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Review

Exploring Sustainable Supply Chain Management Practice and Environmental Performance: A Systematic Review Perspective

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Abstract: Weather conditions transformation has exacerbated humanity challenges as nations continue to struggle between carbon reduction and rapid industrial economic development. Although, both developed and developing countries reaffirmed their solemn promise to mitigate existing carbon emission, research on sustainable development, eco-friendly, and low-carbon supply chain links remain unstudied. As a result, the study responds to the research interrogation: "Why and in what way are businesses adopting to sustainable strategies to promote sustainable supply chain management (SSCM) in their production?" In response, the researchers obtain and synthesis 19 literature papers for constructive analysis and interpretation from the Scopus database which has the reputation of housing peer-reviewed articles in a broader range of study disciplines. The findings indicate, it is imperative for organization to enhances their SSCM activities such as waste management and re-manufacturing, eco-friendly manufacturing and remanufacturing, logistics in reversal and networking plan, green manufacturing, green purchasing, green operation and low-carbon supply chains. Moreover, to maintain the supply chain operations for the global benefit, businesses must evaluate and acknowledge their primary sustainable risk activities from the previous through to the present, and the forthcoming structural plan.

***Keywords*:** manufacturing; green and low-carbon materials; carbon emission; sustainable development practices

1. Introduction

In the modern global business world, focusing alone on improving supply link execution is insufficient for a firm to prosper and remain competitive. This is due to the fact that business models are continuously developing, and clients are increasingly more concerned with sustainability. Environmental regulations are getting more stringent, and international supply networks must adapt to those developments (Alkhuzaim et al., 2021; Wiredu et al., 2023).

Hence, an establishment must gain a strategic advantage to deal with world supply network instability coupled with its associated dangers (Cahyono et al., 2020). Some major corporations have suffered reputational harm due to the absence of adequate experience to ecological worries in worldwide supply ground (Busse et al., 2017; Wiredu, Yang, Sampene, et al., 2023). Nevertheless, they can also have a straight negative impact on its gainfulness. Also, the issue stands critical that a firm manages its supply chain procedures in a suitable, efficient, and long-term way. Seuring & Muller (2008) and Wiredu, Yang, Saljoughipour, et al., (2023) explain sustainable SCM as handling the content, insight, money tides, alongside teamwork between corporations on the supply chain,

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considering priorities by every three points of view of sustainability growth, that is, ecological, financial, as well as social, as retrieved from customer and stakeholder prerequisites.

The manufacturing market accounted for above one-fourth of manufactured worth-added, also more than half of its generated exports (Mubarik et al., 2021). Due to a limited domestic market, the export market frequently drives industry globally. Nevertheless, given a lengthy and persistent history in business areas, an effort to join in technological surroundings and extensive inventiveness remains modest and sluggish (Maheshwari et al., 2021).

In summary, the preceding discussion demonstrates the sustainability management of the supply chain has been a major problem for enterprises due to the cost investment in managing sustainability, creating and managing of report, and also the problem of sustainable program management. Typically, academic research about SSCM in the current antecedents remains limited; the underlying influencing mechanism is unclear, and the results are contradictory (Paulraj et al., 2017). Inadequate studies that exist to addressed these concerns have missing links to how the sustainable strategies are identified and practically addressed to keep SSCM functional and operative (Paulraj et al., 2017; Maheshwari et al., 2021). It is against this background that this current research is needed to presents a review of literature and prominent authorized documents on why and in what way are businesses in developing nations adopting sustainable strategies to promote SSCM in their production. Hence, the objectives of the study include the following, (1). To analyze the existing publications on adopting sustainable strategies to promote SSCM among businesses in the developing nations in the last decade (2007-2021). (2). To identify and comprehensively discuss the key sustainable strategies to promote SSCM among businesses in the developing nations. And lastly, (3). To conceptualize the dominant results in this field.

In discoursing if and in what way firms promote SSCM, the study intends to seal this loophole in the existing body of knowledge and add together the literature on SSCM. These are the contributions of this study; it highlights the concept of SSCM from a review perspective and it can serve as a guideline for companies to learn about the kind of investment they should make towards developing their SSCM. Also, distribution professionals must construct supply chain collaborations to handle eco-friendly supply chains, create the adaptability needed to perform today, and increase the flow of intellect together with cooperation initiatives. Lastly, this current study used new software to analyze and review. It thus contributed to the literature on SSCM, especially for a future research study on SSCM through systematic literature review.

1.1 *Sustainable Supply chain management practices*

After introducing SSCM around 1982, researchers have investigated parallels among logistics and supply chain management. However, the issue is connected to Scott et al. (2015) that described rivalrous reactions to demand shifts in supply chain scenarios. He demonstrated anomalies in demand patterns caused by the intricacies of demand movement from consumers to suppliers. The birth of supply chain supervision can also credit an estimated cost technique's logistics and distribution strategy. The concept of sustainable supply chain management practices entails an integrated analysis of the fundamental pieces of a system to fully describe the conduct of change schemes that enable firms to mitigate environmental pollution issues (Scott et al., 2015).

Integrated method and previous approaches advocated for the complete system to be the unit of study to boost system performance; focusing on a specific object will not improve outcomes because the inadequacies embedded within the entire scheme would be restricted (Sodenkamp et al., 2016). Thus, the concept, introduced in the 1980s, is today recognized as the primary source of the supply chain managing concept (Ellram & Cooper, 2014). Also, logistics is frequently associated with supply-chain supervision; numerous researchers have drawn sharp distinctions between the two. Power (2005) stated that logistics works acknowledges equitable partnership among producers, buyers, and service providers to create effective answers for goods, transportation, information flows, and numerous exchanges. On the other side, supply chain management assumes that these entities have social and political features of power, trust, conflict, and dependency.

As a result, it also can be argued that supply chain administration is a lot extra than a terminology or merely a logistical characteristic. The socialist perspective reinforces the inventory view regarding supply chain supervision in charge of eight major company operations: request regulation, procurement, financial planning, customer relations management, consumer service management, delivery service, inventories generation, advertising and refunds (Ellram & Cooper, 2014). Furthermore, the supply chain management practitioner's council defines logistics as "the supply chain stage element of which a credible, effective tide, storage, transport of products, assets, related items, from sender to the recipient, planned, implemented, managed, etc. Ellram & Cooper, (2014). With reference to Jüttner et al. (2010), a particular component of supply chains operations is that it includes distinct collaborators organizing their worth-making events, then supply chain managing is defined by way of "administration of vertical in addition to horizontal connections by producers than consumers to yield improved worth at a less price of the supply network in the last shop place.

Moreso, Vaaland & Heide (2007) presented three perspectives on supply chain management topics. Firstly, organizational theories aim to transfer resources from one end to the other. This emphasis on logistics activities is replicated. Secondly, relational notions consider the administration, coherence, and collaboration of supply chain network relationships. The last perspective is process-oriented ideas that focus on technical links to govern supply chain processes. Vaaland & Heide (2007) concentrated on the position mentioned above with an assertion that every 3 viewpoints must include supply chain administration entirely. Regarding sustainability in SCM, practitioners and academics promote the idea of sustainable supply chain supervision as a potential solution in improving environmental protection (Tseng et al., 2019). Thus, for many decades, the concept of sustainable SCM has increased in popularity (Zimon et al., 2019). Moreover, Q. Yang et al., (2020) observed that the sustainability of a firm rest on the sustainability of its shareholder relationship. Additionally, the accomplishment of working towards a further responsible and sustainable SCM greatly relies on the participation and contribution of other actors like suppliers, NGOs, communities, as well as governments (Tseng et al., 2019).

In summary, supply chain management must be integrated into continuous processes through all value-added businesses. It reflects a shift from the traditional sloped social order to a management and monitoring strategy to a more computation integrative strategy based on tight coordination and collaboration among manufacturers, consumers, and supply chain players (Rajeev et al., 2017).

2. Research Methodology

2.1 *Selection of review articles*

The researchers conducted a systematic review of what drives firms to sustainable supply chain management. The search was performed using Scopus databases, with a time frame spanning 2007 to 2021. Scopus offers a broader range of study disciplines and the most up-to-date developments and trends, crucial in guiding future research directions. Scopus database is the most effective and reputable search engine for conducting a literature review (Chadegani, 2013; Torku et al., 2020; Brenya et al., 2022). The researcher used the following keywords in running the literature search on Scopus databases: “Supply chain”, “Supply chain management", “carbon emission”, "Green and Low-Carbon Materials," “environment” "Sustainable development practices "etc. The research code for the study is listed below:

TITLE-ABS-KEY (Supply chain management " OR "carbon emission" OR "OR "Green and Low-Carbon Materials" AND "Sustainable development practices")

The study research was limited to review articles and original articles only. In order to fulfill the inclusion and exclusion criteria; conference papers, textbooks, and other documents similarly downloaded from the internet were eliminated. This is because peer-reviewed academic articles go through a more thorough review process before being published, resulting in the most valuable data for the study. A total number of articles, one hundred and ten (110), were retrieved from the Scopus database on till December 2021. During the article screening and article selection process, fifty-six (56) articles were removed because of duplication. Thirty-five (35) papers were found to be unrelated to the subject of discussion in this study after article full-text analysis. As a result, the number of articles was decreased to nineteen (19) publications included in the final synthesis.

Furthermore, the researchers used the snowball method to locate relevant publications not caught during the article selection stage, resulting in 5 articles. This activity was carried out to supplement the findings of the initial two-stage search to gain complete coverage of the publication worth studying. The snowball exercise is sufficient since it allows for significant state-of-the-art works linked to the study (Ibrahim et al., 2013). Finally, 19 papers were included in the study portfolio for analysis and discussion. The steps of the systematic review are depicted in Figure 1.

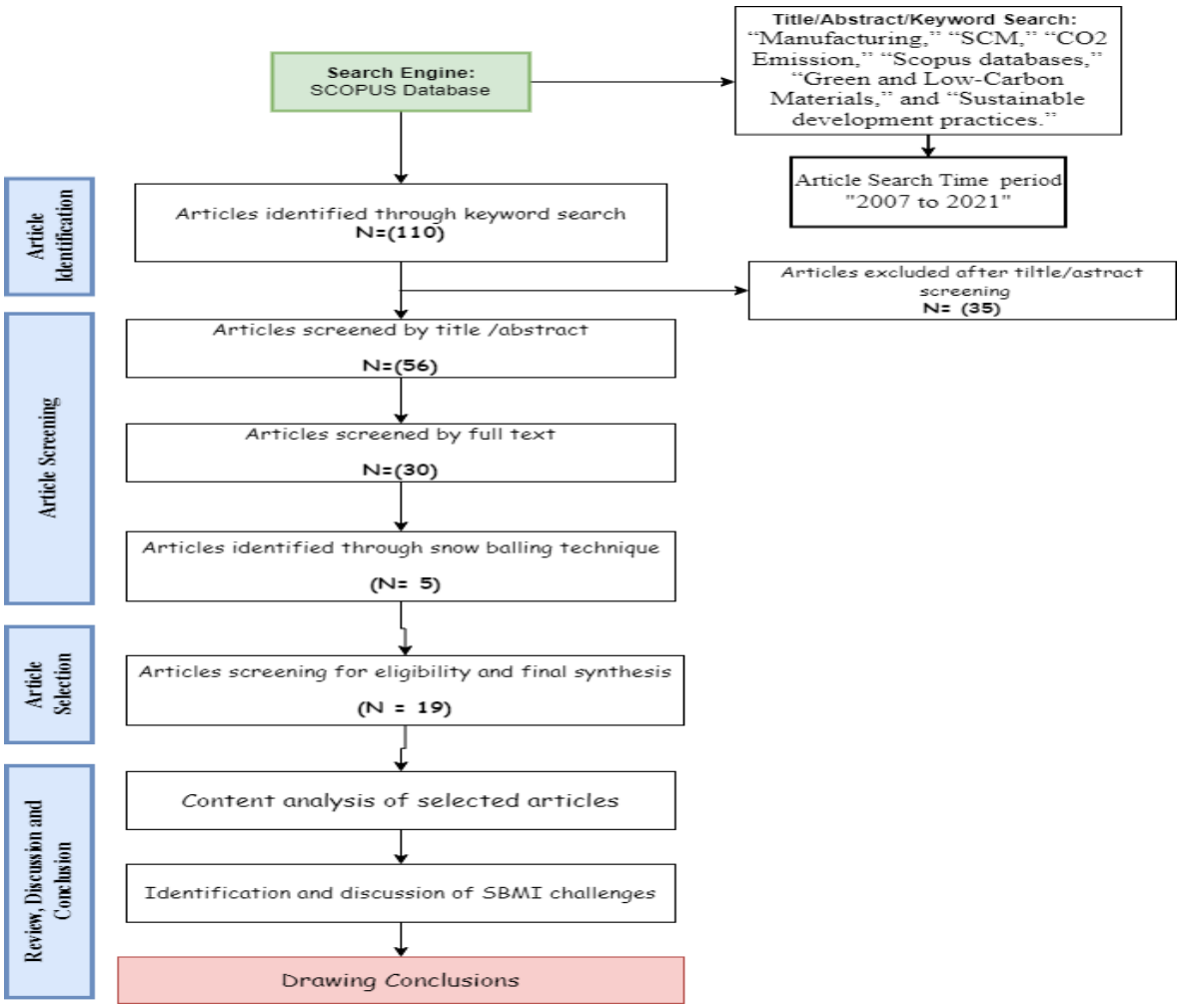

Figure 1. Overall research process and flow (2007 to 2021)
Source: Author's own work, 2023

2.2 *Descriptive analysis of the final article retrieval*

We selected nineteen (19) articles for the review purpose in this paper. Figure 2 indicates the bar graph of 19 articles published over the years. The researchers found that the article was current, showing that this field, SSCM, is still emerging as a major research area currently. The first 12 articles identified was in 2007, to 2018 and followed by a steady rise to 2 articles each in 2019 and 2020. Also, in 2021, we found 3 articles. Figure 2 also indicated that research on a systematic review on sustainable supply chain management increased recently from 2019 to 2021. Nevertheless, from figure 2 below, it could be seen that literature review on SSCM still remains inadequate. Thus, SSCM has become a contentious subject in operation and production management, business, environmental issues, industrial innovation, management studies, etc. The 19 articles selected for the review have been published in 15 different high-impact factor journals, showing the importance of this topic to a wide array of literature and SSCM research. Most importantly, from this analysis, the researchers can conclude that this research will continue to expand through contributions from multidisciplinary research work.

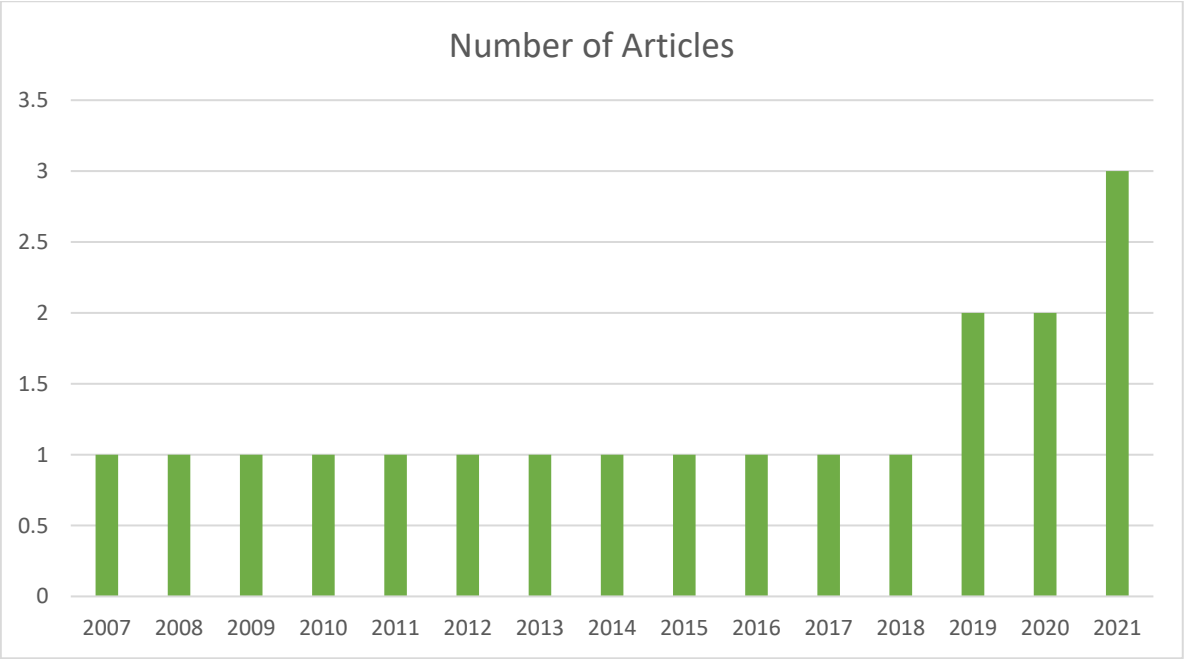

Figure 2. Distribution of the number of articles per year included in the study

3. Result and Discussion

3.1 *Past research study on supply chain*

Previous supply chain management theory transformation can be grouped into 2 categories: physical distribution management, in which the attention was on final product delivery and logistics management, in which the attention was on maximizing the company's functions (Moshood et al., 2021a). Therefore, it is critical to understand the importance of the previous supply network to acknowledge the obstacles that the modern supply chain faces. Using previous customs and regulations to contemporary supply chains, some problems arise in contemporary supply chains. Supply networks happened to be constituted by lengthy durations of relative steadiness (Kotzab et al., 2011).

As a consequence of such comparative convenience and limited pressures refocusing supply chain pinpoint, supply chain managers began to pay attention much extra about increasing efficiency by reducing operational expenses, retaining leverage to reduce risk, reducing inventory, as well as finally competing on value (Christopher & Holweg, 2011). The said system worked extremely effectively for many decades, and companies benefited significantly from their supplies. The supply chains had quickly extended around the globe, helped by affordable labor cost, raw materials, highly attractive savings prospects, expanding export industries, also, in several instances, benefits offered by governmental bodies to attract international markets. According to Christopher & Holweg (2011), highly small supply chains emerged due to tactics like stocktaking lessening, timely rules, and increasing business coordination. In a more prosperous environment, the most cost-effective operational methods have become practicable, increasing the economic rewards to shareholders (Shu et al., 2018).

Giannakis & Papadopoulos (2016) claimed for this reason that, while ecologically safe, supply chains focused on increasing profits, decreasing expenses (lowering stockpiles, timely goods), plus maximizing resources, for instance, were intended to improve monetary proficiency. Hence, the economic climate has evolved as supply networks have become more efficient. Businesses began to be marked by rising customer dominance (to the point where supply chains are heavily impacted) (Zhu et al., 2007), customer value surprises, governmental instability, cash devaluation, then swings international marketplaces, and so on forth.

3.2 *Sustainability Supply chain Management nowadays*

Even though the (SCM) idea was brought around the mid-1970s, studies in the discipline were essentially non-existent till the middle of the 1990s. Thus, SMC study had grown at the fastest rate, which is now transitioning from an arising area of research to a combined one. Green SCM places the fourth stage of SMC that incorporates eco-friendly reasoning through tactical product creation to finished goods delivery to customers (Moshood et al.,

2021a). So, this development indeed is ongoing. The prospective nature and SCM's role are unknown (Rajeev et al., 2017). Again, the environmental aspects of SMC have received significant attention, while social issues have received little attention. Green exchanges to integrated green supply chain supervision are the concepts and range for running the green SCM within the literature area (Foo et al., 2018). The eco-friendly supply chain is defined as "incorporating sustainability perception into supply chain operations, consisting of product innovation, stock management, buying, production events, distribution of the final product to consumers" (Jermsittiparsert et al., 2019).

Practitioners and academics promote the idea of sustainable supply chain supervision as a potential solution in improving environmental protection (Tseng et al., 2019). Whereas regarding the concept of eco-friendly SCM, it can be discovered as far as the beginning of the 1990s, the growth pattern in research journals suggests that it acquired traction after 2000 (Ahmad et al., 2017). According to Sauer & Seuring (2017), eco-friendly supply chain managing theory has taken systematical form in a new field of research since the 1990s. For many decades, the concept of sustainable SCM has increased in popularity (Tseng et al., 2019). Handfield et al. (1997) suggest that eco-friendly management ideas apply to the complete collection of processes during the whole client order term. As shown in Table 1, the green SCM growth difficulties have been categorized into several classes based on their description from literature.

Table 1. Operations in the Manufacturing Firm's Sustainable supply chain

SSCM	Description	Reference
Waste Management	Source Reduction Pollution Prevention Disposal	(Méndez-Fajardo et al., 2020; Moshood et al., 2021b; Z. Yang & Lin, 2020)
Eco-friendly manufacturing and remanufacturing	Production Planning & Scheduling Inventory Management Manufacturing Reducing Recycling	(Khan et al., 2019; Kumar & Shekhar, 2019; Ninlawan et al., 2010; Ye et al., 2020)
Logistics in reversal and networking plan	Inspection/ Sorting Pre-Processing Collecting Location & Distribution	(Jack et al., 2010; Jadallah & Bhatti, 2020; Trochu et al., 2020; Zarbakhshnia et al., 2020)
Green manufacturing	Environmentally Conscious Design Life-Cycle Assessment	(Bag et al., 2018; Jia et al., 2014; Sladkova & Loginova, 2016)
Green Purchasing	Disassemble / Recycle Used Computer Stores	(Khan et al., 2019; J. Liu et al., 2018; Tate et al., 2017; Wong et al., 2016)
Green operation	Green Manufacturing and Remanufacturing Reverse Logistics and Network Design Waste Management Green Logistics.	(Jermsittiparsert et al., 2019; Shu et al., 2018; Srivastava, 2007)
Low-carbon supply chains	Carbon Reduction Climate Change	(Rajeev et al., 2017; Sundarakani et al., 2020)

Green product development is vital in decreasing the ecological influence (Srivastava, 2007;Sampene et al., 2022) . It is commonly known that previous environmental factors have increased the possibilities for mitigating the effects on commodity plans (Bag et al., 2018). The supply chain network structure, on the other hand, will not duplicate the impact on the system once it depends on processes (Sauer & Seuring, 2017). Today, sustainability supply chain management can be categorized as follows based on the literature works reviewed in this study;

3.3 *Waste Management*

Unused disposal appears as a major challenge in handling sustainable supply chains, with implications for carbon emissions reduction and evaluations. Nevertheless, trash dumping implies a slew of other responsibilities, like eliminating pollutants. Investigators have studied waste managing issues like technique model (Méndez-Fajardo et al., 2020), processing facility placement (Moshood et al., 2021b), distribution system type (Yadav & Samadder, 2017), reuse (Garlapati, 2016) etc. The scholars similarly looked into waste management issues. Instead of 'removing' pollution after it has been created, source-reduction or pollution control (SR/P2) emphasizes 'preventing' pollutions (in substances and fabrication procedures) (Z. Yang & Lin, 2020). So, this technique may apply to reduce glasshouse gas discharges. Fundamental principles of the preventive strategy comprise "re-usable" and "re-process." Recyclers can lower their carbon footprint by overhauling their burning machinery and prioritizing waste recycling. The literature on waste disposal, on the other hand, does not affect waste vapor management in strengthening reprocessing methods networks. Carbon dioxide, for instance, is a problem because, while it is non-polluted, then may be stopped.

3.4 *Eco-friendly manufacturing and remanufacturing in SCM*

It is a critical aspect of green operations. Tight assessment Linnhoff (1993), factory power (Boustead & Hancock, 1979), power life-stages assessment (Rajesh, 2019) are 3 schools of study that investigate strategies to reduce energy and resource use in manufacturing activities. As per Ninlawan et al. (2010), green manufacturing would add to cheaper raw material costs, higher product quality, fewer occupational and environmental health expenses, and increased company image. There remain no reservations that greener goods have a slim market compared to non-greener interests. Nevertheless, in a long span, there will be an increasing and constructive mark that is current for the forthcoming development in this potential market of environmental goods (Rehman Khan et al., 2021). More so, eco-friendly high-tech standards are used to a restricted number of digital businesses like the automotive then battery areas, carbon cap in addition to carbon counterbalances have seen to have limited impact on carbon emissions lessening (Ye et al., 2020).

3.5 *Logistics in reversal and networking plan*

The reversal logistics refers to a movement that benefits the manufacturer for the returns, re-production, as well as re-utilize of components, constituents (Trochu et al., 2020). Reverse logistics processes differ from traditional logistics methods. Additional studies looked into processes (Jack et al., 2010), development & implementation (Aitken & Harrison, 2013) and Information Technology (Listeş & Dekker, 2005), among other things. The bulk of studies in this subject uses a quantitative modeling method, including a random software development technique (Listeş & Dekker, 2005) like a type from mixed-integral linear regression (MILP) (Cruz-Rivera & Ertel, 2009). The non-linear mixed-integer software design paradigm for finding solutions using reversal logistics (Zarbakhshnia et al., 2020).

3.6 *Green manufacturing*

Pure manufacturing is explained by the United Nations Environmental Program (UNEP) as "the ongoing use of inclusive climate issues for excellent and risk-reducing processes, products, and facilities for people and surroundings" (Chacón Vargas & Moreno Mantilla, 2016). According to Zeng et al. (2010), challenges associated with greener creation's company operations were analyzed; likewise, environmental potential and economic performance were improved. The researchers used a variety of industries, such as mining (Jia et al., 2014),

ceramics (Huang et al., 2013) and food (Sladkova & Loginova, 2016). Greener management monitors energy and resource movements throughout the organization and develops methods to reduce leftovers and contamination.

3.7 *Green purchasing*

Environmental performance standards are used in buying decisions in ecosystems or green buying (Y. Liu et al., 2018). Procurement is an important supply chain supervision characteristic that is strengthened in improvements on GSCM performance (Wong et al., 2016). Many works have established that ecological buying has some substantial impact on eco-friendly and financial outcomes of businesses (Appolloni et al., 2014). Meanwhile, several sustainable industries are missing, and organizations are still in the initial stage of development on green purchasing and supply supervision (Tate et al., 2017). Cleaner acquisitions' impacts on corporate efficiency are yet ambiguous. As a result, it is critical to investigate how industrial organizations acquire machinery to improve their environmental performance via removing pollutants and reducing power consumption (Khan et al., 2019).

3.8 *Management of low-carbon supply chains*

Even though there is a strong association among green supply chains management, reduced carbon supply chains management, and the incentive to govern firms' green supply networks stem primarily from environment protection needs in local areas. At the same, concerns about climate change are putting additional strain on businesses around the globe. Researchers have explored numerous aspects of carbon reduction in supply chains, identical to the maintainable supply-chain supervision, which was deliberated in the previous section. Sundarakani et al. (2020) sought to model carbon dioxide emissions in the supply network. He emphasizes the importance of properly considering warm tide in supply links and how greenhouse gas regulations may be transformed into a hot tide study. Thus, it separated the supply chain into stages, comprising sellers, shipping, the plant, the storehouse, and assessed pollutants in each level using the model. According to one scenario, the store is responsible for 30 percent of greenhouse gas discharges, 22 percent conveyance, 37 percent of processing services, then 11 percent of the storeroom delivery zone. That is why supply chain system stages are being studied to lower glasshouse gas discharges (Sundarakani et al.,2020).

3.9 *Improvements in the current supply chain*

Several intriguing things tend to happen as supply chain managers adjust to advancements brought about by the arrival of digitalization, supply chain digitization, and Omni-channel selling, and others. Persistence internet migration of Supply Chain, although some businesses depend on out-of-date technology for their on-premise supply chain, an online happens to be a way for the future. Supply management online technology is accessible via several platforms like software as a Service (SaaS), Platform as a Service (PaaS), then Infrastructure as a Service (IaaS), offers simplicity, scalability, and overall system while also eliminating the need to handle huge, and expensive on-premise computation substructure as indicated in Figure 2.

Omni - channel supply networks have long become the custom; by replying to client demand, companies will make significant advances toward providing an Omni-channel buying experience. Also, with conflicting needs of providing individual client purchases and replacing stock at retail depot, omnichannel supply network places additional strain on logistics then supply chain, allowing consumers to simply purchase online (Moshood et al., 2021b). Improvements in the spherical supply chain, manufacturers, reuse and repair broken-out items by rebuilding or recycling parts into raw materials, and a change in the traditional one-dimensional supply chain in which cyclical supply chain was created. Apart from legislative requirements for the safe processing as well as re-process of waste goods, there is an indication that clients prefer companies that reuse products, and some top corporations discover significant advantages throughout spherical supply chains (Moshood et al., 2021b)

Adaptive Supply Chain, producing the best results and responding to changes quickly, supply chains must be flexible and adaptable. This radical shift from the normal supply philosophy is grounded on longevity, consistency, and cheap cost (Moshood et al., 2021b). Among the benefits are quick delivery timelines and lower freight expenses. With very little cash locked up in storage, businesses may be able to adjust relatively easily to swings in demand. *The Internet - Of – things (IoT)* technology appears to have reached maturity. When prices fall, the study shows that the number of enterprises employing Internet - of - things goods improved from 13% in 2014 to 25% in 2019. The IDC forecasts yearly progress of 13.6% till 2022. Internet of things allows businesses to manage inventories, automate stock purchasing, and monitor delivery promptly (Moshood et al., 2021b).

Large Data Models and Logistic Supply chains are on the verge of becoming a reality; big data has arrived as a result of the digitalization of the supply chain, so the advent of the Internet improved transparency on customer information. Firms nowadays are accessible to large amounts of information that they utilize in providing market awareness, varying from understanding earlier success in anticipating future forms (Moshood et al., 2021b).

Artificial Intelligence (AI) and Machine Learning, with increased access to digitalization, several businesses have resorted to AI rather than machine education to abridge operations coupled with simplified actions. Statistical methods and deep learning systems were employed to improve predicting and conclusion backing frameworks, identify purchasing trends and reduce time-consuming warehousing and stock management operations (Moshood et al., 2021b).

Logistics Technology and Robotics, enterprises adjust towards rival demands of the digital supply chain, particularly agility and flexibility. Numerous companies are revolving to automation to hurry up labor-intensive processes. The robotic system uses appropriate routine tasks like selecting, numbering, retrieving, delivering things and others from warehouses (Moshood et al., 2021b).

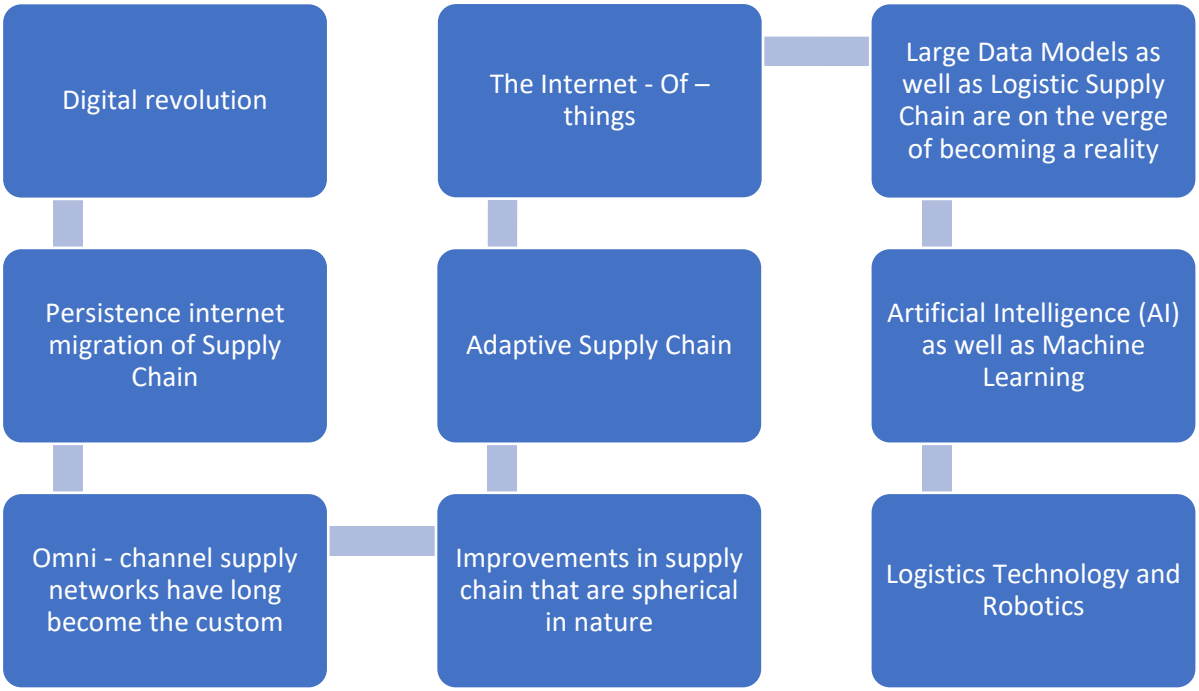

Figure 2. shows the improvements in the current supply chain

3.10 *Long-term Supply Chain Management and Strategy Motivation*

For the last century, sustainable supply chain practices have become a top subject of discussion within supply chain management. Hence, the oldest idea concerning today's modern eco-friendly supply chain can be attributed to Ayres & Kneese (1969), who tackled concerns such as production, use, and externalities. Throughout the 1990s, the academic team extended the concept to various market fields, including output predicting, remanufacturing, stock management, processing, preservation, re-producing manufactured goods, supervision, just to mention a few challenges (Taticchi et al., 2013). Nevertheless, both new immature environmental strategies exist in place, with implications for logistics then supply chain practice (Gupta & Palsule-Desai, 2011).

The scientific world has discovered sustainable supply chains from various perspectives. For example, Mathiyazhagan & Datta (2018) defined green supply chain practices by tactical, uniform arrangement and accomplishment of an organization's overall, ecological, and economic objectives within a structural layout from major structural corporate operations that enhance a firm's operations. According to Juttner et al. (2010), incorporating a "green" feature into supply chain practice focused on attributes then relations among the supply network and the usual setting. Therefore, it is complex to describe the product's nature and boundaries amid a vast range of interpretations (Jadallah & Bhatti, 2020).

Moreover, concerning the literature on green supply chain management, principles besides approaches spanning green purchasing to dispersed supply link activities at the bottom to upwards, notwithstanding inverse logistics (Jadallah & Bhatti, 2020). Related issues in reverse logistics, contamination assessments, logistics

greening, and supply chain management were identified by Abukhader & Jönson (2004). Such definitions and assertions highlight the fundamental concepts and their importance in developing green reverse logistics distribution networks (Lee et al., 2012). This lengthy inverse logistics on earnings, rebuilding, and reuse continues to be an expanding area of logistics in addition to supply chain managing (Wei et al., 2020). Also, reverse logistics innovation gained widespread acceptance because of its planned benefits, trademark image, and efficacy for clients throughout the supply chain worldview, particularly among logistics professionals (Jadallah & Bhatti, 2020).

A large body of studies has also been published on sharing knowledge communication on sustainability-related rules, laws, and programs for governmental agencies, non-governmental organizations, and employed groups (Ye et al., 2020). Cooperation with non-governmental organizations, for instance, strengthens a firm's capability to change sustainability risk management better actively, thoroughly, and early than rivals. As a result, Foerstl et al. (2010) argued that the outside perseverance is a necessary element of complicated capacity for green supply chain supervision, which can get the awards for competitive advantage. Miemczyk & Luzzini (2019) reviewed the existing SSCM studies on several and various parties at the process level, including customers, businesses, countries, non-governmental organizations, founders, marketers, competitors, suppliers, and individual managers. These interrelated, interlinked individuals may have varied goals and priorities due to diverse power and control structures.

Commitments that enable companies to build abilities, especially in the supply field, were also identified in the literature, such as monetary support to providers' green initiatives, training and preparation activities, delivery and implementation of sustainable practices (Miemczyk & Luzzini, (2019). Capacity expansion initiatives contained in Global reporting initiative indicators were highlighted, such as employee readiness, education, and manufacturing demand for innovation together with inventive product expansion. Emphasized was made about the managerial position on mental ability development via expertise, cooperation, motivation, and outcomes, coupled to wide and heavy shareholder engagement, building domestic than foreign partnerships. Innovation in the latest product and process development is a key field of research in the sustainability literature (Cankaya & Sezen, 2019).

Scholars have recorded several ground-breaking new product and process innovations far above traditional green or environmental initiatives. For example, Lee et al., (2012) have demonstrated narrative as a strategic benefit for sustainable development. A distinctive story develops an emotional bond among customers and retailers through traditions, collaborations, and natural products. Similarly, Kotzab et al. (2011) see sustainable initiatives as then-innovative seller enterprise, focusing far beyond labeling. According to the experts, recycling, re-producing, and repair have been employed more efficiently to reduce wastage and conserve energy. Zero-residue, as a substitute for stock details, item flexibility, dismantle design, or ecological design, is a model of the artistic process to integrate sustainability into commercial operations (Zhu et al., 2007). Nevertheless, experts believe that such policies would increase the complexity, cost, and operational difficulties on the supply chain (Heckmann et al., 2015), causing incorporation tough because of their low economic standing and inadequate funding, mainly for minor intermediate enterprises.

According to Ljungberg et al. (2007), goods must be converted into a provider as a fundamental technique for attaining sustainability in an ecosystem where real or utility economics services substitute objects. Within the same plan, providers or manufacturers focus on stretching the manufacturing cycle and maximizing product consumption while protecting the environment all over a commodity life cycle. Further operations, such as delivery, maintenance, guarantee, upgrade, servicing, reclamation, and reuse, are being taken over by providers. Loans rather than sales are instances, as are copying tools, coffee apparatus, and vehicles (Kumar & Shekhar, 2019).

Internal as well as external motivators for sustainable supply chain management were discovered through scholars (Sajjad et al., 2015). Thus, internal motivators are therefore subdivided into two subgroups: instrumental and normative motivators. Furthermore, the instrumental viewpoint contends that employing a sustainability strategy improves shareholder company image and reputation while decreasing operational costs and progress, contributing to the company's ecological and monetary sustainability (Oelze et al., 2020). The perspective view maintains that the firm adopts a lasting strategy due members' religious or moral idea. The normative reasoning attitude assists a firm in meeting its ethical as well as legal commitments to its consumers besides functioning as an accountable business native in the community (Luthra & Mangla, 2018). As a result of legislative prudence, a company and its groups intend to "be doing the proper thing" by pursuing sustainable development. Upper executives, especially, see themselves as a positive contributor to national profits such as social welfare and ecological caretaker (Sajjad et al., 2015). Thus, outside pressures can also compel businesses to use the Sustainable supply chain management strategy. Those elements include market drives (example, competition, customers as

well as user expectations), government (model, rules and regulations), as well as social concerns (model, civic society establishments, press, etc.), could compel firms to accept sustainability (Zhu et al., 2007).

4. Key findings and Implications

According to literary works evaluations mentioned, contemporary studies have paid less attention to the ecological, greener, and low-carbon supply chain, despite the fact that studies regarding supply link or supply chain are now growing in a couple of years. According to the report, because of the emergency of climatic changes, carbon is one of the highest required fields acknowledged in the supply chain system. Furthermore, the assessment reveals a considerable study vacuum in comprehending organizational behaviors from external elements connected to ecological pressure at the network level. A fresh perspective on the system and its components, specifically links among companies and other network actors, is still not in effect. So, this new idea emerges once the system is under strain to adjust (Foo et al., 2018). This empirical research also shows that assessing the network's carbon emissions, as the first stage in controlling an emissions background, is hard, time-consuming, and costly for most companies.

Accordingly, a successful carbon emissions evaluation process design is great; however, present concepts and techniques fall short (Rahman et al., 2014). Whereas there is a wealth of study on supply chain network setup in addition to process development, there is presently a scarcity of studies that provides comprehensive reports on sustainable development, sustainable, coupled to low-carbon supply chain management improvement, particularly within the production area, and also precise suggestions or several standard practices which could be taken note of and give company experts on systematic suggestions (Y. Liu et al., 2018).

The research reveals eco-friendly supply chain managing as a major subject to the corporate world. The present market environment is motivating businesses to push beyond their institutional boundaries to accept sustainability. Experts are becoming increasingly conscious that the answer to societal and ecological concerns is increasingly influenced by firm success plus competitiveness (Y. Liu et al., 2018). Nevertheless, this study revealed that firms could not be at an equal threshold on knowledge gain when implementing environmentally-friendly supply chain practices. Company plans to eco-friendly supply chain practices frequently differ, with some businesses grappling with ecological production problems. Some believe that social issues are vital to establishing positive supply chain management effectiveness.

The findings indicate that firms are keenly engaged in increasing their intra-organizational ecological effectiveness. Likewise, companies have used sustainability strategies on the intrinsic supply chain stage in increasing environmental effectiveness. Therefore, it appears that firms' commitment to addressing their inter-organizational sustainability performance is lacking. Very few firms passively partner alongside other supply chain teams to promote sustainable supply chain effectiveness (Sahoo & Vijayvargy, 2020). Green supply chain management operations are frequently focused on contextual elements such as customer desire and readiness to buy, market demand, product kind, perception of shareholder pressure, funding availability, law, and competence and professional experience, according to the findings.

Companies have used numerous sustainable supply chain methods and initiatives to improve intra-organizational sustainable supply chain effectiveness, like cost reductions, climate impact savings, reduction of waste, and running productivity. Nevertheless, several organizations lack a similar ecological tendency at the inter-organizational stage and the upstream and downstream SCM stages (Sajjad et al., 2015). Little businesses have well-established internal procedures and benchmarks to communicate among supply shareholders to optimize environmentally-friendly supply chain success across companies.

However, the findings given in this research are highlighted as beneficial outcomes or repercussions of the efficient handling of a sustainable supply chain. Thus, the scope of an institution fulfills its market-target ambitions, together with its monetary objectives, operationally accountable (Li et al., 2006). Zhu et al. (2007), closeness and inter-company connections may help boost environmental performance. On the other hand, a partnership among manufacturers continues to accept and promote developing sustainable solutions. This, combined with a customer and manufacturing employee, interaction, contractual arrangements, and collaborative R&D, will increase environmental performance (Afroz et al., 2019). The short-term goals regarding supply chain production are to enhance competence alongside minimizing inventory coupled with capacity usage. Long-term goals include increasing market- dividends and revenues belonging to supply chain participants. More so, the financial index is employed to examine businesses and assess the actions of organizations throughout the period.

Because of rising worldwide demands, the effectiveness of the supply network has become a vital long-term source of advantage in several businesses (Hoole, 2005). Companies must concentrate on the complete outcomes of the supply network because they are an important indicator of its success. According to Prajogo & Olhager (2012), green supply chain practices play multiple functions on boosting individual and corporate effectiveness

in general distribution network excellence. The Supply chain operations reference paradigm is divided into five process groups: design, source, growth, production, and return (Gu et al., 2016).

This potential advantage depends on the link between green supply chain strategies' financial, cultural, and ecological performance. A). Reduced healthcare and welfare costs, as well as reduced training and employee attrition, gain from secure transportation and warehousing, and good working conditions. B). Lower prices, shorter lead times, and better product consistency due to implementing ISO 14000 criteria provide a foundation for ecological sustainability; C). green activities will increase the appeal of the product to both makers and consumers. D). Reduced labor expenses - better working habits will increase productivity and effectiveness while decreasing distribution network employee absenteeism. E). Participatory rules policy; companies proactively try to resolve ecological and social problems that influence policymaking because this law depends on the company's existing manufacturing then green supply procedures, leading to a competitive advantage that companies and their distributors cannot imitate.

As a result, businesses must establish their top-rated competencies and maintain a complete supply of information about their competencies; in the perspective of genuine supply system management, conscious strategies develop the degree of environmental supply chain consistency. More so, polycentric methods can be used by green supply chain administrators to maximize the fit among information, behavior, as well as supply chain, allowing businesses to respond more flexibly at reasonable stages. Companies must include self-organization structures that enable the distribution network to maintain and reproduce existing identity and adjustment systems that allow the supply network to advance throughout duration by undertaking certain layout management objectives and reaching ambitious targets as time changes.

4.1 *Managerial implications for ecological*

With environmentally sustainable development, the focus is on detrimental environmental repercussions on business operations. As per Kopnina (2017), a current environment and sustainability researcher, unfettered economic expansion is among the most severe threats to the natural universe and ecological processes. Ecological sustainability, Jermsittiparsert et al. (2019), is the conservation and replenishment of the biospheres of current and future generations. Modern ecological threats include climate changes, global warming, pollutants, erosion, and biodiversity loss. As a result, numerous customers are putting increasing pressure on firms to follow ecologically sustainable measures to increase efficiency (Khan et al., 2019).

Businesses may tackle growing environmental concerns by implementing environmentally sustainable practices into their corporate operations. Nevertheless, some administrators believe that the benefits exceeded the long-term price of operations (Adomako et al., 2019). Regardless, several forward-thinking businesses are currently working to improve their sustainability performance. Those companies see ecological preservation as a necessary prerequisite for meeting the needs of many shareholders groups and a basic criterion for achieving a sustained competitive advantage within the marketplace. Porter & Van der Linde (1995) claimed that ecological programs investments improve ecological sustainability and profitability. They further contended that well-planned ecological laws could lead to innovations that cut or maximize the value of a commodity's total cost. Such advancements allow enterprises to utilize a variety of events, ranging from unprocessed products to high-energy and manpower, compensating cost of development as well as overcoming the impasse. In conclusion, increasing financial efficiency makes enterprises extra productive rather than less efficient.

4.2 *Managerial implications for society*

Organized cultural responsibility reflects on social aspects of environmental-friendliness; therefore, it is termed "social sustainability." Social Sustainability, as defined by Trendafilova et al. (2013), is "the business's continual contributions to moral acts as well as promote economic development while boosting the industry's standard of living and the village as well as surrounding social suburbs." Equality concerns remain crucial to reducing poverty and improving the welfare of industrialized countries.' As a result, the concept of social sustainability tackles a person's cultural, financial, sociocultural, and sentimental demands (Kopnina, 2017). Numerous academics concluded that sustainable societal development requires good social and economic management. Social assets are viewed as long-term products belonging to an enterprise that does not devalue yet improve and must be kept for an extended duration (Bardhan et al., 2007).

Furthermore, to create social assets inside an enterprise, managers must first create a desired working environment in which employees can enhance their social and other abilities. That could be attained by effecting changes like investments in labor resources, improving employee capability, building a teamwork environment, networking opportunities, obtaining the relevant information, and acquiring knowledge and experience much

more productive and successful. Social capital equally assists the company on a bigger scale in raising the standard of training, eliminating growth, addressing starvation and other serious public issues systematically (Saint Akadiri et al., 2019). Thus, scholars reported that expanding international markets is much more convenient for companies promoting social responsibility, enticing and employing competent employees and customers' interests. Shareholders keep strong community affiliations, smoother access to finance for banking firms and a better image. It results in a competitive advantage in the industry.

5. Conclusions

The study aims to determine the knowledge behind a business's decision to employ sustainable supply chain approaches. By the literature study, multiple researchers have looked into the link between implementing various green supply chain methods and their economic implications in different areas of organizational functioning. Moreover, there is a general lack of awareness on implementing good practices concerning sustainable supply chain to improve business operations as it lacks theoretical and applied studies.

Furthermore, businesses do not routinely address environmental and societal problems, and context-dependent elements determine the long-term execution of the supply chain process. These businesses depend on social issues rather than how other sociocultural factors are critical. According to the findings, firms are more concerned about enhancing intra-organizational supply chain effectiveness because it requires more work. The recent study has raised alertness regarding the importance of sustainable supply chain activities within the production company. This research, in particular, has contributed to a better apprehension of the motivating elements in executing eco-friendly supply chain supervision.

Additionally, concerning the analysis of the study, one benefit of joining forces among supply chain groups is an enhanced green environment, which attracted the interest of modern academics in using the publications on environmental goals, computational model programming, and the like to aid decision-making in the quest for the eco-friendly supply chain management. Companies encounter fresh challenges as fresh sub-disciplines as well as subgroups emerge. The most probable concentration of computational modeling techniques will tackle developing difficulties. Furthermore, continuous research on measuring eco-friendly supply chain practices and the development of green supply chain management was discovered throughout the timeline. In addition, the study gives a comprehensive but simple conceptual model based on topic analysis.

According to the findings of this research, green supply chains must include polycentric models to allow firms to respond extra adaptable to knowledge, experiences, and supply chain settings at suitable stages. Researchers have to put their labor union systems in place, allowing the supply chain to redevelop awareness plus adapt capabilities. Throughout history, the supply chain has seen to boost an accomplishment concerning a shared management objective, increased distribution, and resolving new targets as the climate changes.

The senior staff and supply executives must also implement roadmaps to assist green supply chains in adapting and converting vulnerability messages. Businesses must first describe their core competencies and assess—what they could do better than their rivals. Moreover, they must define their supply chain responsiveness internally and externally. Distribution professionals must construct supply chain collaborations to handle eco-friendly supply chains, create the adaptability needed to perform today, and increase the flow of intellect together with cooperation initiatives.

Conflict of interest

There is no conflict of interest for this study.

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