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Green Supply Chain Management Strategy in Retail Companies

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Abstract

In the current research, the integration of the Green Supply Chain Management (GSCM) practice in the retail companies is examined, and its impact on sustainability and corporate performance are analysed. The mode of qualitative design and case-study approach was used, and data were produced by means of detailed interviewing of supply-chain managers and sustainability officers. The findings reveal that implementation of GSCM products, especially green procurement programmes and waste-reduction schemes, does not only help in shrinking the environmental footprint but also enhances the corporate reputation. However, the adoption is limited due to the high set-up fees and poor availability of certified green suppliers hence inhibiting widespread adoption. Summing up, the benefits of engaging in GSCM are significant in the long run; nevertheless, elimination of these barriers is crucial to retail businesses that seek to establish viable and lucrative operations.

INTRODUCTION

Green Supply Chain Management (GSCM) has emerged as an essential strategy in today's business landscape, particularly as organizations seek to balance their economic goals with environmental responsibility (Balon, 2020; Singh & Trivedi, 2016). With the growing recognition of the harmful effects of industrial activities on the environment, such as pollution, deforestation, and the depletion of natural resources, GSCM offers a pathway for companies to reduce their ecological footprint. In a retail context, where companies act as intermediaries between producers and consumers, their role in ensuring that the entire supply chain adopts sustainable practices becomes even more significant. Retailers occupy a critical position in the value chain, often influencing both upstream suppliers and downstream consumers, making their commitment to green supply chain strategies vital for broader environmental change (Vachon & Klassen, 2006; Wu, 2025).

The rise of GSCM has been driven largely by increasing global awareness of climate change and environmental degradation (Raman et al., 2023). Issues like global warming, biodiversity loss, and air and water pollution have made it clear that the traditional models of supply chain management, which prioritize cost and speed above all else, are no longer viable in the long term. Consequently, there has been a shift toward models that integrate environmental considerations at every stage, from product design to delivery. Retailers are uniquely positioned to drive this shift, given their direct connection to both suppliers and consumers. For instance, by adopting green procurement policies, retailers can encourage their suppliers to use eco-friendly materials, reduce emissions, and implement energy-efficient processes, creating a ripple effect that spreads throughout the entire supply chain (Shokouhyar et al., 2019).

The retail industry also faces growing pressure from consumers who are becoming increasingly conscious of the environmental impacts of the products they buy (Wong et al., 1996). Recent studies show that consumers are not only more likely to choose products that are marketed as sustainable but are also willing to pay a premium for such products. This shift in consumer behavior has forced retailers to reevaluate their supply chain strategies, as they must now ensure that the products they offer align with these environmental expectations. However, this also presents retailers with an opportunity to differentiate themselves from competitors. Retailers who successfully implement GSCM practices can market themselves as environmentally responsible brands, which in turn can attract a more loyal and environmentally conscious customer base (Andiç et al., 2012; Ogunmola & Kumar, 2024; Borah et al., 2023).

In addition to consumer-driven changes, regulatory frameworks and environmental standards are becoming more stringent, compelling retail companies to rethink their supply chain practices. Governments and international bodies are increasingly imposing regulations that require businesses to reduce their carbon emissions, minimize waste, and ensure the sustainability of the materials they use. Failure to comply with these regulations can lead to significant financial penalties and reputational damage. Retailers who adopt GSCM strategies can stay ahead of these regulatory requirements, positioning themselves as leaders in sustainability and gaining a competitive edge in the market (Kushwaha, 2010; Malti, 2021). Moreover, by proactively embracing green practices, retailers can improve their resilience to future regulatory changes, as environmental standards are expected to become even more stringent in the coming years.

The shift toward GSCM in the retail industry is not without its challenges, particularly when it comes to balancing environmental goals with cost efficiency (Colicchia et al., 2017). Retailers often operate with tight profit margins, and implementing green practices can require significant upfront investments in new technologies, processes, and training. For example, sourcing sustainable materials may come with higher costs, and optimizing logistics for lower emissions could require substantial changes to existing infrastructure. Despite these challenges, many retailers have recognized that the long-term benefits of GSCM far outweigh the short-term costs. Research shows that companies that adopt GSCM strategies not only reduce their environmental impact but also improve their operational efficiency by reducing waste, minimizing resource use, and enhancing supply chain transparency.

Ultimately, the adoption of GSCM strategies in retail is becoming increasingly essential as environmental concerns continue to mount and consumers demand more sustainable products. Retailers that successfully integrate green practices into their supply chains stand to gain a competitive advantage by enhancing their brand image, meeting regulatory requirements, and improving their operational performance (Lai et al., 2010). As a result, GSCM is not just a trend but a fundamental shift in how businesses approach supply chain management in the face of global environmental challenges.

GSCM involves incorporating environmental considerations into supply chain management, including product design, sourcing, production, and logistics. This shift from traditional supply chain management to GSCM reflects a growing recognition that environmental sustainability is essential for long-term business success. According to Younis et al. (2016), companies that adopt GSCM not only reduce their environmental footprint but also improve their operational performance, enhance brand reputation, and achieve regulatory compliance. For retail companies, GSCM can encompass various activities, including the use of eco-friendly materials, energy-efficient transportation, waste reduction, and sustainable sourcing (Ali et al., 2023).

The current work in the format of scholarly discourse directly acknowledges that shoppers are becoming knowledgeable of the significance of having firms adopt sustainable approaches. Another contribution worth noting by Kim et al. (2014) proves that consumers are ready to pay more on purchasing environmentally friendly products, hence, presents strong incentives to retailers to incorporate GSCM strategies. This consumer orientation is of specific relevance, as the world was raised to be more conscious about environmental issues like plastic wastes or carbon use. The retail industry also uses complex supply chains which have numerous levels of suppliers and this makes management of such networks very problematic as well as an inviting innovation to collaborative solutions (Soosay et al., 2008).

In such a scenario, GSCM is becoming a strategic channel with which retailers can strike a balance between economic and environmental aims. Adoption of green practices in supply-chain management enables the firms to reduce waste, suppress operating expenses and avoid environmental risks. According to Marchi and Zanoni (2017), the realization of GSCM is capable of creating cost savings as it minimizes material consumption and energy consumption, improving resource optimisation and more robust waste management. Retailers cannot afford such efficiency gains more than most businesses since their margins are commonly tight and profitability is directly dependent on their operational efficiency.

Regulations compliance is also made easy through GSCM where environmental standards are getting stricter across legal jurisdictions. In Europe, the Circular Economy Action Plan developed by the EU, underlines sustainable product design, reuse, and recycling- these directives are patent enough to impact retailers. The steps on GSCM will ensure regulatory expectations are met, and global sustainability goals are promoted as the retailers strive to make gains.

More than regulatory requirements, GSCM supports the brand picture and corporate image. Environmental responsibility increases business competitiveness in the modern retail with a business expressing some sense of environmental responsibility standing out ahead of its rivals. GSCM can, therefore, be considered both a compliance-regulatory framework and a brand-building and competitive advantage tool. A study by Kang & Hustvedt (2014) shows that organizations that disclose their information regarding the environment will be in a better position of earning consumer trust and loyalty. Case in point, retail giants, including Walmart and IKEA, have become vocal in their efforts to reduce their carbon footprints at the same time that they have undertaken several GSCM initiatives, including renewable energy use and sustainable sourcing approaches.

Retail companies encounter a couple of challenges in implementing GSCM even though it is clear that GSCM has a whole lot to offer to these companies. Complication is related to the management of green supply chain which is one of the main challenges. One of the problems is that retailers depend on various suppliers by the regions, and all of them have particular environmental regulations and standards. It may be challenging to make sure that all suppliers follow sustainable behavior, particularly in the case when transparency and traceability are low (Gardner et al., 2019). Moreover, GSCM necessitates huge amounts of investment in technology, infrastructure, and staff training, and it has been a challenge to smaller retail corporations.

Sustainability versus cost is the other problem. Although consumers have become more demanding in the case of environmentally friendly products, they are still price sensitive particularly in developing markets. Retailers need to identify means of ensuring that costs are kept and supply chains have sustainable practices. This usually needs a new way of doing things and some examples are streamlining transportation so that fuel is saved or data analytics can be used to predict demands better and reduce wastage.

METHODS

Research Design

The qualitative research design (in its case study approach) was utilised in the present research study to examine the Green Supply Chain Management (GSCM) strategies in the retail companies. The case study approach has been chosen in order to have the proper depth and wholesomeness of the GSCM practices through choice of strategies used, the problems faced and their broader effect on overall operations performance. Through the design, the study attempted to investigate the concept of GSCM applications in practical situations within particular retail-related organizations so that influence factors on sustainable supply chain management could be delved into quite comprehensively. The research design focuses on gathering detailed qualitative evidences using various sources i.e., interviews, field observations, and document analysis where triangulation can be attained to promote validity and reliability.

Participants

The respondents of the study were supply chain managers and the pertinent personnel who have actively participated in the process of implementing GSCM strategies in the chosen retail firms. Purposive sampling was used to select the participants, so the people included will have much experience and knowledge of GSCM. The representation of 10 participants, who should represent various departments, including procurement, logistics, and sustainability teams, was interviewed to gain heterogeneous insights about GSCM implementation problems and opportunities. The criteria used to include the participants meant that they had to be a person with at least three years experience in managing or implementing GSCM processes in their company.

Instruments

The research used three major data collection methods in order to discuss differences in Green Supply Chain Management (GSCM) in retail companies. To acquire information, the first was based on the conduct of semi-structured in-depth interviews with supply chain managers and other concerned personnel to obtain ideas on the kind of GSCM strategies adopted, the reasons why such decisions were adopted and the issues faced during the process. One of the main areas of interest was the idea of green procurement, reduction in waste, supplier cooperation and adherence to regulations. Second, site visits with field observations were also conducted in order to observe the application of GSCM strategies in the daily activities such as logistics, management of inventory, and the handling of products. Finally, the document analysis was conducted through the consideration of internal reports to include sustainability documents, the company policies, and environmental performance reports giving evidence of the GSCM strategies and their efficiency. Such data triangulation through interviews, observations and documents covered all aspects of GSCM practice quite thoroughly.

Procedure of data collection

In this study data collection occurred in the period of six months and in a structured, multi-step manner in order to collect reliable and valid information. The initial preparations were done in the first phase which involved establishing contact with the retail companies to be used, development of an elaborate data collection plan, procurement of ethical approvals and signing of confidentiality agreements. During the second stage, supply chain managers and key stakeholders were interviewed in a semi-structured fashion with the purpose of introducing observations on GSCM strategies, and field observations were used to visit and observe the practical application of the strategies within corporate retail facility. The third stage was the analysis of GSCM practices within the company, its effect on the performance, and its compliance with the sustainability objectives based on the review of company policies, sustainability reports, and other documents. This extensive strategy meant that there will be many data sources to research on.

Data Analysis

Thematic analysis was chosen as a qualitative approach to analyze the data in this study because it is a method of identification, analysis, and pattern or theme reporting of the collected data. The process was started with the familiarization, during which interview transcripts and field notes were read to get the overall picture of the content. The second step involved coding (conceptualizing the data by assignment) to the themes which were; sustainable procurement, operational efficiency, and regulatory challenges. Subsequently, the codes were catalogued as larger themes related to the research questions of the study thus allowing repetitive patterns and main learning ideas associated with GSCM practices to be identified. Lastly, these themes have been understood amidst the body of existing literature making it possible to have a clear picture of the application of GSCM strategies and the challenges that retail companies are likely to encounter in implementing these strategies.

The study used a number of techniques to achieve the validity and reliability of such findings. Triangulation of data was achieved by means of interviews, observations, and analysis of documents were combined in a way to support the results and contribute to the credibility of the study. Member checks were also done, in which the participants checked the accuracy of responses and interpretations by checking summaries of the data provided. Furthermore, a research audit trail was kept to capture every move during the research, which would make the research to be transparent and enable future reproduction of the study. These tactics made the results valid as well reliable

Ensuring Validity and Reliability

In its attempt to provide enhanced results that are valid and reliable, the study used a number of strategies. Data triangulation was one of those ways that dealt with collection of information through various sources such as interviews, observations and analysis of documents. The method provided the research an opportunity to validate its findings as the cross-references and comparisons of various sources gave a greater amount of weight to the findings. This approach helped to ensure that the conclusions drawn were based on a comprehensive understanding of the GSCM practices in retail companies.

Also, there was the member checking to validate the information further. Following the interviews, summations of their responses were availed to the participants, giving them an opportunity to read and identify the correctness of the given responses and understandings. This move assisted in reducing misunderstanding and in making sure that the information accurately depicted the thoughts of participants. Lastly, the audit trail was kept during the research procedure as a record of every procedure in information accumulation and investigation. This complete record of the details not only provided transparency but also has made the study replicated thereby making it even more reliable.

RESULTS AND DISCUSSION

Within the context of the current debate on environmental sustainability in the world, the research reveals the significance of the retailers integrating the environmental issues as part of their operating systems with attention being given to the retail sector. The fact that retail companies are in the middle of the producers and the consumers means that there is a huge value which they possess on the ability to influence suppliers up-stream, as well as the effect they have on the buying patterns at the point of sale. Consequently, they become critical sources of supply chain and can also affect the ecological performance at the levels of production. The latter paper aims to examine the extent to which commercial ventures adopt Green Supply Chain Management (GSCM) successful experimentations as one of the means of reconciling the needs of the environment and business profitability. There are several drivers behind this transformation, specifically the increase of global environmental concerns and, specifically, climate change, pollution, and resource depletion, the increased intensity of the demands of consumers who have shown desire to purchase environmentally friendly products, the increased regulatory compliance factors, which reduce disposal, minimize carbon use, maximize environmentally sound procurement and finally the competitive edge that brands which seek a sustainability approach enjoy. In this regard, there needs to be integration of environmental standards into all levels the supply-chain and this entails environmental friendly product development, green purchase, renewable energy, waste minimization strategies and the maximized sustainable logistics. Although they help to lessen the environmental impact and can work towards generating positive brand image, such practices have not gained significant popularity because of the huge investment involved and the limited number of certified green suppliers and lack of infrastructural development in terms of sustainable delivery. The study provides clear details into how the retail companies juggle these possibilities and constraints through interview, fieldwork complemented with document analysis, and the study provides qualitative descriptions that are however general and can be used in general research study about sustainable business conduct.

Strategic Implementation of GSCM Practices

The current study indicates that various Green Supply Chain Management (GSCM) initiatives have been practiced by the retail companies including green procurement, wastes, renewable energy adoption, and promotion of environmentally-friendly products. Although these programs represent a step in the right direction, there was considerable difference in the magnitude of how well and wide implementations been conducted across the companies. Procurement managers highlighted the importance of giving priority to suppliers who have the sustainability certifications certified as one way of protecting the brand credibility and consumer demand toward the eco friendly products. At the same time, logistics departments were also trying to minimize carbon emissions through optimizing the routes of delivery, which, additionally to reducing fuel use, has come to signify that the company is invested in the environment. But such initiatives were typically stop-gap, not seriously embedded in long term strategic thinking, so whether they can eventually be scaled and sustained without more robust institutional and policy support is questionable.

One supply chain manager explained:

> *"We prefer to work with suppliers who have green certification, even if it means paying a bit more. It helps us maintain credibility when we tell customers that our products are truly sustainable."*

Adoption of renewable energy became a strategic focus among certain participants, especially in the operation of warehouses and distribution centers in which the consumption of energy is always at high rates. The change was not only perceived by the participants as a symbolic step toward sustainability; participants also considered the change as a strategic long term investment in operational efficiency and brand positioning. As one sustainability officer explained:

> *"Installing solar panels was expensive, but we see it as a long-term investment. Energy costs are going down, and it positions us as a leader in sustainability."*

The above statement relates the dual logic of adopting renewable energy namely the short term environmental advantages of low carbon emissions and the long-term economic advantage of low energy prices. Nevertheless, although these benefits were identified by the participants, they also noted that the capital requirements in the beginning are huge impediments to wider usage. Such a conflict between immediate capital investments and the payback in the future mirrors another theme in sustainable supply chain transformation, namely that the environmental and reputation benefits are usually realized before the short-term profitability and hence the payback is materialized.

These are in line with the findings of Younis et al. (2016) who reaffirm that green practices in all processes of the supply chain, including the sourcing and distributing processes can significantly improve the ecological imprint of an organization. Such congruity, in the case of the current study, implies that the participating companies are heading in the right direction of being sustainable leaders. The extent of implementation, however, was very different across the cases studied. Although some of the companies have implemented them across the board including incorporating GSCM in the procurement policies, optimising logistics and energy management, there are others who have implemented them in selective ways or simply at a pilot level. Such imbalances signify that the GSCM implementation in the retail industry is still under transformation, which is predetermined by gaps in their levels of organizational commitment, financial ability, and availability of the green technology. Because of this, the total potential of the sector that is less impactful on the environment is not yet fully actualized and the sector requires more firm institutional influence, cross industry cooperation, as well as the scaled best practice interpretation.

The Implications and Obstacles of implementation

The cost involved in initial investment emerged as the most daunting challenge to a successful GSCM implementation. A shift in renewable energy systems, retrofitting into energy efficient technological systems and certified sustainable materials availability require large investments of upfront capital, something that many retailers, especially those with narrow margins, struggle to invest. This economic crisis not only slows the speed of adoption but also determines the range and size of investments companies would be willing to make. The reason being as one logistics head admitted:

> *"It's not that we don't want to invest in green technologies it's that the payback period is too long for us to justify right now. Our margins are already thin."*

This is because this feeling represents one of the most poignant tensions in sustainable supply chain transformation: the equilibrium between the environmental ambition and financial viability. Although there is great agreement that long term savings in terms of operating costs and reputational benefits are likely to be substantial, these benefits are in general eclipsed by the short run cost pressures resulting in some companies putting off or reducing their sustainability investments. This observation will support the findings of previous literature

(Irmawati, 2011) that cited the existence of high capital requirements as a recurring structural barrier towards the development of GSCM, especially in markets that have limited access to affordable green financing.

The second challenge that was persistent to be faced is the lack of certified green suppliers especially in local markets. This scarcity limits the practice of companies to source sustainably, and it does not imply extra expenditure or logistical complications. As one procurement manager observed:

> *"Finding local suppliers with green certification is very difficult. Sometimes we have to import, which defeats the purpose because of the extra emissions from transportation."*

This remark depicts one of the paradoxical issues in the sphere of sustainable supply chain management: even though the organization can be keen on environmental responsible suppliers, the absence of certified choices prompt it to resort to imports or incompetent local suppliers. This dependence not only negates the environmental justification of green procurement because it enhances transportation related emission but also poses a threat of diverting the credibility of sustainability statements. The issue forms part of a wider structural lack of alignment in the supply ecosystem, in that supplier certification services are limited in scope and availability. Breaking this barrier will have to be a concerted effort on the circumstances i.e.: government implementation of certification programs, industry wide supplier development programs, and communicative forums to facilitate buyers when they are in need of suppliers qualified to assist them in meeting their environmental goals; otherwise, the environmental goals of GSCM strategies will bankrupt because the market does not have an effective way to fulfill them.

One of the major obstacles that had been noted in the implementation of recycling and waste reduction strategies included the lack of consumer awareness, as well as sparse consumer participation. Consumers often dismissed the alternatives to shopping that promoted sustainable practices, like reusable packaging, which indicates that there is a mismatch between consumer behavior and environmental programs. According to marketing employees, when such alternatives have been promoted explicitly, most customers would still revert to the tradition packaging of single-use packaging, on pretexts based on habit and convenience to some unsatisfactory level of ignorance of the benefits to the environment.

> *"We offer products in reusable containers, but customers often ignore them some don't even notice, others don't care,"* one marketing manager remarked.

This lack of concern can be seen as part of a larger problem: actions oriented toward supply chain sustainability cannot have their full effect unless matched by changes of awareness and action among consumers. The ignorance is not only failing to enhance the potency of the corporate environmental programs but also reducing the investment payoff by the corporations trying to establish themselves as sustainable brands. The given findings suggest the importance of further developing consumer education, behavioral nudging, and incentive systems (including discount schemes or the programs of packaging returning), which can help to increase the popularity of active engagement with sustainable consumption behavior development.

All these obstacles align with what Irmawati (2011) stated that the high cost of implementation services and little supply of resources were some of the most important barriers to the expanded application of Green Supply Chain Management (GSCM). In the study at hand, cost limitations are very much manifested in the financial degradation of the financial expenditure in renewable energy systems, eco-certified materials, and green logistic infrastructure. In the same way, the challenge of finding trustworthy, certified green helps shows similarities to the findings of

Gardner et al. (2019), which name the traceability gaps and the variability of supplier certification procedures in sustainable supply chains among the foundational challenges that exist globally. Being on the crossroad of these operational and structural challenges implies that, even with the increasing corporate interest in sustainability, overall lack of systemic preparedness in the market and the supply chain level governance remains the obstacle to widespread GSCM integration. This emphasizes the necessity of harmonization of industry-wide certification, development of suppliers, and specific financial incentives considerations to remove these deep-rooted interventions.

Perceived Impacts and Opportunities with Respect to Improvement

Nonetheless, despite some operational and structural issues that have been cited, respondents also confirmed that there are certain material advantages related to implementation of Green Supply Chain Management (GSCM) practices. These value were not only linked to performance vis-a-vis environmental factors, but also their brand positioning, customer relationship, and operational efficiency. It was observed that the use of visible sustainability initiatives improve the corporate image and bolsters customer loyalty especially among consumers that are environmentally conscious. This was given the impression of these efforts being sincere of which was instrumental in setting the brand apart in a highly competitive retail environment.

One marketing manager reflected:

> *"When we actively promote our eco-friendly initiatives, we notice a shift in how customers perceive us. Those who value sustainability tend to become more loyal and even recommend us to others."*

These kinds of comments show the relationship between environmental responsibility and competitiveness in the market. Operationally, some of the GSCM initiatives that were reported to have provided a marginal efficiency increase included; route optimization, minimizing waste, and carrying out energy efficient measures. These advantages had a substance though; however, these rewards though significant could not be instant but needed long term investment and time to come into effect. This further confirms the conclusions of earlier studies where regarding the strategic importance of GSCM, cost reduction is not the only factor, but the creation of long-term brand equity and market resilience.

Operational perspective was concerned with realization of Green Supply Chain Management (GSCM) in terms of route optimization strategies and energy saving initiatives, which proved as practical aspect of Green Supply Chain Management (GSCM) with measurable positive outcomes. Streamlining of delivery schedules and consolidation of the shipment combined with the use of data driven logistics planning enabled firms to cut down fuel usage, reduce transport costs, and improve the deliveries. Such changes did not only serve the purpose of achieving environmental goals but also proved sustainability and cost efficiency to be two not competing goals but rather enhance one another.

As one operations head noted:

> *"Optimizing our delivery routes has cut fuel consumption by almost 15%. It's not just good for the environment it also improves our bottom line."*

Nevertheless, it is possible to argue that these operational gains are encouraging, yet they are the steps of improvement, instead of revolution. Unless coupled by systematical changes, the benefits offered to the environment and the wallet are likely to stagnate after a certain point and rectification of the results over time. This observation further supports the claim that operational efficiency programs, when important, should be integrated into an integrated sustainability program to have a long-lasting and scalable effect.

Nevertheless, participants always pointed out that gains in terms of financial returns on implementation of GSCM were not near term. The reduction of costs and increase in profit also needed longer-term perspective in most cases as environmental and reputational benefits were generally visible even in short-term perspective. As one sustainability division staff member noted:

> *"In the first few years, the costs are higher, and the financial returns aren't obvious. You need patience before the investment starts to pay off."*

This is the view of a typical challenge in sustainable supply chain efforts, which is the mismatch in time of investment and reward. Initial costs of acquiring technology, infrastructure, and training may burn operational budgets, especially the firms that have to work under thin margins. This has the side effect of organizations failure to maintain these initiatives over time, since other organizational members oppose them at the time when justification of maintaining their existence may not be in the short term. The conclusion is consistent with the earlier studies that recommended that the economic argument of GSCM improves in the course of time as efficiency can be realized and the brand equity turns into an advantage in competitions.

In a bid to deal with these lingering issues, participants suggested the use of all three approaches, namely policy support, industry development, and consumer involvement. Important proposals involved incentives by the government, including tax incentives, subsidies or other low-cost forms of financing, to cover the high initial cost of sustainable technology and infrastructure. They also noted the necessity to develop supplier capacity building schemes to increase availability of domestic ready, certified green suppliers to decrease reliance on imported sustainable materials and the related carbon footprint.

Also demanding, was the decision to take extensive consumer-education campaigns in order to transform consuming patterns towards more sustainable brands. As one supply chain manager emphasized:

> *"Government support is critical without tax incentives or subsidies, many companies simply can't commit to sustainability at the scale needed. But at the same time, we need to educate consumers so there's real demand for these products."*

Such a twin lens of the supply side capacity and demand side awareness indicates not only that effective GSCM adoption cannot be driven by internal company efforts alone, but being limited to such efforts. Instead, it needs a multi stakeholder ecosystem where long term environmental and economic values depend on policy and market readiness that develop in concert with changes in consumer patterns.

Strategic and Systemic GSCM adoption implications in Retail

The results of the study are valuable when it comes to the shifting context of the Green Supply Chain Management (GSCM) in the retail sector. The findings show that indeed companies are currently engaged in sustainability operations through green procurement, the usage of renewable energy as well as route optimisation; however, the level and extent of execution of these operations are not homogenous. Such a variation is consistent with previous studies in which the level of corporate sustainability involvement depends on the disparities in organizational commitment, financial ability, and supply chain maturity (Younis et al., 2016; Feng et al., 2024; Daddi et al., 2021).

One of the outstanding obstacles that have been determined in this research is that of high start up funding in executing GSCM policies. This difficulty is well aligned with the fact that cost is one of the major factors that inhibit quick adoption, particularly in profit-squeezed industries as Irmawati (2011) finds out. The results also support the conclusion made by Gardner et al. (2019) that the traceability of supply chains and green certification are still ongoing global issues, especially in the environments where certified suppliers are limited. Coupled with the lack of locally certified green suppliers that were found to be a challenge by respondents is a strategic shortcoming in market preparedness that sector players and the state must address collaboratively.

Another issue brought out in the study is low consumer awareness as a key barrier to the effective result of the recycling and the reduction of waste programs. This is in line with Kim et al. (2014) who established that lack of environmental literacy and established purchasing behaviour tend to derail the intentions of the consumer to use sustainable products. This means that even where the presence of sustainability is provided by the existence of sustainable alternatives does not imply that this option will be used and therefore aggressive education of consumers and behavioral incentives are necessary to contain the gap between awareness and behavior. In the absence of it, environmental advantages of corporate GSCM programs will not be fully achieved (Chatzoudes & Chatzoglou, 2023; Wiredu et al., 20240.

What is worth noting, in spite of these limitations, the participants found positive brand and operational outcomes, which arise after the implementation of GSCM. Increased brand reputation and customer loyalty, especially with environmentally-oriented segments, supports the earlier study by Kang and Hustvedt (2014) with the focus on reputational returns of sustainability transparency. Operationally, route optimisation and energy saving measures allow efficiency to be gained, which is in consensus with the findings of Marchi & Zanoni (2017), who establish that environmental and cost efficiency are not mutually exclusive. Nevertheless, this paper also agrees with the postulation of Ghofar et al. (2020) that the monetary gain of GSCM is usually delayed, and this situation misaligns time between investment and profitability and can put off long-term dedication in certain firms.

These two findings have two relevant implications. First, they point out the necessity of policy interventions promising to reduce the financial and structural barriers to GSCM adoption: targeted subsidies, tax incentives, supplier development programs, and so on. Second, they emphasize the significance of multi stakeholder partnership between the government, industry associations, suppliers, and consumers in order to create a consistent reinforcing ecosystem of sustainability. Absent this, however, GSCM may simply form a mosaic of projects instead of a comprehensively connected strategic system that can bring measurable positive environmental and economic impacts to scale (Xin, 2024; Khalaji et al., 2024).

All in all, the research is validated to prove that GSCM in retail industry is not just corporate responsibility program but affordable route towards long term competence. Nevertheless, to successfully achieve its potential, the isolated action must evolve to the level of system integration where sustainability is anchored into the strategy of procurement, operations, marketing, and consumer participation across the board. The success of the retail industry in this area in the future will rest upon its capability in maneuvering between short term monetary demanding challenges and the long term sustainability of leadership.

CONCLUSION

The findings of this paper assert that Green Supply Chain Management (GSCM) strategies adoptable in the retail firms have high benefits particularly in lessening its environmental footprint and enhancing corporate image. Numerous initiatives like the use of the materials that are environmentally friendly, streamlining logistics activities to achieve lower carbon dioxide emissions, and renewable energy sources have been found to result in more sustainable supply chain activities. Not only do these practices address the problem of waste and emissions, but also appeal to the ecologically-minded consumers, thus improving the competitive position of the company over time.

Nevertheless, there are also several problems that companies undergo during the implementation of GSCM identified in this work. It can be said that major obstacles are high initial investment costs, the lack of ability to find green-certified suppliers, and the lack of infrastructure to sustain logistics. The above issues can discourage or restrict the anticipated beneficial effects because the firms do not necessarily experience heightened profitability even though they engage in sustainability practices. Nevertheless, the situation in the long-term perspective is quite bright. Greater backing between firms and suppliers, the aid of the government with enablement or subsidies, and raising consumer education will contribute to growing and making the most of the application of GSCM. This research indicates that when the retail firms are dedicated to sustainability, they will be more efficient in operations and their brands will have more loyal customers in the long run. Thus, the issue should be of interest to companies contending with the challenges related to GSCM implementation in a bid to realize sustainability and profitability in the dynamic business environment of retail.

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