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Impact of Sustainable Supply Chain Management in the Construction Industry

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ABSTRACT

This paper aims to introduce the impact of sustainable supply chain management in the Pakistani construction industry and how it helps with the performance and Development of the construction industry. It aims to elaborate on and emphasize how a sustainable supply chain will be more effective the traditional construction management and its supply chains. A quantitative research method with a deductive approach was used to test research hypotheses. A sample of 154 respondents using a questionnaire responded for data analysis. In Pakistan, the market for a construction company is primarily local based and highly volatile. The assessment is carried out to determine the level of significance and degree of impact of supply chain management (SCM) and sustainability on the construction industry's performance. The results derived from the test show that SCM has a moderate impact leading to leading to increased performance. The lack of time and budget limited the focus to Karachi-based construction businesses, leaving other construction businesses in Pakistan as not relevant. The paper primarily focused on the Pakistan-based construction industry, and the articles that are a source for this study generated knowledge regarding various issues and opportunities associated with supply chain management in the Karachi-based construction industry.

Keywords: *Construction industry, Sustainable supply chain, Pakistan, Resource dependence theory, Theory of sustainability*

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Impact of Sustainable Supply Chain Management in the Construction Industry

1. Introduction

The primary purpose of supply chain management is to maximize customer value and achieve the goal of competitive advantage (Baloch & Rashid, 2022; Ben-Daya et al., 2019; Hashmi & Mohd, 2020). The positive impact or importance of applying various supply chain management techniques cannot be denied in the retail industry (Queiroz et al., 2019; Hashmi et al., 2020a). However, the outcomes of this management do not need to remain the same in all sectors or industries. The dynamics, nature, and way of working differ in other industries, such as construction (Lamba & Singh, 2017; Shaheen, 2022; Hashmi et al., 2020b). The requirement for continuous improvements and reduction in cost also plays a vital role in adopting the appropriate strategies for supply chain management (Wibowo et al., 2018; Anwar, 2022; Hashmi et al., 2021a). To strengthen the supply chain management of the construction industry, the essential elements are time reduction and inventory management.

The application of sustainable supply chain practices is majorly used in dynamic business environments. For such businesses, the complexity of the supply chain remains a significant challenge; therefore, improvements in the processes are considered necessary (Beske, 2012; Amjad, 2022; Hashmi et al., 2021b). The increasing interest of researchers and businesses in resource dependence is raised with growing globalization and the requirement of one organization to rely on other businesses for resources (Beske, 2012; Rasheed, 2022). The different resources may vary from financial to recognition and others. Firms having the resources are considered to influence/ have power over the ones without the resource, and therefore, prices, costs, managerial and other elements can be affected (Denktas-Sakar & Karatas-Cetin, 2012; Victory et al., 2022; Basit, 2022).

The researchers also highlight that numerous restrictions and barriers do not allow effective integration of the processes. However, SMEs, MMEs, and large organizations are required to focus more on integration as it can be beneficial to reduce costs and gain long-term benefits in financial and operational performance. A research study by Ofori (2000) helps to highlight the relevance of the construction industry for the environmental impact. The researchers believe that the construction industry must focus on the green supply chain and other activities to limit or avoid their negative environmental impact (Ofori, 2000; Alam, 2022). The focus of businesses to effectively maintain and manage the supply chain processes is widely required in the current business environment with the majority of businesses having competitive pressure. The top management of the organization plays the most critical role in “Supply Chain Management” activities as the internal as well as external strategies and practices are required to be managed/ balanced and maintained with the organizational goals and objectives for logistics (London & Kenley, 2001; Hunaid et al., 2022; Muzammil, 2022).

The research for businesses to maintain and effectively reduce costs has been carried out for a long. Research studies help to highlight and determine that effective adoption of supply chain management practices is considered necessary for construction businesses. Clients, contractors, and other consultants can lead their businesses to reduce overall costs and maintain a higher efficiency by effectively managing the supply chain practices (Dainty et al., 2001; Ali, 2022). The research will identify and achieve results to know how to use green supply chain management, specifically in the construction industry and what variables will get the best results. This is conducted on a large group of people to know if the independent variable will contribute to the success of construction management and the challenges and risks it will be required**.** The mandatory element is to identify the importance of practising green supply chain management in the construction industry (Ofori, 2000; Asif, 2022). The related factors, including risks and challenges, must be identified to prepare relevant and reliable strategies (Wibowo et al., 2018; Uddin, 2022; Ayaz, 2022). The research explores the areas through which we can achieve sustainable construction practices and how risk can be minimized, and maximum profit can be achieved.

The identified research gap from this study's background represents little discussion on the significance of adopting supply chain management in Pakistan. Therefore, the current research is based on this identified research gap. The primary purpose of the current study is to discuss the importance or significance of Supply Chain Management (SCM) practices in the Pakistani construction industry. Another purpose of the current is to explore the impact of sustainable supply chain management on the performance of the construction industry of Pakistan. It can be represented in the form of objectives that are listed below.

a. *To identify and discuss the significance of supply chain management practices in the Pakistani construction industry.*

b. To examine the impact of sustainable supply chain management of the Pakistani construction industry on their performance.

1.1. Research Questions

The following research questions were derived from gaining an in-depth understanding of the subject further. The questions will be the focus of the research and help identify how the supply chain will be helpful in construction management in the Pakistan business environment.

a. To what extent do the supply chain management practices influence the performance of the construction business?

b. To what extent does sustainable supply chain management influence the performance of the construction business?

2. Literature Review

SCM refers to controlling and managing different activities, from the purchase of materials to finished goods (Abas et al., 2020; Hashmi et al., 2020a). The five main components of supply chain management are plan, source, make, deliver, and return (Dubey et al., 2018). Supply chain management is a flow of services, goods and raw materials, which includes transforming those raw materials and skills into goods and services. A sustainable SC is one that fully interconnects ethical and environmentally responsible practices to gain a competitive and successful model. End-to-end supply chain requires to be transparent is very crucial for success; these sustained supply chain activities must extend from raw materials sourcing to last-mile logistics and even return products and customer services and recycling processes. A supply chain should be ethical to become a greater priority for all businesses and their goals. This marks the benchmark for becoming competitive and better in the market (Ali et al., 2018). COVID-19 delivers a sharp realization of just how outdated and vulnerable simple supply chain operations were. Moreover, knowing many multinationals make fundamental changes to consumer behaviour has been causing global supply chain managers to reevaluate the whole SCM and their operations. One example is a massive rise in demand for next-day shipping. This is known as the Amazon Effect, creating a chain of Re-engineer SCM operations. Organizational performance includes the overall results of an organization measured against its planned results. Organizational performance requires achieving the intended predicted performance the organization has decided to achieve. The performance of an organization includes three areas of organization outcomes: 1. financial performance (profits, return on assets, ROI 2. product market performance (sales, market share and shareholder return).

2.1. Underpinning and Supporting Theories

The assessment of theories linked to the subject is described and effectively discussed to gain a better understanding of the basics of the subject (Ellis & Crookes, 2004; Hashmi et al., 2020b). The section is considered to provide the readers and the researcher with insights into the development of sustainability and supply chain management in detail. The theoretical underpinnings are considered to

benefit in identifying and understanding the subject's basics and can help improve the justification for the subject topic.

2.1.1. Resource dependence theory

The resource dependence theory helps to identify the relevance of the principle that organizations to remain competitive and successful effectively requires engaging with other organizations and actors to fulfil the resource-based requirements (Pfeffer & Salancik, 1978). Pfeffer and Salancik (1978) explain the perspective as a proclamation that organizational success can only be possible with the maximization of power. Previously researchers Pfeffer and Salancik (1978) contributed by stating that the power can be maximized using valuable and scarce resources using a low-cost and stable way (Pfeffer & Salancik, 1978). The researchers put forward a viewpoint that with an increase in dependence on resources, businesses must focus on vertical collaborations (Carter & Rogers, 2008).

2.1.2. Theory of sustainability

The present era requires personal commitment toward sustainable business practices and firms to comply with legal requirements to avoid litigations. Sustainable development is a term that reflects a development fulfilling the needs of the present generation without compromising the demands and ability to fulfil the needs of the future (World Commission on Environment and Development) (WCED, 1987). In relevance to the given definition, organizations are required to ensure that their practices must be able to fulfil the current demands but not compromise or have any impact (negative) on future needs and development. The organizational reaction to increased demand must be facilitated using sustainable practices as there can be government, customers, and other external pressures that can damage the business's image (Garvare & Johansson, 2010). The increasing focus of businesses on sustainability matters has allowed them to efficiently look into improving the supply chain processes and practices that are more likely to contribute positively to the overall performance (both in the short and long run) (Hall & Matos, 2010). The internal capabilities are better managed and enhanced using sustainable business practices (Burgess et al., 2006). The research on the subject helps extract that firms operating in all industries are required to efficiently work on improving and adopting sustainable business practices based on financial, economic, and social. Finally, environmental benefits/ growth can be witnessed.

2.1.3. Stakeholder theory

Stakeholder theory reflects the capitalist viewpoint that helps to identify and express the interconnectivity and relationship between the organization and linked stakeholders. The theory helps to reflect that customers, investors, suppliers, the environment, communities, and others influence the organization. Therefore, it is required for businesses not only to fulfil the requirements and interests of the shareholders instead must concentrate on creating a balance between the interest of shareholders and stakeholders (Hörisch et al., 2014). Applying effective business strategies increases their image, customer engagement, and satisfaction. Researchers have highlighted a gap in the overall literature regarding the effective management of stakeholders within the supply chain management practices (Freeman et al., 2004). The application of stakeholder theory within supply chain management is found to affect performance (Singh & Power, 2009) positively. The theory helps businesses practically devise strategies and activities that are in line with the stakeholder of the business. The businesses can also ask the suppliers, distributors, and other networks to adopt similar strategies and tactics to provide sustainable raw materials, promote green practices, and finally overcome the challenges of reaching more customers using sustainable processes (Lavassani & Movahedi, 2010).

2.2. Empirical Review

2.2.1. Sustainable supply chain management in construction firms

The focus on applying sustainable supply chain management for construction is gaining the researcher's interest. The advent of supply chain management principles and applications toward the extent of sustainability requirements has become the most critical aspect of the construction industry. The country's construction industry is considered a primary industry that affects the economic, social, as well as environment and therefore, the focus of businesses on sustainability-related aspects is widely discussed. The supply chain practices and procedures are required to address the sustainability challenges and issues that can help improve their operations. The term sustainable supply chain management for construction businesses is not new. Instead, the focus in the current times has shifted severely. For construction businesses, the application/ implementation of sustainable supply chain management is found to be a very difficult undertaking with vast and complex supply chain activities (Adetunji et al., 2008; Rashid et al., 2019).

With the increase in social, economic, and environmental concerns from different stakeholders, the construction businesses and the industry have witnessed the demand and respective adoption of sustainable construction. The challenges with the external and internal construction activities and outcomes are the reasons for adopting a sustainable supply chain (Garson, 1999; Rashid, 2016). The researchers have helped to identify that the environmental impact of the construction industry is paramount (as the activities have been found to influence the overall environment). Different parties' involvement in the construction business activities is also noticeable, making the processes more fragmented and complex. The stakeholders involved in the construction processes do not find them/ accept their opposing roles. Therefore, the application of sustainability procedures is required and adopted by businesses to ensure that negative environmental impact can be lowered. The requirements and business's focus on integrating the procedures and processes are found to be the most critical. The application of sustainable supply chain management in construction is not majorly applicable and studied (Ofori, 2000; Rashid & Amirah, 2017; Rashid et al., 2020).

2.2.2. Supply chain management and performance in construction

The supply chain for construction (project and process-based construction) has always specified the application of specific product supply chain practices and policies (Behera et al., 2015; Hashmi et al., 2021a). Authors have helped to highlight that supply chain management and construction purchasing are beneficial in providing strategic guidance for construction businesses. Research helps to identify that the construction industry's risk-to-reward function is counterintuitive because higher risks involved in construction can lead to higher rewards. The risks involved for businesses are spread to all sources (Supply chain partners), architects, project owners, subcontractors, prime contractors, and supplies and suppliers. The application of effective risk management and supply chain practices, and strategic development helps to provide alternatives for the business (Benton & McHenry, 2010). Supply chain management initiatives have been evident since the end of the 1980s (Akintoye et al., 2000; Hashmi et al., 2021b). The businesses are focused on enhancing the effectiveness and efficiency of their operations and ensuring that the goals and objectives of the organization are well maintained. The supply chain management activities and initiatives are developed to manage the supply chain-related matters for firms. The effectiveness of supply chain management (SCM) is not considerably known and dealt with in the construction industry like in other industries; therefore, a significant focus is required on the application of supply chain management in construction businesses (Aloini et al., 2012; Rashid et al., 2022).

The construction businesses are found to be highly volatile and are focused on internal or local development projects. The project's duration and durability of the construction-related product are considered to contribute to the volatility. The construction businesses require the establishment of new and more specific concepts and their application to enhance the engineering and outputs. The research studies help to identify that construction businesses are not solely responsible or liable for building a

project. Rather architects, suppliers, and other stakeholders are also a part of the process. Therefore, efficient and effective strategies are required to be devised to enhance the outcome of the development. The application of supply chain management is considered to add to the overall short and long-term outcomes (Segerstedt & Olofsson, 2010; Rashid & Rasheed, 2022). Several research studies have helped to identify the importance and significance of supply chain management for all major industries. Improvements in the construction businesses are considered essential, and supply impacts the performance of the businesses (construction businesses). The application of the lean approach to chain collaborations and effective strategic development is found to have a potentially positive, sustainable supply chain management, and other strategies are long discussed. The specific focus on supply chain management practices must be dealt with to make the best out of the practices.

2.2.3. Sustainable supply chain management and performance in construction

It requires knowledge and understanding of different management principles, theories, and their real-life application. The researchers help to extract the information that sustainable supply chain management and dynamic capabilities of the organization go hand in and can be considered necessary for the survival of the businesses (Beske, 2012). The research on determining the impact of sustainable supply chain practices specifically focused on enhancing the social and environmental supply chain activities, and their impact on financial performance is majorly carried out in various industries. A research study by Wang & Sarkis (2013) helps identify a positive relationship between firm financial performance and sustainable supply chain management (SSCM) practices. The researchers found that the ROA (Return on Asset) and the ROE (Return on Equity increased over the period after the application of SSCM (Wang & Sarkis, 2013).

The concept of collaborative supply chain management has gained exceptional importance and is considered supportive of sustainable business operations. The increasing demand from customers for sustainable products on the shelf has resulted in businesses enhancing their efforts toward such practices. Viewpoints represent a positive competitive advantage for businesses adopting sustainable supply chain practices (Attaran & Attaran, 2007). The results of the research studies help to identify that the impact of sustainable supply chain management on firm performance is relatively unambiguous. As the operational performance and customer needs are efficiently fulfilled with the application of a sustainable supply chain instead, the financial performance of businesses in the short -and in some instances for the long run is not positively impacted (Ortas et al., 2014). The research studies also help to highlight the importance of sustainable supply chain management for the effective utilization of resources and how firms can efficiently identify and establish a competitive advantage over competing firms. The resource-based view helps to identify those businesses that can improve the core supply chain practice within the operations to gain a practical advantage over the competitors; it may be in the form of production efficiency, distributional advantage, effective management of resources, and others (Gold et al., 2010).

2.3. Research Framework

The researcher devised the following conceptual framework to explain the motive of the research and what aims to be determined. There are two independent variables and one dependent variable, which shows that the performance of the construction business is highly dependent on these two factors. The conceptual framework allows expressing the motive of the researcher, which is to carry out extensive and comprehensive research, focusing on firstly highlighting the relevance of supply chain management in the construction industry and the extent to which a sustainable supply chain applies to Pakistani construction businesses and their impact on firm/ business performance. This will allow us to understand what can be done to achieve maximum growth and achievement in performance by applying the proper practices. Figure 1 illustrates the conceptual framework.

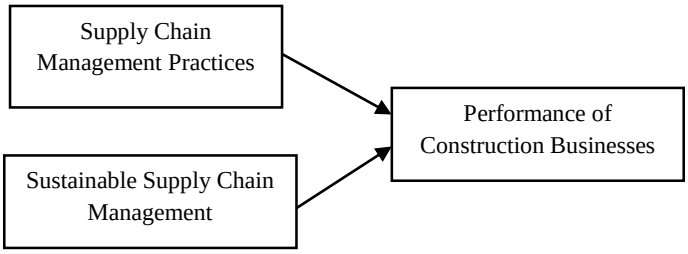

Figure 1: Conceptual framework

2.4. Research Hypothesis

The hypothesis of the research study is derived from a detailed assessment of the literature review and significant findings highlighted in the findings. The study is focused on determining the impact of supply chain management and sustainable supply chain practices on the performance of construction firms operating in Karachi, Pakistan. Hypothesis analysis will determine if the supply chain has a positive or negative impact on the construction industry. The main emphasis of this research is on how to be beneficial to the construction market of Karachi to increase their performance, and in what way a green supply chain such as non-wastage of raw materials can be achieved and this will impact the performance directly.

H_1: Supply chain management practices significantly impact the performance of construction businesses.

H_2: Sustainable supply chain management practices have a significant effect on the performance of the construction business.

3. Research Methodology

The literature assessment helps to identify a significant discussion on the complexity of supply chain management for the construction industry; more focus is not evident on the application of sustainable supply chain practices (Wibowo et al., 2018; Khan et al., 2022a). The results from the assessment help to extract the gap that research on the subject is limited; a study with a focus on supply chain management and sustainable supply chain management in one is also found extinct (Beske, 2012; Rashid et al., 2021). Also, the subject is not discussed or studied in Pakistan in an industry/ region. Therefore, the research is considered to benefit in several ways, including adding to the literature and carrying out comprehensive research, which will provide evidence and future implications for the construction industry.

3.1. Research Approach

The overall plan and procedures adopted to carry out the research are presented under the research approach. These portray the assumptions related to the collection, methods applied for analysis, and finally how the results are interpreted (Singh, 2006; Khan et al., 2022b). The two globally applicable research approaches include deductive and inductive approaches to methodology. The deductive approach is the procedure or reasoning initiated from a particular subject and explores the applicability/ impact in a given situation. Deductive studies use reasoning and conditionals to reach conclusions (Dźwigoł, 2018). However, the Inductive approach for research starts with observations and applies the systematic approach to derive knowledge and reach a conclusion. Such studies are focused on evaluating the observations to build new theories (Hammersley, 2017; Rashid et al., 2021; Khan et al., 2022c). Based on the nature of the current research (i.e.,) focusing on determining the relevance and impact of supply chain practices and sustainable supply chain practices on construction firms and their impact on overall performance (is an existing theory), the researcher wants to test the theory/ phenomenon to a current situation and therefore, adopts the deductive approach to methodology

development. So as it is established that the research will use a deductive approach, the researcher will study what previously has been done, existing theories of different phenomena related to supply chain in the construction industry and then test the hypotheses that have been concluded from those theories. The research design denotes the strategy and approach used to incorporate different components like supply chain, and sustainable supply chain practices used logically and coherently, ensuring the research problem is effectively addressed, which constitutes the proposal for the collection, measurement and data analysis.

3.2. Sampling Technique and Data Collection

The sampling technique adopted for the current research is "Convenience sampling". The researcher is an engineer by profession and has contacts in the construction sector and therefore, selects the participants from a large population (all the construction companies in Karachi) that are easily approachable and willing to contribute to the research (Etikan et al., 2016; Khan et al., 2021). The researcher's focus is to collect a survey questionnaire as it is considered the most convenient for the researcher (Rahi, 2017; Agha et al., 2021; Haque et al., 2021). The researcher plans to devise the questionnaire having two major sections, including demographic detailing, which includes questions for age, gender, the experience of the participants, position in the business and others. Whereas, the second portion includes questions (5 for each independent variable and 4 for the dependent variable). This part will be highly impactful for our research, and therefore careful consideration will be given to ensure the participants easily understand the questions and provide answers accordingly.

The data collection is carried out using a one-to-one questionnaire meaning that the researcher would collect the data by himself and punch the data collected on the questionnaire into Excel and SPSS for further data analysis of the data is carried out on SPSS as this is a globally renowned quantitative analysis software allowing the researcher to various a variety of tools/ statistical tests (Cleff, 2019; Das et al., 2021; Alrazehi et al., 2021). Through various tests from SPSS, the researcher will achieve the desired result. The procedure is to gather the data from all the known participants in the Karachi construction industry and then organize it to reach the results through Reliability statistics, Descriptive statistics, Correlation analysis, and Regression analysis. The target population for the current research are the employees, managers, and executives in the construction industry in Karachi, Pakistan. The sample size of the human participants relevant to the current research is 154 (154 complete questionnaires are used to analyze the data). The research aims to collect the responses to the self-administered questionnaire from more than 200 employees, managers, and other executives from the procurement department in the construction businesses in Karachi out of which 154 complete questionnaires were received.

4. Analysis Results

The results help to provide a detail of the outcomes derived from the statistical analysis including reliability, descriptive statistics, hypothesis testing, and a summary of the outcomes. Are carried out on the total questionnaire filled (i.e., 154) by the participants. The focus is to derive insight into whether the responses are consistent and reliable so that further assessment and analysis can be carried out. The value of Cronbach's Alpha is critical and should be greater than 0.70 (Kiliç, 2016; Rashid et al., 2021). The reliability statistics for the 12 questions are presented under Cronbach's Alpha of 0.919. The value is more significant than .70; therefore, based on the confirmation from Kiliç (2016), the responses can be concluded to be reliable and consistent.

4.1. Demographic Profiles

The demographic profile allows for the discussion of the group details for respective demographic questions, including gender, age, level of education, and experience in the sector. Graphical representations using bar charts are also provided for a better outlook ad deriving insights at a glimpse. Table 1 shows the demographic profile of respondents.

Table 1: Demographic profile of respondents

Demographics	Group	N=154	Percentage
Gender	Male	121	78.6
	Female	33	21.4
Age	20-26 Years	16	10.4
	27-33 Years	56	36.4
	34-40 Years	59	38.3
	41 Years or Over	23	14.9
Level of Education	Matric	2	1.3
	Intermediate	4	2.6
	Graduate	72	46.8
	Postgraduate	76	49.4
Experience in Sector	0-2 Years	25	16.2
	3-6 Years	27	17.5
	7-12 Years	48	31.2
	13 Years and Above	54	35.1

The results derived from the demographic details allow deriving an insight that the majority of male participants contributed to the research (121) female participation in the research is 33 respondents (i.e., 21.4% of the data). The results from the bar chart reflect that a total of 78.57% of the male contribution is identified, showing that men from the construction industry are a significant portion and are selected to respond to the questionnaire. The results from table 1 help to identify that the age group distribution for the participants is lowest at the edges meaning 10.39% are 20-26 years old (a total of 16 participants), whereas 14.94% are aged 41 years and over (23 participants). Moreover, the majority of participants (i.e. 38.31%) are 34-40 years of age (59 respondents), whereas 36.36% are aged between 27 and 33 years (56 respondents). The details provided in table 1 and the bar chart allow determining that the participants contacted at minimum have matriculation as a base education (two participants = 1.3%) and 4 with an intermediate level of education (2.6%). The highest number of individual respondents have post-graduation as their education (76 respondents), followed by graduates (72 participants). The results derived from the demographic insights allow determining that majority of the respondents taking part in the research have an experience of over 13 years (total of 54 participants – 35.1%), followed by participants with 7 to 12 years of experience in the construction industry (48 participants – 31.2%) followed by 25% of the participants (27 respondents) with 3-6 years' experience and 25 participants with 0 to 2 years of experience in the industry. Figure 2 illustrates a graphical representation of the demographic attributes of the respondents.

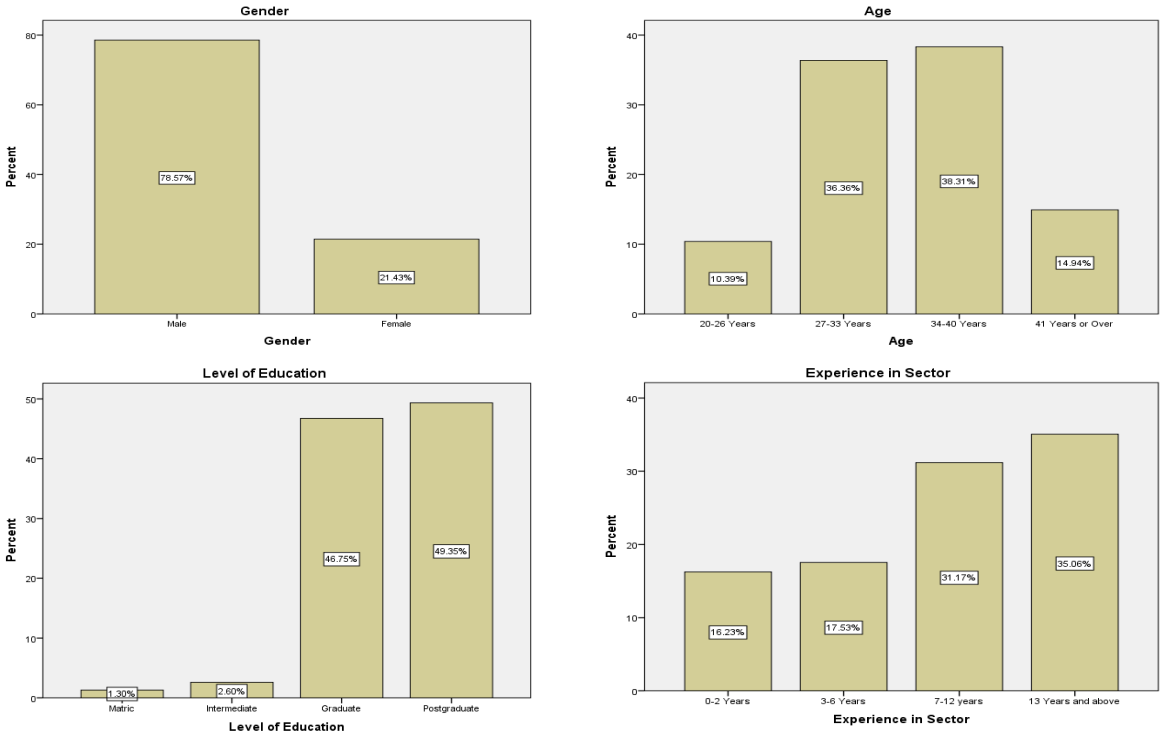

Figure 2: Bar chart representation of demographic profiles

4.2. Hypothesis Testing

The test of the hypothesis for the research is carried out using the Regression analysis. The regression analysis allows determining the impact of the independent variables, including SSCM and SCM, on the performance of the construction businesses. The results from table 2 show that the total observations for all the variables are 154 (total responses collected and analyzed to reach the findings). Furthermore, table 2 represents the results for hypothesis testing, where the Mean (μ) value for respective variables is 4.12 showing that most of the respondents agree (option 4) with all the questions for supply chain management, sustainable supply chain management, and business performance. The value of the standard deviation ranges between 0.50 – 0.70. Therefore, it can be stated that the variation and difference between the mean values for respective variables are on the higher side since values are greater than .50. The model summary, ANOVA, and Coefficient values are derived from the regression table, which allows for determining the relationship between the variables tested in the regression model. The value of R and R^2 is .781 and .610 respectively. The relationship is explained by the R^2 value, which helps identify a moderate relationship between the variables tested under the regression model. The results help to identify that supply chain management (SCM) and sustainable supply chain management (SSCM) has a moderate impact on the construction industry's performance. It further highlights that the increase in SCM and SSCM practices adopted by construction businesses lead to a positively impact/ increase in the performance of the businesses.

Table 2: Hypothesis testing

				Model Summary		ANOVA		Coefficient		
Variables	N	μ	Std Dev	R	R^2	F	Sig.	Std. Beta Coefficient	T	Sig.
SCM		4.12	.696					.317	4.351	.000
SSCM	154	4.09	.650	.781	.610	118.06	.000	.522	7.175	.000
Performance		4.15	.657							

The assessment is carried out to determine the level of significance and degree of impact of supply chain management (SCM) and sustainability (SCM) on the construction industry's performance.

The results derived from the regression analysis are interpreted to justify the outcomes of the research hypothesis. The focused analysis of the coefficient table (from the regression model/ analysis) is beneficial in identifying the relationship or impact of the independent variables (SCM and SSCM) on the deponent variable (performance). The results show that SSCM is found to have a moderately positive impact (since the Beta value is 0.317 (i.e., 31.7%), which is identified to be significant (.000 Sig. value). The results help to identify a positive sign and moderate impact of SCM on the performance of construction businesses. On the other hand, the independent variable SSCM is also found to present a positive moderate, and significant impact on the performance of the construction businesses (Beta value = 0.522 (representing a 52.2% incline) and Sig. value is .000). Based on the analysis, the study hypothesis for the study are accepted.

5. Conclusion

The focus of the study is to identify the importance of applying and adopting green supply chain management in construction businesses. The researcher ensures to research the importance of supply chain management (SCM) and sustainable supply chain management (SSCM) with a focus on the construction industry. The importance and relevance of the two factors, SCM and SSCM, to the performance of construction businesses are determined using a systematic methodology. The philosophy of positivism is adopted as observations/ data are collected from human participants, including managers, employees, and executives from the procurement department in construction businesses. The questionnaire used by the researcher is derived from the studies by Karunasena and Sanjeewa, (2010), and Vrijhoef and Koskela, (2011). The questions related to demographics and supply chain management, sustainable supply chain management, and performance of businesses (construction) are inquired from the participants.

The results derived from the statistical analysis help to identify that supply chain management and sustainable supply chain management within the Pakistani construction industry are effective in improving performance. The conclusion can be presented that an improvement in the performance of businesses can be identified; SCM and its practical application are found to have a moderate impact leading to increased performance. Moreover, sustainable supply chain management and its application in the construction industry moderately affect performance. Both the elements (i.e., SCM and SSCM) in the construction industry are essential, and therefore, Pakistani-based construction businesses are required to manage supply chain activities effectively. Also, the industry-level application of SSCM is recommended to improve the overall performance.

5.1. Discussion

The section allows detailed and in-depth insights into the findings derived from quantitative assessment and further comparison of findings from the literature review. The section allows for a better comparison of the findings and is considered critical to provide managerial implications and future recommendations to the industry. The statistical analysis findings help derive a positive and significant moderate impact of applying SCM on the performance of construction businesses. The findings derived from the literature review also support the findings as the study by Dainty et al. (2001) helped to identify that the application of effective supply chain practices is considered critical for construction businesses and is found to improve efficiency, cost reduction, and effective management of different stakeholders leading to improved performance. Moreover, the literature review allows deriving information that the role of top management in supply chain management is most critical as their role in providing a focus and direction to SCM is critical. To ensure effectiveness and efficiency in the SCM processes, a focus on maintaining an effective balance between the SCM strategies and the business's objectives and goals (Behera, Mohanty, & Prakash, 2015). Research studies show that the application of SCM can lead to short and long-term performance, as supported by the current findings (Segerstedt & Olofsson, 2010).

The findings derived from the study using statistical analysis help to determine that Paksitani construction businesses significantly influence sustainable supply chain management (SSCM). The increase in performance of the businesses is evident with a moderate and significant impact. Past

research shows that sustainability in supply chain management reflects the purchases of green and sustainable raw products, the promotion of sustainable practices, and applying more focused strategies to overcome the challenges faced by businesses and other stakeholders (Lavassani & Movahedi, 2010). Furthermore, the focus of businesses on sustainable supply chain management and the application of dynamic capabilities are likely to go hand in hand to reach better organizational performance and allow them to achieve a higher competitive position (Beske, 2012). Research studies also help to determine the positive impact of sustainable SCM on the improved environmental and social performance and financial performance of businesses (Wang & Sarkis, 2013). Wang and Sarkis (2013) further highlight that customers and other business stakeholders are positively influenced, which leads to increasing the return on assets and equity for the business. The customer's increasing demand for sustainable products and services is found to majorly influence businesses to shift their interest to more productive and sustainable activities (Attaran & Attaran, 2007). The study by Ortas et al. (2014) also supports the view that businesses' organizational operations and financial performance are positively impacted by increasing focus on sustainability. Sustainable supply chain management is found to have short-term and long-term impacts (Ortas et al., 2014).

5.2. Research Implications

The outcomes derived from the detailed analysis of SCM and SSCM (Sustainable Supply Chain Management) help to identify that firms in the construction industry can derive positive performance-related outcomes. The outcomes have led to the understanding that sustainable supply chain management is considered to improve the environmental, social, and economic performance of businesses (especially) in the construction industry. There is a higher possibility that the firm's performance would increase in the short and long run. The focus on sustainable supply chain management must be focused more as it can allow offering better performance-related outcomes. The results help to add to the literature that from a Pakistani perspective, the requirement of effectively focusing on SSCM (Sustainable SCM) is a significant role player in improving performance. Based on the findings, future studies can be more detailed to highlight and specify more in-depth findings. The research focuses on identifying and achieving a little and a better understanding of sustainable supply chain management and its relevance to businesses in the Pakistani construction industry. The lack of time and budget limited the focus to Karachi-based construction businesses, leaving other construction businesses in Pakistan as not relevant. Furthermore, the researcher reached eight construction businesses and their respective employees, managers, and executives from the procurement department. The focus was to identify and reach the businesses that were easily reachable and available to allow the research. The sample of 154 respondents was achieved compared to the plan of 200 participants, which is also termed a limitation. However, the researcher made sure to apply the possible steps and ways to ensure that the data is authentic and the outcomes derived to represent a better representation of the population (i.e., construction businesses in Karachi, Pakistan).

5.3. Recommendations

Based on the outcomes derived from the research, the following recommendations are provided to the construction industry. The focus on strategic upgrades is essential for all Pakistani (Karachi) construction businesses as there is a positive impact. According to the analysis and past research findings, the application and adoption allow for deriving better environmental and social outcomes and positive financial outcomes (Wang & Sarkis, 2013). Furthermore, more focused research on other industries in Pakistan, including the manufacturing and servicing industries, is required to be undertaken to highlight the relevance of the elements (SSCM) on the performance

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Appendix: Questionnaire

Part 1 – Demographic Profile

a) Gender

Male	Female

b) Age

20-26 Years	27-33 Years
34-40 Years	41 Years or Over

c) Level of Education

Matric	Intermediate
Graduate	Postgraduate

d) Experience in Dairy Sector

0-2 Years	3-6 Years
7-12 years	13 Years and above

Part 2 –Please rate strongly agrees or strongly disagrees on the basis of options mentioned below of the dependent and independent variables.

1) Strongly disagree
2) Disagree
3) Neutral
4) Agree
5) Strongly agree

Supply Chain Management in the Construction Industry	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1) Supply Chain Management					
1.1. Supply chain management allows effective information sharing and monitoring. (Karunasena & Sanjeewa, 2010)					
1.2. It allows effective coordination at different levels. (Karunasena & Sanjeewa, 2010)					
1.3. Effective integration of process is effectively carried out. (Karunasena & Sanjeewa, 2010)					
1.4. The use of Information and Communication Technology allows businesses to more effectively carry out the processes. (Karunasena & Sanjeewa, 2010)					
2) Sustainable Supply Chain Management					
2.1. Sustainable supply chain management leads to effective cost control. (Karunasena & Sanjeewa, 2010)					
2.2. SSCM can effectively allow economic progress to construction businesses.					
2.3. Socially and environmental prospects of SSCM allows businesses to develop a positive image.					
2.4. The effective use of best policies leads to effective supply chain planning through SSCM.					
3) Performance of Construction Businesses					
3.1. Performance of businesses are improved due to continuous improvements. (Karunasena & Sanjeewa, 2010)					
3.2. Practical SCM application leads to joint reduction of channel inventories. (Vrijhoef & Koskela, 2011)					
3.3. The performance of the business improves using the planning and monitoring process. (Vrijhoef & Koskela, 2011)					
3.4. The application of SCM and SSCM allows construction businesses to improve performance.					