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Evolutions of sustainable supply chain management in emerging economies: A literature review

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ABSTRACT

The escalating demand for items and their consumption has exerted immense pressure on industrial production and supply chain systems, leading to adverse environmental and societal consequences. The rise in pollution rates and ecological disasters resulting from industrial production has prompted numerous scholars and industry specialists to focus on Sustainable Production and Consumption matters within the framework of Sustainable Supply Chain Management (SSCM). The interest in sustainable supply chain management has significantly increased in recent years, spanning both business and academic sectors. This phenomenon is seen in the growing prevalence of papers, conferences, specialized periodicals, and websites exclusively focused on the subject matter. Nevertheless, the importance of sustainable development in developing economies has only just started to be acknowledged. This literature review aims to assess existing research on sustainable supply chain management (SSCM) in developing nations while considering a worldwide perspective. This paper thoroughly examines the rapid expansion of the subject from an evolutionary perspective; aimed at comprehending the progression of sustainability concerns by examining patterns across different industries, and economies, and employing diverse approaches. An extensive thematic analysis was conducted on 56 selected publications published between 2010 and 2023, emphasizing the growth and significance of the knowledge base. The analysis is conducted utilizing a descriptive and content-oriented methodology. Subsequently, the results are presented, demonstrating an increasing interest in Sustainable Supply Chain Management (SSCM). Nevertheless, there is a conspicuous discrepancy in the extent of research carried out on this subject in emerging economies as opposed to industrialized ones. The findings indicate that the context in less developed countries plays a crucial role in carrying out empirical or case study research. Moreover, it is crucial to analyze how the integration of the three dimensions of sustainability impacts the efficiency of the supply chain, especially when considering the perspective of an emerging economy. Hence, the limitations of this investigation are delineated. Ultimately, it is crucial to do further research from multiple angles within the supply chain, encompassing collaboration, sustainable practices, innovation, sourcing, and supplier growth, with a special emphasis on the position and background of rising countries.

1. Introduction

In the present day, businesses are expected to demonstrate that they are implementing sustainable development practices in their operations. Several authors (Gualandris et al., 2015; Luthra et al., 2014; Zailani et al., 2012; and Roy et al., 2020) have pointed out that customers, the government, the media, shareholders, and consumers are the ones who are driving this necessity. According to Mani et al. (2016), businesses are required to modify their processes to conform to standards and achieve

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sustainability. This is because the use of conventional methods for operations is no longer effective. According to Marshall et al. (2015), businesses have been recognized as a tool to stimulate the adoption of environmentally sustainable activities. According to Ali et al., (2020) research, satisfying the interests of stakeholders and gaining a competitive advantage in their industry are also included in this action.

Several different terminologies and approaches have been utilized by both the business world and the field of literature to investigate the topic of sustainability. In the definitions that they provide, numerous academics and professional organizations emphasize the evaluation of three primary aspects: the economic, the environmental, and the social. One of the most significant areas of research concentration is on the implementation of sustainable supply chain management, which is essential for promoting sustainability inside institutions. The concept of sustainability is becoming increasingly important in the management of supply chains, and businesses are beginning to include it in their strategic decisions for both the short term and the long term. Academics who are highly regarded, such as Carter and Rogers (2008), Seuring and Muller (2008), and Ahi and Searcy (2013), have developed the definition of supply chain management (SSCM) and highlighted the significance of incorporating sustainable development projects into supply chain management (SCM) to improve businesses in both the short and long term. According to Gopal and Thakkar (2016), numerous businesses have initiated the implementation of sustainable practices within their supply chains as a result of the changing purchasing patterns of consumers, the increased level of competition, and the demands from a variety of stakeholders and governments. According to Kashmanian (2015), it is becoming increasingly important to have an understanding of how a company might interact with key stakeholders in its supply chain in order to place an emphasis on sustainability. As demonstrated by the research conducted by Tseng, Islam, et al. (2019) and Engert et al. (2016), the number of literature reviews pertaining to Sustainable Supply Chain Management (SSCM) and the associated concerns is significantly increasing on a global scale. Within the scope of their study, Carter and Washispack (2018) carried out an exhaustive investigation of previous systematic literature reviews of sustainable supply chain management. The expanding body of literature that is devoted to boosting understanding and advancement in this field was brought to the attention of the audience.

Emerging economies are another area that is getting more attention from researchers and businesses. This is because they are becoming more important in supply chains as a result of globalization of markets and foreign business. The study is mostly looking at developed countries, but it is also expanding to look at sustainability, the supply chain, and developing economies (Jayaram & Avittathur, 2015). Jia et al. (2018) looked at sustainable supply chain management (SSCM) methods in poor countries in great detail in their study. They concluded that it is very important to look into the patterns and strategies for making emerging countries sustainable. Geng et al. (2017) also looked through the research to find papers that looked at manufacturing companies in Asian countries in the context of green supply chains. Finally, they argued that even though there is more study being done in this area, real-world data is still needed and both SSCM practices and how they affect company performance need to be looked into. Businesses must also build a global (SSC) that takes into account how each country is different. This means figuring out the exact things that affect how well they do their jobs and seeing opportunities that add value to the supply chain. They also have to work together with other rising areas around the world (Campos et al. 2017). Hence, in light of the growing apprehension regarding a sustainable future in developing nations, it is imperative to undertake research on sustainability issues and ascertain the primary obstacles in developing nations. This will enable any sustainable supply chain to enhance the efficiency and efficacy of its activities across all three facets of sustainability: economic, environmental, and social (Luthra & Mangla, 2018).

As a result, the present review of literature aims to showcase contemporary ideas and popular subjects on SSCM in developing nations. The decision to conduct a comprehensive literature review was based on its straightforward and repeatable nature, as well as its ability to identify study shortcomings and areas for more investigation (Koberg and Longoni, 2019). This review critically examines the existing literature from both descriptive and content perspectives to evaluate progress and highlight the specific areas that require more research. This study seeks to address the inquiry: How has the research on SSCM developed in developing economies?

1.1. Background

The literature consistently asserts that companies and other entities must adopt activities that align with environmental and social ideals to foster sustainability (Govindan et al., 2018). Empirical research, cases, and surveys of the literature suggest, that to attain sustained improvements in operation, it is necessary to incorporate techniques within a triple-bottom-line approach in the supply chain (Govindan et al., 2016; Gimenez et al., 2012). Studies conducted in developing nations have asserted that sustainable solutions and active managerial participation are crucial for eliminating losses in supply chain operations and enhancing corporate performance (Kazancoglu et al., 2018). The emphasis on SSCM has been prompted by government legislation and stakeholder expectations. This has led to research focusing on adopting SSCM methods in developing nations, as explored by Luthra and Mangla (2018).

1.2. The Role of Sustainability in Fostering Prosperity

The definitions of the Council for Supply Chain Management Professionals (CSCMP) were amended in 2013 to include the

notion of sustainability. Sustainability refers to the business's commitment to meeting the principles of sustainable development, which include considering the needs of those involved and fulfilling corporate social responsibility (CSCMP, 2020). Sustainable performance, as defined by certain writers, refers to the measurement of results that capture the convergence of three dimensions (Carter & Rogers, 2008). Bateh, et al. (2013) state that academic journals contain many definitions of sustainability, demonstrating that it would encompass a longstanding perspective and oblige a comprehensive purpose. Although literature may offer several definitions, the most notorious and coherent theory revolves around incorporating three dimensions and ensuring imminent development (Seuring & Müller, 2008). However, scholarly authors predominantly adhere to the definition of sustainability put forward by the United Nations' Brundtland Commission in 2020. These definitions aid in comprehending the notion, encompassing not only environmental aspects but also economic and social dimensions.

Carter and Rogers (2008) argue that the phrase "sustainability" and the notion of the “triple bottom line” (TBL), encompassing the economic, environmental, and social dimensions of a business, are interchangeable. This concept was conceived when it became apparent that corporations were preoccupied with economic concerns to the exclusion of their social and environmental responsibilities. At present, for enterprises and their suppliers to attain Triple Bottom Line (TBL) sustainability, they must establish streamlined processes and methodologies, actively solicit consumer input, and fulfill market demands (Thong & Wong, 2018). According to Ilyas and Wiwattanakornwong's, (2020) research, sustainable development is seen as an important worldwide objective because of the enormous impact it has on the well-being of the economy, the environment, and society individually. According to Thong and Wong (2018), businesses are required to embrace sustainable practices to enhance the efficiency of their supply chains and to strengthen their competitiveness during times of increasing external pressures.

1.3. Sustainable Supply Chain Management in the Global Context

Initially, the primary emphasis of Supply Chain Management (SCM) was on the effective and dependable transportation of raw materials and completed products to customers. Ensuring the continuous and seamless flow of commodities and information throughout the chain was a recurring difficulty. Firms mostly aimed to reduce waste for business reasons rather than social or environmental concerns. Traditional supply chain literature viewed suppliers as nonstrategic, with the main company's strategy focused on using its purchasing power. SCM, as described by Rebeca et al. (2020), encompasses the operations related to the transportation and transformation of goods and services within a supply chain, along with the information exchanges from suppliers to consumers. At present, supply chain management (SCM) is a critical component of worldwide industries, which calls for an exhaustive assessment that emphasizes the interdependencies between its components. As a result, organizations that have effectively managed their supply chain operations have developed strategies to confront and surmount substantial global risks. Subsequently, SCM has transformed to incorporate more complex scenarios, with the dual objective of attaining financial benefits and integrating sustainable development principles into its operations (Closs & Speier, 2011). Consequently, there has been a growing fascination with SSCM among researchers, academia, and managers. Furthermore, adopting SSCM methods is increasingly prevalent as a corporate strategy for promoting sustainable development within the industrial sector. Businesses striving for sustainability and improved supply chain performance have led to the creation of sustainable supply chains. The SSCs involve activities from a three-dimensional viewpoint, taking into account economic, social, and environmental concerns (Köksal et al., 2017). In their study, Kim and Chai, (2017) defined the SSC as “a supply chain that not only generates profit and fulfills its potential, but also demonstrates responsibility towards its consumers, suppliers, societies, and environments through the use of innovative strategic, tactical, and management technologies”. This supply chain model incorporates sustainable development principles and functions under the three pillars of sustainability. Since over a decade ago, scholars have been incorporating Supply Chain management into the framework of Supply Chain Management (SSCM) (Kim et al. 2014). This action was taken to achieve sustainable development objectives and resolve issues through the integration of numerous tools and strategies. The initial initiatives primarily focused on environmental challenges and related subjects, including sustainable design, environmentally favorable products, and environmentally conscious supply chains. Through literature evaluations, numerous definitions of supply chain management (SSCM) were uncovered. The definitions primarily focused on the three dimensions of sustainability and underscored the criticality of coordination, collaboration, and cooperation throughout the entire supply chain. The following authors have been highlighted: Carter and Rogers (2008), Seuring and Muller (2008), Ahi and Searcy (2013), Wolf (2011), Wittstruck and Teuteberg (2012), and Pagell and Shevchenko (2014). Carter and Rogers (2008) investigated elements that were not related to the economy and introduced issues of sustainability into supply chain management. They proposed a theoretical structure for this purpose. This led to a new area of study, in which SSCM was defined as “the deliberate and visible integration and accomplishment of the company's social, environmental, and economic objectives through the coordinated handling of important inter-organizational operations”. The goal is to enhance the long-term financial health of both the specific firm and its supplier networks (Rebeca et al., 2020). Seuring & Müller (2008) define SSCM as the management of material, information, and capital flows, together with collaboration across enterprises in the supply chain. This management strategy takes into account goals related to economic, environmental, and social sustainability, which are based on customer and stakeholder expectations. Ahi & Searcy (2013) provided an alternative interpretation of SSCM, focusing on coordination, efficiency, and effectiveness;

> *“The creation of coordinated supply chains through the voluntary integration of economic, environmental, and social considerations with key inter-organizational business systems designed to e*ffi*ciently and e*ffe*ctively manage the material, information, and capital flows associated with the procurement, production, and distribution of products*

or services in order to meet stakeholder requirements and improve the profitability, competitiveness, and resilience of the organization over the short- and long-term" (p. 339).

In the realm of attaining sustainable development through adherence to environmental, social, and economic standards, the definitions underscore the supply chain's pivotal significance. Consistent progress has been observed in the field of Sustainable Supply Chain Management (SSCM), which has evolved into a crucial managerial strategy for enhancing the sustainability of businesses. Rebecca et al. (2020) conducted research that revealed that the incorporation of sustainability principles into supply chain operations has not been entirely embraced by businesses. This is evident from the negligible advancements that have been achieved in this domain. A sustainable supply chain management strategy entails the oversight of all supply chain operations to ensure a harmonious coexistence of economic viability, social responsibility, and environmental preservation.

1.4. Aspects of sustainable supply chain management in emerging economies

The rise throughout international markets has resulted in an increasing emphasis on sustainable supply chain practices in developing countries. Scholars frequently use the phrases "emerging economy" and "developing nations" interchangeably, despite the lack of a definitive definition for an emerging economy. These can be distinguished by their low per capita income, minimal commercial or manufacturing activity, and insufficient infrastructure. Nevertheless, developing countries frequently demonstrate similar or higher levels of economic growth in comparison to industrialized nations (Roztocki and Weistroffer, 2011). The main difference is in their level of economic growth. The phrases "emerging" and "developing" economies will be used interchangeably in this research due to their similar characteristics. The goal is to examine the current literature on sustainable supply chain management (SSCM) in these economies. It is important to highlight that in different types of research, it is necessary to distinguish them to analyze their differences.

Countries that play a crucial role in global supply chains and sustainable development are identified by their participation in activities such as extraction, production, installation, and manufacturing within their respective regions (De Abreu et al., 2012). Developing nations, often known as emerging markets, are distinguished by their ongoing expansion compared to developed countries. These countries have greatly improved their efforts to promote sustainability and sustainable practices, as highlighted by Choi and Luo (2019). Research on sustainable supply chain management (SSCM) in developing countries is lacking in comparison to that in developed nations. Multiple studies in the SSCM literature have highlighted this distinction (Rajeev et al., 2017; Silvestre, 2015; Khalid et al., 2015). According to Mani et al. (2016), previous research has acknowledged the correlation between societal disputes and business companies from the point of view of social sustainability. Tang (2018) proposed that there is a connection between the operational aspects of supply chains in emerging economies and the concept of corporate social responsibility. An investigation of the incorporation of socially responsible practices with suppliers in the supply chain was carried out by Tong et al. (2018). The research focused specifically on developing nations. Within the context of the textile industry in Brazil and China, Abreu (2012) investigated how company geography, business size, and position in the value chain influence the implementation of corporate social responsibility initiatives. According to Jayaram and Avittathur (2015), some scholars in the past have analyzed the significance of developing economies in the supply chain operations of a variety of businesses operating in the international market. Empirical research has examined the frequency of supply chain management activities in businesses situated in developing nations and has recognized the significant impact sustainability has on their effectiveness (Gómez-Luciano et al., 2018). Silvestre (2015) analyzed the Brazilian oil and gas supply chain, emphasizing the company's effective integration of sustainable practices to improve the chain. Silvestre analyzed supply chain aspects in rising economies, specifically looking at sustainable practices and their application in similar economies. Moktadir, Ali, Rajesh, and Paul (2018), conducted a study in which they delineated the obstacles that must be surmounted to effectively implement sustainable practices within the leather processing sector of Bangladesh. Furthermore, to facilitate the effective implementation of a Sustainable Supply Chain (SSC), they examined the interrelationships that existed among these obstacles. The economies of developing nations, which are concurrently contributing significantly, are experiencing growth. Sustainable development holds significant importance within the realm of international commerce (Ansari & Kant, 2017). This is because multinational corporations actively pursue opportunities to promote or procure products from these nations. Asian, Hafezalkotob, and John (2019) posit that the expansion of supply chain operations on a global scale result in augmented logistical expenses, heightened intricacy, market barriers, and diminished output. Each of these elements exerts a direct influence on developing nations. Kazancoglu, Ozkan-Ozen, and Ozbiltekin (2018) assert that developing nations often employ rudimentary technologies and encounter challenges in fostering collaboration among diverse participants in their supply chain. Rajeev, Pati, Padhi, and Govindan (2017) disclosed that a preponderance of research publications concentrated on developed economies as opposed to emerging economies. The problem may be attributed, in part, to the restricted accessibility of data, which subsequently complicates the research process concerning emerging economies.

1.5. Analysis and Results of the Literature

During this phase, a comprehensive analysis was conducted on the 56 articles that were ultimately chosen. These articles were then classified into distinct categories according to their unique qualities and contents. The initial investigation incorporated a substantial quantity of descriptive data. The parameters encompassed in this set were the year of publication, the sector of

the industry, the country of research application, and the research methodology employed. Throughout the study's methodology analysis, a classification was applied to the tools and strategies utilized to resolve the issue identified in each article. The concerns that were being addressed and the component or combination of dimensions that were being addressed in terms of sustainability were both categorized as part of the content analysis. The results obtained from the descriptive and content analysis form the fundamental basis for the subsequent stages of the research process.

The final section of the approach involves giving a discussion on the research findings, identifying any gaps and limits, and providing recommendations for future research. This is followed by the conclusion. The subsequent diagram illustrates the sequential process undertaken for this study methodology. Therefore, the subsequent sections will outline the findings, analysis, and final remarks of this literature study.

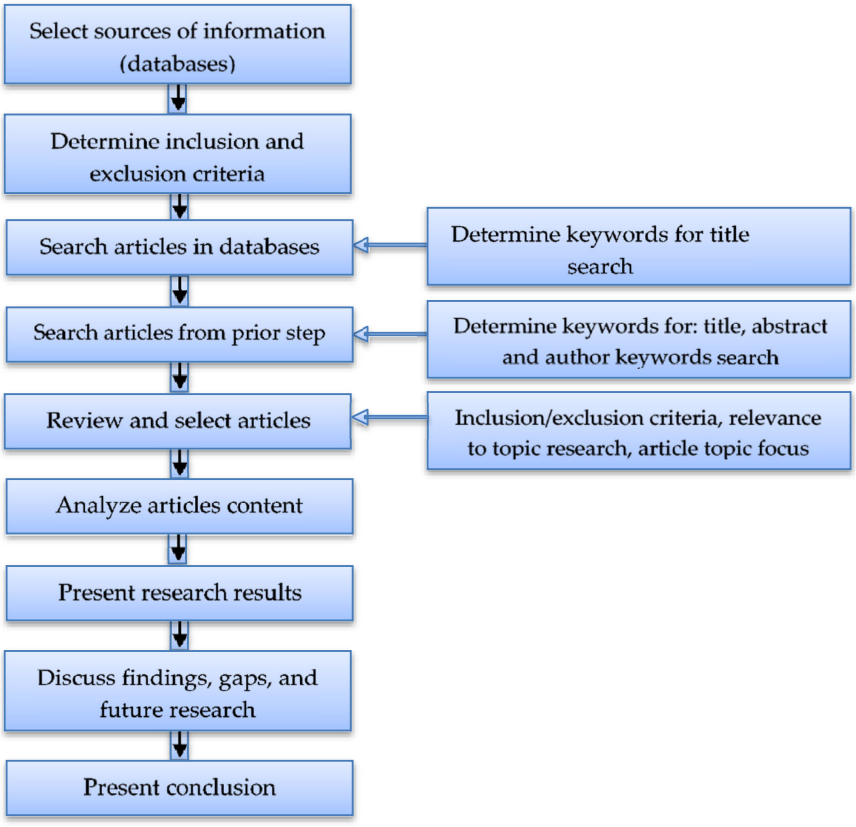

Fig. 1. The methodology employed in conducting this literature review
Source: Adopted from Sánchez-Flores et al., (2020)

2. Results

A descriptive analysis as well as a content analysis of each of the 56 articles are included in the findings. The process of finding and classifying papers by their particular publication year, industry sector, and country of research is what is known as descriptive analysis. The content analysis provides an evaluation of the research technique and sustainability characteristics that are utilized in the publications that are being evaluated.

2.1. Descriptive Analysis

This paragraph provides a thorough examination of each of the 56 publications included in the current research. The analysis comprises quantitative data and perceptive insights. The data is assessed based on the journal's publication year, industrial sector, study location, and methodology.

2.1.1. Analysis of Articles by Industry Sector

For the industry sector classification, to be manageable, the sectors are summarized /or classified into 5 different sectors (i.e., multiple sectors, manufacturing, agriculture and mining, service sector, and no specific sector). It was carried out to incorporate the papers that fall under these groups and have not been taken into consideration.

Figure 2 illustrates the distribution of the publications analyzed for each industry group. Out of the 56 articles analyzed, 21 articles (38%) cover multiple industry sectors, while 17 articles (31%) focus on the manufacturing sector. The agriculture and mining sector is represented by 9 articles (16%), the service sector by 5 articles (9%), and one article does not specify a particular sector (2%). Manufacturing, the second most frequently studied industry, is expected to get considerable attention from executives because of the growing significance of the triple bottom line in corporate management (Brandenburg, Hahn, & Rebs, 2018). Several empirical investigations extensively examined multiple industry sectors (38). Research efforts have primarily focused on researching the manufacturing sector. However, these studies have not extensively examined the effects of implementing sustainable supply chain management (SSCM) on the performance of manufacturing enterprises in emerging nations. This limitation is highlighted by Esfahbodi, Zhang, and Watson (2016). The specific categorization of these publications according to each industrial sector is available in the Appendix. Scavarda et al. (2019) analyzed the healthcare supply chain in Brazil, focusing on sustainability. They put forth a management paradigm that aims to offer strategic operational benefits to enterprises.

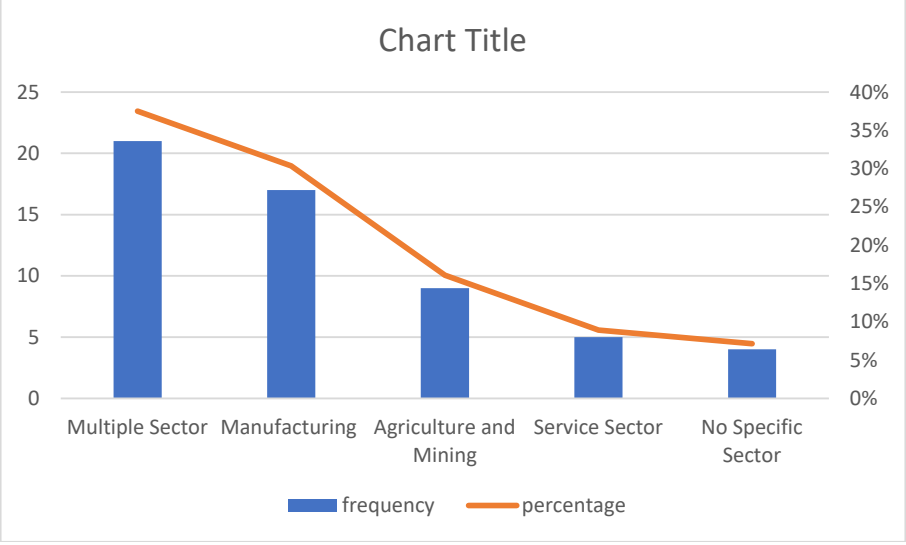

Fig. 2. Distribution of articles by industry sector.

2.1.2. Analysis by Research Methodologies

The examination of supply network chains in developing markets is a difficult endeavor, particularly in supply chains that involve sophisticated commodities and where it is extremely difficult to identify all of the parties in the supply chain process based on research carried out by Schoggl et al., (2016). In this table, the study methodologies that were utilized to analyse SSC in developing countries are shown. With empirical studies accounting for 62.5% of the total publications, the most common approach is empirical research, followed by case studies, which account for 21.4% of the total papers. To emphasize the importance of interviews and surveys as standard methods for information collection, it is essential to underline that they are widely recognized.

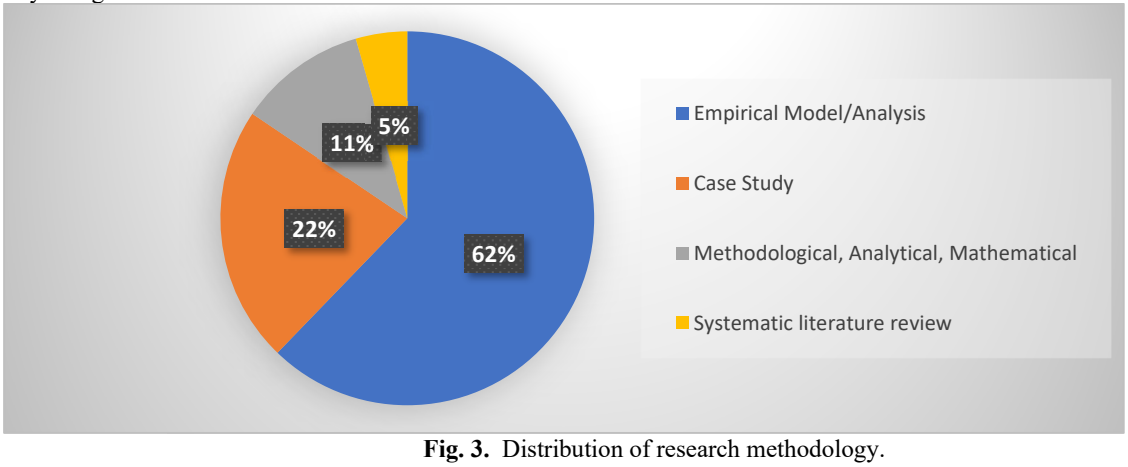

Fig. 3. Distribution of research methodology.

The study examined how Sustainable Supply Chain Management (SSCM) is put into practice in developing nations using various methodologies and strategies. The inquiry was conducted using empirical models and thorough analysis. Akhtar et al. (2016) conducted a study to explore how leadership practices affect sustainability by analyzing data from senior executives in global supply chains in emerging economies in the agri-food industry. The study used structural equation models (SEMs) to explore how executives in global supply chains might effectively use data-driven and adaptable leadership methods to promote sustainable projects. The study's results have improved our comprehension of this subject. Structural Equation Modelling (SEM) was employed to analyze data collected by Ilyas, Hu, and Wiwattanakornwong (2020) through a structured survey distributed to the industrial sector in Pakistan. The study's results indicate that the endorsement of top-level executives significantly impacts the uptake of eco-friendly supply chain methods and the realization of sustainable development objectives through efficient execution. According to the findings, government aid is vital to help top-level executives build and sustain a green supply chain successfully. Thong and Wong (2018) conducted a study in Malaysia to investigate how environmental and social performance impact economic performance and the related advantages. Structural equation modeling (SEM) and partial least squares (PLS) were used to analyze survey data from different industrial sectors, such as food and beverage, electrical and electronics, among others.

Bag et al. (2020) employed Structural Equation Modelling (SEM) and Partial Least Squares (PLS) to identify methods for enhancing sustainable supply chain performance in the mining sector of South Africa. The methods were utilized to enhance supply chain performance. A survey was conducted to investigate the study questions related to big data analytics. The study showed that proficiency in big data analytics significantly influenced the creation of environmentally friendly new products and the sustainability of a supply chain. Several more authors employed primary data for conducting qualitative studies, wherein they gathered information directly from various companies across multiple industries. The data-gathering approach was conducted through a series of interviews by Turker and Altuntas (2014), Liu et al (2012), Fleury and Davies (2012), and Morali and Searcy (2013). It was determined by Ahmad et al. (2017) that the best-worst method (BWM) was utilized to examine survey data from two national oil and gas businesses to assess the impact that external influences have on sustainability. The semi-structured questionnaire was delivered by Padhi and colleagues (2018) to some different industry sectors in India. These six fuzzy multi-criteria decision-making strategies were included in the study so that researchers could gain a better understanding of future sustainable alternatives. The aim was to identify the most suitable practices that industrial companies should implement. Notably, certain articles employed a combination of approaches to conduct their research. Additionally, most of the authors conducted a comprehensive examination of existing literature, which served as the foundation for their research. Different approaches can be used to analyze sustainable supply networks in developing countries. Direct comparisons with other systematic literature reviews are frequently not feasible due to the lack of focus on emerging economies or specific issues related to sustainable supply chain management (SSCM). Some articles encompass all facets of innovation in Sustainable Supply Chains (SSC), including distinct types of innovation, Green Supply Chain Management (GSCM), sustainability in global supply chains, sustainability metrics, and Sustainable Supply Chain Management (SSCM). These studies do not specifically address emerging economies. Other occurrences, including developing countries, are limited to just one nation.

2.2. Analysis of Articles by Content

The following sections will analyze the sustainable characteristics that were investigated in the 56 publications, as well as the frequency with which these characteristics were investigated, as well as the methods and approaches that were utilized to evaluate SSCs in developing nations.

2.2.1. Sustainable Dimensions

Sustainability, encompassing all three components, has been widely embraced. This enables the analysis of each component alone or collectively, aiding the incorporation of two or all three aspects in research efforts. The publications were classified according to the sustainable methodology being studied. The image below shows how articles are distributed according to the sustainable strategy. 50% of the articles show an integrative approach to the three sustainable elements, whereas 17.9% and 16.1% concentrate only on the environmental and social dimensions, highlighting their substantial research contribution. Additionally, the environmental aspect is combined with the social aspect in seven studies, making up 12.5% of the research. One article integrates social and economic issues, while another mixes economic and environmental dimensions. None of the 56 publications under study include an analysis of the economic component in isolation.

In contrast, the literature analysis conducted by Moreno-Camacho, Montoya-Torres, Jaegler, and Gondran (2019) focused on sustainable metrics and analyzed papers published between 2015 and 2018. Their findings revealed that 96.5% of the papers examined in their review addressed environmental issues, whereas this current review only demonstrates a percentage of 82.1%. In addition, they noted that 45.2% of the publications examined addressed social issues, whereas their evaluation focused on 80.4% of them. The variations might be ascribed to the disparity in time frames and, more specifically, to the underlying emphasis of this research on rising economies. To accomplish the goal of the review, the following sections will conduct an in-depth analysis of each sustainable dimension, as well as their linkages and the significance they hold in the context of the sustainable supply chain in developing nations.

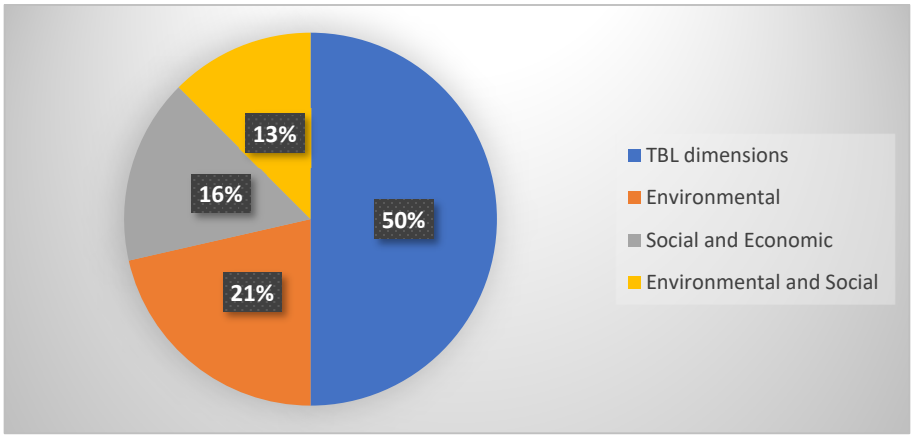

Fig. 4. Distribution of articles per sustainable dimension.

2.2.2. Environmental Dimension

80% of the articles exclusively or partially addressed environmental issues, either by solely discussing environmental concerns or by incorporating them alongside social and/or economic dimensions. In addition, 92% of the studies specifically addressed environmental issues and utilized empirical or case-study methodologies to generate and validate information. Moreno-Camacho et al., (2019) identified a growing interest in sustainable practices in developing countries, particularly in Asia. They emphasized the increased focus on environmental research but noted that social factors are still being inadequately studied. The articles only addressed environmental concerns, examining subjects such as urban solid-waste management, carbon efficiency assessment, pollution elimination, waste and carbon footprint elimination, and use of resources and healing. The authors cited in this work are Ali et al. (2020), Marzuki et al. (2017), Jakhar et al. (2018), Ding et al. (2018), Azevedo et al. (2019), and Krishnan (2020). Roy et al., (20202) researched how enhancing the environmental performance of supply networks can promote environmental sustainability. Roy et al. (2020), Suhi et al. (2019), and Krishnan et al. (2020) examine the environmental sustainability of proposed solutions in their studies. Empirical and case studies have demonstrated the necessity of monitoring sustainable performance in supply chains from an environmental standpoint. These studies have also highlighted the significance of active stakeholders engaging in the encouragement, advancement, and assistance of incorporating environmental measures across the supply chain in developing economies. Moreover, academics and managers are increasingly recognizing the significance of environmental sustainability and green concerns as a result of new rules, customer expectations, and the need for green products (Moktadir et al., 2018).

2.2.3. Economic Dimension

The influence of economic performance on the efficiency of a supply chain is substantial. Frequently, the total cost of supply chain management is a crucial metric. Zhang et al. (2014), Esfahbodi et al. (2016), and Ding et al. (2015). 56% of the publications that were examined placed significant emphasis on economic challenges, often incorporating social and/or economic factors into their analysis. In emerging economies, empirical research or case studies were conducted in 72% of these articles. Certain articles emphasize economic objectives on resource efficiency, market share, and sales. However, they also acknowledge the significance of expenditure throughout the entire procedure. Prominent investigations were concluded by Zailani et al. (2012), Ding et al. (2016), and Ding, Zhao et al. (2016). The study conducted by Kumar et al., (2020) found that money plays a crucial role in implementing social responsibility throughout the supply chain of emerging economies' clothing industry. Esfahbodi, Zhang, and Watson (2016) conducted a study that examined economic matters and integrated them with the environmental aspect. They emphasized the significance of adhering to environmental norms and requirements without disregarding economic performance as the primary concern.

2.2.4. Social Dimension

The majority of the papers concentrate on the social aspect, either the social aspect on its own or in conjunction with the economic and/or environmental aspects. This accounts for 78% of the total. Among the 56 studies analyzed, 10 exclusively addressed social issues, while an additional 6 integrated both social and environmental dimensions. Only one work merged the social component with economic issues. Furthermore, 30 articles were examined from a triple-bottom-line perspective. In their literature review on global Sustainable Supply Chain Management (SSCM), Koberg and Longoni (2019) discovered that scholarly articles frequently place greater emphasis on the social aspect of sustainability rather than its economic and environmental dimensions. Morais and Silvestre (2018) undertook a comprehensive inquiry in Brazil by employing a multi-case study methodology to examine how supply chain-focused organizations attain social sustainability. Motivation, cooperation, and the exchange of information were found to be critical factors in determining the success of social activities. In developing

economies, Chacón Vargas et al. (2018) demonstrated a positive correlation between social supply chain practices and competitive advantage. According to Mani et al. (2016), the incorporation of labor concerns into social sustainability endeavors has the potential to improve the overall efficacy of the supply chain.

Scholarly investigations and real-world applications have not devoted considerable emphasis to the evaluation of social sustainability, according to research on the social fabric. Furthermore, there has been a dearth of research on this subject, particularly in developing countries. A study by Badri et al. (2017) and Munny et al. (2019). Current research on sustainable supply chain management (SSCM), according to Yawar and Seuring (2017), focuses primarily on social issues that directly affect supply chain performance. It has been observed that certain domains that possess the capacity to cause damage to society are being disregarded. The significance of analyzing social issues associated with social development through the lens of the SSCM framework was emphasized. Academic literature concerning the triple bottom line paradigm contends that the social aspect is not given an equivalent level of significance as the economic and environmental components. The rationale behind this is that the assessment of sustainable performance places greater emphasis on environmental and economic factors rather than the social aspect, as Tajbakhsh and Hassini (2015) have noted.

2.2.5. Combinations of Dimensions

The integration of the Triple Bottom Line (TBL) is essential, with 52% of the analyzed studies considering it from a three-dimensional viewpoint. The implementation of a triple bottom line approach is currently emphasizing managerial attention on industrial activities. Therefore, ecological, economic, and social considerations are essential in managing any company. Roy, Schoenherr, and Charan (2018). Moreover, this is consistent with other literature reviews that emphasize the Triple Bottom Line (TBL) as the primary research topic and acknowledge it as a significant barrier to attaining sustainable development in supply chain management. The research by Koberg and Longoni (2019), Gold and Schleper (2017), and Bastas and Liyanage (2018). Gold, Hahn, and Seuring (2013) investigated how applying supply chain and sustainability management (SSCM) strategies in projects aimed at the base of the pyramid (BoP) can help multinational companies achieve their sustainability objectives within the food industry. Mathivathanan, Kannan, and Haq (2018) performed a Team-Based Learning (TBL) investigation to analyze the operations of the Indian automotive sector from a perspective involving multiple stakeholders. The study showed that management's commitment to incorporating a triple bottom-line approach into decision-making processes is a significant factor in implementing sustainable supply chain management (SSCM). Katiyar, et al. (2018) did a study on the Indian automotive industry, specifically examining the perspective of customers. The findings indicated a favorable correlation between procurement and environmental performance, but manufacturing performance exhibited a limited association with sustainability. This implies a potential for implementing the three dimensions from the viewpoint of a certain industry. Reports have demonstrated that emerging economies are more concerned about adopting sustainable practices to enhance efficiency and accomplish the desired outcomes (Diabat et al., 2014).

2.2.6. Investigating Sustainable Supply Chain Management Models in Developing Countries

Numerous models pertaining to Sustainable Supply Chain Management (SSCM) in developing countries have been formulated. A multitude of viewpoints have been taken into account, and while certain authors have proposed comprehensive frameworks, their applicability in practice is constrained. A number of the publications included in the study put forth theoretical or conceptual frameworks that were evaluated, whereas others offered mathematical or theoretical perspectives on particular subjects. Prior investigations employed a pre-existing framework to scrutinize data and derive conclusions. Hong et al. (2018) analyzed the relationship between these three variables in China's multisector business to establish a correlation between supply chain dynamic capacity, corporate performance, and sustainable supply chain management (SSCM) practices. To ensure the soundness of the conceptual framework they had constructed, many experiments were conducted. The results illuminated the importance of affording enterprises in developing countries the chance to implement environmentally sustainable practices and enhance the dynamism of their supply chains. Potential limitations in outcomes may arise from the exclusion of certain operational procedures or inventive capabilities from the scope of dynamic capabilities. In the course of their research, Padhi, Pati, and Rajeev (2018) introduced a technique that has the potential to improve SSCs. To assess sustainable processes, the established methodology utilized stakeholder theory and resource-based view (RBV) to evaluate enterprises. The scope of this investigation is limited to particular regions in India, potentially compromising the impartiality of the results.

The intricate configuration of supply chains, their substantial influence on global markets, and the unique attributes of individual developing economies have posed challenges for research models in their attempt to comprehensively account for all conceivable viewpoints. To comprehend the fundamental characteristics of Sustainable Supply Chain Management (SSCM) in developing nations and to improve their efficacy in global operations, it is critical to develop a variety of structures and methodologies. Further research should prioritize conducting comprehensive analyses of the effects that emerging economies have on sustainable supply chain management (SSCM). The advantages and disadvantages of these economies should be incorporated into this analysis as vital components of a sustainable supply chain. Research ought to examine methodologies and approaches derived from the experiences of developing economies in order to identify areas that require enhancement and assistance in order to optimize performance, as Sánchez-Flores et al. (2020) suggest.

3. Discussion

The objective of this literature review is to analyze Springer, Elsevier, and MDPI database articles about Sustainable Supply Chain Management (SSCM) in developing countries that were published from 2010 to April 2020. A revised iteration of the research conducted by Sánchez-Flores et al. (2020) is presented in the following section. With specific limitations in mind, this literature review seeks to perform an analysis of the existing body of knowledge. The aforementioned limitations are as follows: a prescribed period, adherence to the English language, utilization of three database sources, exclusive incorporation of research and literature articles, focus on emerging economies via diverse keyword searches, and a particular emphasis on sustainable supply chains. Furthermore, this literature review classifies the papers that were collected through an assortment of approaches. The categorization of publications is determined by the sectors of the industry that were examined, the research methodology implemented, and the analytical instruments and techniques utilized. The utilization of these categorizations has proven beneficial in the examination of the present state of Sustainable Supply Chain Management (SSCM) in developing countries, in addition to the progress that has been achieved in this domain. This analysis will commence by elucidating the noteworthy discoveries that have been achieved. Subsequently, it will scrutinize domains that necessitate additional inquiry. Ultimately, it will propose prospective directions for future research.

3.1. The Findings

- Researchers and practitioners have recently shown a growing awareness and interest in SSC in developing economies. Conversely, inquiries indicate that despite the significant role developing countries play in global markets, many supply chain players in these countries are unaware of the concept of SSCM (Nayak et al., 2019). This evaluation indicates that research on SSCM in emerging nations lags behind the global research on SSCM. The interest in sustainable supply chain management in emerging economies has emerged several years after the inception of SSCM research. However, the demand from customers, government, and nonprofit organizations has made sustainable development a crucial and demanding task in the modern corporate landscape (Govindan and Cheng, 2015).
- Research on Sustainable Supply Chain Management (SSCM) in developing nations mostly relies on empirical research techniques, including structured and semi-structured surveys and interviews done through questionnaires, either face-to-face or by mail. Tebaldi, Bigliardi, and Bottani (2018) found that empirical surveys are the most common method used in research on sustainable supply chains and innovation. Ansari and Kant (2017) found that qualitative research methodologies, like case studies and conceptual/theoretical models, were common in the field of SSC research. Their findings highlighted the need for more empirical and quantitative study.
- The investigation has revealed that Sustainable Supply Chain Management (SSCM) encompasses numerous facets. These include the Base of the Pyramid (BoP), the determinants of SSCM, environmental impact assessment, supplier collaboration, leadership, multi-tier supplier initiatives, SSC practices and processes, and key indicators for sustainable development.
- In the realm of research, structural equation modeling is the prevailing approach, with partial least squares ranking second in popularity. PLS and SEM have been integrated in numerous instances (PLS-SEM), and PLS-SEM is utilized when conducting a number of regression investigations. Zeng et al. (2017) employed Structural Equation Modeling (SEM) to examine the relationships among circular economic competency, sustainable supply chain (SSC) design, institutional pressure, and supply chain management (SCM) in Chinese eco-industrial park enterprises.
- A more comprehensive view of sustainable supply chain management (SSCM) in developing nations is provided by the research, which includes a variety of businesses because 38 percent of it covers several industries. On the other hand, the agriculture and mining sector accounts for 16% of the total, while the service sector contributes for 9%. The manufacturing industry accounts for 31% of the total.
- The literature has proposed various sustainability measures to assess the sustainability of supply networks, aiding stakeholders in making strategic decisions. The study conducted by Subramanian et al. (2020), Mani, Agarwal, Gunasekaran, Papadopoulos, Dubey, and Childe (2016) examined and suggested 20 social sustainable measures for supply chains in India. These parameters were categorized into six key indicators: Equity, philanthropy, safety, health and welfare, ethics, and human rights. In addition, the study conducted by Mani, Gunasekaran, and Delgado (2018) examined social concerns pertaining to suppliers and identified strategies linked to social sustainability in developing countries. The results indicated a direct correlation between the social sustainability practices of suppliers and the performance of the supply chain. Examining sustainable development indicators poses a difficulty, although managers must assess the performance of SSCM in certain industries within emerging economies. Li, Y. and Mathiyazhagan (2018).
- Environmental sustainability is gaining significance in supply chain operations in developing economies. This is attributed to the utilization of natural resources, labor-intensive processes, and the transportation needed to distribute manufactured goods (Jakhar et al., 2018). Suhi, Enayet, Haque, Ali, Moktadir, and Paul (2019) introduced an approach for identifying and assessing environmental sustainability indices in the manufacturing sectors of Bangladesh. The environmental impacts differ according to the resources utilized, and there is insufficient study in emerging economies on evaluating resource consumption throughout the supply chain and enforcing measures to reduce it. However, there is a growing emphasis on social concerns and behaviors in developing countries, despite being a relatively new area of study in research (Moreno-Camacho et al., 2019).

- Unique attributes in emerging economies create obstacles to Sustainable Supply Chain Management (SSCM), prompting research interest, as highlighted by Jia et al. (2018). It is essential to identify these major impediments in order to achieve sustainability throughout the entire supply chain (Moktadir et al., 2018). Mangla et al. (2017) investigated the barriers to achieving sustainable consumption and production practices in their research. They investigated how sustainable supply chain management (SSCM) influences political and economic change on regional, national, and global scales. Barriers and restrictions within institutions in developing countries must address economic, social, and ecological factors while implementing new sustainable consumption models. This study was conducted by Bendul et al. (2017). Research has indicated that cooperation among different parties in developing nations can boost the capacity for innovation in supply chain activities and remove obstacles to worldwide sustainable methods (Campos et al., 2017). Collaboration from developed nations can assist in addressing the obstacles presented by insufficient infrastructure and limited comprehension of sustainability.
- Successful execution of sustainable supply chain management (SSCM) in developing countries depends significantly on robust leadership from senior management and support from the government. Supply chain managers are placing more emphasis on sustainability due to government regulations, as shown by Moktadir et al (2018). The principles greatly affect the profitability of sustainable supply chain partners, creating a mutually advantageous business climate and ensuring economic viability. Furthermore, establishing closer partnerships with the government and enhancing relationships with clients in emerging countries offer benefits for promoting technical innovation. Campos et al. (2017). Wan Ahmad, Rezaei, Sadaghiani, and Tavasszy (2017) found that economic and political stability, together with regulatory concerns, are the main factors motivating the adoption of sustainable practices in Brazil, as reported by academic and industry professionals. Silvestre (2015) found that regulatory pressure affects enterprises in emerging nations more significantly than market and competitive pressures. Gold and Schleper (2017) contended that business involvement in sustainability could pose a significant challenge if not undertaken with a sincere commitment to social and environmental responsibility.

These literature sources demonstrate the significance of comprehending the context of emerging economies in supply chain management (SCM) to successfully apply sustainable practices and achieve genuine sustainable development throughout all supply chain operations with greater efficiency and effectiveness.

3.2. Gaps Identified in the literature

There has been a paucity of research conducted on sustainable supply networks in developing nations. According to Subramanian et al. (2020), the focus of research that is now being conducted is on the tripartite bottom line of sustainable supply chains. When it comes to the management of sustainable supply chains in developing nations, however, extra study is required in order to discover prospective areas of concentration from which to concentrate. Recent study indicates notable advancements in environmental activities, although there is a scarcity of information regarding the specific methods employed to accomplish these advances, particularly in emerging economies. Although previous studies have examined Supply Chain and Supplier Relationship Management (SSCM), it is imperative to incorporate the perspectives of additional supply chain participants beyond the organization under investigation. This incorporates vendors of logistical services in addition to suppliers of components and raw materials. These entities are of utmost importance in fulfilling critical supply chain management obligations and exert a substantial impact on the attainment of sustainable results. Some study topics offer opportunities for new avenues of exploration, as sustainable development requires a combined assessment of social, environmental, and economic factors. A substantial gap exists in research on how the three aspects of sustainability are implemented globally in developing economies, as approaches used in developed countries cannot be easily transferred to developing nations as the study conducted by Bendul et al. (2017).

4. Conclusions

Consequences on the economy, environment, consumption of resources, and society are all considered in the pursuit of sustainable development. The objective of this literature review is not only to provide recommendations for future research but also to provide an overview of the current state of research concerning sustainability in developing countries. When undertaking supply chain management, it is critical to duly acknowledge and account for the unique circumstances that exist in developing nations. It is critical to emphasize the social implications of operations and investigate the interconnections among the three constituent elements comprising a supply chain. The objective is to accomplish this by establishing a perpetual equilibrium in developing economies. To increase sustainable performance fully, a comprehensive strategy should be implemented throughout the supply chain, according to the findings of this literature review. It is suggested, in light of the literature review's findings, that sustainable supply chains broaden their reach to encompass additional developing regions through the integration of novel technologies and resources sourced from various environmental locations. The guidance also encompasses the implementation of resilient foundations and the adoption of integrated systems. This is as a result of the direct impact that both elements exert on the functioning and achievements of emerging markets. The review of the literature is limited by a variety of factors, including a limited number of publications, restricted access to databases (only online sources are available), and a reliance on keyword searches. Therefore, to improve the context and findings of this research, it may be necessary to conduct more literature reviews, which may require investigating additional data sources and study paths.

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Appendix

Literature review matrix

S. No	Authors	Sector					Research Methodology								
		Multiple Sector	Manufacturing	Agriculture and mining	Service Sector	No specific Sector	Structural Equation Modelling (SEM)	Data Analysis	Partial Least Squares (PLS)	Best-Worst method (BWM)	Content Analysis	Multiple regression	Confirmatory factor analysis (CFA)	Statistical Analysis
1	Zailani et al. (2012)													
2	Roy, Silvester and Singh (2020)		✓						✓					
3	Mani et al. (2016)	✓						✓						
4	Ali, Kaur, Ersoz, Altaf and Basu (2020)	✓										✓		
5	Jia et al. (2018)					✓					✓			
6	Moreno-Camacho et al. (2019)	✓												
7	Luthra and Mangla (2018)	✓											✓	
8	Luthra and Mangla (2018)b		✓									✓		
9	Thong and Wong (2018)	✓					✓		✓					
10	Morais and silvester (2018)	✓												✓
11	Ilyas and Wiwattanakornwong (2020)	✓					✓							
12	Gold, Hahn and Seuring (2013)			✓							✓			
13	Moktadir et al. (2018)		✓								✓			
14	Choi and Luo (2019)		✓											
15	Silvester (2015)			✓				✓						
16	Wu and Zhang (2018)	✓					✓					✓		
17	Silvester (2015)b			✓				✓						✓
18	Scavarda et al. (2019)				✓			✓						
19	Mani, Jabbour and Mani (2020)	✓												✓
20	Mathiyazhagan (2018))		✓								✓			

S. No	Authors	Sector					Research Methodology									
		Multiple Sector	Manufacturing	Agriculture and mining	Service Sector	No specific Sector	Structural Equation Modelling (SEM)	Data Analysis	Partial Least Squares (PLS)	Best-Worst method (BWM)	Content Analysis	Multiple regression	Confirmatory factor analysis (CFA)	Statistical Analysis		
21	Mathiyazhagan, Kannan and Hag (2018)		✓								✓					
22	Mani, Gunasekaran and Delgado (2018)	✓												✓		
23	Akhtar, Tse, Khan and Rao-Nicholson (2016)			✓			✓									
24	Bag et al. (2018)			✓			✓		✓							
25	Vargas Mores et al. (2018)		✓								✓					
26	Wan Ahmad et al. (2017)			✓						✓						
27	Munny et al. (2019)		✓							✓						
28	Suhi et al. (2019)	✓								✓						
29	Diabat and Kannan (2014)		✓									✓				
30	Mani, Agrawal and Sharma (2016)		✓									✓				
31	Jakhar, Rathore and Mangla (2018)	✓					✓									
32	Ding, Huang and Tang (2018)				✓			✓								
33	Azevedo, Scavarda and Caiado (2019)				✓						✓					
34	Krishnan, Agarwal et al. (2020)			✓												
35	Kumar, Moktadir, et al. (2020)		✓											✓		
36	Chacon Vargas et al. (2018)	✓					✓		✓							
37	Mani, Argarwal and Gunasekaran (2016)						✓						✓	✓		
38	Badri Ahmadi, Kusi-Sarpong and ezaei (2017)	✓								✓						
39	Katiyar, Meena et al. (2018)		✓													
40	Zhang and Ding (2018)	✓					✓									
41	Nayak, Akbari and Maleki (2019)		✓				✓									
42	Mani and Gunasekaran (2018)	✓					✓									
43	Subramanian et al. (2020)				✓											
44	Silvester, Monteiro and Viana (2018)		✓				✓									
45	Jia, Gong and Brown (2019)	✓					✓