way of managing manufacturing operations, such effort involve huge changes and adjustments in the process of production and the supply chain planning [4]. Therefore, organization are now forced to think about integrating environmental thinking into their business operations in order to ensure and generate competitive advantage, to get adapted to the

various environmental regulations across regional, national and international dimensions [3].

Therefore, several organizations have started developing environmental management strategies such as green practices all over their business operations including implementation of environmental audits, maintaining environmental management system certifications (14001 ISO) and cooperating with their stakeholders in order to respond to these changes and to fulfil environmental obligations [3,8]. Thus, since the supply chain concerns the product from its initial processing of raw material until the delivery to the customer there has been an urgency for firms to integrate environmental thinking within this function [9]. In this context, integrating an environmental thinking into the SCM has got a huge attention from multinational firms, what gave birth to a new leading concept named as The Green Supply Chain Management [1]. Nevertheless, this concept has received an enormous attention by scholars since the late of 80's and it has become more established during the mid of 90's [10]. Accordingly, the GSCM has been treated by several academicians from different perspectives and dimensions. At the same level, [11] claims that there is an ambiguity when it comes to define the GSCM. Thus, a range of possible definitions of the GSCM have been developed over the past decades, according to Scopus database, one of the most highly used definitions of GSCM is given by [12] who considers it as "integrating environmental thinking into supply chain management, including product design, material sourcing

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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." At the same level, Beamon (1999) as cited by [13] defines the GSCM as "the extension of the traditional supply chain to include activities that aim at minimizing environmental impacts of a product throughout its entire cycle, such as green design, resource saving, harmful material reduction, product recycle and reuse." Following the same way, [3] GSCM refers to "the combination of environmental, societal and economic consideration in a supply chain which operates as linked activities starting from sourcing raw materials to post consumption activities of products or services by the customers". Hence, in order to understand this emerging phenomenon, several efforts have been made by researchers during the last decades in identifying the drivers and barriers for GSCM implementation.

Thus, this study aimed to identify and classify the major drivers and barriers influencing GSCM implementation using articles published in periodicals, these drivers and barriers are further classified into two subgroups: internal and external.

This paper is prepared as follows: Section 2 presents a literature review of GSCM implementation among different industries. Section 3 illustrates the followed research methodology. The classification of the drivers and barriers of GSCM implementation are presented in section 4. The discussion and findings are presented in the section 5. Finally, Section 6 presents the summarized conclusion.

2 Literature review

In the last few decades, several authors have made enormous efforts to identify the drivers and barriers of GSCM implementation among different industries and contexts, for example, Towbridge [14] Evaluates the operations of environmental supply chain management among advanced micro devices companies, claiming that GSCM in AMD is driven by both internal and external factors, such as NGO's and organizational risk management. [15-17] pointed out in their research while evaluating drivers, practices and performance within Chinese manufacturing companies that these firms are driven by several factors such as regulation, costs and exports. Walker et al. [18] while investigating drivers and barriers among private and public-sector organizations found that organizations appear to be influenced by external drivers such as customer, regulation, etc. more than internal related factors, on the other hand Cost Related Factors, legitimacy and regulation are considered as the most significant barriers. Lee [19] investigated the SMEs supplier's and concluded that these companies are driven by 3 different factors such as Buyer influence, Government involvement and Green supply chain readiness. Diabat and Govindan [20] identified and ranked 11 drivers such as Environmental collaboration with suppliers, Collaboration between product designers and suppliers to reduce and eliminate product environmental impacts, Government

regulation and legislation, by using an Interpretive Structural Modelling (ISM). Hsu et al. [21] used the institutional theory in order to identify the drivers of GSCM among Malaysian firms, the investigated drivers are the following: Coercive and memetic isomorphism, Normative isomorphism and Cultural-Cognitive isomorphism, the authors claim that COmpetitor pressure is the most significant driver, while SOcio- cultural responsibility is the lowest. Xu et al. [22] identified 32 drivers from the literature and classified them into five categories such as: Regulation, Market and competitiveness, External factors from suppliers, Financial factors, Production and operation factors. The authors found out in their comparative study that each industry has its own pressures. Khiewnavawongsa and Schmidt [23] in their research on the barriers of GSCM implementation among electronics industry, the authors identified 33 barriers from the literature and categorized them into 6 factors, Supply chain, Economy justification, Perception, Motivation, Implementation and the Resources limitation. The study claims that the most significant factor affecting green initiative adoption was from financial concern. Dashore and Sohani [24] reviewed the literature on the drivers and barriers of GSCM implementation, the authors identified 20 barriers from various industries, such as, absence of IT system incorporation, weak GSCM organizational culture, Lack of experienced human resource, Uncertainty and market rivalry, Absence of government initiatives, Low GSCM practices implementation, etc. and 16 drivers, namely, Suppliers' environmental management system certification, Firm's environmental collaboration with their suppliers, Diminution and removal of harmful products through collaboration between product designer and suppliers, Government regulation and legislation, Recognition from Third part (certification, ISO 14001), etc. Otherwise, Somsuk and Laosirihongthong [25] have used 3 theoretical backgrounds, namely, Resource Based View Theory, Relational View, and Institutional Theory, to identify and rank the drivers of GSCM implementation among organization in Thailand, however the drivers are classified by the following: RBV (Internal drivers: Top management support, Waste and Pollution reduction, Cost reduction) Institutional (External Drivers: Government, Customers, Competitors, Society) and Relational Drivers (Employee involvement and motivation, Customers and suppliers collaboration, Knowledge sharing in supply chain, Company's green image and reputation) the study claims that the most influential drivers are: Government initiative, Top Management support, Customer pressure, Cost Diminution, Pollution Reduction.

In a nutshell, several empirical investigations have been done to understand the pressures and barriers that affect the adoption of green supply chain management practices within firm's supply chain activities. Therefore, Table 1 briefly summarizes the identified drivers and barriers from the extant literature.

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Table 1 Drivers and Barriers of GSCM implementation investigated in previous researches

Sr.N ^o	Elements	Authors
Drivers	1 Foreign and Local Customer (Including Export, Environmental collaboration with Customer, Customer awareness)	[8,14-22,24,25,27,30-33,35,37,39-41,43,44,46,47,52-59]
	2 Regulation (Including Government, Local, National and International, Importers regulation, Products potentially conflict with laws)	[8,15-22,24,25,27,30-37,39-41,39-41,43,46,47,52-55,57-59]
	3 Society, NGOs and Media	[14,18,22,25,28,31-33,35,37,38,41-43,46,52-54,58,59]
	4 Financial and Cost related	[15-18,24,25,31-35,47,52,53,56-59]
	5 Competitors	[15,16,21,22,25,27,30,32,33,37-39,41-43,47,52,53,59]
	6 CSR and Company environmental mission	[15,17,21,22,27,28,30-33,35,39,41,52,53,57-59]
	7 Suppliers related factors (Collaboration with supplier, Certification of suppliers and characteristics)	[14-17,20,22,24,25,31,35,37,39,41,43,46,59]
	8 Top Management Support Commitment and Leadership	[25,27,28,31,35-40,42,46,53,57]
	9 Green image and firms' reputation	[22,24,25,27,31-35,39,52,53,57]
	10 Recognition from Third part and Implementation of EMS, TQMS	[20,22,24,29-31,34,39,41,46,47,53]
	11 Employees	[25,29,31,35,38,41,42,52,57]
	12 Green Knowledge, Technology, Firms capabilities	[16,19,20,25,31,33,40,46,57]
	13 Organizational values and firms desire	[15,18,31,40,44,46,53,58]
	14 Internal Policy	[16,17,27,28,36,40,47,59]
	15 Green practices related factors	[20,24,25,37,47,53,57]
	16 Investors	[14,31,41,52-54,59]
	17 Potential liability for disposal of harmful materials	[16,17,22,32,41,59]
	18 Innovation	[31,34,39,43,47]
	19 Competitive advantage	[18,31,55,59]
	20 Internationalization	[8,22,31,53]
	21 Policy Entrepreneurs	[18,22,41,59]
	22 Owners /shareholders	[22,31,52,59]
	23 Organizational Risk Management	[14,18,22,53]
	24 Corporate strategy	[14,31,37,40]
	25 Performance improvement	[33,41,59]
	26 Quality improvement	[47,59]
	27 Global Climate Pressure	[52]
	28 Industry orientation	[22]
Barriers	29 Financial and cost related factors (cost of implementation)	[23,24,26-29,32,41,45,47-51]
	30 Regulatory related factors (Government, Government fiscal incentive, International trade association)	[18,23,24,26,28,29,32,41,45,47-51]
	31 Supplier related factors (Flexibility to change, Unawareness, Certifications, Lack of green suppliers, Price, Integration, Source of eco-friendly materials, No proper rewarding system to suppliers)	[18,23,24,26,27,29,32,41,45,47-51]
	32 Lack of resources (Human and financial)	[18,23,24,26,28,29,32,41,45,48-51]
	33 Customer related factors (Lack of Customer demand, Unawareness, Lack of pressure, Price)	[23,24,26,27,29,32,41,45,48-51]
	34 Lack of Top Management Commitment	[24,26,29,32,41,45,48-51]
	35 Organizational Culture and CSR adoption	[24,26,28,29,32,41,45,49,51]
	36 Lack of knowledge and green technology adoption	[24,26,28,32,41,45,48]
	37 Lack of integration of IT system	[24,29,32,41,45,49]
	38 Competitiveness related factors (Price)	[23,24,41,45]
	39 Lack of Green practices adoption	[24,29,45,48]
	40 Difficulties in identifying and measuring costs/benefits	[27,48,50]
	41 Difficulties in identifying Environmental Performance Metrics	[29,48,50]
	42 Industry	[18,28,41]
	43 Lack of Society pressure and awareness	[32,41,49]
	44 Employees Resistance	[18,29]

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45	Complexity of design to reuse/recycle used products	[48,50]
46	Fear of Failure	[29,48]
47	Corruption	[28,32]
48	Lack of bank encouragement (Loans)	[48,49]
49	Lack of Green System exposure for professionals	[24,48]
50	Competition and market uncertainty	[24,49]
51	Lack of Certification	[24]
52	Strategic planning	[29]
53	Complexity in identifying 3rd parties to recollect used products	[48]
54	Lack of sustainability Internal audits	[32]
55	Technical obstruction with implementation of GSCM	[51]
56	Lack of legitimacy (compliance)	[18]
57	Global Financial Crisis	[29]
58	Innovation and scientific research	[49]
59	Internal and intermodal transport	[49]
60	Lack of promotion of green materials in local markets	[51]

3 Research methodology

An in-depth review of the literature on GSCM was carried out to distinguish and classify the most potential related factors that impact GSCM practices implementation among different industries. This study follows the work of [32,33,41]. Many journal papers, conference proceedings and theses have been selected. The collected data from the literature are classified into two subgroups: internal and external, drivers and barriers. The ranking is based on the frequency of citation.

4 Classification of the drivers and barriers of GSCM implementation

The last few years have witnessed a growing interest in examining the drivers and barriers of GSCM implementation in different contexts and industries. Several authors [9,14-22,26-33] have worked on the area of identifying the factors that push or hinder firms to adopt green practices within their supply chain.

Simultaneously, firms tend to develop environmental strategies due to the increased concern about environmental issues that we are facing nowadays [56].

Hence, they are driven by several elements to adopt green strategies within their supply chain activities. In line with this trend, several empirical investigations [9,14-19,25,27,33-38,40-45] have identified and classified the drivers into two categories: internal and external drivers, the formers could be defined as the motivators that comes from the firm itself [41]. These drivers include internal policies and firm awareness, employees, middle and senior managers desire and commitment, firms environmental strategy (corporate social responsibility) and organizational values, cost reduction desire, performance improvement desire, investors pressure, etc. otherwise, the latter's could be defined as the pressure that comes from the external environment, as for example government regulation, public opinion, competitors, suppliers, consumers and multinational corporate partners as in [15-18,36-38,42]. Therefore, the tables 2 and 3, summarize, classify and rank the drivers of GSCM implementation.

Table 2 Internal drivers that affect GSCM implementation investigated in previous researches

Rank	Internal Drivers	Number of citations	Authors
1	Financial and Cost related	20	[15-18,24,25,31-35,47,52,53,56-59]
2	CSR and Company environmental mission	18	[15,17,21,22,27,28,30-33,35,39,41,52,53,57-59]
3	Top Management Support Commitment and Leadership	14	[25,27,28,31,35-40,42,46,53,57]
4	Green image and firms' reputation	13	[22,24,25,27,31-35,39,52,53,57]
5	Recognition from Third part and Implementation of EMS, TQMS	12	[20,22,24,29-31,34,39,41,46,47,53]
6	Employees	9	[25,29,31,35,38,41,42,52,57]
	Green Knowledge, Technology, Firms capabilities	9	[16,19,20,25,31,33,40,46,57]
7	Organizational values and firms desire	8	[15,18,31,40,44,46,53,58]
	Internal Policy	8	[16,17,27,28,36,40,47,59]
8	Green practices related factors	7	[20,24,25,37,47,53,57]
9	Potential liability for disposal of harmful materials	6	[16,17,22,32,41,59]
10	Innovation	5	[31,34,39,43,47]

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11	Competitive advantage	4	[18,31,55,59]
	Policy Entrepreneurs	4	[18,22,41,59]
	Owners / Shareholders	4	[22,31,52,59]
	Organisational Risk Management	4	[14,18,22,53]
	Corporate strategy	4	[14,31,37,40]
12	Performance improvement	3	[33,41,59]
13	Quality improvement	2	[47,59]

Table 3 External drivers that affect GSCM implementation investigated in previous researches

Rank	External Drivers	Number of citations	AUTHORS
1	Foreign and Local Customer (Including Export, Environmental collaboration with Customer, Customer awareness)	34	[8,14-22,24,25,27,30-33,35,37,39-41,43,44,46,47,52-59]
2	Regulation (Including Government, Local, National and International, Importers regulation, Products potentially conflict with laws)	33	[8,15-22,24,25,27,30-37,39-41,39-41,43,46,47,52-55,57-59]
3	Society, NGOs and Media	20	[14,18,22,25,28,31-33,35,37,38,41-43,46,52-54,58,59]
4	Competitors	19	[15,16,21,22,25,27,30,32,33,37-39,41-43,47,52,53,59]
5	Suppliers related factors (Collaboration with supplier, Certification of suppliers and characteristics)	16	[14-17,20,22,24,25,31,35,37,39,41,43,46,59]
6	Investors	7	[14,31,41,52-54,59]
7	Internationalization	4	[8,22,31,53]
8	Global Climate Pressure	1	[52]
	Industry orientation	1	[22]

However, the implementation of Green Supply Chain Management Practices is also affected by several barriers. In contrast to the drivers, they could be defined as forces that hold up the effective implementation of green practices [41]. Similarly, they are classified into internal and external [18,23,26,27,29,32,41,45-51] as for example, the formers are the lack of senior, middle managers and employees' awareness and commitment, employee's resistance, organizational structure, lack of financial resources (costs

of implementation), lack of know-how, lack of training, etc. Furthermore, the latter comes from the firm's external environment such as, the lack of government regulation, unwillingness of information trade between the firm and its suppliers, lack of consumers awareness, competition, lack of supplier's commitment and awareness, etc.

Hence, the following tables: Table 4 and Table 5, summarize, classify and rank the barriers of GSCM implementation.

Table 4 Internal Barriers that affect GSCM implementation investigated in previous researches

Rank	Internal Barriers	Number of citations	Authors
1	Financial and cost related factors (cost of implementation)	14	[23,24,26-29,32,41,45,47-51]
2	Lack of resources (Human and financial)	13	[18,23,24,26,28,29,32,41,45,48-51]
3	Lack of Top Management Commitment	10	[24,26,29,32,41,45,48-51]
4	Organizational Culture and CSR adoption	9	[24,26,28,29,32,41,45,49,51]
5	Lack of knowledge and green technology adoption	7	[24,26,28,32,41,45,48]
6	Lack of integration of IT system	6	[24,29,32,41,45,49]
7	Competitiveness related factors (Price)	4	[23,24,41,45]
	Lack of Green practices adoption	4	[24,29,45,48]
8	Difficulties in identifying and measuring costs/benefits	3	[27,48,50]
	Difficulties in identifying Environmental Performance Metrics	3	[29,48,50]
9	Employees Resistance	2	[18,29]
	Complexity of design to reuse/recycle used products	2	[48,50]
	Fear of Failure	2	[29,48]
10	Lack of Certification	1	[24]
	Strategic planning	1	[29]
	Complexity in identifying 3rd parties to recollect used products	1	[48]
	Lack of sustainability Internal audits	1	[32]
	Lack of legitimacy (compliance)	1	[18]

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Table 5 External Barriers that affect GSCM implementation investigated in previous researches

Rank	External Barriers	Number of citations	Authors
1	Regulatory related factor (Government, Government fiscal incentive, International trade association)	14	[18,23,24,26,28,29,32,41,45,47-51]
	Supplier related factors (Flexibility to change, unawareness, Certifications, Lack of green suppliers, Price, Integration, Source of eco-friendly materials, No proper rewarding system to suppliers)	14	[18,23,24,26,27,29,32,41,45,47-51]
2	Customer related factors (lack of Customer demand, Unawareness, Lack of pressure, Price)	12	[23,24,26,27,29,32,41,45,48-51]
3	Industry	3	[18,28,41]
	Lack of Societal pressure and awareness	3	[32,41,49]
4	Corruption	2	[28,32]
	Lack of bank encouragement (Loans)	2	[48,49]
	Lack of Green System exposure for professionals	2	[24,48]
	Competition and market uncertainty	2	[24,49]
5	Global Financial Crisis	1	[29]
	Innovation and scientific research	1	[49]
	Internal and intermodal transport	1	[49]
	Lack of promotion of green materials in local markets	1	[51]

5 Findings and discussion

A total of 60 factors that englobe 28 drivers, and 32 barriers in total were identified from the selected literature. In this literature review only the highest weightage factors are discussed.

The identified factors were categorized and classified into, external and internal drivers and barriers, as the following:

The internal drivers that affect GSCM implementation among different contexts and industries are shown in Table 2 and ranked based on their occurrence on the previous investigated studies.

From the analysis, the common internal drivers in different industries are: Financial and Cost related factors, CSR and Company environmental mission, Top Management Support Commitment and Leadership, Green image and firm’s reputation, Recognition from Third part and Implementation of EMS, TQMS seem to have the most significant weightage among the identified internal drivers.

As noted earlier, Financial and cost related factors play an important role in the implementation of GSCM practices, that could be explained by the fact that the implementation of GSCM leads to costs reduction by minimizing resources and waste, which follows the main goal of companies which is to generate higher profits and to reduce costs so as to create a competitive advantage.

Moreover, the Corporate Social Responsibility (CSR) and firms’ environmental mission, occur to be the second important driver for GSCM implementation, which is represented by the firm’s willingness to adopt environmentally practices within their supply chain to satisfy their stakeholders so as to enhance the corporate image.

Additionally, the Top Management Support, Commitment and Leadership play initially a significant role in the implementation of green strategies overall the firms’ activities, according to Kamolkittiwong and Phruksaphanrat [37], it is explained by the role

occupied by the top management inside the organization, such as, defining the firm’s mission, orientation and its organizational policy.

Finally, The Green and Firm’s Reputation, Recognition from a Third part are also considered as critical drivers for firms to adopt and implement GSCM. The fact that firms tend to develop green strategies to satisfy their stakeholders and to comply with environmental standards so as to generate a competitive advantage.

According to Table 3, the most weighted external drivers are the following: Foreign and Local Customer (Including Export, Environmental collaboration with Customer, Customer awareness), Regulatory related factors (Including Government, Local, National and International, Importer's regulation, Products potentially conflict with laws), Society, NGO's and Media, Competitors and Supplier related factors (Collaboration with supplier, Certification of suppliers and characteristics).

Primary, Customer related factors are the highest weightage among others, with 34 citations, this could be explained by the customer awareness that pushes industries to adopt and implement GSCM practices.

In the second range occurs the Regulatory related factors. Government and international legislation play an important role as a key force that drives firms to adopt green strategies. Thus, firms implement GSCM practices in order to avoid fines and penalties so as to comply with environmental regulation.

Moreover, Society, NGO’s and Media make a major contribution as a driver that push firms to adopt GSCM practices. Society awareness has increased in the last decades due to the environmental issues that we are facing nowadays, according to Zhang et al. [42] the public pressure pushes the firms to produce environmentally friendly products and also to adopt environmentally friendly operations.

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Finally, Competitors and suppliers related factors, contribute significantly to the implementation of GSCM. The following is explained through supplier's cooperation in the realization of environmentally friendly products, services, to the customer. At the same time, Firms all around the globe are continuously trying to create new and innovative ways to improve their competitiveness, thus adopting GSCM practice in order to meet environmental standards, customer demand and enhancing firm's environmental performance may lead to create a competitive advantage [42].

Based on Table 4, the most significant internal barriers appear to be the following: Financial and Cost related factors (Cost of implementation), Lack of resources (Human and financial), Lack of Top Management Commitment, Organizational Culture and CSR adoption.

As mentioned in the results, Financial and Cost related factors have the highest weightage compared to others. The implementation of GSCM practices requires high investments and generates higher costs which hinder firms to adopt such practices and comply with the environmental standards.

Along with the same line, the lack of human and financial resources hinders firms from the adoption of GSCM practices, which is explained by the fact that Human and Financial resources are an important key for firms to adopt new and innovative ways to enhance their performance and competitiveness.

Furthermore, the lack of Top Management Commitment acts also as a barrier for the adoption of GSCM practices as it is discussed above, top managers play a leading role in defining firm's orientation, mission, and organizational policy. Thus, according to Kamolkittiwong and Phruksaphanrat [37] the lack of Top Management Commitment signifies that the implementation of GSCM practices is hard to achieve.

In addition, the lack of CSR adoption and poor organizational culture obstruct the implementation of GSCM practices, that could be explained by firm's unwillingness to adopt green practice, as well by the lack of support of top management in incorporating green culture in the organization.

Besides the identified internal barriers shown in Table 4, Table 5 identifies the external barriers as follow: Regulatory related factors (Government, Government fiscal incentive, International trade association, etc.) Supplier related factors (Flexibility to change, unawareness, Certifications, Lack of green suppliers, Price, Integration, Source of eco-friendly materials, No proper rewarding system to suppliers), Customer related factors (lack of Customer demand, Unawareness, Lack of pressure, Price).

In this regard, Regulatory related factors have the highest weightage compared to other barriers. As mentioned earlier, regulatory related factors play a central role in the adoption of GSCM practices but sometimes the deficiency of government regulation, and fiscal incentives

prevent such an implementation. Therefore, Regulatory related factors act at the same time as drivers and barriers.

In the same manner, customers are considered simultaneously as drivers and barriers to the adoption of GSCM, the lack of consumer or public unawareness, demand and unwillingness to pay higher for environmentally friendly products obstruct firms to implement such a practice.

Eventually, Suppliers act as a barrier in the adoption of GSCM practices, via, their unwillingness to change and to commit toward green and eco-friendly operations.

6 Conclusion

The present paper aims to identify, classify and rank the factors linked to the implementation of green initiatives among firms supply chain activities in different industries from the existing literature.

A successful incorporation of green initiatives within firms supply chain activities requires a complete understanding of factors that have an ability in influencing the GSCM adoption. Therefore, decision makers must be conscious of vital elements influencing such an implementation [26]. Consequently, an essay has been done to review the extant literature on the drivers and barriers of GSCM implementation in different industries and contexts. As result, a total of 60 elements that englobe 28 drivers, and 32 barriers were identified, classified all together into two categories such as internal and external, in which Financial and Cost related factors, Customers and Regulatory related factors seemed to behave simultaneously in both directions.

In addition to its contribution to the literature of GSCM implementation. This research might be helpful to industries that are seeking to convert their traditional supply chain and fulfil with environmental standards.

However, this study has certain limitations that might be transformed into further possibilities for future research. Particularly, a systematic literature review and an empirical evaluation of the most influencing factors in GSCM implementation has not been considered in this research. Therefore, future research might be conducted in this area. Moreover, this study will be extended into an investigation of GSCM successful implementation and firms' performance.

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Review process

Single-blind peer review process.