Green Supply Chain Management and Organizational Performance in Automotive Industry: A Case Study from Pakistan

Muhammad Maaz Asghar [1*]

*[*1] Researcher, Faculty of Business Administration, Iqra University, Karachi, Pakistan*

Corresponding email: M.maaz@iqra.edu.pk

ABSTRACT

This investigation assessed the connection of carrying out the GSCM on business execution, especially Organizational Performance. The exploration has discovered an immediate relationship between GSCM, Green Purchasing, Green Logistics, Green Manufacturing & Green Design / Eco-Design and Organizational Performance. The outcomes showed that business execution develops a green production network the board will improve operational productivity overall. The investigation has found that the execution of the reasonable inventory network in the firm emphatically affects the financial execution of the organization and seriousness, consequently giving an upper hand to the organization. This investigation to provides a unique picture of how significant the green supply chain plays an integral part in the hierarchical execution, and that is for the prosperity of the representatives. This paper explored advancement in what organizational performance factors affect the firms' GSCM - Green Supply Chain Management practices. Data was collected through a survey questionnaire, adopted and disseminated to 152 employees working in organizations based in Karachi, Pakistan, associated with supply chain management accomplishments. Data were analyzed using Structural Equation Modeling. Results showed that all four independent variables statistically correlate with GSCM. Whereas, Organizational Performance produced a positive and significant impact. The results are substantial for manufacturing organization managers in improving green supply chain management practices and achieving a competitive position in the industry.

Keywords: *Green supply chain management, Renewable energy, Biofuels, Green purchasing, Organizational performance, Green practices.*

Green Supply Chain Management and Organizational Performance in Automotive Industry: A Case Study from Pakistan

1. Introduction

The University of IMR ("Institute of Manufacturing Research") at Michigan State foreseen the chief idea of a GSCM - "Green Supply Chain Management" in the year of 1996 (Saad, 2019). The stimulus on the other side of this proposition or idea was to be concerned about the environmental impact and consider the industrialized supply chain regarding resource optimization. In enhancement disputes, subsequent mechanisms are concluded from the primary preparatory fact of the unsophisticated or crude significant acquisition time of the article, so the writing is following the environmental safety guiding principle amid the proposal and improvement unify, in this mode, decreasing the malice affected to the world amid the consumption phase and the reimbursement phase. The green stockpile network has only recently limited the dual implications of environmental assurance and vigour shield, which is to supply the most vigorous and greenest supplies to the most remote environmentally friendly substances. The supply chain is an ever-changing topic linked, covered, and collaborated with the marketing, sales, and operations departments. Firms with a high degree of interdependence will be more likely to dominate the market and industry shortly. A company's performance can be measured in various ways, including competitiveness, economics, finance, operations, marketing, and the environment. Previous research has shown that these positively impact organizational performance (Zimon et al., 2019). Firms in virtually every industry increasingly seek to ensure the sustainability of all supply chain activities. They provide that all processes, including resources, trash, final goods, and end users' delivery have no negative environmental impact.

The Sindh government of Pakistan is also worried about this occurrence, and a notice (dated 27-09-2019) prohibiting the use of plastic bags in Sindh Province's territory has been published. On October 1, 2019, it was immediately implemented throughout the jurisdiction (Saad, 2019). The proclamation aims to increase awareness among industries that use plastic bags excessively or aggressively, thus creating a significant environmental concern. Manufacturing companies are supporting the move by refusing to use plastic bags. The impact of green supply chains on organizational performance may be logically analyzed. Green Supply Chain Management (GSCM) is a stage in Supply Chain Management development (SCM). Organizations in the 1990s sought more knowledge about green practices in order to act ethically and socially aware in their supply chain operations. These green techniques are easily adaptable to the development of ecological administration (Bhattacharya, 2014).

1.1 Background of the Study

By the 18th century, the industry had spread all over the world. That was peak season. The emergence of new competitors compelled firms to become more efficient and quick. To get a competitive advantage, they produce more and more efficiently. Production will be far more visible than ever before. As a result, there has been an unavoidable statistical rise in manufacturing waste and defects. Companies realized it was a waste of money (Luthra et al., 2015). Production systems began to emerge in the 1940s. The technology aimed to shorten lead times, boost productivity, and eliminate waste by giving users more control over the supply chain. The Toyota Production System (TPS), with its Lean Philosophy, was famous (Rashid et al., 2023).

Because lost material is an unpaid expense to the organization, Lean is primarily concerned with eliminating waste in manufacturing. More businesses exist than ever before, and their production impacts the environment. As a result, customers' and governments' expectations have grown (Rashid et al., 2022a). Greater environmental sustainability has been claimed as a result of improved societal knowledge. As a result, businesses have begun to consider what materials they use to manufacture items, how they are manufactured, and how to recycle worn and faulty products. The European Union has enacted extensive laws concerning consumer and industrial emissions and pollution in Europe. All

of this is by a European Union action plan. It will be finished in 2020. The projects were formed for causes such as environmental well-being and enhancing European firms' competitiveness. Because many Asian firms have the benefit of having the lowest cash production costs, European firms must continue to innovate and improve organic production (Masoumi, 2019; Rashid et al., 2022b). All available knowledge, information, and government regulations drive firms to invest in innovative techniques for producing, manufacturing, and reinforcing the supply chain.

A new use of the old phrase has evolved to make production more environmentally friendly. The word "GREEN" is used as an adjective and a verb in industrial language to respect the environment. In the last decade, supply chain management has evolved, focusing on the consumer (Zhou et al., 2019: Hashmi et al., 2021a, b). They continue to assert that the goal is to push firms to find solutions for their organizations' internal and external aspects. In recent decades, they have gone through industrial and industrial development due to increased awareness about environmental and pollution problems. Industrialization should be prioritized. This is connected to SCM and should help to provide the groundwork for green supply chain management (Yu & Wantao, 2015).

European corporations quickly embraced GSCM and are gradually gaining traction in Asia. Greening the supply chain may result in lower costs and energy use. Innovative ideas to increase supplier involvement in decision-making processes that benefit the environment Fuentes-Fuentes discovered in 2004 that greening production positively impacts the company's bottom line. In 2005, Duber-Smith outlined eleven reasons small and medium-sized firms should embrace GSCM (SME). The following are the reasons: product differentiation, competitive advantage, and competitiveness, as well as focused marketing and resource sustainability. Pressures on the supply chain, regulatory adaptation and risk reduction, brand reputation and performance, Employee morale, financial investment, and the moral imperative (Masoumi, 2019; Hashmi et al., 2020a, b).

Organizations have developed to codify standards and regulations in order to enforce green supply chain management. The International Organization for Standardization (ISO) is the world's most prominent independent non-governmental membership organization, aiming to ensure safety, quality, and efficiency (iso.org). ISO is regarded as an environmental management standard, and this standard may assist enterprises in developing an effective framework by providing them with practical tools to manage environmental obligations better and more efficiently. Companies must use ISO rules to enhance their organization's environmental performance, employee engagement, and competitive advantages and financial rewards (iso.org).

1.2 Problem Statement

Green supply chain management is gaining popularity for organizations worldwide to reduce their negative environmental impacts. However, in a developing country such as Pakistan, green supply chain management is still in its early stages and has yet to be widely adopted in the automotive sector; hence, the challenges to its acceptability in a growing economy must be thoroughly investigated. The goal of this study is to examine the perspectives and issues associated with implementing green supply chain management systems in the context of the Pakistani automobile sector (Riaz et al., 2020; Tumpa et al., 2019; Rashid et al., 2020). Pakistan, like every agricultural country, is dealing with natural pollution challenges. With the country's industrialization progress, the difficulties associated with biological threats appear more fundamental and undermining. As global climate change occurs, there is a greater concentration of academicians and supply chain practitioners focusing on green supply chain management (GSCM). Over the last several years, GSCM has become an undeniable interest worldwide, including in Pakistan (Riaz et al., 2020). In Asia, Pakistan's automobile sector is regarded as one of the smallest yet fastest growing in the world. The automotive sector in Pakistan is involved in one or more lines of business, accounting for around 4% of Pakistan's GDP and employing over 1.8 million people. Pakistan has no vehicle security standards or model update strategies in place. In recent years, Suzuki has continued to sell many outdated automotive models across the country, including the Bolan and the Ravi.

1.3 Research Questions / Objectives

- "To determine the impact of green supply chain management on organizational performance."
- "To determine the relationship among the variables; Independent: Green Purchasing, Green Manufacturing, Ecological Design and Green Logistics. Dependent: Organizational Performance."
- "To establish new ways of implementing green supply chain management to increase the organizational performance, especially in the Automotive Industry."

1.4 Purpose of Study

The research will emphasize the relevance and use of GSCM, with a particular emphasis on the car industry and its production process. The Do or Die dilemma is only getting started as new companies join the market to take over, mainly from China as Changan, Korea as KIA, and the United Kingdom as MG. The rivalry will be unparalleled. However, due to competitive, legal, and societal restraints, the Pakistan car industry has begun to recognize the importance of GSCM.

1.5 Significance of the Study

Just a few international organizations currently recognize GSCM. Several global corporations, including "Nestle," "Procter & Gamble," "Ford," "General Motors," and "Nike," participate in the GSCM (Green et al.) (Riaz et al., 2020). Concentrating on the Green Supply Chain Management model leads to attaining a severe position that enhances the operational presentation of the firm. Green Supply Chain Management (GSCM) may assist firms in improving their environmental performance by lowering asset utilization and ensuring viable manufacturing. Its viability is considerably limited due to the hazards associated with working with the GSCM. In this report, I will identify and prioritize dangers in GSCM and opportunities so that the automobile industry may plan strategies and develop consequences (Saad, 2019).

1.6 Outline of Study

"Green supply chain management" (GSCM) is incorporating sustainable environmental activities within traditional supply networks. Examples of processes include Green Manufacturing (GM), Green Procurement/Purchasing (GP), Green Logistics (GL), Green Design/Ecological Design, Green Management (GM), Green Marketing (GM), Green Distribution (GD), Green Warehousing (GW), Green Transportation (GT), and Renewable Energy/Bio-fuels. This study investigated the relationship between GSCM implementation and commercial enactment. The study focuses on the influence of GSCM in the car industry, specifically in Karachi, Pakistan's City of Lights. The study will focus on GSCM components, including "green procurement," "green logistics," "Eco-Design," and "green manufacturing." The study aims to provide an error-free depiction of the GSCM and its dominating or authoritative role in organizational performance. It is a time-consuming need, especially in the manufacturing, energy, and resource sectors (Ali, 2020; Rashid & Rasheed, 2022).

2. Literature Review

2.1 Theoretical Review

Green Supply Chain Management (GSCM) refers to traditional supply chain management practices that include environmental criteria or considerations in an organization's purchasing decisions and long-term supplier relationships. The green supply chain collects waste within the industrial system to conserve energy and prevent hazardous chemicals from being discharged into the environment. Recognizes that the organization's supply chain operations have a disproportionate environmental impact (Rashid et al., 2021). Learn about the skewed natural effect of green store network measures within the organization. GSCM stands for green acquisition, green assembly, green pressing, green dissemination, and green promotion. GSCM seeks to remove or reduce wastes such as energy, effluent, toxic compounds, and strong waste. Some analysts have presented theories and models to address

ecological challenges. Some of these have been carried out. An "Interpretative Structural Modeling (ISM)" technique was used to identify common impacts among obstacles to the point where those obstructions are driving, which may be improved (Zimon et al., 2019). Driving boundaries regulate most restrictions, which are discrete and self-contained barriers. The GSCM-supported processes were examined by Taiwan's electrical and hardware sectors, which are dominated by "OEM" (Original Equipment Manufacturing) and "ODM" (Original Designing and Manufacturing)." The data was analyzed using a factual bundle and an essential condition model. It displays the aspects that impact coordination's expert organizations' choice of green progress. Data from a survey of Taiwanese coordinating groups was used for the demonstration. GSCM has taken a proactive approach to improving the natural presentation of cycles and objects by ecological principles (Hashmi & Mohd, 2020). This study examined approaches to ensure the consistency of examination of the factors that influence GSCM implementation and enactment.

Experts advised that more excellent thought be given to developing "Environmental Management (EM)" alternatives for the inventory network. This study utilized the ISM and logical progression measures to evaluate the relationship between the criteria for identifying green suppliers based on environmental performance. Pakistani Manufacturing Industries has developed an ISM-based plan for a green retail network. They uncovered essential links between empowering influences and developed a progressive paradigm for empowering agents that use ISM. An ISM-based model is familiar with model impediments to green store network practice in Pakistani manufacturing companies. They discovered that green strategic approaches are challenging to accept and implement due to several impediments. The ISM methodology was used to identify and dismantle significant barriers. The importance of GSCM and the necessary components for implementing GSCM in Pakistan's automobile sector were identified and shown (Zimon et al., 2019; Rashid et al., 2019). Green Supply Chain Management (GSCM) has been recognized as improving the presentation of cycles and objects using natural principles. In the Pakistani automobile industry, eleven GSCM execution restrictions have been discovered. The "Interpretive Structural Modeling (ISM)" idea was employed to identify the essential links between them. Various Barriers to GSCM Implementation in Pakistan's Automotive Industry A model was created using the ISM technique. Competitiveness and vulnerability in the market; a need for environmental practices; cost ideas; and an unknown client (Rashid & Amirah, 2017).

A dependent factor was discovered as the asset's unwillingness to transition to GSCM. There are no government-run emotional support systems. High management's lack of responsibility and IT deployment were cited as drivers. Oppose the option of mechanical progress; scarcity is Organizational improvement, and insufficient HR quality was found as connecting factors. There was no boundary recognized as a free factor. Market vulnerability and competition do not engage in biological operations; cost concepts; and consumer obviousness were highlighted as higher-level hurdles, with the absence of government emotional support networks indicated as the significant lower-level hindrance (Saad, 2019). The GSCM could be deployed in Pakistan's automotive sector by eliminating these barriers.

Two factors facilitate its transition from a slow-growing global economy to a rapidly emerging one: a) a significant asset of small-scale labour and b) its ability to mass-produce on the fly. Globalization has impacted the local retail network, posing new difficulties to global coordination, agility, adaptation, and pragmatism (Zhou et al., 2019). The globalization of industrial expansion and the geographical spread of financial development have increased the economic significance of the vehicle and coordination sectors. Critical extensions include marine transportation and compartment transit. The effects of a production network outage have an impact on both income and spending. Transportation and interchanges accelerated and grew more efficient during the 1990s. A much more extensive idea of coordination administrations has been developed in the twenty-first century, becoming a dictator, business sector, and so on (Ali, 2020; Rashid, 2016; Baloch & Rashid, 2022). Globalization of the arrangement. The world is rapidly reorganizing itself. The vehicle structure has a direct impact on globalization's progress. The most important relationship between goods and monetary growth has been established. The most crucial factor is the need for merchandise transportation. The waste has been repaired all around. Concerning the population, GDP, total retail consumer merchandise exchanges, and

fixed assets invested in transportation and interchanges, Item multiplication is a typical test for businesses that sell a range of goods. Firms typically blend systems as components of their supply chain intelligibility, deferral, and inconsistency to overcome this problem (Yu & Wantao, 2015; Hashmi, 2022).

2.2 Evolution in Pakistan Automotive Industry

Even though the Pakistani automobile industry began in the 1940s, it has grown significantly in the previous two decades, thanks mainly to monetary progress, which includes 100 per cent foreign direct investment in this sector. Global vehicle and component producers energize the foundation of the country's assembly and inventive task offices due to many skilled experts, lower production costs, faster planning, improvement interaction, and rising marketplaces. Most companies investigate their geographic locations while controlling product development and essential acquisition. The organization is involved in various gatherings of constructing agents, international constructing agents, Pakistani segment providers, and global segment providers, each with distinct qualities and shortcomings, with 77 per cent of the creation esteem added to the coordinated area and the remainder to the SME area. Natural pollution is an issue in Pakistan, like in every agricultural country. As the country's industrialization grows, the concerns associated with environmental hazards become more fundamental and undermining. Academics and supply chain professionals increasingly focus on green supply chain management as the world's environment changes (GSCM). In recent years, GSCM has attracted international recognition, notably in Pakistan (Riaz et al., 2020). Pakistan's car industry is one of Asia's most minor but fastest-expanding industries. Pakistan's car sector is tied to one or more business courses, accounting for more than 4% of Pakistan's GDP and employing more than 1.8 million people. Pakistan has no plans to adopt car safety standards or model changes. Suzuki has lately maintained a selection of classic automobile models nationwide, including the Bolan and the Ravi. Due to severe, administrative, and common pressing challenges, the Pakistani car sector has begun recognising the necessity for GSCM.

Pakistanis could only afford European and American vehicles till the 1960s. Japanese manufacturers arrived at the time. They were initially met with scepticism due to concerns about the quality and dependability of their automobiles. Regardless, Japanese firms eventually consolidated their supremacy. Their automobiles were more vital, durable, and conventional than European and American vehicles. Recently, Chinese automakers attempted to enter the Pakistani market but were turned down owing to obsolete products and a need for features and quality (Bhattacharya, 2014). Another reason for its dissatisfaction was its impotent decision about encircling accomplices. However, the situation is complicated at this time. Chinese automakers are attempting to strengthen their brands, provide advanced models, and construct new manufacturing plants. Because of trendsetting innovation and improved wellness features in the business, travel, and SUV segments, certain Chinese cars have pulled in customers and enlarged their recognition rate. This is the dawn of a new era, and local Chinese car building brokers claim it will have a position alongside Chinese manufacturers. Cost-conscious buyers recognize that Chinese automobiles will take time to earn customers' trust, who usually purchase Japanese vehicles. They claim that Chinese bikes have been more successful in the Pakistani market due to their reduced prices (regardless of their low quality). However, the car sector is a different game, and acquiring a share of the industry will require considerable investment. The Auto Policy 2016-21 established new roads for Korean and Chinese gatherers and brought much money into the country. People are becoming more interested in Korean automobiles such as Hyundai (Tucson) and Kia (Sportage and Picanto), dubbed the best rivals to Japanese vehicles.

2.3 Green Purchasing

The scope of GSCM's practices has increased beyond green acquisition to encompass inventory chains that run from supplier, manufacturer, client, and opposing coordination, which serve to "complete the circle" as described in the store network board. Organizations should engage in cross-functional activities and other people from the production network (such as providers and consumers) in these cycles to maximise the benefits of their natural administrative measures. Furthermore, he

emphasized that businesses would only thrive in the ultimate eco-stage. When the board functions as a comprehensive framework, the inventory network comprises clients, providers, and numerous entertainers (Riaz et al., 2020). They also proposed that the store network technique demands the integration of cross-functional and cross-organizational activities such as item planning, supplier cycles, and assessment inbound frameworks and coordination. As a consequence, three major components of internal GSCM are examined in this study: inner GSCM, GSCM with clients, and GSCM with providers. Even though we characterize internal GSCM about the auto industry in Pakistan, the numerous natural administration practices that we investigate in this investigation are more extensive in scope and cover numerous aspects of corporate ecological supportability in the manufacturing industry in general (Parmar, 2018; Hashmi, 2023).

This study looks at the link between GSCM rehearsals and the presentation of enterprises in a developing country like Pakistan that have confirmed or intend to adopt GSCM. The test findings show that GSCM rehearsals differ from corporate execution. It indicates that businesses' efforts to understand the link between GSCM methodologies and execution tend to be fruitless. Green Supply Chain Management (GSCM) may assist firms in improving natural execution by minimizing equipment utilization and assuring long-term output. Given the dangers associated with managing green production networks, the appropriateness of GSCM is relatively low. In this record, they classified dangers and concentrated on the GSCM so that the company could home in on high-risk areas and define its strategy as needed. Relationship "Green administration" is associated with item configuration, measurement plan, innovation, packaging materials, and packaging strategy. The specialists looked at what the scale of the organization meant for the execution of the green inventory network used by the leaders of the Pakistani company as well as the influence on authoritative execution. They also suggest specific strategy improvements to approve the green store network and the executive's barriers and improve the appearance of the mining business, particularly smaller ones. They observed that when assembly companies employ GSCM practices, they help improve their financial and natural performance, considerably impacting operational execution.

2.4 Green Manufacturing

Green Manufacturing techniques are the use of socially and environmentally responsible methods to reduce the harmful effects of manufacturing and increase business productivity. Green techniques are being implemented to increase measurement efficacy. This instruction involves using green assets, which can provide an advantage by lowering item costs and boosting item quality. Green purchasing and manufacturing businesses minimize waste and improve production process efficiency. According to experts, green assembly has several advantages: Green processes underway cycles reduce the terrible impacts of assembling measures on natural manageability, whilst green assembling improves organizations' operational, ecological, and financial performance. They are considering "GSCM" as a management mix of data and material movement all over the SC, gratifying client interest via environmentally friendly goods and administrations generated by environmentally friendly measures. GSCM is a way to incorporate natural issues into a company's operations. The advantage and profit of being the first to embrace green practices may be gained via supply chains. Similarly, adopting green practices into the retail network allows the company to not only provide the benefit of being quick to travel via separation and cost initiatives that would otherwise be unattainable. Your competition can easily imitate you, but how can you uncover new market opportunities? (Khan et al., 2023a).

There is no way to interact with the effect. Green legislation governing the seriousness of organizations It is not necessary to get an advantage and increase monetary or financial performance by using green practices in the retail network. Executing green and green inventory network executives may decrease waste, which increases water usage, energy, and side effects, profit from the primary benefits and enhance their output by utilizing green innovations and cycles (Khan et al., 2023b). "Green supply chain management (GSCM) is an organizational strategy that may give the company a competitive edge in terms of high product quality, high service quality, little waste, zero pollution, a better image, and a high return on investment." As one of the largest assembly industries, the automobile industry significantly impacts society and the environment. Cars provide mobility to millions and create

jobs while also endangering the environment. Buyer pressure, unofficial rules, and partner requests for advantage have forced the automobile industry to evaluate its environmental and social consequences in addition to its financial position (Rasheed, 2022). The pressure on the car industry to participate in green initiatives has recently increased dramatically. A recent literature review revealed the need to investigate how Green Supply Chain Management (GSCM) techniques might contribute to an organization's natural, financial, and operational success.

2.5 Green Logistics

The use of Eurasia as a chronology was one of the issues. Land connects to compartment traffic; that break was identified. The benefit of land spans (about their expenses) will be processing plant fit; nonetheless, the port's concerns must be addressed. Alternative modes of transportation are made as undesirable as possible by rail transit. Stocks held in clearly visible coordination stockrooms may be required to play an essential part in global coordination. Transportation is a single motion coordinated into coordinates, which is the primary interaction of store network executives. Product market advantage has been shown to have implications in developing a company division's coordination strategy or at the organizational level. In establishing coordinating approaches, there need to be more pilot considerations that focus on South Asia and the Middle East, providing an excellent reason for performing this contextual study. Businesses are under tremendous pressure to create unique production techniques in today's brutally competitive global market (Masoumi, 2019). Customer product distribution is becoming increasingly competitive. The designers anticipated that SCM's specialized board coordination might aid in cost savings and overall management—an in-depth examination of the relationship between green, agility, and preparedness. According to the research, the three-store network models have considerable limitations and various connecting and distinguishing properties. The use of renewable energy sources to improve provincial inventory chains is being carefully examined. SCM, manageability, and green coordination are the most concerning, and they have gotten adequate attention in the academic world and the leading firm (Bhattacharya, 2014). Researchers are working on strategies to assist industry leaders in responding quickly.

2.6 Green Design / Eco-Design

According to experts, employing an ecological strategy in retail network management can minimize the environmental effect of connected items and cycles by up to 80%. Environmental planning encompasses a wide variety of principles, including the use of cleaner innovation cycles, green raw materials, and repairs. The eco-friendly design of the goods reduces their environmental impact during their useful life. Furthermore, green item design encourages item reuse, reusing, and recycling, which not only helps companies improve their natural displays but also saves money. The ecological administration centre was shifted from the association to the inventory network level. Several studies have been conducted to identify the enabling forces and barriers to implementing green practices in the retail network (Zimon et al., 2019). The specialists explored the six elements influencing green development choices for coordination's specialized co-ops. An ISM-based method for greening Pakistani assembly firms' inventory networks has been clarified. They promoted the concept of a green shop network and investigated numerous factors influencing all aspects of life. Furthermore, it familiarizes an approach with successfully accepting controlled practices in the inventory network by comprehending the components among the many improving effects that will assist in changing the shop network into genuinely reasonable assembling. GSCM is a critical authorized method of thinking used to reduce natural risks and examine variables impacting GSCM implementation (Parmar, 2018). Analyzing the parts of the environmental cycle and their impact on business execution in Turkey's small and medium-sized companies According to the study, the primary motivation was to stand. It was also established that the ecological strategy and natural administration framework are strongly related to execution.

According to a survey, customers are becoming more aware of environmental issues, and government officials are adopting strict natural standards to reduce environmental impact. Using the ISM methodology, they uncovered and examined constraints to selecting GSCM practices among

Pakistani auto part makers. Purchaser influence, government help, and the availability of green production networks have all been identified as critical drivers of GSCM's efforts. A green store network the board (GSCM) execution estimation structure that uses a community dynamic technique inside the company. A fluffy ANP method was used to identify and link the causal links between authoritative responsibility, ecological planning, GSC interaction, social execution designs, and practical execution designs. Specialists presented a technique for measuring green production network execution by coordinating store network cycles to evaluate the natural display of assembling supply chains and using the Analytical Hierarchy Process (AHP). The inquiry provided an experimental investigation of GSCM practices in Pakistani Micro, Small, and Medium Enterprises (MSMEs). The study reveals that MSMEs experience significant external pressure to adopt GSCM practices. The designers developed and tested a hypothetical model of the GSCM application's institutional drivers (Luthra et al., 2015). According to the statistics, GSCM techniques aid in financial implementation. Despite the natural complexities of the concept of maintainability and the ongoing debate about whether collaborations exist between the various elements of manageability, it has been argued that the question for supply chain organizations should not be whether they will genuinely be reasonable (in all components of supportability), but rather whether they will use ideas. As with the triple principal concern, quantifying progress toward maintainability as a set goal is crucial (Zimon et al., 2019). This research focuses on the natural or biological component of SCM (GSCM) as an inner and between-company board of the upstream and downstream store network. This may lessen the overall ecological effect of neighbouring and opposing streams.

There is no doubt that energy and petroleum derivatives significantly impact the global supply chain and coordination, as they are the primary drivers of environmental change, an increase in global temperature, and contamination with rising fossil fuel byproducts and ozone-depleting substances. It is the greenhouse. Sustainable economic and ecological growth requires environmentally friendly energy and biofuels in inventory network tasks. Experts believe that coordination-related activities require more energy to achieve their primary purpose. Sustainable energy sources and biofuels increase financial performance while reducing fossil fuel byproducts. In addition, petroleum products are more expensive than biofuels and other alternative energy sources. Strict government regulations and increased customer awareness put pressure on businesses to use ecologically friendly biofuels and energy in their inventory network activities. Bioenergy reduces the byproducts of fossil fuels while enhancing the firm's benefit and reputation. Businesses' key motivation for using green practices in their inventory network activities is to save money. The deployment of green store network drives will assist in minimizing the cost of packaging, components, and materials by utilizing reused, reused, and recycled items (Ali, 2020). According to specialists, green practices can grab new company sectors and fare harmless to the ecosystem nations. However, filthy organizations cannot exchange their things for fare harmless to the ecosystem nations such as the United States, Germany, the United Kingdom, and Poland. Without a doubt, the green store network the board exercises has been a tool for businesses to cut the cost of their products, raise output, and grow their part of the total industry (Bhattacharya, 2014). Corporations use green practices in their business operations to improve social performance. Personal enjoyment can be enhanced by social performance without losing natural beauty. Furthermore, social execution entails improving the organization's image and natural supportability while lowering environmental dangers.

Organizations may improve their working environment by improving item quality and delivery management by receiving GSCM training. Green shop network leaders also assist companies in improving their environmental image by minimizing fossil fuel byproducts, removing waste from the general inventory network, and promoting competent and strong teamwork. It reduces your correspondence costs and facilitates reuse, reusing, and recycling with suppliers. A corporate assembly system linked to an "Environmental Management System (EMS)" can help organizations improve their environmental image. Internationally, the car sector is recognized as a critical growth engine for the national economy and a substantial contributor to the world economy (Yu & Wantao, 2015). The vehicle is defined as a "structure and capacity" item with a distinct degree of technology and is positioned as a cutting-edge item. Because it employs goods from practically all assembly organizations and supports fundamental and downstream industries, this industry is accurately classified as "fabricating ventures.".

The combination of innovation has resulted in the combination of hardware (sensors, actuators) that replaces the mechanical design of the apparatuses: motor slowing mechanisms, controlling, and so on; coordinated test gear, route and theatre setup; improvement in materials and design. India, China, and Brazil are the key rising business sectors with significant domestic interest and enough local creation. Automobile manufacturers have lower EBIT margins (10.4 per cent) than industry leaders, but they have the highest stock turnover (18.2) and the best transportation execution (97 per cent) (Luthra et al., 2016). The industry has increased in terms of resources, materials, and effort, necessitating operational planning and execution at all levels of management. Government involvement has been a significant driving element in the evolution of the automotive industry in Brazil, China, South Korea, and the United States during the hatching, entry, and maintainability periods. Even CEOs' inadequate use of the retail network presents challenges for automakers seeking a competitive advantage, particularly in growing markets such as Pakistan. As a result, in a fast-growing economic sector with particular characteristics, it is vital to analyze the different components of automotive supply chains. The dialogues in this collection are intended to highlight the complexities and nuances of automotive supply networks in this one-of-a-kind circumstance: emerging global automotive trends and their implications for Pakistan.

2.7 Global Challenges to GSCM

The top five global supply chain challenges are visibility, cost containment, risk management, expanding customer demands, and globalization." It is worth noting that auto supply chains routinely trail other supply chains (such as retail, medications, and so on) in these five principles, highlighting the need for and possibility for significant improvements. Increase their efficiency and reactivity (Luthra et al., 2016; Rashid & Rasheed, 2023). Increased interest over the last decade has put unexpected pressure on current Indian automakers and auto parts manufacturers to quickly embrace global principles and practices, as well as present or renew inventory network measures, which stance challenges in the innovation arrangement and deal with change gradually without affecting the business brand image (Riaz et al., 2020). Vehicle supply chains in India must cope with features that differ from those in developed countries. A preference for small and two-wheeled vehicles, a lack of client deception, particularly in provincial business sectors, bundling confusion due to phonetic and social variety, quality issues due to a scarcity of assets, a large number of divided providers impeding viable collaboration, complex expenses and charges, a lack of framework (rough terrain traffic), and a staggered dissemination framework that influences item costs are just a few examples. The most challenging difficulty is the start-to-finish inventory network mix, followed by executive interior coordination and commodity and part dispersion. The car sector, a significant supporter of fare and development, is vulnerable to frequent swings in raw material cost, client demand for item quality, prompt delivery, and raw material source (Rashid et al., 2023). International organizations entering Pakistan confront extra challenges, such as socioeconomic diversity and cost, salary, and asset allocation disparities. For example, KIA has customized the Picanto for the Pakistani market by lowering motor manufacturing costs (to promote environmental friendliness), raising spare component costs, etc. Only half of the workforce is regarded as excellent, with a 40% wear-down rate. Some five-star auto component manufacturers nurture talents, such as Bosch Ltd., which has a Bosch Professional Center (BVC) (India) to train employees in quality, security, and critical thinking tactics. According to the research, the following are the primary techniques for solving SCM challenges in the Pakistani automobile industry: Increased interest in IT and cycle optimization (38%), integration of providers and merchants (31%), and internal foundation strengthening (8%). OEMs are revisiting coordination's specialized organizations in unit collecting, organization, planning, and inventory management (Rasheed & Rashid, 2023).

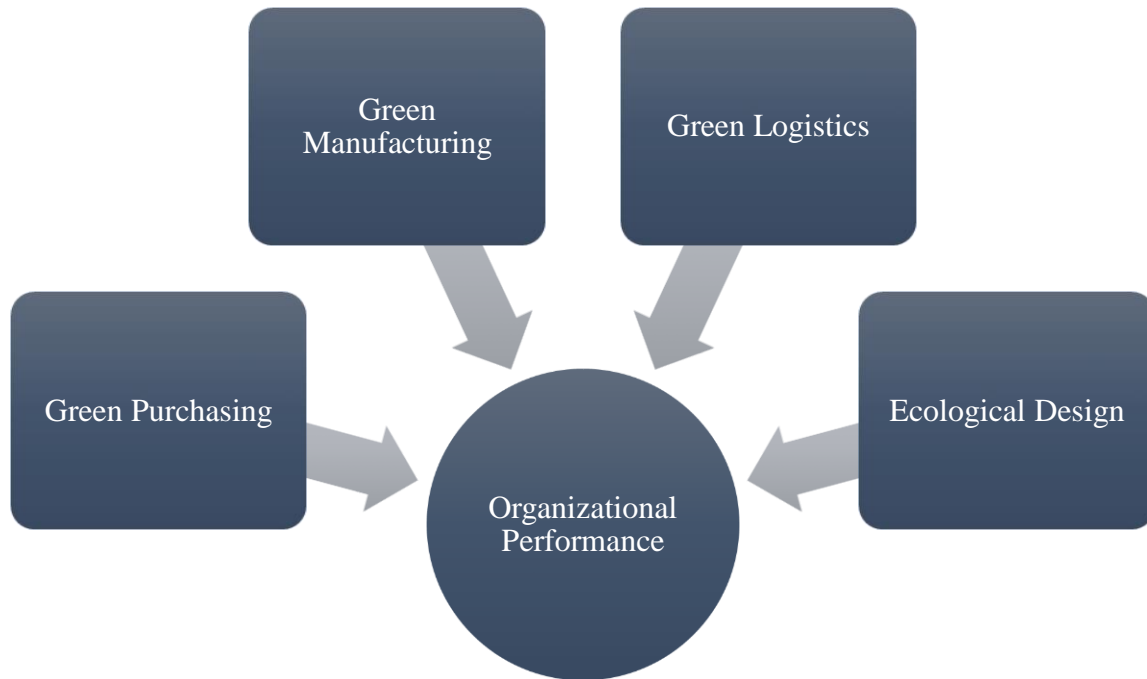**2.8 Theoretical / Conceptual Framework**

Figure 1: Conceptual Framework

Source: Literature

2.9 Hypothesis

H1: There is a significant impact of Green Manufacturing on Organizational Performance

H2: There is a significant impact of Green Logistics on Organizational Performance

H3: There is a significant impact of Green Purchasing on Organizational Performance

H4: There is a significant impact of Eco-Design on Organizational Performance

3. Research Method

3.1 Research Philosophy

"Research philosophy takes many forms, including Positivism, Realism, Interpretivism, Objectivism, Subjectivism, Pragmatism, Functionalist, Interpretive, Radical humanism, and Radical structuralism." (Khan et al., 2022). The world is viewed as external and objective, the observer's independence, a value-free approach to science, an emphasis on facts, causes, and fundamental laws, phenomena are reduced to their most basic components, hypothesis and concept testing must be active, and extensive samples are required (Khan et al., 2021). Because this is quantitative research, the data will be in numerical form, and the assessment will require a full descriptive description and actual statistics. The most appropriate sort of positivism for this activity is being in a scenario and then doing a critical evaluation of the literature. This study is positivist since quantitative facts and hypotheses support philosophical results while identifying one system that can be scientifically established, logically demonstrated, or quantitatively demonstrated.

3.2 Research Approach

There are two research approaches: inductive and deductive investigation (Zimon et al., 2019; Agha et al., 2021). The inductive technique starts with observations or literature and then proposes a theory as a conclusion that has yet to be experimentally tested (Haque et al., 2021). As a result of its observational nature, inductive research does not begin with a theory or hypothesis. Theories and

literature are the starting points for the deductive process. Ideas or hypotheses based on theory or literature are generated and empirically tested using the survey approach. As a result, the deductive method involves deducing conclusions from premises or assumptions (Luthra et al., 2015; Das et al., 2021; Alrazehi et al., 2021). Because this project is based on a conceptual framework with independent and dependent variables and the relationship between them is illustrated in the literature, a theory was developed and tested by collecting respondent responses, and the conclusion was drawn from experimentally tested hypotheses. As a result, it is classified as a deductive and quantitative approach in nature.

3.3 Research Design

The research design is a logical, systematic technique for connecting experimental data to research objectives and assisting in forming conclusions (Saad, 2019). This project is based on descriptive and quantitative research since it integrates data obtained through questionnaires, and this descriptive study proceeds to test hypotheses.

3.4 Sampling Design

3.4.1 Target Population

The total population of Karachi is around 16.1 million. This survey's sample size is deemed to represent the answers from the local population roughly. There are time and financial constraints for research; the most essential issue is the accuracy of the search results. With such a broad demographic and psychological audience identified, achieving general rather than ideal and precise results is possible. In research, a population is a group of people or things with similar features or attributes. Data is obtained from a population sample because accessing all of them is difficult and time-consuming.

3.4.2 Sample Size

The sample size is the proportion of population components evaluated because they share the same characteristics as the study population (Zimon et al., 2019). The sample size for this study is 152, which was calculated using the "Raosoft Calculator" with a 95% confidence level and a 5% margin of error.

3.4.3 Sampling Technique

This inquiry adopts the convenience sampling strategy as a sample methodology. This non-probability research method enables the researcher to acquire data from a demographic segment through sufficient sampling. There are two sorts of sampling procedures. The first is known as probability sampling, whereas the second is known as non-probability sampling. All items in the population have the exact selection probabilities in a probability sampling technique. One of the prerequisites for probability sampling is the sample frame, which lists every element in the population. Because collecting a sample frame for a large population like the one utilized in the study is complex, non-probability sampling was employed for this analysis.

3.5 Instrument of Data Collection

This study used a questionnaire with a rating scale as a research strategy. The questionnaire for this study is broken into two portions. The first component is the demographic section, which comprises the respondent's nominal scale profile. The second section goes into the factors that were used in this research.

3.6 Procedure of Data Collection

It was gathered through a survey. To obtain data for this study, individuals working in various supply chain departments across several organizations were given a questionnaire. The information was obtained from both primary and secondary sources.

3.7 Statistical software

The SPSS (Statistical Package for Social Sciences) Version: 25.0 was utilized as a statistical software for this study, with the research findings tested using Reliability, Regression, and Correlation Analysis.

3.8 Time Frame

Figure 2 illustrates the timelines of the research from start to finish.

TASK NAME/ WEEKS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Brainstorming the topic	■															
Topic selection		■														
Proposal writing			■	■												
Literature review					■	■										
Methodology							■	■								
Pilot testing									■							
Data collection survey										■						
Data analysis											■	■				
Management report													■	■		
Final submission															■	

Figure 2: Time Frame

Source: Author's creation

4. Results and Findings

4.1 Introduction

Based on the literature review (Chapter 2), concepts have been developed to show information exchange, integrated relationships with suppliers, levels of supplier trust, and supplier information technology. This section discussed in detail the methodology that explains how objective research is achieved. These chapters cover a series of steps to achieve your research objectives. It starts with descriptive, reliability, and correlation analysis results, followed by regression analysis.

4.1.1 Development of Model

The models developed and tested are:

Multivariate Model

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 \ldots\ldots\ldots\ldots\ldots\ldots\ldots. + \beta_n X_n + \varepsilon$$

Where:

Y = Organizational Performance (Dependent Variable)

X_1 = Green Purchasing

X_2 = Green Logistics

X_3 = Green Manufacturing

X_4 = Ecological Design

4.2 Data Analysis Method

Survey research was conducted using inductive and research-based approaches as the primary research method. Various data-gathering options took place, including primary and secondary sources. The survey was adopted and distributed to 160 different employees working in different Karachi-based and related organizations of supply chain management activities. SPSS (V.25) was used to analyze and identify the data collection and its meaningful information. After coding the data and identifying the missing variables, the following analytical techniques were used to achieve the purpose of the study. These analytical techniques are described in the next section.

4.2.1 Reliability

The reliability of the configuration used in this study was measured using Cronbach's alpha. This test is suitable for measuring the internal consistency of equipment. It also reduces dataset bias and error. Response uniformity is also tested by reliability analysis. Standardized coefficients in the range of 0.6 to 0.70 are considered acceptable, while standardized coefficients above 0.8 are considered good.

4.2.2 Descriptive Statistics

The descriptive analysis provides a summary of the data set. The descriptive analysis report reports the mean, median, central tendency range, variance, and standard deviation. This study uses descriptive analysis to report the mean and standard deviation.

4.2.3 Correlation Analysis

Correlation analysis measures the strength and degree of association between two variables. Karl Pearson commonly explains the relationship between two variables. Pearson's R-value range is ± 1. In addition, (+1) is considered the most vital positive relationship and (-1) is considered the most substantial negative relationship, while zero indicates that it is irrelevant.

4.2.4 Regression Analysis

Regression analysis is used to measure relationships between variables. It also helps researchers know if a relationship exists between two or more variables. It also shows the strength, structure, and shape of the relationship. The difference between correlation and regression analysis is that the first determines the correlation or association between two variables. At the same time, it explains how the independent variable is numerically related to the dependent variable. Correlation shows a linear relationship between two variables, while regression provides an optimal line fit and estimates the effect of one variable on the other. Therefore, the correlation does not have independent and dependent variables, but the regression has at least one independent and one dependent variable.

4.3 Descriptive Profile of the Data:

The below chart shows the average % of respondents in terms of gender. So, 77.1% of the respondents are Male, and 22.9% are Female respondents who took the survey. A total of 4 categories

have been made for the age bracket for a better assessment of findings. 73.2% of respondents were in the age bracket of 20-30 Years. 22.2% from 31-40 Years. Remaining from the 41-50 Years age bracket, but no one from the 51-60 Years age bracket. Same as the above four categories for the qualification as well. Post Graduate (38.6%), Graduate (34%) & Bachelor (26.1%) respectively. Most respondents have less than five years of experience (46.4%). On the other hand, 39.9% have work experience of 5 to 10 years. More than 80% of respondents were in the experience bracket of 10 years. Research is divided into three categories; Greater than 250 Employees (46.4%), 51 to 250 Employees (28.1%) & less than 50 Employees (25.5%). Among the respondents were 68% from the private sector & 25.5% from MNCs, respectively. Also, a small but good number from the public sector as well.

4.4 Descriptive Statistics

As defined in Table 1 above, information Sharing with a has the highest Skewness (SK= -0.795) and the lowest Skewness (Mean = 3.68, SD = 0.86), according to Table 4.1 (-0.286). The highest and lowest kurtosis values are (KT = -0.893 and KT = -.167, respectively). Since all of the constructs used in this study fall within the plus and minus 1.5 range, they all satisfy the conditions for Uni variant normalcy.

Table 1: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Green Purchasing	152	1.00	5.00	3.6897	.86593	-.744	.197	.313	.391
Green Logistics	152	1.00	5.00	3.7752	.85184	-.795	.197	.357	.391
Green Manufacturing	152	1.50	5.00	3.8860	.75673	-.483	.197	-.413	.391
Ecological Design	152	1.50	5.00	3.7971	.85025	-.546	.197	-.167	.391
Organizational Performance	152	2.00	5.00	3.9638	.78101	-.286	.197	-.893	.391
Valid N (list-wise)	152								

4.5 Reliability Test

Cronbach's alpha is used to evaluate the model's dependability. Cronbach's alpha, calculated using general feeding data (Cronbach's, 1951), was determined to be a=.920, indicating credible data. There are a total of 30 questions that respondents in various categories asked, which make up overall credibility. The data is trustworthy enough for additional statistical analysis because the aggregate Cronbach's alpha is more than 0.6. As defined in below table 2,

Table 2: Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.918	.920	5

4.5.1 Green Purchasing

As defined in Table 3, using Cronbach's alpha, the dependability of each independent variable was also examined. This likewise displays a value that is almost 0.8. Green buying has a Cronbach's alpha factor of a=.761.

Table 3: Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.759	.761	2

4.5.2 Green Logistics

As defined in Table 4, using Cronbach's alpha, the dependability of each independent variable was also examined. This likewise displays a value that is extremely close to 0.8. For green logistics, Cronbach's alpha is a=.790.

Table 4: Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.788	.790	2

4.5.3 Green Manufacturing

As defined in Table 5, production significantly impacts the organization's overall performance, and because Cronbach's alpha test for green manufacturing is a=.870, it is the most crucial variable.

Table 5: Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.870	.870	2

4.5.4 Ecological Design

As defined in below table 6, the reliability test for ecological or green design is a =.813, which is dependable above.7. The output of the alpha coefficient for the lone Eco design independent variable for organizational performance is good.

Table 6: Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.811	.813	2

4.6 Regression

According to the above Table 7 findings, the predictors (GP, GL, GM, and ED) had Beta and Sig values < P 0.05. It is discovered that eco-friendly purchasing (ß =.094), eco-friendly logistics (ß =.094), eco-friendly manufacturing (ß =.512), and eco-friendly design (ß =.160) have the most significant impact on organizational performance. The created model clarifies how GSCM affects organizational performance.

Table 7: Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.725	.213		3.406	.001
	Green Purchasing	.081	.067	.090	1.211	.000
	Green Logistics	.086	.077	.094	1.117	.000
	Green Manufacturing	.528	.097	.512	5.461	.000
	Ecological Design	.147	.081	.160	1.815	.000

a. Dependent Variable: Organizational Performance

4.6.1 Regression (Green Purchasing)

As shown in Table 8 above, the variation between organizational performance and green purchasing regression was first used in SPSS. The correlation between the dependent and independent variables is depicted in the graph by the value of R, which is 0.615. Green buying and organizational performance. Since the R-value is measured using a scale, the range must be "(-1 to +1)". As you can see, the R-value in this instance is.615, a positive number. There is a strong link between the two factors. R 2 (R Squared) displays the total variance of the dependents. It should be between 0 and 1, which in this table equals.37 or 37%. So, in layperson's terms, 37% of the elements that affect organizational performance also impact GSCM. Because it is the coefficient of determination, the R (Adjusted), a modification of the coefficient of determination, is always less than the coefficient of determination. The real value on the graph above is.37 when adjusted. When examining sig. Alternatively, the fictitious

P-value is.00, which is lower than.05. We reject the null hypotheses and accept the alternative hypothesis statements if the significant value is less than.05.

Table 8: Regression (Green Purchasing)

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change	Durbin-Watson
					Change Statistics					
1	.615[a]	.378	.374	.61813	.378	91.062	1	150	.000	2.122

a. Predictors: (Constant), Green Purchasing
b. Dependent Variable: Organizational Performance

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	34.794	1	34.794	91.062	.000[b]
	Residual	57.313	150	.382		
	Total	92.107	151			

a. Dependent Variable: Organizational Performance
b. Predictors: (Constant), Green Purchasing

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.918	.220		8.715	.000
	Green Purchasing	.554	.058	.615	9.543	.000

a. Dependent Variable: Organizational Performance

4.6.2 Regression (Green Logistics)

As shown in Table 9, the second theory was created to investigate the variability between two variables. The graphical representation of organizational performance and green logistics displays a volatility correlation with a proportional R-value of.652. They have a fully positive relationship because the value of R must fall between "(-1.0 | R | + 1.0)". The R Square value is.426, or a 42% difference in variability. For them as well, the reliability of adjustment R is.422 varies greatly. The p-value substantially impacts whether or not the hypothesis is accepted. Furthermore, the rule is: Accept the alternative and reject the null hypothesis if the P value is less than.05. The P value for this linear regression is 0.00. We can reject the null hypothesis and accept the alternatives because it is less than.05.

Table 9: Regression (Green Logistics)

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change	Durbin-Watson
					Change Statistics					
1	.652[a]	.426	.422	.59387	.426	111.164	1	150	.000	2.104

a. Predictors: (Constant), Green Logistics
b. Dependent Variable: Organizational Performance

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	39.205	1	39.205	111.164	.000[b]
	Residual	52.902	150	.353		
	Total	92.107	151			

a. Dependent Variable: Organizational Performance
b. Predictors: (Constant), Green Logistics

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.706	.220		7.769	.000
	Green Logistics	.598	.057	.652	10.543	.000

a. Dependent Variable: Organizational Performance

4.6.3 Regression (Green Manufacturing)

As shown in Table 10, the effectiveness of the organization is impacted by green manufacturing at GSCM. The third regression is used to test this hypothesis, and the findings are displayed in the preceding tab. Since a value is less than -1.0 and the value of R equals.770, this is a positive value for the correlation. These two factors have a high correlation. Organizational performance is dependent on green manufacturing in GSCM, as indicated by the coefficient of determination, which is.0593 or a percentage of 59%. Additionally, if we notice the P or Sig. The regression value rejects the null hypothesis and accepts the alternative hypothesis with a P value of.00. less than or equal to.05.

Table 10: Regression (Green Manufacturing)
Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change	Durbin-Watson
					Change Statistics					
1	.770[a]	.593	.590	.49980	.593	218.727	1	150	.000	1.928

a. Predictors: (Constant), Green Manufacturing
b. Dependent Variable: Organizational Performance

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	54.637	1	54.637	218.727	.000[b]
	Residual	37.469	150	.250		
	Total	92.107	151			

a. Dependent Variable: Organizational Performance
b. Predictors: (Constant), Green Manufacturing

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.875	.213		4.112	.000
	Green Manufacturing	.795	.054	.770	14.789	.000

a. Dependent Variable: Organizational Performance

4.6.4 Regression (Ecological Design)

As shown in Table 11, according to the fourth and final scenario, your organization's performance is impacted by GSCM's eco-design components. When you get to the ANOVA & Model Summary table, the values are as follows: R =.685, or nearly +1. As a result, the link between the independent and dependent variables is favourable and significant. The 100% overall variation of organizational performance variability is represented by the (R Square) coefficient of determination at a percentage value of 46%. Green Design, an independent variable in the GSCM, varies by 46%. Remember that the P number must be below.05. This hypothesis accepts the alternatives while rejecting the null hypothesis. The real value of this independent variable is Sig / P =.00, which is less than.05 in value.

Table 11: Regression (Ecological Design)
Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change	Durbin-Watson
					Change Statistics					
1	.685[a]	.469	.466	.57087	.469	132.630	1	150	.000	2.098

a. Predictors: (Constant), Ecological Design
b. Dependent Variable: Organizational Performance

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	43.223	1	43.223	132.630	.000[b]
	Residual	48.884	150	.326		
	Total	92.107	151			

a. Dependent Variable: Organizational Performance

b. Predictors: (Constant), Ecological Design

<div align="center">Coefficients</div>

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.574	.213		7.407	.000
	Ecological Design	.629	.055	.685	11.516	.000

a. Dependent Variable: Organizational Performance

4.7 Frequencies

As shown in Table 12 above, the values for the output results. Since there are no defaulters listed in the participant list, the first heading for validity is 152. Zero numbers are still needed because everything has been filled in. The related Mean values were Eco-Design/Green Design (3.8860), Green Logistics (3.7752), Green Purchasing (3.6897), and Organizational Performance (3.8860) (3.9638). The table demonstrates that Information Sharing with a has the highest Skewness (SK= -0.795) and the lowest Skewness (Mean = 3.68, SD = 0.86) (-0.286). The highest and lowest kurtosis values are (KT = -0.893 and (KT = -.167, respectively). Since all of the constructs used in this study fall within the range of 1.5, they all satisfy the conditions for Uni variant normalcy.

<div align="center">Table 12: Frequencies Statistics</div>

		Green Purchasing	Green Logistics	Green Manufacturing	Ecological Design	Organizational Performance
N	Valid	152	152	152	152	152
	Missing	0	0	0	0	0
Mean		3.6897	3.7752	3.8860	3.7971	3.9638
Std. Deviation		.86593	.85184	.75673	.85025	.78101
Variance		.750	.726	.573	.723	.610
Skewness		-.744	-.795	-.483	-.546	-.286
Std. Error of Skewness		.197	.197	.197	.197	.197
Kurtosis		.313	.357	-.413	-.167	-.893
Std. Error of Kurtosis		.391	.391	.391	.391	.391

5. Conclusion, Discussion, Implications, Limitations and Recommendations

5.1 Conclusion

According to statistical analysis of survey data, there are significant correlations between GSCM and organizational performance (G-Variables; Green Purchasing, Green Logistics, Green Manufacturing & Ecological Design). The P-value for it is 0.000. In order to ensure that there is a positive correlation between the variables, which should be less than 0.05. These outcomes highlight the crucial strategic choices you can make to raise the performance of your company and give it a competitive edge. The company should take into account GSCM as a source of competitiveness. The findings demonstrate that GSCM positively affects organizational performance and is statistically substantially correlated with it (P value = 0.000).

5.2 Discussion

Understanding the effect of the green supply chain on the organization's overall performance was the main goal of this study. This study focuses on the green supply chain's subvariants, including GP, GL, GM, and ED/GD vs OP. Although there are other elements in the green supply chain, this study primarily focuses on these four. According to the research model, the four following hypotheses comprise the study's key findings. Organizational performance is greatly enhanced by green logistics, manufacturing, purchasing, and design. The model's overall summary shows that the green supply chain is crucial to Karachi's automobile industry's regulatory performance. The green supply chain has a positive impact on overall organizational performance. These four, GP, GL, GM, and ED/GD, are strong against OP. The model's significance is 0.00, or less than 0.5, which shows that the study model

and its influence are significant and acceptable. Both fitted and normalized R-values are displayed in the general model analysis table. This study adds to both the theoretical and practical realms. Theoretically, it illustrates the connection between how GSCM variables affect an organization's performance. The report makes clear the significance of green chains for corporate performance, employee benefits, and, most crucially, gaining a competitive edge in the marketplace.

5.3 Implications

According to the survey, adopting GSCM methods will take the Pakistani car sector to the next level, according to the thoughts of 152 respondents. It takes time, especially in the city of light, even though it is becoming increasingly well-known throughout the world thanks to the emergence of large corporations. the complete market, please. This encourages healthy competition amongst them, and ultimately, the GSCM exercise is crucial in helping to produce the king. As a significant change in production, the adoption of GSCM methods necessitates adequate funding and must have some restricting requirements that regulators must address or modify. It is crucial to distinguish between parties that value the barriers and those that do not while discussing the obstacles to convergence with GSCMP. This is crucial because it helps us see why some people, but not all, value this barrier highly. The next step is to analyze the particular groups that evaluated the barrier as significant and create effective methods to help overcome it. The biggest impediment to divergence was identified as a financial one. Obviously, the fact that SMEs lack enough financial resources makes this financial issue more significant.

5.4 Limitations

This research has several restrictions. The first restriction resulted from a finite amount of time, population ease, and length. At the PhD level, the thorough study can be explored further. Only four of the green supply chain management's parts are included in this study; other GSCM components that can significantly affect one another may be the subject of future research. Similar to how organizational performance is a dependent variable, this will assist in identifying the element that has the greatest impact on the dependent variable. The population that took part in this survey investigation was the second limitation. All of Karachi's industries cannot be generalized by the study. This study is only concerned with Karachi's automobile industry.

5.5 Recommendations

Based on the findings, senior management of the business must view the GSCM as a weapon for competitiveness in the market and concentrate on promoting and putting into action green supply chain initiatives for the efficiency of the departments. Establishing a thorough monitoring mechanism for green supply chain management is also crucial. Future studies could examine more industrial sectors that could be integrated into Pakistan, such as the textile or construction industries, focusing on expanding the body of currently known information and improving performance among the organizations impacted by green practices. To the level of SMEs in operations, it is crucial to investigate and define the consciousness of green supply chain management. To assess the successful outcome of green supply chain management, more research can also deepen penetration from a knowledge base through case study integration analysis of multinational firms.

References

Agha, A. A., Rashid, A., Rasheed, R., Khan, S., & Khan, U. (2021). Antecedents of Customer Loyalty at Telecomm Sector. *Turkish Online Journal of Qualitative Inquiry, 12*(9), 1352-1374. https://www.tojqi.net/index.php/journal/article/view/5873/4175

Ali, Y., Saad, T. B., Sabir, M., Muhammad, N., Salman, A., & Zeb, K. (2020). Integration of green supply chain management practices in the construction supply chain of CPEC. *Management of Environmental Quality, 31*(1), 185-200. https://doi.org/10.1108/MEQ-12-2018-0211

Alrazehi, H. A. A. W., Amirah, N. A., Emam, A. S., & Hashmi, A. R. (2021). Proposed model for entrepreneurship, organizational culture and job satisfaction towards organizational performance in

International Bank of Yemen. *International Journal of Management and Human Science, 5*(1), 1-9. https://ejournal.lucp.net/index.php/ijmhs/article/view/1330/1399

Baloch, N. & Rashid, A. (2022). Supply Chain Networks, Complexity, and Optimization in Developing Economies: A Systematic Literature Review and Meta-Analysis. *South Asian Journal of Operations and Logistics, 1*(1), 1-13. https://doi.org/10.57044/SAJOL.2022.1.1.2202

Bhattacharya, S. (2014). Supply chain management in Indian automotive industry: complexities, challenges and way ahead. *International Journal of Managing Value and Supply Chains (IJMVSC)*. https://doi.org/10.5121/ijmvsc.2014.5206

Das, S., Ghani, M., Rashid, A., Rasheed, R., Manthar, S., & Ahmed, S. (2021). How customer satisfaction and loyalty can be affected by employee's perceived emotional competence: The mediating role of rapport. *International Journal of Management, 12*(3), 1268-1277. https://doi.org/10.34218/IJM.12.3.2021.119

Haque, I., Rashid, A., & Ahmed, S. Z. (2021). The Role of Automobile Sector in Global Business: Case of Pakistan. *Pakistan Journal of International Affairs, 4*(2), 363-383. https://doi.org/10.52337/pjia.v4i2.195

Hashmi, A. (2022). Factors affecting the supply chain resilience and supply chain performance. *South Asian Journal of Operations and Logistics, 1*(2), 65-85. https://doi.org/10.57044/SAJOL.2022.1.2.2212

Hashmi, A. R., & Mohd, A. T. (2020). The effect of disruptive factors on inventory control as a mediator and organizational performance in the health department of Punjab, Pakistan. *International Journal of Sustainable Development & World Policy, 9*(2), 122-134. https://doi.org/10.18488/journal.26.2020.92.122.134

Hashmi, A. R., Amirah, N. A., & Yusof, Y. (2020a). The mediating effect of integrated systems on the relationship between supply chain management practices and public healthcare performance: Structural Equation Modeling. *International Journal of Management and Sustainability, 9*(3), 148-160. https://doi.org/10.18488/journal.11.2020.93.148.160

Hashmi, A. R., Amirah, N. A., & Yusof, Y. (2021b). Organizational performance with disruptive factors and inventory control as a mediator in public healthcare of Punjab, Pakistan. *Management Science Letters, 11*(1), 77-86. https://doi.org/10.5267/j.msl.2020.8.028

Hashmi, A. R., Amirah, N. A., Yusof, Y., & Zaliha, T. N. (2020b). Exploring the dimensions using exploratory factor analysis of disruptive factors and inventory control. *The Economics and Finance Letters, 7*(2), 247-254. https://doi.org/10.18488/journal.29.2020.72.247.254

Hashmi, A. R., Amirah, N. A., Yusof, Y., & Zaliha, T. N. (2021a). Mediation of inventory control practices in proficiency and organizational performance: State-funded hospital perspective. *Uncertain Supply Chain Management*, *9*(1), 89-98. https://doi.org/10.5267/j.uscm.2020.11.006

Hashmi, R. (2023). Business Performance Through Government Policies, Green Purchasing, and Reverse Logistics: Business Performance and Green Supply Chain Practices. *South Asian Journal of Operations and Logisti*cs, *2*(1), 1–10. https://doi.org/10.57044/SAJOL.2023.2.1.2301

Kazim Riaz, Dr. Muhammad Asim, & Salman Manzoor. (2020). Impact of green supply chain management on organizational performance. *CenRaPS Journal of Social Sciences, 2*(1), 88-102. https://doi.org/10.46291/cenraps.v2i1.12

Khan, S. K., Ahmed, S., & Rashid, A. (2021). Influence of social media on purchase intention and customer loyalty of Generation Y with the mediating effect of conviction: A case of Pakistan. *Pakistan Journal of International Affairs*, *4*(2), 526-548. https://doi.org/10.52337/pjia.v4i2.207

Khan, S. K., Rashid. A., Benhamed, A., Rasheed, R., & Huma, Z. (2023b). Effect of leadership styles on employee performance by considering psychological capital as mediator: evidence from airlines industry in emerging economy. *World Journal of Entrepreneurship, Management and Sustainable Development, 18*(6), 799-818. https://doi.org/10.47556/J.WJEMSD.18.6.2022.7

Khan, S., Rasheed., R., Rashid, A., Abbas, Q., & Mahboob, F. (2022). The Effect of Demographic Characteristics on Job Performance: An Empirical Study from Pakistan. *Journal of Asian Finance, Economics and Business, 9*(2), 283-294. https://doi.org/10.13106/JAFEB.2022.VOL9.NO2.0283

Khan, S., Rashid, A., Rasheed, R., & Amirah, N. A. (2023a). Designing a knowledge-based system (KBS) to study consumer purchase intention: the impact of digital influencers in Pakistan. *Kybernetes, 52*(5), 1720-1744. https://doi.org/10.1108/K-06-2021-0497

Luthra, S., Garg, D., & Haleem, A. (2015). Critical success factors of green supply chain management for achieving sustainability in Indian automobile industry. *Production Planning & Control*, *26*(5), 339-362.

Luthra, S., Garg, D., & Haleem, A. (2016). The impacts of critical success factors for implementing green supply chain management towards sustainability: an empirical investigation of the Indian automobile industry. *Journal of Cleaner Production, 121,* 142-158. https://doi.org/10.1016/j.jclepro.2016.01.095

Masoumi, S. M., Kazemi, N., & Abdul-Rashid, S. H. (2019). Sustainable supply chain management in the automotive industry: A process-oriented review. *Sustainability, 11*(14), 3945. https://doi.org/10.3390/su11143945

Parmar, H., H. G. Shah, & Shree Sad Vidhya Institute of Technology,Bharuch. (2018). Success factors of green supply chain management in Indian manufacturing SMEs: A literature review. *International Journal of Engineering Research & Technology (Ahmedabad), V7*(02). https://doi.org/10.17577/IJERTV7IS020101

Rasheed, R., & Rashid, R. (2023). Role of Service Quality Factors in Word of Mouth through Student Satisfaction. *Kybernetes. In press.* http://dx.doi.org/10.1108/k-01-2023-0119

Rasheed, R., Rashid, A., Amirah, N. A., & Afthanorhan, A. (2023). Quantifying the moderating effect of servant leadership between occupational stress and employee in-role and extra-role performance. *Calitatea, 24*(195), 60-68. *https://doi.org/10.47750/QAS/24.195.08*

Rasheed, T. (2022). Supply Chain Sustainability Through Green Practices in Manufacturing: A Case Study from Pakistan. *South Asian Journal of Operations and Logistics, 1*(1), 57-71. https://doi.org/10.57044/SAJOL.2022.1.1.2205

Rashid, A. & Rasheed, R. (2022). A Paradigm for Measuring Sustainable Performance Through Big Data Analytics–Artificial Intelligence in Manufacturing Firms. *Available at SSRN 4087758*. https://doi.org/10.2139/ssrn.4087758

Rashid, A. & Rasheed, R. (2023). Mediation of inventory management in the relationship between knowledge and firm performance, *SAGE Open, 13*(2), 1-11. https://doi.org/10.1177/21582440231164593

Rashid, A. (2016). Impact of inventory management in downstream chains on customer satisfaction at manufacturing firms. *International Journal of Management, IT and Engineering*, *6*(6), 1-19.

Rashid, A. Rasheed, R., & Amirah, N. A. (2023). Information Technology and People Involvement in Organizational Performance through Supply Chain Collaboration. *Journal of Science and Technology Policy Management. In press.* DOI: 10.1108/JSTPM-12-2022-0217

Rashid, A., & Amirah, N. A. (2017). Relationship between poor documentation and efficient inventory control at Provincial Ministry of Health, Lahore. *American Journal of Innovative Research and Applied Sciences, 5*(6), 420-423.

Rashid, A., Ali, S. B., Rasheed, R., Amirah, N. A. & Ngah, A. H. (2022a). A paradigm of blockchain and supply chain performance: a mediated model using structural equation modelling. *Kybernetes, Vol. ahead-of-print No. ahead-of-print*. https://doi.org/10.1108/K-04-2022-0543

Rashid, A., Amirah, N. A., & Yusof, Y. (2019). The statistical approach in exploring factors of the documentation process and hospital performance: a preliminary study. *American Journal of Innovative Research and Applied Sciences, 9*(4), 306-310.

Rashid, A., Amirah, N. A., Yusof, Y., & Mohd, A. T. (2020). Analysis of demographic factors on perceptions of inventory managers towards healthcare performance. *The Economics and Finance Letters, 7*(2), 289-294. https://doi.org/10.18488/journal.29.2020.72.289.294

Rashid, A., Rasheed, R., & Amirah, N. A., & Afthanorhan, A. (2022b). Disruptive Factors and Customer Satisfaction at Chain Stores in Karachi, Pakistan. *Journal of Distribution Science, 20*(10), 93-103. https://doi.org/10.15722/jds.20.10.202210.93

Rashid, A., Rasheed, R., Amirah, N. A., Yusof, Y., Khan, S., & Agha, A., A. (2021). A Quantitative Perspective of Systematic Research: Easy and Step-by-Step Initial Guidelines. *Turkish Online Journal of Qualitative Inquiry, 12*(9), 2874-2883. https://www.tojqi.net/index.php/journal/article/view/6159/4387

Saad, M., & Siddiqui, D. A. (2019). The impact of Green Supply Chain Management on firm performance: A case of manufacturing industry of Karachi. *Journal of Management and Strategy, 10*(5), 48. https://doi.org/10.5430/jms.v10n5p48

Tumpa, T. J., Ali, S. M., Rahman, M. H., Paul, S. K., Chowdhury, P., & Rehman Khan, S. A. (2019). Barriers to green supply chain management: An emerging economy context. *Journal of Cleaner Production, 236*(117617), 117617. https://doi.org/10.1016/j.jclepro.2019.117617

Yu, W., Chavez, R., Feng, M., & Wiengarten, F. (2014). Integrated green supply chain management and operational performance. *Supply Chain Management: An International Journal, 19*(5/6), 683-696. https://doi.org/10.1108/SCM-07-2013-0225

Zhou, Y., Xu, L., & Muhammad Shaikh, G. (2019). Evaluating and prioritizing the Green supply chain management practices in Pakistan: Based on Delphi and fuzzy AHP approach. *Symmetry, 11*(11), 1346. https://doi.org/10.3390/sym11111346

Zimon, D., Tyan, J., & Sroufe, R. (2019). Implementing Sustainable Supply Chain Management: Reactive, cooperative, and dynamic models. *Sustainability, 11*(24), 7227. https://doi.org/10.3390/su11247227