



Sustainable supply chain strategies: The mediating impact of environmental collaboration on strategic sourcing and organizational performance

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Abstract

This study assesses the mediating effect of Environmental Collaboration between the Strategic Sourcing and Organisation Performance. The impact of Strategic sourcing components on the Organizational performance metrics of the purchasing department executives of Textile firms in Hyderabad, Telangana state was also tested. Through the questionnaire, the primary data were collected from purchasing department executives of Textile firms in Hyderabad, Telangana state. Five hundred forty-nine acceptable responses were received eight weeks after the questionnaire was first distributed. After editing and removing outliers, 537 participants' replies were chosen from the obtained data. As a result, 537 responses are legitimate, or around 38% of the selected sample size.

The data collected from various sources have been classified and tabulated using appropriate statistical tools. The statistical techniques used for the study are Reliability Analysis, Descriptive Statistics, Independent sample t-test, One-way ANOVA, and relationship model using SEM. The study has listed Five Research Objectives by testing four main Hypotheses. The study's results suggest that, Environmental collaboration acts as a partial mediator in all the relationships between Strategic sourcing components and the Organizational performance metrics of Textile firms.

The study offers academics, investigators, and executives a paradigm for reorienting strategies in support of strategic sourcing and current possibilities and risks. An organization may establish enduring connections with its suppliers using strategic sourcing. Strategic sourcing aids in creating synergistic effects involving organizations and their vendors by reiterating the importance of the suppliers' core competencies and ensuring the appropriate vendors for the correct procurement target. This study may encourage textile-manufacturing firms to further their education and become knowledgeable about strategic sourcing that positively influences their organizational performance.

Keywords: Strategic sourcing, environmental collaboration, organizational performance

Introduction

The idea of organizational performance increasingly is now a crucial element that improves the viability of the businesses engaged in the textile sector. Many predictors can be studied to understand this component better. Strategic sourcing is indeed an organizational-level component with promising importance to enhance organizational performance, despite the reality that there are several performance predictors (Talluri & Narasimhan, 2004). Furthermore, strategic sourcing is an important factor to measure the organization performance (El Sibaii, 2018). The linkage among strategic sourcing and organizational performance has thus far been extensively discussed in the literature (Baldwin *et al.*, 2000; Benn-Ohikuare, 2020; Çankaya, 2020; Su, 2013; Talluri & Narasimhan, 2004). Still, research has yet to discuss the influence of specific mediating mechanisms on their relationship, specifically regarding environmental collaboration.

According to several research, an organization's performance increases in proportion to strategic sourcing practices (Boehmke *et al.*, 2020; Formentini *et al.*, 2019; Shook *et al.*, 2009). The presence of some strategic sourcing-related dimensions, such as Long-term supplier relationships (LSR), Supplier development (SUD), Effective procurement plans (EFP), and Communication with suppliers (CWS), may have an impact on how well an organization performs in terms of its economical performance (ECP), environment performance (ENP), and the social performance (SOP). This study among the

purchasing executives of textile companies in Hyderabad, Telangana, India, provides a fresh viewpoint on the impact of various strategic sourcing-related factors.

Textile Industry & Telangana

- Several of the largest and earliest industries in India is the textile sector (Patel *et al.*, 2022) [8]. The textile industry is diverse, including hand-woven, hand-spun factories. Given that it is one of the largest industries, the business employs around 4.5 crore people, including 35.22 lakh people who engage in handlooms throughout the country (Rajagopal *et al.*, 2018). India exports various textile goods and primary resources to other countries. The industry is expected to have a net worth of more than US\$ 209 bn by 2029. India is the leading cotton exporter in the world (Shahi *et al.*, 2020) [2].
- India's textile sector has also seen a surge in funding from many other nations and businesses (Kolte *et al.*, 2019). The sector (includes coloured and printed items) received Investment from abroad (FDI) totaling US\$3.93 billion between April 2000 and December 2023. India's economy has significantly benefited from the textile sector. The fact that India trades apparel and textiles on a global scale has significantly increased India's GDP and earnings.

Theoretical Foundation

- The Dynamic Capabilities View (DCV) theory and the Agency theory provide strong foundational evidence for

the link between strategic sourcing and organisational success. Stakeholder approach, strategic choice theory, resource-based perspective theory, resource orchestration theory, on the other hand, describe how environmental collaboration affects the connection among strategic sourcing and organisational performance.

Conceptual Framework

- **Organizational Performance:** The capacity of an organization to achieve its objectives and maximize outcomes is known as organizational performance. Economic success is crucial to a company's activities, especially its shareholders or founders, as it ultimately yields a return on its capital. However, it becomes more evident that non-financial successes like, lowering harmful emissions are also important success markers (George *et al.*, 2019). The measuring of corporate performance across social, environmental, and economic aspects is basically what is meant by the phrase "triple bottom line" (Richard *et al.*, 2009). As a result, this research analyzed three aspects of organizational performance: economic performance, environmental performance, and social performance.
- **Economic Performance (ECP):** According to conventional wisdom, a company's economic performance is determined by how well it can generate advantages for its shareholders, especially with innovative products and the effective utilization of assets (Merzlikina, 2020)^[2]. Economic profit is defined as a profitability ratio subset, with gains realized when receipts surpass the accounting expense that the business "pays" for the supplies. The economic benefit is the distinction between the income and the potential cost of the assets utilized to generate the supplied goods (Abbey *et al.*, 2020)^[2].
- **Environmental Performance:** The interaction among an institution and its surroundings is known as environmental performance. It covers the ecological influence of using materials, the ecological consequences of organizational processes, its goods and services, material recycling and treatment, and compliance with legal pollution regulations. The term "environmental performance" refers to one and all or a portion of the accompanying: the quantity of electricity used and the carbon output produced (Yusoff *et al.*, 2020)^[2]. Supply chain's organizational sustainability may be gauged by how it affects Carbon dioxide and disposal outputs, environmental mishaps, the usage of dangerous chemicals, and fuel reductions due to increased efficiencies (Gilal *et al.*, 2019; Rawashdeh, 2018; Yusoff *et al.*, 2020).
- **Social Performance:** The successful implementation of an organization's purpose into practice following recognized social ideals is the definition of social performance (Ebrahimpoor & Nopasand, 2018). Social performance brings a company's social mission to life, regardless of what it may be. Social performance is the consequence of a firm's participation, actions, and promises that may have a direct or indirect influence on the constituents, including its workers, vendors, clients,

and the general public. It may be quantified by evaluating the effects of improvements in shareholder satisfaction, workplace and public well-being and wellness, etc (Bouslah *et al.*, 2018; Maas, 2018; Mehmood *et al.*, 2020; Schreck & Raitel, 2018).

- **Environmental Collaboration:** According to the definition of Bouguerra *et al.* (2021)^[16], "environmental collaboration" refers to businesses actively engaging in collaborative preparation for ecological sustainability and green remedies with their vendors and customers. Collaboration on environmental issues includes knowledge transfer and a shared desire to organize, establish objectives for sustainable issues, and reduce the adverse climate effects of various supply chain operations (Mishra *et al.*, 2022)^[12]. In a bid to accomplish long-term goals and rely less on the instant results of cooperative sustainability initiatives of vendors, it entails knowing, communicating, and assuming shared concern for quality control in the procurement dynamics. Environmental collaboration may lead to greener competencies (Arora *et al.*, 2020; Gölgeci *et al.*, 2019). Additionally, via training and information exchange, environmental collaboration is expected to improve collaborators' sustainability initiatives.

Need for the Study

- The linkage among strategic sourcing and organizational performance has thus far been extensively discussed in the literature (Baldwin *et al.*, 2000; Benn-Ohikware, 2020; Çankaya, 2020; Su, 2013; Talluri & Narasimhan, 2004)^[2]. Still, research has yet to discuss the influence of specific mediating mechanisms on their relationship, specifically regarding environmental collaboration. According to several research, an organization's performance increases in proportion to strategic sourcing practices (Boehmke *et al.*, 2020; Formentini *et al.*, 2019; Shook *et al.*, 2009). However, the presence of some strategic sourcing-related dimensions, such as Long-term supplier relationships (LSR), Supplier development (SUD), Effective procurement plans (EFP), and Communication with suppliers (CWS), may have an impact on how well an organization performs in terms of its economic performance (ECP), environmental performance (ENP), and social performance (SOP). This research tries to determine if environmental collaboration (ENC) can mitigate the impact of strategic sourcing components on the organizational performance of enterprises involved in the textile industry.
- This study among the purchasing executives of textile companies in Hyderabad, Telangana, India, provides a fresh viewpoint on the impact of various strategic sourcing-related factors.

Statement of Problem

- The impact of strategic sourcing on organizational performance may be mitigated by the existence of several environmental-related aspects in a company. This has sparked a desire to investigate how one environmental variable mediates the relationship between strategic sourcing and organizational

performance among textile sector businesses in Hyderabad, Telangana, India.

Limitations of the study

- The research outcomes cannot be applied to other regions because it was only undertaken in the Hyderabad, Telangana.
- Strategic sourcing and its influence on organizational performance in the framework of various business attributes and environments nevertheless require further effort, laying the groundwork for new research.

Research Objectives

- To analyze the mediating effect of Environmental collaboration on the relationship between strategic sourcing components and organizational performance metrics.
- To provide valuable suggestions to the firms in the textile industry for enhancing Organizational performance based on the findings of the study.

Literature Review

Strategic Sourcing and Organizational Performance

- Numerous studies have established a positive correlation between strategic sourcing and organizational performance across various industries (Jain *et al.*, 2019; Talluri & Narasimhan, 2004). In the textile sector, strategic sourcing can lead to cost savings through optimized procurement processes, improved quality by establishing strong supplier relationships and focusing on material selection, and even foster innovation through collaborative efforts with suppliers on new product development. Additionally, strategic sourcing practices can enhance supply chain efficiency by streamlining processes and managing supplier risks effectively (Boehmke *et al.*, 2020). They discovered that sourcing choices enable businesses to have a broader range of expertise, encourage innovation, foster teamwork, and ultimately contribute to market leadership and economic success (Formentini *et al.*, 2019).

Environmental Collaboration and Organisational Performance:

The textile industry faces significant environmental challenges throughout its production cycle. Environmental collaboration has emerged as a promising approach for companies to address these concerns (Çankaya, 2020). It involves working closely with suppliers on various initiatives, such as adopting sustainable material sourcing practices, implementing energy and water conservation measures, and establishing waste reduction and recycling programs. These collaborative efforts can lead to a number of benefits, including reduced environmental costs associated with waste disposal and energy consumption. Additionally, a company's commitment to environmental responsibility can enhance its brand reputation and attract environmentally conscious customers. Furthermore, environmental collaboration can help companies comply with ever-evolving environmental regulations (Ribas *et al.*, 2021).

Literature Review: The Mediating Role of Environmental Collaboration

- An intriguing area of research explores the potential mediating role of environmental collaboration in the relationship between strategic sourcing and

organizational performance (El Sibaii, 2018) ^[15]. When companies engage in environmental collaboration with their suppliers, it can lead to a more sustainable supply chain, potentially amplifying the positive effects of strategic sourcing practices on a company's overall performance. For instance, strategic sourcing focused on cost reduction might prioritize lower-priced materials, but environmental collaboration can encourage the selection of sustainable materials even if they have a slightly higher cost. This ensures a balance between cost optimization and environmental responsibility (Jonathan *et al.*, 2019).

- Kong *et al.* (2016) investigated how two aspects of green innovation are impacted by deploying particular kinds of modern manufacturing technology. They specifically investigate these links using inter-environmental cooperation. The objective of Vu & Dang (2021) ^[16] is to ascertain the mediating effects of influence of environmental engagement with vendors. According to empirical findings, a company's financial success is positively impacted by its environmental commitment.

Research Gap

- Fewer tested “environmental collaboration as a mediator between strategic sourcing and other variables.” Only a few studies have examined environmental collaboration's role in mediating relationships between the goal variable, organisational performance, and other factors.
- According to one study, environmental collaboration bridges organisational performance and strategic sourcing in the Vietnamese context. In the Indian context, almost no research has looked at the role of “environmental collaboration as a mediator between strategic sourcing and organisational performance.”
- Additionally, just one or two studies are looking at the variance in environmental collaboration depending on demographic variables. Several studies have also been conducted on a sample of executives from other manufacturing industries in foreign nations. However, the purchasing executives in the textile industry in India have yet to be reached.

Hypothesis

- **H:** Environmental Collaboration mediates the relationship between Strategic Sourcing and Organizational Performance.
- **H.A:** Environmental Collaboration mediates relationship between Long-term supplier relationships and Economic Performance of Firms.
- **H.B:** Environmental Collaboration mediates relationship between Long-term supplier relationship and Environmental performance of Firms.
- **H.C:** Environmental Collaboration mediates relationship between Long-term supplier relationships and Social performance of Firms.
- **H.D:** Environmental Collaboration mediates relationship between Supplier Development and Economic performance of Firms.

- **H.E:** Environmental Collaboration mediates relationship between Supplier Development and Environmental performance of Firms.
- **H.F:** Environmental Collaboration mediates relationship between Supplier Development and Social performance of Firms.
- **H.G:** Environmental Collaboration mediates relationship between Effective Procurement plan and Economic performance of Firms.
- **H.H:** Environmental Collaboration mediates relationship between Effective Procurement plan and Environmental performance of Firms.
- **H.I:** Environmental Collaboration mediates relationship between Effective Procurement plan and Social performance of Firms.
- **H.J:** Environmental Collaboration mediates relationship between Communication with Suppliers and Economic performance of Firms.
- **H.K:** Environmental Collaboration mediates relationship between Communication with Suppliers and Environmental performance of Firms.
- **H.L:** Environmental Collaboration mediates relationship between Communication with Suppliers and Social performance of Firms.

Research Methodology

- **Research Design:** A descriptive research design is ideal for this study as we aim to understand the current state of strategic sourcing, environmental collaboration and their influence on the performance within the Indian textile industry. A questionnaire survey among purchasing department executives provides information about the purchasing department executives' perceptions of sourcing activity involved, the degree to which they demonstrate strategic sourcing practises, and the effect it has on the organisational performance.
- **Population of The Study:** The survey involves the purchasing department executives employed by textile businesses in Hyderabad, Telangana. Hyderabad was chosen because it is home to many textile businesses and where the state's most prestigious businesses have their headquarters. In Hyderabad, around 611 textile businesses provide a great fusion of handwoven and contemporary textiles along the entire value chain, from fibre, yarn, and fabric to garments.
- **Sampling Design and Technique:** To choose the sample size, we have used the census approach to ensure we gather data from all relevant companies leading to more generalizable findings. The entire 611 textile firms in Hyderabad were considered for the study.
- Four supply chain researchers and business professionals evaluated the study's usability and face validity beforehand. A web-based survey hosted by Survey Monkey was used to deliver the amended

survey to a sample of purchasing professionals (www.surveymonkey.com).

- Executives at multiple levels in purchasing departments from the textile sector, comprising businesses that make fibre, yarn, fabric, and apparel, made the ultimate list of responses. 1411 respondents received an email with a hyperlink. Periodic weekly reminders were issued to every responder to finish the questionnaire.
- Five hundred forty-nine acceptable responses were received eight weeks after the questionnaire was first distributed. After editing and removing outliers, 537 participants' replies were chosen from the obtained data. As a result, 537 responses i.e. around 38% of the selected sample size are legitimate.

Demographic Variables

- The variables like age, gender, Position/title, working tenure, and Qualification in the present organization and organizational characteristics like the employees' size of the firm, Company class and annual gross sales are included as demographic factors.

Data Collection Method

- Measurements from past studies had been modified for this research questionnaire. It was constructed in accordance with earlier research reflecting four first-order aspects: Long-term supplier relationship (Gupta & Narain, 2012) ^[1], Supplier Development (Amin & Razmi, 2009), Effective Procurement Plan (Apiyo & Mburu, 2014) and Communication with suppliers (Yen *et al.*, 2011).
- Environmental collaboration measures the degree to which businesses work with their vendors to create the strategy for environmental practices by facilitating them with tools, resources, standards, and knowledge to meet environmental objectives (Hughes *et al.*, 2012).
- Sustainability performance was modelled representing three elements of sustainability, notably economic, environmental, and social, in line with earlier work on sustainable supply chain management (Arora *et al.*, 2020) ^[7].
- "5-point Likert scale questions were used to indicate all the conceptual components."
- To select the research factors, learn about those factors, and create the conceptual background, secondary data served as a foundation. This information was gathered from various publications, including Infilbnet, Pro-Quest, google scholar, and a few reliable websites, journals, papers, and books.

Pilot Study

- Before carrying out pilot research, a sample of 25 executives from the purchasing departments of 20 textile companies in Hyderabad city was selected. It was also established from the pilot research that the survey approach is more appropriate than other techniques like observation, interview, etc., since executives take their time responding to the assertions. Even if it takes a significant amount of time because purchasing department leaders have diverse work commitments, it nevertheless turns into a balanced approach to gathering data from them.

Reliability

- Survey instruments' consistency, precision, and efficiency are referred to as reliability. "The Cronbach

Alpha value needs to be greater than 0.7 for the instrument to be considered trustworthy” (Nunnally & Bernstein, 1978).

Application of Various Statistical Tools

- After gathering preliminary information from the selected participants, the results were cleaned, categorised, and examined using SPSS and SmartPLS, these tools were also used to create and evaluate the proposed model.

Ethical Considerations

- The research conducted to investigate the information regarding the link among the research components adhered to several ethical requirements:
- The participants were free to share their thoughts and ideas. We acknowledged the participants' worries. A very minority of participants declined to take the questionnaire.
- Neither of the responders was coerced into taking the survey.
- The replies provided by the participants and their personal information are kept in complete confidence.
- Furthermore, the outcomes are entirely reliant on the data gathered. As a result, no data have been fabricated.

Assumption of Normality

- In order to determine if the data is consistent with the notion of normalcy, the values of skewness and kurtosis were analyzed. Using IBM SPSS 24, the mean values, standard deviation, skewness, and kurtosis response sets were calculated to ensure that the acquired data was normal.
- A 5-point Likert scale, with 1 being the strongest disagreement and 5 being the strongest agreement, was used to measure each variable in the study. As all the means are above 3.5 all have high mean scores.
- Skewness and kurtosis findings revealed that all of the constructs' z-scores fell within the permissible range of 1.96 (corresponding to a 95% confidence level), which was arrived by dividing the statistics of each construct by their standard error.
- Additionally, on the assumption that the data is normally distributed ($p > 0.05$), the Shapiro-Wilk test of normality was employed.
- We may infer that all constructs employed in this study are normally distributed because of the p Value for each construct is larger than 0.05. Hence it is presumed that the data is roughly normally distributed.

Path Modeling

- **H:** To measure the mediating effect of Environmental collaboration in the relationship between Strategic sourcing components and Organizational performance dimensions among the Textile manufacturing firms of Hyderabad, Telangana. 12 hypotheses (H(A) to H(L) were formed.
- Firstly, the model was accessed without the interaction of mediator (Long-term supplier relationship → Economic Performance). Bootstrap was performed to get the estimates of the path model. The outcome of the path revealed that the direct path (Long-term supplier relationship → Economic Performance) was statistically significant ($\beta = 0.246$, $t = 5.591$, $p < 0.001$).

Since the direct path is found to be statistically significant, it is meaningful to introduce Environmental Collaboration as mediator. Introduction of Environmental Collaboration as a mediator between Long-term supplier relationship and Economic Performance to ascertain significance of indirect path was essential, and therefore, t value of indirect path with mediator was calculated in the analysis. The t value of indirect path (Long-term supplier relationship → Environmental Collaboration → Economic Performance) is 9.478, with p value of 0.001. Thus, it can be concluded that Environmental Collaboration mediates the relationship between Long-term supplier relationship and Economic Performance.

- Mediating effect of Environmental Collaboration on relation between Long-term supplier relationship and Economic Performance. The indirect effect with mediator of Long-term supplier relationship → Economic Performance was statistically significant ($\beta = 0.201$, $p = 0.001$), while the indirect effect with mediator of LSR → ENC was statistically significant ($\beta = 0.597$, $p = 0.001$), ENC → ECP was also found as statistically significant ($\beta = 0.337$, $p = 0.001$). Since the indirect effect of LSR → ECP was statistically significant, it is a case of partial mediation.
- Similarly, other 11 hypothesis were tested.

Findings & Recommendations

Findings #1: Path Coefficients of Environmental Collaboration factors on organizational performance

- Environmental Collaboration is found to have a positive statistically significant relationship with the organization's economic performance, environmental performance, and social performance.

Findings #2: Mediation effect of Environmental Collaboration between the relationships of strategic sourcing components and organizational performance dimensions

- The relationship between long-term supplier relationships, supplier development, effective procurement planning, communication with suppliers, economic performance, environmental performance, and social performance of the organisation is partially mediated by environmental collaboration.

Recommendations: Environmental Collaboration

- Collaborate with suppliers on environmentally friendly practices.
- Provide suppliers with resources and technology to be more sustainable.
- Work together to develop eco-friendly products and manufacturing processes.
- Conduct environmental audits of suppliers to ensure compliance.

Theoretical Implications

- This study strengthens the understanding of the relationship between strategic sourcing and organizational performance.
- It highlights the need for further research on the underlying factors affecting these relationships.
- The study contributes to the field of business research by focusing on strategic sourcing in the textile industry.

- It provides a foundation for future research on strategic sourcing in various industries.

Managerial implications of the study

- There are a number of factors that textile firms need to consider when implementing a strategic sourcing program. These factors can be divided into internal and external factors.
- Internal factors include the company's goals and objectives, its procurement processes, and its supplier relationships.
- External factors include market conditions, supplier capabilities, and the regulatory environment.
- By carefully considering all of these factors, textile firms can develop a strategic sourcing program that is tailored to their specific needs.

Conclusion

- Indian Textile Industry has to work on improving supply chain coordination to compete with global competition, one of the areas to focus is reducing the costs involved in manufacturing apparels, therefore strategic sourcing is a powerful tool that can help textile firms improve their performance.
- By implementing a strategic sourcing program, textile firms can reduce costs, improve quality, increase efficiency, and enhance innovation.
- Firms need to work on employ qualified and well-trained resources as sourcing managers to develop and implement long term sourcing strategy ensuring cooperation with all the supply chain stakeholders.
- All the members of Supply Chain should work towards developing sustainable model of product development and profitability with commitment towards the environmental goals of all the members.

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