Contribution Factors Influencing the Perception of Green Supply Chain – A Literature Review

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Abstract. Nowadays, the environment is at high risk, and sustainability is at stake owing to the high pollution, wastes & effluents released from the industries, hazardous chemicals and so on. Supply chain sustainability is, of late, among the most primary global challenges because of the vision of the United Nations (UN). UN is focusing primarily on attaining all 17 SDGs by 2030. This can be attributed to the focus of Green Supply Chain on minimising the detrimental negative effect of the business process, like design, sourcing of material, manufacturing and delivery, on the environment. Based on the literature reviewed, this paper attempts to analyse the perception of the green sustainable supply chain practices, the influencing factors, outcomes, barriers and drivers in the green supply chain implementation. Critically based on the literature review from 2016 to 2022, this paper is a conceptual paper that aims to provide the researchers with an overview of the sustainability aspect of supply chain management into perception. The papers have been analysed regarding their objective, impact, findings, limitations, and gaps for future research. Twenty-six papers were selected from a total of 36 papers for review from all over the world for analysis. This research offers management insights into how consumers and manufacturers view GSCM and their participation in it, which will ultimately result in improved operational excellence as well as better financial outcomes. This paper also aims to open up the future area for research in this area and to provide a direction for future researchers in this domain.

Keywords: Consumer Perception · Green Supply Chain · Sustainable Supply Chain · Supply Chain Practices · Antecedents · Outcomes · Literature Review · Sustainability

1 Introduction

1.1 A Subsection Sample

Of late, the concept of sustainability is gaining high importance among practitioners as well as customers in all industries. The reason for this growing importance is that sustainability has become a vital part of determining the perceptions of a customer. These customer perceptions govern the choices and the decision-making process of the customer, like loyalty, willingness to buy and so on. Also, nowadays, the industries

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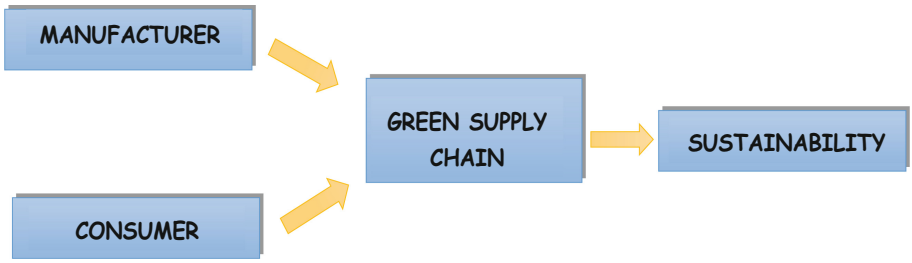

Fig. 1. Green supply chain perception and sustainability

are significantly emphasised by the pressure of corporate social responsibility (CSR) and pressures from the government. Because of severe environmental pressure and the exhaustion of resources, green innovation has already become a key strategy for incorporating sustainability to the supply chain.

The impact of consumer perception on purchasing behaviour in green supply chain management, however, is not well covered in the literature or research that has already been done. This research also attempts to examine how consumer perception affects consumer purchasing behaviour and, in turn, how it affects sustainability. By examining the current literature, it also seeks to define the roles of customers and practitioners in SCM. A thorough review of the literature was done to examine perceptions as well as their influence on sustainability (Fig. 1).

Subsequent Therefore, it is crucial to look at how consumers and producers in different industries perceive and behave toward sustainable practices. As a result, this research focuses on increasing the understanding of how sustainability policies affect consumers' impressions. In particular, this paper investigates the impact of the various sustainability practices on the supply chain in relation to the economic, social as well as the environmental aspects of sustainability and its influence on the behavioural dimensions such as satisfaction of the customer, loyalty of the customer and the willingness of the customer to afford a premium price. This has emerged the most prominent in the existing review.

With this intent in mind, this paper aims to provide insight to all researchers. Here is the literature review of all the papers worldwide in the years from 2016–2022 in the field of perceptions towards the GSCM. This paper's main objective is to offer a thorough overview of the present trends, future directions of research and limitations in the current research. It explores the perception of green products by manufacturers and consumers. In total, twelve papers have been selected across the world and each paper has been analyzed in terms of its findings, limitations, research gap and scope for future research. The results and conclusions of this study will be published for the stimulation of further research and to contribute to the existing literature.

2 Literature Review

The strategy of pricing in the reverse logistics of a Green Supply Chain was investigated using Literature Review and Structural Equation Modelling. A reverse logistics pricing strategy can lead to increased product usage and can further encourage the firms to

manufacture more sustainable and greener products (Chen et al. 2019) [5]. The way in which the GSCM strategies affect the company's overall performance was studied using Survey in the Automobile and Shipping industries of Bahrain. Regression Analysis and T-test was used to analyse the data. According to research, green manufacturing was the technique that had shaped industries the most. Green purchasing and green marketing came next. Green packaging had a very limited influence, and green design had a detrimental effect on the company's success (Jassim et al. 2020) [8].

The five key GSC practices comprising of eco-design, internal environment management, green buying, as well as investment recovery were investigated using Structural equation modelling and Cross-sectional surveys in the automobile firms in India. With the exception of internal environment management as well as green purchasing, the remaining elements had a significant effect on a minimum of 1 characteristic of performance. It was discovered that investment recovery technique substantially predicted environmental performance (Sahoo et al. 2020) [19]. The supply chain's performance variances by segment in the Indian car industry was identified and the way in which these performance discrepancies affect each sector's overall profit was calculated. Cross-segment comparison and ANOVA methods were used for analysis. Secondary data from websites, published research reports, industry reports, policy documents were used to collect data. Poor inventory turnover and superfluous fixed assets had a more detrimental effect on the supply chains of the commercial and passenger vehicle segments. By monetising assets in the tiers, businesses would be able to increase the performance of their fixed assets. Inventory decentralisation may thus help to increase inventory turnover in these sectors. Furthermore, it was discovered that, in contrast to inventory turnover and fixed assets, low distribution efficiency demonstrated a greater influence on a firm's profitability. Therefore, companies in the automotive industry must lower distribution costs because doing so will increase distribution efficiency, which in turn will increase profitability (Tripathi et al. 2020) [24].

The major obstacles that the Malaysian automobile sector faces was determined using PCI (Problem Conflict Index). 145 Automotive industries in Malaysia were surveyed. It was found that in the automotive industry, market instability and competition are the first obstacles. Lack of Green Practice Implementation is the next barrier. Additionally, top-level impediments such as a lack of globalisation, financial ramifications, a lack of business social responsibility, customer ignorance, and a lack of government technical support have been noted. The government's lack of interest in environmental issues and its limited involvement were the two biggest obstacles found (Afroz et al. 2019) [2]. The major Green & Lean Supply Chain practices and how they interact in terms of effects and problems were recognized. Structural equation modelling was used to study the case in the Indian automobile industry of Tractor & Farm equipment manufacturing. The finding was that for material deliveries, recyclable and reusable packaging is used. Just-in-time: Direct delivery of the material to the location of usage to reduce holding costs. Geographical concentration and the idea of single sourcing both made a big difference (Sharma et al. 2019) [21].

The principles of lean SCM and how they influence the supply chain effectiveness was learnt. Factor analysis and data envelopment analysis was used to Survey the manufacturing firms in Brazil. The pull system, levelling scheduling, and value stream

mapping all had a big impact on how effective top performing organisations are. Businesses that experienced problems pertaining to delivery on either supply chain ends tended to enhance the flow of information about transportation and schedule, which affected the performance of the supply chain significantly (Tortorella et al. 2018) [22]. The way in which the age of lean management has affected procedures, supply chain level, and onshore level in addition to the effect of suppliers as well as the plant size was also investigated using Chi-square test. Businesses that use supply chains had greater levels of buyer control. However, the impact of lean initiatives was only apparent if the company had prior success in the supply chain sector (Tortorella et al. 2017) [22].

The way in which the lean production techniques affect service sector performance was ascertained. Cross-case comparison was used to study the Case of the UK Bakery food firm. Lean production strategies, such as JIT adoption, avoiding defects, mapping the Value stream, Kanban, 5S, as well as automation, had an impact on any company's success. While just-in-time managed the flexibility, lean strategies aided in accelerating the tasks. Just-in-time techniques, for example, had a significant impact and lowered the costs. The Kaizen process aided the business in increasing cost and accuracy (Shah and Ganji 2017) [20] (Table 1).

Table 1. Major contributions in a categorized manner

S.No	Authors	Year	Objectives	Analysis Tools	Methodology	Settings
1	Zhou, Govindan, & Xie [26]	2020	To investigate how fairness is perceived (distributive approach and procedural approach)	Partial least squares structural equation modelling (PLS-SEM)	Survey	Manufacturing firms in China
2	Modica, Altinay, Farmaki, Gursoy & Zenga [13]	2018	To look into how consumer pleasure, loyalty, and desire to pay more are affected by economic, social, and environmental sustainability.	Structural equation modelling and confirmatory factor analysis	Survey	Tourists in Italy - South Sardinia

(*continued*)

Table 1. (*continued*)

S.No	Authors	Year	Objectives	Analysis Tools	Methodology	Settings
3	Kim and Lee [10]	2018	To determine the relationship between the consumers' participation and perception in the supply chain management's sustainability. To research the connections between customer perceptions and elements including trust, self-brand connection, buying intention, and readiness to pay more.	Correlation analysis and a structural equation model	Survey	Smartphone users
4	Perinparajah, Perera, Sudusinghe, and Hewage [16]	2020	To evaluate young educated consumer perception with regard to green packaging	Structural equation modelling	Survey	Srilanka - undergraduate students
5	Rashid and Aslam [18]	2018	To ascertain the producers' and consumers' perceptions of how they perceive GSCM and green products	Case study analysis - exploratory	Case study	Pakistan - manufacturing firms
6	Haroon, Wasif, Khalid, & Khalidi [7]	2021	To investigate how industry professionals see sustainable supply networks	Structural Equation Modelling	Survey	Supply chain professionals

(*continued*)

Table 1. (*continued*)

S.No	Authors	Year	Objectives	Analysis Tools	Methodology	Settings
7	Alananzeh, Algiatheen, Ryati, Albayyari,& Tarhini [3]	2017	To measure the relationships between staff views of using GSCM (i.e. using 7 variables, such as, green information system, internal environment management, perceptions of the tourist, green purchasing, environment friendly activities, emotional behaviour of the employees as well as the environment legislation)	Structural Equation Modelling	Survey	Hotel industry – Saudi
8	Micheli, Cagno, Mustillo, & Trianni [12]	2020	To examine potential moderating factors that impact how drivers, practises, and performance links	Structural Equation Modelling	Survey	Manufacturing firms in Italy
9	Opetuk, Kolar, Cajner, & Dukic [15]	2017	To differentiate the GSCM perception in the food sector with the general GSCM	Structural Equation Modelling	Survey	Croatia

(*continued*)

Table 1. (*continued*)

S.No	Authors	Year	Objectives	Analysis Tools	Methodology	Settings
10	Abhishek and Divyashree [1]	2019	To analyse the perception of managers	Structural Equation Modelling	Survey	Mysore - manufacturing industries
11	Marodin, Frank, Tortorella and Sauri[11]	2016	To ascertain the ranges of lean manufacturing implementation and the connection between the length of lean operations, firm size, and its supply chain position To determine the implementation of lean manufacturing arrays as well as the relationship among the lean operations duration, firm size, and its supply chain position.	Multivariate Analysis	Survey	Brazil - Automotive firms
12	Jum'a, Ikram, Alkalha, & Alaraj [9]	2022	To evaluate the elements influencing the Green Supply Chain Adoption	Structural Equation Modelling	Survey	Jordan

3 Methodology

The research papers were searched in Google Scholar adhering strictly to the keywords, the title of the articles and the abstract published between 2016 and 2022. The articles published in English were only selected. These papers were then consequently examined for duplicates without the journal restriction. The selection process has been done using specific exclusion criteria. This criterion includes the primary area of the study, full text availability, the importance, and the context of the topic in the current scenario (Fig. 2).

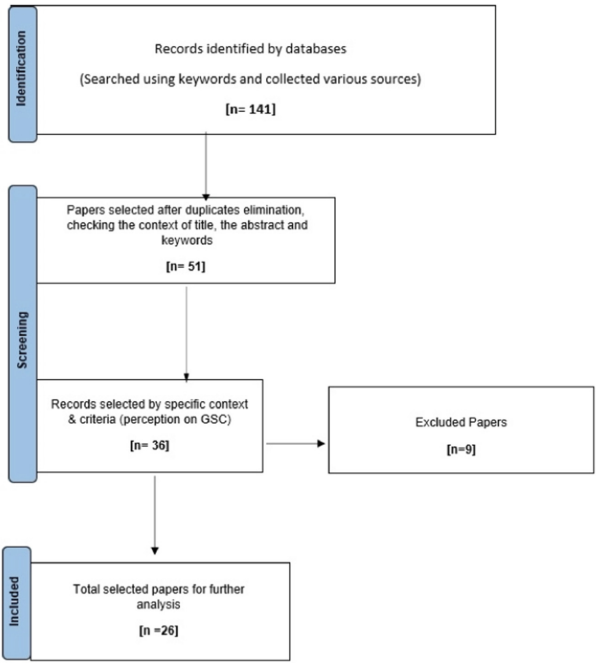

Fig. 2. Process of Selection of paper

4 Findings

4.1 Demographic Factors' Impact on Customer Perception

The young generation understands the value of green packaging sustainability and accepts its significance [17]. Perception of the various environmental indicators varied significantly with gender [7]. Evidently, sex of the practitioners of supply chain practitioners has no significant influence on the perception of the economic as well as the social parameters. But a significant relationship exists between gender and the importance of environmental indicators. Environmental indicators are seen as more significant by men than by women, according to research.

4.2 Customer Perception of Green Supply Chain

Consumers believe that sustainable products are significantly more expensive. This conclusion is consistent with the various other research which have been conducted in some developed countries [19]. The customers, however, expressed dissatisfaction and lack of faith in the overall efficiency of the rules of the government and their execution. The customer perception about the SCM brand positively impacted the customer's connection to the self–brand as well as to the trust. The participation of the customer in Supply Chain Management has a significant positive relationship with the trust of the customer and association with the self–brand. Self–brand connection, the customer's

trust played mediating roles between the following: purchase intention of the customer and customer's perception, perception of the customer as well as the customer intention to afford a premium price, customers' participation and customer purchase intention [4].

4.3 Perception of Sustainability by the Supply Chain Practitioners

Findings conclude the supply chain practitioners view of the 3 sustainability dimensions, namely the social, economic as well as environmental, as equally important to one other. There is a positive significant relationship among the various economic, environmental as well as social indicators [7]. A reverse logistics pricing strategy can lead to increased product usage and can further encourage the firms to manufacture more sustainable and greener products. Managers also have a favourable inclination towards the GSCM execution [6].

4.4 Sustainability and Customer Satisfaction

Consumers are extremely concerned about the effect of the environment towards wildlife [16]. Contentment, loyalty, readiness of the customer to paying a higher amount are positively impacted by economic sustainability strategies [4]. Customer is willing to even pay higher prices so as to contribute to the economic sustainability. The green practices associated with the social and environmental dimensions positively impact the customer satisfaction directly. Thus, the social and environmental sustainability strategies effect upon consumer loyalty is mediated via customer pleasure.

4.5 Factors Influencing Green Innovation in GSC

Green innovation in a GSC is influenced by 3 main factors namely: Sharing of knowledge, Perceived fairness, as well as the firm size. Perceived fairness comprises of procedural fairness and distributive fairness. Distributive justice points out the assessment of the returns received by the participants. The rewards generated by the contributions are tangible in nature, like dividends and profits, as well as intangible, like knowledge acquiring, and advancement in reputation. Procedural justice refers to the independence level of the associated parties in the implementation of the procedures and standards and the feeling of fairness to the procedure as experienced by the parties consistently with contractual decision-making terms. Fairness demonstrated a high positive correlation with embeddedness and an insignificant effect on direct knowledge sharing. Both the factors, namely knowledge sharing and embeddedness, demonstrate a significant mediation impact upon the green innovation leading to the sustainable supply chain. The sharing of knowledge is also found to play an important role in the achievement of green innovation. The firm size, also acts as a control variable and positive influences the green innovation.

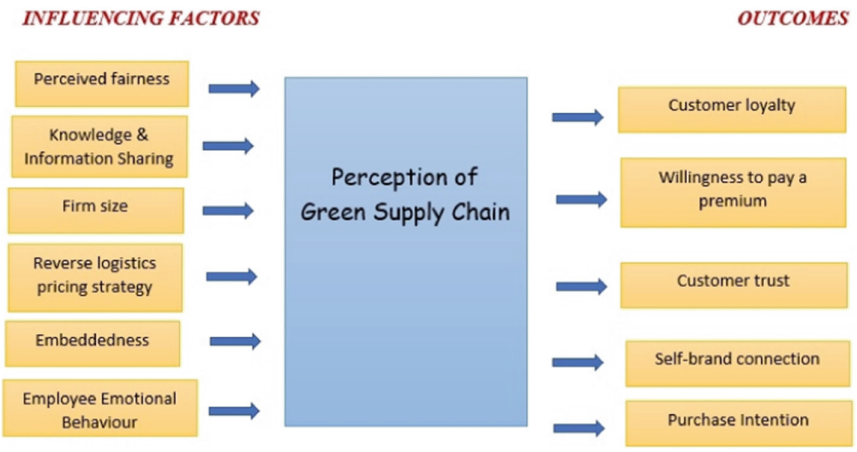

Fig. 3. Model showing the influencing factors & outcomes of the perception of the Green Supply Chain

4.6 Factors Influencing the Perception of Green Sustainable Supply Chain and Its Outcomes

There is an obligation of legal requirement for successful GSCM implementation. The variable demonstrating the environment impact showed the most prominent association with the cheapest price [1]. The variables highlighting the non-financial incentives revealed a positive significant association towards the sustainability of the GSC at an affordable price and the GSCM variable had a positive impact with the highest price [14]. A conceptual model formulated based upon the reviewed literature is shown below (Refer Fig. 3). It has been found that the major factors influencing the perception of green supply chain are perceived fairness, knowledge sharing, green information systems sharing, firm size, reverse logistics pricing strategy, embeddedness and the employee emotional behaviour. On the other hand, the outcomes of the perception were customer loyalty, willingness of the customer to pay a premium, customer trust and the connection of the customer with the self-brand.

4.7 Drivers and Barriers in the GSC Implementation

Barriers are the raw material cost, high operating costs as well as high investment cost for the green initiative implementation [16]. Pressure of the employee, unions, insurance companies and consumer are the driving factors with the least impact. Hotel financial performance was not impacted by green purchase, internal environment management, tourist perception, or environment friendly activities in the same way as green information system, behaviour of the staff emotionally as well as environment regulations were [3]. Environmental outcomes may be enhanced by methods like increased trust and information exchange with partners. Operational performance and environment management within the organization have a significant strong relationship. Government regulation or EU environment laws are the key forces behind the adoption of GSCM. Other motivations include outperforming rivals and realising operational cost reductions [13] (Fig. 4).

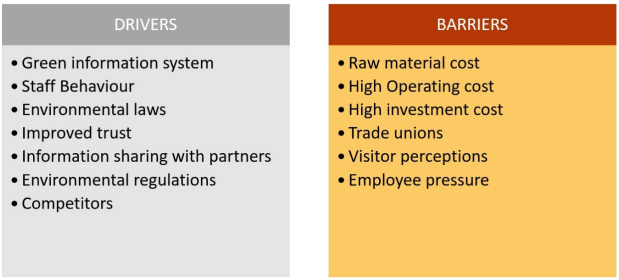

Fig. 4. Illustration of the drivers and barriers in the green supply chain implementation

5 Implications of the Study

The green and sustainable supply chain concept analysed from the behavioural perspective is receiving attention and consideration increasingly from the various research scholars, practitioners, government sectors including various international organizations. Practically, lot of achievement has been advanced in the theoretical and the industrial levels. The concept of green supply chain perception helps in outlining the functions of an organisation with respect to environmental standards. This can also be deployed as an initiative for the various environmental requirements put forth by the government. It serves as a framework to gain a competitive advantage over other organisations. Nowadays with increasing continuous environmental barriers and constantly depleting resources, a green solution is the need of the hour. Thus, green operations serve as a driver in the sustainable decision making. This articles sheds light on the knowledge of the way in which production and manufacturing industries perceive the green supply chain as well as the drivers and barriers of it. Further, it shows the connection between society, economy, organization and the environment in the context of green operations for the achievement of a sustainable target. This study emphasises the scheduling of the manufacturing and production under the umbrella of green supply chain. This can help the managers to understand the green perception and the challenges associated with it. This can eventually contribute towards the sustainability and provide a competitive advantage for the managers.

6 Conclusion

6.1 A Subsection Sample

This study investigates how consumers' and manufacturers' attitudes are toward environmental sustainability. Understanding the present level of customer and manufacturer awareness of the various sustainability factors is the study's main goal. This research's understanding of customer perception is essential. This is primarily due to the fact that various researches have shown how consumer pressure is a tried-and-true prerequisite for the adoption of sustainable activities in any organisation. In order to discover the influence of customers on businesses in establishing sustainability processes as well as in producing green products, the essential idea is to comprehend and investigate

the customer's comprehension of green practices. The impact of demographic factors on consumer perception, consumer perception of green supply chains, practitioners' perceptions of sustainability in supply chains, sustainability and customer satisfaction, factors influencing GSC innovation, barriers as well as drivers to GSC implementation, and factors affecting environmental sustainability are just a few of the topics covered in this paper.

The results of this study open the door to implications that demand further study. Other elements influencing green supply chain management, in addition to those covered above can be taken into account and the subject of future research and studies. Future analysis of the effects of customer perception and sustainability in other domains may employ more methodologies. Last but not least, this study provides an overview of the articles that were published between 2016 and 2022 as a suggestion for brand-new studies. With a focus on elements from the literature review, such as proposals, outcomes, and research objectives for additional new studies, authors can study papers that were published outside of the search criteria.

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