

## Role of Logistical Practices in Quality Service Delivery at Supermarkets: A Case Study from Pakistan

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### Article History

Received: 07 June 2022  
Revised: 20 June 2022  
Accepted: 26 June 2022  
Published: 29 June 2022

### ABSTRACT

Logistical practices and customer service delivery are moderately new fields in emerging nations. The respondents in this research comprised of workforce who are logistics supervisors, transportation chiefs, and acquisition officials, or they are comparable in supermarkets in Pakistan. The survey in this paper comprised 200 respondents who were drawn from different supermarkets across Pakistan. The deductive approach followed by the quantitative research method was used to test the study hypotheses through IBM SPSS version 24 as a statistical tool. Data analysis was performed by evaluating the regression model and correlation. The findings of this study demonstrate that supermarkets in Pakistan have taken on the accompanying logistical practices: using environmentally friendly fuels to abstain from harming the climate and reusing materials. Even though the paper was fruitful, it encountered a few restrictions from respondents who could not fill in the survey because they dreaded that the data would be revealed to their rivals. Additionally, because the supermarkets are exceptionally occupied during the weekdays, the officials who responded were reluctant to take off time. Supermarkets and SMEs can also benefit from this research findings and adopt the recommended logistical practices for quality customer service delivery.

### JEL Classification:

Q21  
R41  
L15

**Keywords:** Logistics, Supply chain management, Collaboration, Recycling, Service quality

### Citation of this article:

Amjad, S. (2022). Role of Logistical Practices in Quality Service Delivery at Supermarkets: A Case Study from Pakistan. *South Asian Journal of Operations and Logistics*, 1(1), 39-56.

## **Role of Logistical Practices in Quality Service Delivery at Supermarkets: A Case Study from Pakistan**

### **1. Introduction**

The term logistics suggests a level of association and command oversupply developments that main modern innovation might have created. It has become one of the main advancements in the transportation business. When assembled, the two words propose a harmless to the ecosystem and proficient vehicle and dispersion framework (Giuliano et al., 2019; Victory et al., 2022). Logistics are a significant capacity of modern transport frameworks. Contemporary innovative and spatial advancements have worked on the expense, productivity and unwavering quality of cargo and traveller transport frameworks. Simultaneously, the adverse natural effects of transportation have acquired wide acknowledgement and are at the centre of maintainability issues, particularly in metropolitan regions. Since logistics uses are mainly specific to the productivity of transport frameworks, it has been recommended that logistics are harmless to the ecosystem, according to the idea of green logistics. The interest for harmless products to the ecosystem has expanded throughout the long term, as is the moving of an waveringness of customers. The steadily expanding expenses of energy and sources of info have constrained businesses to observe better approaches to decrease energy use to lessen costs. Inventory management has been recognized to affect the indigenous habitat essentially. Therefore, organizations are profoundly attempting to green their inventory network by presenting green systems in their associations and the production network. This has created a developing requirement for coordinating ecological thinking in production networks (Kim et al., 2021; Baloch & Rashid, 2022; Hunaid et al., 2022).

Today, natural contamination presents an amazingly perplexing issue, and numerous earth cognizant individuals are turning out to be progressively mindful of this reality. For the duration of the existing pattern of items, from the dispatch of a plan to the withdrawal of an old item, adverse consequences are delivered and reflected in the climate. The number of associations thinking about coordinating ecological practices into their essential plans and everyday tasks is constantly expanding. The overall financial development has brought about an immense utilization of products, while globalization has prompted enormous surges of merchandise from one side of the planet to the other. The creation, transportation, stockpiling and utilization of items have made enormous ecological issues. States, activity gatherings and organizations are requesting measures to counter this danger. Thus, there has been an unreasonable measure of strain on firms to lessen the natural effect of their logistic activities. In an ongoing a long time, for example, organizations have made and embraced techniques that are in better arrangement with the well-being of the climate, like planning for recyclability, utilization of sustainable power, zero waste creation and planning items that do not hurt the climate (Bianchi et al., 2021).

Keleş and Güngör (2021) show that the transportation of merchandise adversely affects the neighbourhood's air quality, creates air pollution, prompts mishaps and, in its entirety, makes an essential contribution to an unnatural weather change. The effect of logistics on climate change has called for expanding consideration as of late, to some extent, because expanding controls on contamination and street well-being upgrades have mitigated the other natural issues. With the Kyoto Agreement being applied worldwide and the pragmatic utilization of green logistics, most nations have implemented ecological enactment for organizations to put social obligation regarding green production, garbage removals, and reverse logistics, including utilized items.

The ascent of stores in agricultural nations has received significant consideration recently (Khan, 2021). It is contended that stores are spreading rapidly in metropolitan regions and that store chains are modernizing their item obtainment and production network the board frameworks, separating them from those utilized by customary retailers and wholesalers. The Pakistani food & grocery retail market had total revenues of \$53.0bn in 2020, representing a compound annual growth rate (CAGR) of

8.3% between 2016 and 2020. Booth et al. (2021) show that grocery stores are developing at a yearly pace of 18% and generally have a 20% portion of the metropolitan food market. In the metropolitan regions (Karachi, Lahore) are the bigger organization stores (hypermarkets) and the bigger chains. In the more modest towns and primary intersection towns, more modest organization stores and more modest chains have arisen. The express growth of the retail sector, while mainly reflecting the positive aspects of the evolution of the Pakistani economy, also indicates a few worrying features that must be addressed urgently. The development of the Pakistan retail market and the benefits that this has spawned have so far mainly been seen in some areas of the country instead of being true across the board. Grocery stores in Pakistan assume a huge monetary part. The development of general stores has provided a considerable number of occupations to many individuals in the country who might somehow be jobless. By giving business, they are helping the public authority to lighten destitution among the residents. The stores have additionally improved different organizations in the towns where they are set up. The administrations related to this incorporate financial administration and other related organizations.

The need to secure the climate has prompted the execution of green practices in different ventures across the globe. By carrying out green logistics, associations are managing the issue of maintainability in the supply network. There are expanded constraints from lobby groups for associations to direct their exercises in an all the more harmless to the ecosystem way. Mellita et al. (2020) contended that if merchandise conveyance approaches do not change to such an extent that calculated administrators can utilize the benefits of every method of transport all the more soundly, substantial goods vehicle traffic alone will increase by 50%. This increment in substantial goods vehicle traffic will probably increase carbon dioxide emissions by 50% more. Patella et al. (2020) give a valuable show of the targets of Green Logistics. As indicated by their paper, the three directing columns for the future improvement of green logistics are maintainability, portability and openness. This way supports more explicit objectives like ecological friendliness and energy preservation. Nag and Ferdausy (2021) considered the sensibility to stretch out these destinations to all logistics parts, for example, request handling, transportation, bundling, warehousing, material taking care of, correspondence, reverse logistics, preparing, training and innovation. Environmental change because of ozone-depleting substances has financial and social ramifications just as regrettable externalities related to logistics frameworks. Externalities, for example, gridlock, asset wastage, the utilization of non-sustainable fuel, the impacts of byproducts, for example, tires and oil petroleum product, biological system annihilation and species, adverse general well-being effects of contamination eradication, crop obliteration, wounds and passing coming about because of auto collisions, commotion, visual interruption, clog deflecting traveller travel, loss of green field locales and crumbling of structures foundation influence general society assuming associations neglect to put in place a professional ecological friendly green practices.

Mellita et al. (2020) likewise suggested this in a review on Supply Chain Management. The review focused on the essential exploration and practices. The review discovered that dissemination and outbound logistics are vital in the green supply network. Painting logistics "green" is not difficult. As people generally turn out to be more mindful of natural issues and unnatural weather changes, buyers will pose more inquiries about the items they are buying. Organizations should expect inquiries regarding how green their assembling cycles and inventory network are, their carbon impression and how they reuse. Based on this current gap, this study tries to analyze the green practices among supermarkets in Pakistan. The study will empirically examine the influence of "*collaboration in transport, limited use of carbon-based fuels, and recycling of material for green logistics*" on "*quality of customer service*".

## **2. Literature Review**

A client might be characterized as somebody who has a close relationship with or is straightforwardly impacted by the office and who gets or depends on at least one of the office's administrations or items. Three rules should be observed to accomplish great client support (Shaheen, 2022). The primary standard is uprightness. It is identified with the aim or means behind one's activities. It requires administration conveyance that is fair and expert and guidance that is plain, unopinionated

and in light of thorough examination that considers objective direction. The following rule is regard for clients that is shown by treating them with nobility, reasonableness and affectability, per their conditions and precise necessities. Responsibility is the last standard, and it is about reasonable and reliable navigation, where inventive arrangements are looked for, and issues of classification are regarded. The degree of client assistance will decide the degree of consumer loyalty. Consumer loyalty is a popular expression today; everybody utilizing this present consumer loyalty is impacted by the significance put by the clients on every one of the perspectives of the item/administration. Consumer loyalty estimation permits an association to comprehend the key drivers that make fulfilment or disappointment; and what is truly driving their fulfilment during a helpful insight. Consumer loyalty is the perspective clients have about an organization when their assumptions have been met or surpassed over the lifetime of the item or administration. It is likewise the feeling or disposition of a client towards an item or administration after it has been utilized. Kou and Vigil (2021), fulfilment seems to intervene in changes between pre- and post-openness attitudinal parts. It is a significant result of showcasing action, which fills in as a connection between the different phases of customer purchasing conduct (Altinay et al., 2019). When clients pay cash to purchase assistance, they have some base assumptions from the exchange. These assumptions from the buyer must be met generously, if not wholly, for the client to turn into a reliable client of help (Munawar et al., 2021).

## **2.1 Empirical Review**

There are various examinations that have focused on genuine practices in the field of supply networks. A few detailed examinations related to this subject have been published. They comprise essentially contextual analyses and studies. Most contextual investigations manage green plans (item and coordination) and green tasks (remanufacturing, reusing, RL, and so forth). As indicated by Tippayawong et al. (2016), an ecologically cognizant inventory network, also called a green inventory network, is another idea in ongoing literary works. Albeit this ecological issue has been acknowledged as vital for business, my first experience with supply chain management has just grown as of late. The writing about the naturally cognizant inventory network is highly restricted. "Sustainable Development" was the critical idea of the "Earth Summit" in 1992, where state-run administrations and worldwide associations conceded to make a move to ensure the climate as a necessary piece of long-haul financial turn of events. Ecologically dependable utilization and creation are viewed as fundamental pieces of the procedure to work on natural quality, lessen neediness and achieve monetary growth, with resultant upgrades in well-being, working conditions, and supportability, and are the present featured Agenda.

Hebaz and Oulfarsi (2021) concentrated on Green supply chain management: tensions, practices and execution inside the Chinese car industry in which they saw that expanding pressures from an assortment of bearings have made the Chinese car store network chiefs consider and start the execution of green practices to work on both their monetary and ecological exhibition. Developing some prior work researching general green practices in China, the creators investigated the GSCM pressures/drivers (inspirations), drives and execution of the auto store network utilizing a detailed examination of 89 car manufacturers inside China. In another review, Asghari and Al-e-Hashem (2021) presented Green vehicle routing problem: A state-of-the-art review in which they imagined that heightening ecological worries with predominant transportation modes had prompted an expanded interest in the reception of "green", maintainable practices in the space of inventory network the executives. As a piece of a general green inventory network technique, the measure of carbon emission coming because of the transportation component of a production network is a developing worry for production network administrators and corporate leaders. Boutkhoul et al. (2016) additionally led an observational review dependent on six components of green supply chain management: eco configuration, green assembling and bundling, ecological cooperation, green showcasing, stock and providers. The outcomes construed that the organizations focusing on promoting green had been effective contenders against the opponents. Slašťanová et al. (2019) also investigated ecologically vital administration ideas. They connected them to supply chain management practices like seller evaluation, communitarian supply methodologies, setting up natural acquirement strategies and working with suppliers to empower enhancements. Based on the literature study presented earlier, the following research hypotheses have been developed for this study:

*H<sub>1</sub>: Collaboration in transport significantly influence the quality of customer service delivery.*

*H<sub>2</sub>: Limited use of Carbon-based fuels significantly influence customer service delivery.*

*H<sub>3</sub>: Recycling of material for green logistics significantly influence customer service delivery.*

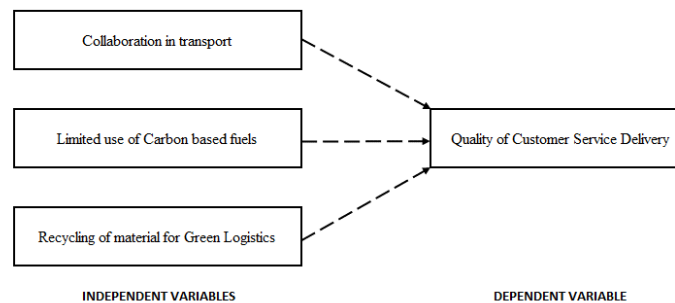


Figure 1: Conceptual research model

### 3. Research Methods

The explanatory research approach was used to investigate the study variables (Rashid & Amirah, 2017; Rashid et al., 2019; Khan et al., 2022; Khan et al., 2022). Explanatory research helps to determine the cause of the occurrence of a specific phenomenon (Hashmi & Mohd, 2020; Hashmi et al., 2020a; Khan et al., 2022; Rashid et al., 2020). This method usually describes a situation and problem in a causal relationship relative to the quantitative method. This method's prime objective is finding issues and critical variables in a specific problem. The researcher characterizes paradigm as a fundamental arrangement of consistent convictions, a bunch of settlements on how issues ought to be deciphered, and in this manner, lead research (Creswell, 2003; Rashid et al., 2021). The difficulty is that the prescribed technique for characterizing research observes its paradigm (Hashmi et al., 2020b; Khan et al., 2021). This is fundamental because the decision of a particular worldview does not fit with the logical information of the researchers. Further, the research strategy portrays a strategy for information assortment and its explanation with an unmistakable arrangement of destinations. This method is an ordinary course of action, for example, tending to the research queries (Hashmi et al., 2020; Hashmi et al., 2021). Further, this study used a survey as a research strategy with a deductive method. The survey provides information from organized polls or meetings (Agha et al., 2021; Alrazehi et al., 2021; Das et al., 2021; Haque et al., 2021).

A sample size might depict more items or people than a researcher determines. Simultaneously, sampling is the technique of choosing a part of the population for an assessment to gauge an individual's perspectives, convictions, and qualities (Rashid & Rasheed, 2022). Sampling speeds up data collection and acquires exact outcomes. Regarding choosing the sampling technique, it relies upon the idea of the review or is possible to incorporate commonsense and hypothetical intimations. In this study, we have used convenience sampling as a non-probability technique where the information is promptly accessible. This technique assists researchers with getting reactions or completing meetings in a savvy way. It has a wide-running conversation on sample size in scholarly writing. Picking the correct selected size is, at this point, pursued by researchers as the measurable strategies are all together and sensitive to test size and pick correctly. This research has a sample size of 200 supply chain professionals working at supermarkets. According to Hashmi et al. (2021), a sample size of 200 is adequate enough to generalize the test results. This research has an organization as a unit of analysis. The questionnaire used a five-point Likert scale. A Likert scale is generally utilized in survey examination to evaluate perspectives and perceptions. Such evaluating scales incorporate more than five response classifications and get advantages and disadvantages of their own. Writing demonstrates that the Likert information is generously less dependable where the scale surpasses seven or drops 5.

## 4. Data Analysis

### 4.1 Descriptive Analysis

Data analysis was performed using IBM Statistical Package for Social Science (SPSS) version 24. The descriptive and inferential statistical analysis was carried out to test the study hypothesis. For analysis of the demographic variables, which include Gender (Male/Female), Age, and logistics experience. The total number of respondents was 200 from supermarkets across Pakistan, of which 135 (67.5%) were male and 65 (32.5%) female. 60 (30%) respondents were between the age of 25 to 30 years, 85 (42.5%) respondents were between the age of 31 to 35 years, and 55 (27.5%) respondents were between the age of 36 to 40 years this indicates less number of supply-chain experienced professionals with 10+ years are present in the industry, whereas 42.5% are young supply-chain professionals who are gaining experience from others' experience had been in the industry for around 6-10 years, and 30% are the entrants to this profession due to its growing demand are between 01-05 years of experience.

Table 1: Demographic table

Gender		Age (Years)			Experience (Years)		
Male	Female	25-30	31-35	36-40	01-05	06-10	10+
135	65	60	85	55	60	85	55
68%	33%	30%	43%	28%	30%	43%	28%

Source: SPSS output

#### 4.1.1 Quality of Customer Service Delivery

Quality of customer service delivery is the first and the only dependent variable that was analyzed by asking answers on a Likert scale for 09 questions. The researcher wanted to establish whether logistical practices enhance the quality of customer service delivery. 22 of 200 respondents strongly disagreed with the statement that logistical increases the cost of products and has affected customer service standards, 19 of 200 respondents disagreed with the statement that logistical increases the cost of products and has affected customer service standards, 10 of 200 stayed neutral to the statement that logistical increases the cost of products and has affected customer service standards, 143 of 200 respondents agreed & 6 of 200 respondents strongly agreed to the statement that logistical increases the cost of products and has affected customer service standards which means that departing from the traditional ways of handling product movements within the supply chain to a more environment-friendly movement is cost intensive especially when there is inadequate training and communication among personnel in the logistics department. Further, 10 of 200 respondents strongly disagreed to the statement that green logistics lead to longer lead times that affect customer service, 30 of 200 respondents disagreed to the statement that logistical lead to longer lead times that affect customer service, 36 of 200 stayed neutral to the statement that logistical lead to longer lead times that affect customer service, 26 of 200 respondents agreed & 98 of 200 respondents strongly agreed to the statement that logistical operations lead to longer lead times that affect customer service which means that when implementing green logistics, the time the customers take to place an order and the time it takes for the customer to receive the product is longer. 13 of 200 respondents strongly disagreed to the statement that environmental friendly packaging of material improves customer, 31 of 200 respondents disagreed to the statement that environmental friendly packaging of material improves customer, 80 of 200 stayed neutral to the statement that environmental friendly packaging of material improves customer, 24 of 200 respondents agreed & 52 of 200 respondents strongly agreed to the statement that environmental friendly packaging of material improves customer which means that materials used for packaging can be reused and recycled.

18 of 200 respondents strongly disagreed with the statement that it is easy for the customer to find their desirables products easily in the supermarket, and 31 of 200 respondents disagreed with the statement that it is easy for the customer to find their desirables products easily in the supermarket, 36 of 200 stayed neutral to the statement that it is easy for the customer to find their desirables products easily in a supermarket, 107 of 200 respondents agreed & 28 of 200 respondents strongly agreed to the

statement that it is easy for the customer to find their desirable products easily in the supermarket which means that it saves their time and money too, and how well the supermarket is designed to make customer deliverables easy. Then, 03 of 200 respondents strongly disagreed with the statement that using fuel management technology reduces transportation costs and enhances customers, 15 of 200 respondents disagreed with the statement that using fuel management technology reduces transportation cost and enhances customers, 49 of 200 stayed neutral to the statement that using fuel management technology reduces transportation cost and enhances customer, 98 of 200 respondents agreed & 35 of 200 respondents strongly agreed to the statement that using fuel management technology reduces transportation cost and enhances customer. However, 6 of 200 respondents strongly disagreed with the statement that supermarkets give individual attention to the customer, 24 of 200 respondents disagreed with the statement that supermarkets give individual attention to the customer, 61 of 200 stayed neutral to the statement that supermarkets give individual attention to the customer, 87 of 200 respondents agreed & 35 of 200 respondents strongly agreed to the statement that supermarkets give individual attention to the customer.

6 of 200 respondents strongly disagreed with the statement that supermarkets use respective & appropriate transport that delivers large loads to make availability of products easy, 26 of 200 respondents disagreed with the statement that supermarkets use respective & appropriate transport that delivers large loads to make availability of products easy, 61 of 200 stayed neutral to the statement that supermarkets use respective & appropriate transport that delivers large loads to make availability of products easy, 87 of 200 respondents agreed & 20 of 200 respondents strongly agreed to the statement that supermarkets use respective & appropriate transport that delivers large loads to make availability of products easy as supermarkets make bulk purchases for every item to be made available at the supermarket. 6 of 200 respondents strongly disagreed with the statement that they prefer supermarkets due to their locations, possibly due to being located far from their home or being located near heavy traffic areas; 13 of 200 respondents disagreed with the statement that they prefer supermarkets due to their locations, 47 of 200 stayed neutral to the statement that they prefer supermarkets due to their locations, 106 of 200 respondents agreed & 28 of 200 respondents strongly agreed to the statement that they prefer supermarkets due to their locations. 03 of 200 respondents strongly disagreed with the statement that communication with customers is maintained in order to make them realize the importance of environmentally friendly products, 24 of 200 respondents disagreed with the statement that communication with customers is maintained in order to make them realize the importance of environmentally friendly products, 46 of 200 stayed neutral to the statement that communication with customers is maintained in order to make them realize the importance of environmentally friendly products, 94 of 200 respondents agreed & 33 of 200 respondents strongly agreed to the statement that communication with customers is maintained in order to make them realize the importance of environmentally friendly products.

#### ***4.1.2 Collaboration in Transport***

The researcher wanted to establish whether collaboration in transport affects or enhances efficient customer service delivery. 08 of 200 respondents strongly disagreed with the statement that they use lead-free fuels to avoid any damage to the environment, 35 of 200 respondents disagreed with the statement that they use lead-free fuels to avoid any damage to the environment, 63 of 200 stayed neutral to the statement that they use lead-free fuels to avoid any damage to the environment, 81 of 200 respondents agreed & 13 of 200 respondents strongly agreed to the statement that they use lead-free fuels to avoid any damage to the environment as in Pakistan, the fuel that is available is free from lead. 01 of 200 respondents strongly disagreed with the statement that their logistics practices comply with the National Environmental Policy of Pakistan as they may have outsourced logistics, 12 of 200 respondents disagreed with the statement that their logistics practices comply with the National Environmental Policy of Pakistan, 50 of 200 stayed neutral to the statement that their logistics practices comply with National Environmental Policy of Pakistan, 85 of 200 respondents agreed & 52 of 200 respondents strongly agreed to the statement that their logistics practices comply with National Environmental Policy of Pakistan. 03 of 200 respondents strongly disagreed with the statement that they are limiting the use of carbon-based fuels, 09 of 200 respondents disagreed with the statement that

they are limiting the use of carbon-based fuels, 37 of 200 stayed neutral to the statement that they are limiting the use of carbon-based fuels, 106 of 200 respondents agreed & 35 of 200 respondents strongly agreed to the statement that they are limiting the use of carbon-based fuels. 09 of 200 respondents strongly disagreed with the statement that their organization uses fuel management technology that reduces transportation costs and enhances customer service, 07 of 200 respondents disagreed with the statement that their organization uses fuel management technology that reduces transportation costs and enhances customer service, 22 of 200 stayed neutral to the statement that their organization uses fuel management technology that reduces transportation costs and enhances customer service, 112 of 200 respondents agreed & 50 of 200 respondents strongly agreed to the statement that their organization uses fuel management technology that reduces transportation costs and enhances customer service as they have their own transport fleet to save cost and use it on benefitting customers.

Further, 07 of 200 respondents strongly disagreed with the statement their organization optimizes transport cargo distribution, 56 of 200 respondents disagreed with the statement their organization optimizes transport cargo distribution, 34 of 200 stayed neutral to the statement their organization optimizes transport cargo distribution, 76 of 200 respondents agreed & 27 of 200 respondents strongly agreed to the statement their organization optimizes transport cargo distribution for meeting customer and market demand. 04 of 200 respondents strongly disagreed with the statement that the full truckload system is applied to increase the effectiveness of product delivery, 24 of 200 respondents disagreed with the statement that the full truckload system is applied to increase the effectiveness of product delivery, 27 of 200 stayed neutral to the statement that the full truckload system is applied to increase the effectiveness of product delivery, 94 of 200 respondents agreed & 51 of 200 respondents strongly agreed to the statement that the full truckload system is applied to increase the effectiveness of product delivery. 02 of 200 respondents strongly disagreed with the statement that the delivery vehicles are well checked & maintained as per plan, 33 of 200 respondents disagreed with the statement that the delivery vehicles are well checked & maintained as per plan, 38 of 200 stayed neutral to the statement that the delivery vehicles are well checked & maintained as per plan, 99 of 200 respondents agreed & 28 of 200 respondents strongly agreed to the statement that the delivery vehicles are well checked & maintained as per plan. 01 of 200 respondents strongly disagreed with the statement that the delivery routes are determined to save fuel and reduce pollution, 21 of 200 respondents disagreed with the statement that the delivery routes are determined to save fuel and reduce pollution, 24 of 200 stayed neutral to the statement that the delivery routes are determined to save fuel and reduce pollution, 91 of 200 respondents agreed & 63 of 200 respondents strongly agreed to the statement that the delivery routes are determined to save fuel and reduce pollution. 05 of 200 respondents strongly disagreed with the statement that the temperature & other conditions of the trailer are measured with the system w.r.t supply of dry & frozen items, 21 of 200 respondents disagreed with the statement that the temperature & other conditions of the trailer are measured with the system w.r.t supply of dry & frozen items, 33 of 200 stayed neutral to the statement that the temperature & other conditions of the trailer are measured with the system w.r.t supply of dry & frozen items, 95 of 200 respondents agreed & 46 of 200 respondents strongly agreed to the statement that the temperature & other conditions of the trailer are measured with the system w.r.t supply of dry & frozen items to keep them fresh and deliverable when received at the supermarket.

#### ***4.1.3 Limited use of Carbon Fuels***

Limited use of Carbon Fuels is the two of three independent variables that were analyzed, asking answers on the Likert scale for 03 questions. Where 03 of 200 respondents strongly disagreed with the statement that their fleet uses lead-free fuel to avoid damaging the environment, 31 of 200 respondents disagreed with the statement that their fleet uses lead-free fuel to avoid damaging the environment, and 49 of 200 stayed neutral to the statement that their fleet uses lead-free fuel to avoid damaging environment, 93 of 200 respondents agreed & 24 of 200 respondents strongly agreed to the statement that their fleet uses lead-free fuel to avoid damaging environment. 02 of 200 respondents strongly disagreed with the statement that the delivery routes are determined to save fuel and reduce pollution, 20 of 200 respondents disagreed with the statement that the delivery routes are determined to save fuel and reduce pollution, 36 of 200 stayed neutral to the statement that the delivery routes are



determined to save fuel and reduce pollution, 85 of 200 respondents agreed & 57 of 200 respondents strongly agreed to the statement that the delivery routes are determined to save fuel and reduce pollution. 04 of 200 respondents strongly disagreed with the statement that the supermarket is concerned about the fuel spent during the delivery process and the amount of released CO<sub>2</sub>, 13 of 200 respondents disagreed with the statement that the supermarket is concerned about the fuel spent during the delivery process and the amount of released CO<sub>2</sub>, 33 of 200 stayed neutral to the statement that the supermarket is concerned about the fuel spent during the delivery process and the amount of released CO<sub>2</sub>, 104 of 200 respondents agreed & 46 of 200 respondents strongly agreed to the statement that the supermarket is concerned about the fuel spent during the delivery process and the amount of released CO<sub>2</sub>.

#### **4.1.4 Recycling of Material for Green Logistics**

Recycling of Material for Green Logistics is the last of three independent variables that were analyzed, asking answers on a Likert scale for 07 questions. 98 of 200 respondents strongly disagreed with the statement that the packaging used at the supermarket is reused, 06 of 200 respondents disagreed with the statement that the packaging used at the supermarket is reused, 08 of 200 stayed neutral to the statement that the packaging used at the supermarket is reused, 47 of 200 respondents agreed & 41 of 200 respondents strongly agreed to the statement that the packaging used at the supermarket is reused. 02 of 200 respondents strongly disagreed with the statement that the purchased raw material by the supermarkets can be reused or recycled, 04 of 200 respondents disagreed with the statement that the purchased raw material by the supermarkets can be reused or recycled, 85 of 200 stayed neutral to the statement that the purchased raw material by the supermarkets can be reused or recycled, 109 of 200 respondents strongly agreed to the statement that the purchased raw material by the supermarkets could be reused or recycled. 124 of 200 respondents strongly disagreed with the statement that the products from the customer are recycled, 30 of 200 respondents disagreed with the statement that the products from the customer are recycled, 23 of 200 stayed neutral to the statement that the products from the customer are recycled, 14 of 200 respondents agreed & 09 of 200 respondents strongly agreed to the statement that the products from the customer are recycled. 51 of 200 respondents strongly disagreed with the statement that their packaging materials are environmentally friendly, 85 of 200 respondents disagreed with the statement that their packaging materials are environmentally friendly, 10 of 200 stayed neutral to the statement that their packaging materials are environmentally friendly, 18 of 200 respondents agreed & 36 of 200 respondents strongly agreed to the statement that their packaging material is environmentally friendly.

36 of 200 respondents strongly disagreed with the statement that recycling materials enable them to provide better customer service, 32 of 200 respondents disagreed with the statement that recycling materials enable them to provide better customer service, 113 of 200 stayed neutral to the statement that recycling materials enable them to provide better customer service, 12 of 200 respondents agreed & 07 of 200 respondents strongly agreed to the statement that recycling materials enable them to provide better customer service. 19 of 200 respondents strongly disagreed with the statement that their supermarkets provide means for recycling their materials, 14 of 200 respondents disagreed with the statement that their supermarkets provide means for recycling their materials, 59 of 200 stayed neutral to the statement that their supermarkets provide means for recycling of their materials, 82 of 200 respondents agreed & 26 of 200 respondents strongly agreed to the statement that their supermarkets provide means for recycling of their materials. 35 of 200 respondents strongly disagreed with the statement that recycling decreases supermarket disposal costs, 93 of 200 respondents disagreed with the statement that recycling decreases supermarket disposal costs, 26 of 200 stayed neutral to the statement that recycling decreases supermarket disposal costs, 29 of 200 respondents agreed & 17 of 200 respondents strongly agreed to the statement that recycling decreases supermarket's disposal cost.

#### **4.3 Reliability Statistics**

As per the standard ratio, the reliability has to be greater than 0.70, assuring the reliability of the questionnaire and the data collected (Hashmi et al., 2020). The reliability ratio in the research for saving behaviour study is 0.738, above the standard ratio. As this statistical data summary shows that

our sample size is 200 and there are no missing data, and all questionnaires have been filled out by the respondents working in supermarkets across Pakistan.

Table 2: Reliability test

Cronbach's Alpha	N of Items
.738	28

Source: SPSS output

#### 4.4 Correlations

The accompanying scores of Pearson correlation assess the strength and course of the straight association between the two elements. The correlation coefficient goes from - 1 to +1, moving from the ideal negative relationship to consummating the positive relationship, and 0 shows no connection by any means. (A variable related to it-self-will consistently have a correlation coefficient of 1.) The correlation coefficient advises the degree to which the worth of one variable can be speculated, given the worth of the other variable. The Sig. (2-tailed) is the *p-value* related to the correlation. The reference under the correlation table clarifies what the single and double asterisks signify. *N* is a number of cases that are utilized in the correlation. As there are no missing data in this informational index, all correlations were based on all 200 cases in the data set. Be that as it may, if a couple of variables had missing qualities, there would have been different qualities for *N*'s. Cohen (1992) proposed the recommended values of a correlation coefficient:

Table 3: Correlations matrix

		CST	LUFT	REGT	CITRATE
CST	Pearson Correlation	1	.367**	.117	.345**
	Sig. (2-tailed)		<.001	.099	<.001
	N	200	200	200	200
LUFT	Pearson Correlation	.367**	1	.093	.525**
	Sig. (2-tailed)	<.001		.188	<.001
	N	200	200	200	200
REGT	Pearson Correlation	.117	.093	1	-.018
	Sig. (2-tailed)	.099	.188		.797
	N	200	200	200	200
CITRATE	Pearson Correlation	.345**	.525**	-.018	1
	Sig. (2-tailed)	<.001	<.001	.797	
	N	200	200	200	200

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Source: SPSS output

Note: QCSDT: Quality of customer service delivery (Dependent Variable), Independent Variables: LUCFT: Limited use of carbon-based fuels, REGLT: Recycling of material for green logistics, CITRT: Collaboration in Transport

Size of Correlation	Interpretation
-0.3 to +0.3	Weak
-0.5 to -0.3 or 0.3 to 0.5	Moderate
-0.9 to -0.5 or 0.5 to 0.9	Strong
-1.0 to -0.9 or 0.9 to 1.0	Very strong

Cohen (1992). Power Primer. Psychological Bulletin, 112(1) 155-159; Rule of Thumb for Interpreting the Size of a Correlation Coefficient

#### 4.5 Regression Analysis

Variables Entered is the list of all the variables used in the process for regression analysis. Here four variables are used for testing regression analysis. Rashid (2016) suggested that variables removed enlisted if any variable is omitted or removed from the regression process, where none in this case happened. This column only gets filled when only stepwise regression is done. The method describes the procedure for running the regression. "Enter" defines that all independent variables are entered the usual way, and no particular criterion is followed. Any entry in this column will be defined if a stepwise

regression is done.

#### 4.5.1 Model Summary

The model defines the number of the model being reported. R is the square root of  $R^2$  and is the correlation between the observed and expected values of the dependent variable. It shows a 42.0% of correlation between the observed and expected values of the dependent variable. R-Square is the part of the variance in the dependent variable (quality of customer service delivery) expected from the independent variables (collaboration in transport, limited use of carbon-based fuels & recycling of material for green logistics). This value defines that 17.6% of the variance in quality of customer service delivery can be predicted from collaboration in transport, limited use of carbon-based fuels & recycling of material for green logistics, & the rest 82.4% can be due to any other factors that remained hidden during the research. This is a measurement of the overall strength of association and does not show to what level any particular independent variable is associated with the dependent variable. For the big picture, the  $R^2$  value in combination with other items should be considered, including statistics and deep knowledge of the research area. R-Square is also called the coefficient of determination. Small R-square values are not always problematic, and the higher ones cannot always be good. Getting R-value for any change is impossible to determine. A good model can have a low R-Square value, whereas a biased one can have greater R-Square values, and in some situations value of R-Square can be window dressed toward the higher side.

Table: 06 Model Summary

Model	R	R Square	Adjusted R Square	Std. The Error in the Estimate
1	.420 <sup>a</sup>	.176	.164	.49550

a. Predictors: (Constant), CITRT, REGLT, LUCFT

Adjusted R-square, as indicators are added to the model, every indicator clarifies some difference in the dependent variable because of possibility. One could keep adding indicators to the model, which would keep on improving the capacity of the indicators to clarify the dependent variable, albeit a portion of this increment in  $R^2$  would be basically because of chance variation in that specific example. The adjusted  $R^2$  endeavors to convey the more legitimate incentive for assessing the  $R^2$  for the populace. The value of  $R^2$  was 0.176, while the value of Adjusted  $R^2$  was .164. This shows that 16% of the variety in the result is because of the indicators utilized in the model. One can see that when the quantity of observations is small and the quantity of indicators is enormous, there will be a lot more prominent distinction between R-square and adjusted  $R^2$ .

Additionally, when the quantity of observations is huge contrasted with the number of indicators, the worth of  $R^2$  and adjusted  $R^2$  will be a lot nearer. As  $R^2$  consistently increases and never diminishes, causing it gives off an impression of being a better fit with different terms in the model. The standard error of the estimate, additionally called root mean square Error, is the  $\sigma$  of the error term and is the square base of the Mean Square Residual (or Error). The standard error of 0.49550 estimates the accuracy of the model. A little SE means that the sample means a more precise impression of the simple populace means.

#### 4.5.2 Statistical Significance

The Total variance is divided into the variance, one that can be explained by the free factors (Regression) and the other that is not explained by the self-governing components (Residual, sometimes called error). The Sums of Squares for the Regression and Residual add up to the total showing how the total is apportioned into Regression and Residual difference. The Sum of Squares is related to the three sources of variance, Total, Model and Residual. SS Regression/SS Total is equivalent to 0.176, the worth of  $R^2$ . This is because  $R^2$  is the degree of the distinction explained by the free factors, which subsequently can be figured by SS Regression/SS Total. DF is related to the sources of variance. The total variance has N-1 degrees of freedom. In this case, there were N=200 students, so the DF for the total is 199. The model degrees of freedom correspond to the number of predictors minus 1 (K-1). It is

imagined that this would be 4-1 (since there were three independent variables in the model, collaboration in transport, limited use of carbon-based fuels & recycling of material for green logistics). However, the intercept is automatically included in the model (unless explicitly omitting the intercept). Including the intercept, there are four estimators, so the model has  $4-1=3$  degrees of freedom. The Residual degree of freedom is the DF total minus the DF model;  $199 - 3$  is 196.

Table 7: ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression (2)	10.308	3	3.436	13.995	<.001 <sup>b</sup>
1 Residual (2)	48.123	196	.246		
Total (2)	58.431	199			

a. Dependent Variable: QCSDT, b. Predictors: (Constant), CITRT, REGLT, LUCFT

Source: SPSS output

Mean Squares; the Sum of Squares divided by their respective DF.

- i. For the Regression:  $10.308/3=3.436$
- ii. For the Residual:  $48.123/196=0.246$

These are processed to figure the F proportion, dividing the Mean Square Regression by the Mean Square Residual for testing the significance of the predictors in the model. The F-value is the Mean Square Regression (3.436) divided by the Mean Square Residual (0.246), yielding  $F=13.995$ . The p-value related to this F value is extraordinarily little ( $<0.001$ ). These values are utilized to address the “Are independent variables dependably foreseeing the dependent variable?” The p-value is contrasted with the alpha level (typically 0.05) and, if smaller, it can be concluded that “Indeed, the independent factors are dependably anticipating the dependent variable”. The *F-test* in the ANOVA table portrays whether the overall model is a good fit or not. The table shows that the independent variables statistically significantly predict the dependent variable,  $F(3, 196) = 13.995, p(<.001) < 0.05$ , justifying that the model is a good fit for the data.

One might say that the gathering of factors collaboration in transport, limited use of carbon-based fuels & recycling of material for green logistics can be utilized to dependably anticipate the quality of customer service delivery (the dependent variable). Suppose the p-value were more significant than 0.05. In that case, it tends to be said that the gathering of independent variables does not show a statistically significant relationship with the dependent variable, and the independent variables are not reliably predicting the dependent variable. This is an overall significance test assessing whether the group of independent factors, when utilized together, dependably foresee the dependent variable and does not address the capacity of any of the particular independent variables to predict the dependent variable. The limit of every individual independent variable to foresee the dependent variable is tended in the table under which every one of the individual variables is listed.

#### 4.5.3 Statistical Significance

The statistical significance of each independent variable tests whether the standardized or unstandardized coefficients are equal to zero or not in the given population. If  $p < 0.05$ , the coefficients are statistically significant to 0 (zero). The test is useful for checking the exploratory variable presence in the model. It was found that LUCFT;  $p(.002) < 0.05$ , CITRT;  $p(.004) < 0.05$ , are significant, but no REGLT  $p(.133) > 0.05$ . This means that the exploratory variable recycling of material for green logistics is no useful variable in the model. However, we cannot completely agree with this, as already stated above, due to the different thinking and mentality of the respondents, the results were not what was expected and with this importance of recycling cannot be denied in any aspect of life. From the above result, we conclude that collaboration in transport & limited use of carbon-based fuels impacts the quality of customer service delivery more substantially than recycling material for green logistics. The beta coefficients value shows that these are the values for the regression equation for predicting the dependent variable from the independent variable. These are called unstandardized coefficients estimated in their standard units. The coefficients could not measure up to each other to figure out which

is more compelling in the model since they can be estimated on various scales. The regression equation can be presented in many different ways, for example:

$$\text{iii. } Y_{\text{predicted}} = b_0 + b_1*x_1 + b_2*x_2 + b_3*x_3 + b_4*x_4$$

The column of estimates (coefficients or parameter estimates, from here on, labelled coefficients) provides the values for  $b_0$ ,  $b_1$ ,  $b_2$ , and  $b_3$  for this equation. Expressed as far as the factors utilized in this model, the relapse condition is

$$\text{iv. } \text{Quality of Customer Service Delivery Predicted} = 1.887 + .162*LUCFT + 0.103*REGLT + 0.215*CITRT$$

These assessments talk about the association between the independent factors and the dependent variable. These estimates tell the impact on quality of customer service delivery would be expected by a 1-unit extension in the pointer. For the independent factors that are not critical, the coefficients are not through and are not precisely equivalent to 0, which should be viewed while interpreting the coefficients. Constant 1.887 indicates the value for the dependent variable (quality of customer service delivery) if all the relative independent variables, collaboration in transport, limited use of carbon-based fuels & recycling of material for green logistics = 0. This will suggest that an average change in saving behaviour is 1.887. The coefficient (parameter estimate) for collaboration in transport is .215. So, for every change in collaboration with the transporter, a 0.215 change is expected in the quality of customer service delivery, holding all other variables constant. Alternatively, for every change point in the parental norm, the quality of customer service delivery is expected to be higher by 0.215. This is significantly different from 0.

The coefficient (parameter estimate) for the limited use of carbon-based fuels is 0.162. So, for limiting carbon-based fuels in the fleet, a 0.162 change is expected in the quality of customer service delivery which can make the delivery more timely and protect the environment, holding all other variables constant. Alternatively, for every change, one point in limiting carbon-based fuels, quality of customer service delivery is expected to be higher by .162. This is significantly different from 0. For each adjustment of recycling of material for green logistics, there is a 0.103 change in the quality of customer service delivery, holding any remaining factors steady. The variable recycling of material for green logistics is, in fact, not measurably essentially lower than 0, because the p-value is more prominent than .05. However, .133 is a path higher than .05, making it genuinely unimportant.

The standard errors are related to the coefficients. The standard error tests that the parameter is not the same as 0 by dividing the parameter estimate by the standard error giving a *t-value*. Beta is also called normalized coefficients. These coefficients are gained by normalizing the sum of the elements in relapse, including dependent and the entirety of the independent factors, and running the regression. By normalizing the components before running the regression, all variables are put on a comparative scale, which can be gauged by the degree of the coefficients clarifying which one has a more prominent measure of an effect. It will, in like manner, be seen that the greater betas are connected with, the greater t-values. Hence, in this case, *limited use of carbon-based fuels* is the highest contributing factor (0.242); the next is a *collaboration with transport* (0.220) for any change in the quality of customer service delivery: t and Sig. Sections give the t-worth, and 2-tailed followed *p-value* utilized in testing the invalid theory that the coefficient/boundary is 0. Utilizing a 2-tailed test, then, at that point, would contrast every p-value with your preselected worth of alpha. Coefficients having p-values not exactly like alpha are measurably critical. For instance, on the off chance that you picked alpha to be 0.05, coefficients having a p-worth of 0.05 or less would be statistically critical (i.e., you can dismiss the invalid theory and say that the coefficient is fundamentally not the same as 0). With a 2-tailed test and alpha of 0.05, we should dismiss the invalid theory that the coefficient for recycling material for green logistics is not quite the same as 0 since *the p-value = 0.99* is not the same as 0.05. Be that as it may, having a large catch is intriguing only occasionally. Lastly, the coefficient for limited use of carbon-based fuels (0.162) was statistically significantly different from 0 using an alpha of 0.05 because its p-value is <0.001, which is smaller than 0.05. The coefficient for recycling of material for green logistics

(0.103) is not statistically significant at the 0.05 level since the p-value is more remarkable than .05. The coefficient for collaboration in transport (0.215) is statistically significant because its p-value of <0.001 is less than .05. Hence, the hypotheses *H1 (Collaboration in transport significantly influence the quality of customer service delivery)* and *H2 (Limited use of carbon-based fuels significantly influence the quality of customer service delivery)* are supported; whereas the *H3 (Recycling of material significantly influence the quality of customer service delivery)* not supported.

## **5. Discussion**

The review demonstrated that crafted by operations directors in the production network division needs abilities to be improved to prompt a more proficient and responsive inventory network office. Assuming this is done, it will additionally work on the nature of the store network staff giving groundbreaking plans to organizations, learning new advancements effectively, sharing information and utilising innovations to take care of the issue. The concentrate likewise affirmed that administrators have information on green operations. This implies that countless of the respondents are prepared and educated in green strategies the executives because of the requesting idea of the gig. Based on the previous studies and using SPSS, it was concluded that collaboration in transport and limiting the use of carbon-based fuels would lead to a better quality of customer service delivery. In contrast, recycling material for green logistics does not affect.

The individual examination discoveries demonstrated that most stores in Pakistan never utilized rail transport to limit fossil fuel byproducts; the elective vehicle has been utilized to convey items. This affirms the high outflow of carbon dioxide into the environment brought about by the utilization of heavy street transport vehicles to convey merchandise to the general stores; however, the situation is all changing now because of cutting edge nature of the fuel delivered by Oil organizations keeping in view the green projects drive. They kept up with that the requirement for green strategies expects associations to move cargo from modes with generally high carbon forces, like air and street, to those with much lower fossil fuel byproducts, similar to rail and water-borne administrations. It was likewise confident that stores in Pakistan utilized lead-free powers to stay away from obliteration the climate. This affirms that the grocery stores are moving towards using lead-free fuel in their activities. This training is steady with nations like the USA, China, Japan, and the European Union. There was proof from the review that grocery stores have never contracted providers who embraced green coordinated factors rehearses because of less consciousness of such projects in the business as a large portion of the vehicle administrators is of limited scope. This was an obvious sign that not every one of the grocery stores but some in Pakistan is working with providers that embrace natural reasoning in their coordinated factors the board. Like this, the stores have neglected to help the contention that organizations can't give green items except if they cooperate with providers. It was likewise clear that bundling materials utilized by general stores in Pakistan are harmless to the ecosystem. The act of utilizing recyclable and reusable bundling materials is in helps the administration of the climate, which influences the execution of green strategies works on during the planning phase of items.

The review stated that the interest for harmless ecosystem items has expanded throughout the long term, as is the moving of clients' steadfastness. Another significant finding from the review is that green strategies practice will make client care a costly endeavour among grocery stores. It was laid out that green strategies prompted longer lead times that influence client care among stores in Pakistan since it is difficult to come by such vehicle administrators following green calculated rehearses. This means that while carrying out green coordinated factors, the time the clients assume to position a request and the time it takes for the client to get the item is longer. This more extended lead time might be because of the absence of innovation and the reinforcement of associations with providers. Moreover, the discoveries affirmed that green coordinated operations prompt quality client administrations given by general stores in Pakistan.

### **5.1 Summary, Conclusion, and Recommendations**

The study established that most of the supermarkets in Pakistan are deficient in using rail

transport to minimize carbon emissions from road transport. Where this problem has been solved due to the evolution of Euro 4 Engines that are healthful for the environment, this may be because rail transport takes a long time to deliver products; it may be hard for supermarkets to access rail terminals, thus increasing carbon emissions resulting from the use of heavy road transport vehicles moving products along the supply chain. The supermarkets are also at a minimum in contracting suppliers who embrace green logistics; they have less collaboration in load transport due to a lack of awareness of green logistics and being stiff on transferring to new technology. On the other hand, the study found that several supermarket transporters in Pakistan use lead-free fuels to avoid environmental destruction. The use of recycling technology enhances the supermarket's concern about the impact of their various products on the environment. Moreover, the study established that packaging materials used by the majority of the supermarkets in Nairobi are environmentally friendly. The study further established that logistics managers working for the supermarkets hold a professional qualifications and all work in the supply chain departments of their respective entities. The study also recognized that green logistics practices enhance customer service delivery through collaboration in transport and the limited use of carbon-based fuels. Even though the practice of green logistics leads to the increasing quality of products delivered, the study documents that its implementation is expensive, results in a longer lead time, and increases the cost of products.

From the findings of the study, it can be concluded that to a more considerable extent, the majority of the supermarkets in Pakistan employ the following green logistics practices: use of lead-free fuels to avoid destruction to the environment, recycling of materials, complying with the Pakistan Environmental Policy requirements concerning environmental protection, using environmentally friendly packaging materials, limiting the use of carbon-based fuels and using fleet fitted with fuel management devices to avoid fuel wastage and unnecessary pollution to the environment. The impact of green logistics practices on customer service delivery among supermarkets in Pakistan is appreciable with few drawbacks. Green logistics leads to quality customer services provided by the supermarkets; it has made customer service an expensive undertaking among supermarkets in Pakistan and a longer lead time. Also, fuel management technology reduces transportation costs and enhances customer service delivery among supermarkets in Pakistan. Even though the study was successful, it experienced some limitations from respondents who could not fill in the questionnaire for fear that the information provided would be leaked to their competitors. Moreover, because the supermarkets are very busy on weekdays, the officers who responded were hesitant to take time off. Hence the data collection time frame extended well beyond the time expected.

Managers of supermarkets in Pakistan should consider green supply chain management as a cardinal factor to give them a competitive advantage through customers' loyalty. They should contract suppliers that consider protecting the environment and embrace greenness in their manufacturing processes. Collaboration in load transport was seen to be a challenge. Supermarkets in Pakistan should increase the transport of their products jointly using preferable means of reducing emissions and moving buck products as reduced costs. Finally, training, communication and technology should be enhanced within the supply chain departments of Pakistan supermarkets to promote personnel efficiency and reduce lead time in implementing green logistics practices. Since most respondents agreed that green logistics brings efficiency to customer delivery among supermarkets in Pakistan, all supermarkets should be encouraged to adopt this supply chain management practice since it will assist them in attaining efficiency in their customer sender initiatives. This study could only address green logistics practices among supermarkets in Pakistan. It will be necessary to carry out a study featuring other areas inside Pakistan, specifically any one supermarket, to find out if there are any similarities and differences. This study can be replicated after some time to find out whether the findings of this study have changed or they remain the same.

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