

Green Logistics Practices and Customer Satisfaction of Shipping Companies in Nigeria

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Abstract

This study explored the logistics practices and customer satisfaction of shipping companies in Nigeria. The aim of the study was to determine the relationship between green logistics practices (green storage, green transportation and reverse logistics) and customer satisfaction (customer preference and repeat patronage) of shipping companies in Nigeria. Six (6) research questions and hypotheses were developed to address the objectives of the study. The study adopted the positivist research philosophy and correlational research design. The population of this study consisted of all the 101 shipping companies registered with the Nigeria's Shippers Council (NSC) and Nigeria's Shipping Company Association licensed by the Nigerian Maritime Administration and Safety Agency (NIMASA). A sample size of 81 shipping companies was selected as representative of the study population. The sample size was determined using the Taro Yamene's formula while the purposive sampling techniques were used to select the companies for the study. A structured questionnaire was used to elicit data for the study. The data collected were analyzed statistically while the Pearson Correlation Coefficient (r). This was done with the aid of the SPSS version 24.0. The findings revealed that green storage has a significant relationship with customer preference and repeat patronage of shipping companies in Nigeria. The study also revealed that green transportation has a significant relationship with customer preference and repeat patronage of shipping companies in Nigeria. The study equally discovered that reverse logistics have a significant relationship with customer preference and repeat patronage of shipping companies in Nigeria. Based on the findings, it was concluded that green logistics practices have significant relationship with customer satisfaction of shipping companies in Nigeria. Therefore, it is recommended that shipping companies in Nigeria particularly those that are still practicing conventional logistics should switch from their unsustainable logistics practices to green logistics as it would enhance customer satisfaction.

Keywords: Green logistics practices, green storage, green transportation, reverse logistics, customer satisfaction, customer preference and repeat patronage.

Introduction

In any organization be it shipping or non-shipping company, the primary focus of the company is to satisfy the needs of customers and maximize profit. Customers are the major reason why companies are in business and it is only when customers' needs are satisfied that companies can increase sales and maximize profit. However, customer needs and preferences are fast changing in line with the changes in the environment (Sima, 2019). The environmental problems such as environmental pollution and degradation, excessive wastes disposal, climate change and global warming have changed the patronage pattern of customers as many customers are now patronizing companies that do not only meet their needs but also engage in practices that protect the environment (Kushwaha & Kumar, 2014). As customers

align with companies that show concern towards the environment, it becomes imperative for shipping companies to redefine their shipping operations and integrate environmental concern into their shipping practices. The best way to integrate environmental concerns into their shipping operations is through the practice of green logistics strategies.

Green logistics practices consist of those activities that involve the movement of goods from the point of production to the point of consumption in an eco-friendly manner (Hampus & Henrik, 2014). It involves the coordination of the logistics activities to reduce their environmental impact (Ismail et al, 2019). Weng and Chen (2015) stated that green logistics practices involves greening the logistics processes such as transportation, packaging, storage, and optimizing the travelling route, ensuring fuel efficiency and engaging in reverse logistics. Practicing green logistics requires a change from the conventional logistics practices to an environmental friendly logistics system. Such practices demand a change in the way in which logistics operations are carried out as well as the way in which vehicles, trucks or vessels are powered to reduce environmental pollution in the course of moving goods to their destination (Molina-Besch & Palsson 2014). For instance, green logistics can be practiced by shifting from the use of fossil fuel to more eco-friendly fuel such as biofuel and solar energy (Molina-Besch & Palsson 2014).

Practicing green logistics begins with reducing the amount of fossil fuels and greenhouse gases used in the logistics process to increased emphasis on using clean energy to power vessels during distribution (Mwaura et al, 2016). The integration of environmental consciousness in the process of moving goods from one point to another promotes green logistics philosophy. Green logistics place emphasis on environmental protection in the process of transporting goods from one place to another (Alshura & Awawdeh, 2016). The quest for green logistics emerges as a result of the damages done to the environment in the process of moving goods to their destinations.

Green logistics practices can help to increase customer satisfaction in the shipping industry in Nigeria since many customers have aligned with companies that show concern towards the environment (Kushwaha & Kumar, 2014). Belz and Peattie (2009) stated that green logistics activities increase customer satisfaction because they ensure a safe environment for both the present and future generations. Hampus and Henrik (2014) posited that customers are satisfied with green logistics practices of firms because they reduce environmental pollution and ensure a safe and healthy environment. Macharia et al (2017) argued that green logistics enable a company satisfy customer needs in the most sustainable way and gain a competitive advantage over its rivals in the same industry. It is against this backdrop that this study

examines the relationship between green logistics practices and customer satisfaction of shipping companies in Nigeria.

Statement of the Problem

The major challenge confronting many shipping companies in Nigeria is how to satisfy their customers. Customer satisfaction is the main priority of every company but many shipping companies in Nigeria are struggling to satisfy their customers. Customers’ tastes and preference are changing rapidly and as such shipping companies need to study and understand the changing customer tastes and preference in order to satisfy their needs. The environmental problems such as climate change, global warming, excessive wastes disposal, environmental pollution and degradation have changed the selection criteria of customers in favour of companies that can satisfy their needs in the most sustainable way. The International Maritime Organization (IMO) has called on its members to switch from their conventional logistics practices to green logistics practices so as to satisfy their customers in the most sustainable way. Some shipping companies in Nigeria have yielded to this call by switching from the conventional logistics practices to green logistics practices as a way of satisfying their customers. However, ever since these companies embraced green logistics practices, it is still not clear whether it has increased customer satisfaction as empirical studies that examined the relationship between green logistics practices and customer satisfaction of shipping companies in Nigeria are lacking. This has created a vacuum in empirical literature which the present study is set to fill.

Conceptual Framework

The conceptual framework of green logistics practices and customer satisfaction of shipping companies is shown in figure 1 below:



Fig 1: Conceptual framework of green logistics practices and customer satisfaction of shipping companies

Aim and Objectives of the Study

The aim of this study is to examine the relationship between green logistics practices and customer satisfaction of shipping companies. The objectives of the study are to:

1. determine the relationship between green storage and customer preference of shipping companies in Nigeria;
2. find out the relationship between green storage and repeat patronage of shipping companies in Nigeria;
3. ascertain the relationship between green transportation and customer preference of shipping companies in Nigeria;
4. determine the relationship between green transportation and repeat patronage of shipping companies in Nigeria;
5. explore the relationship between reverse logistics and customer preference of shipping companies in Nigeria;
6. ascertain the relationship between reverse logistics and repeat patronage of shipping companies in Nigeria.

Research Questions

The following research questions were raised in the course of the study:

1. What relationship exists between green storage and customer preference of shipping companies in Nigeria?
2. To what extent does green storage contribute to repeat patronage of shipping companies in Nigeria?
3. How does green transportation relate to customer preference of shipping companies in Nigeria?
4. To what extent does green transportation relate to repeat patronage of shipping companies in Nigeria?
5. What relationship exists between reverse logistics and customer preference of shipping companies in Nigeria?
6. To what extent reverse logistics relate to repeat patronage of shipping companies in Nigeria?

Research Hypotheses

The following hypotheses were formulated in this study:

Ho₁: There is no significant relationship between green storage and customer preference of shipping companies in Nigeria.

Ho₂: There is no significant relationship between green storage and repeat patronage of shipping companies in Nigeria.

Ho₃: There is no significant relationship between green transportation and customer preference of shipping companies in Nigeria.

Ho₄: There is no significant relationship between green transportation and repeat patronage of shipping companies in Nigeria.

Ho₅: There is no significant relationship between reverse logistics and customer preference of shipping companies in Nigeria.

Ho₆: There is no significant relationship between reverse logistics and repeat patronage of shipping companies in Nigeria.

Review of Related Literature

Concept of Green Logistics

According to Weng and Chen (2015), green logistics practices involves greening the logistics processes such as transportation, packaging, storage, and optimizing the travelling route, ensuring fuel efficiency and engaging in reverse logistics. Ismail et al (2019) defined green logistics as the coordination of the logistics activities to reduce their environmental impact. Green logistics activities are economically viable and ensure a safe environment for both the present and future generations. Such activities include reducing the carbon dioxide released into the environment in the course of moving goods from one location to another, monitoring and improving the ecological impacts of the logistics processes such as physical transportation, storage and warehousing, packaging, labeling and reverse logistics (Belz & Peattie, 2009). Transportation innovations can help to achieve sustainability in the logistics processes by improving fuel efficiency of engines, optimizing of route and implementing intelligent transportation management systems (Flint & Gammelgaard, 2008). During storage/warehousing, logistics companies can integrate some sustainable attributes to help reduce energy consumption and the amount of carbon emission released into the environment (Dheeraj & Vishal, 2012). Also, optimizing the architecture of the warehouse and increasing natural daylight can help to minimize the need for electric bulbs or lights (Foreword, 2008).

Dimensions of Green Logistics Practices

The dimensions of green logistics considered in this study are green storage, green transportation, and reverse logistics.

Green Storage

Storage is an important aspect of distribution activities. Ravat (2013) defined storage as the act of keeping goods in a warehouse until when they are needed. However, when environmental consciousness is integrated into the storage process, it becomes green storage (Alshura& Awawdeh, 2016). Dheeraj and Vishal (2012) defined green storage as the integration of environmental concern into a company's storage activities without excluding any of the objectives which storage has to fulfill. Zhang and Zheng in Mwaura et al (2016) stated that a company that is determined to satisfy its customers in the most environmental friendly way usually integrates environmental concern into its storage activities. Such company develops and constructs a storage facility or warehouse to meet the criteria of non-pollutant environment and maintain a good humidity, corrosion and waterproofing among other factors. Given the fact that electricity brings about increase in energy consumption and greenhouse gas pollution, companies need to power their storage facilities using wind, hydro and solar energy sources instead of relying on electricity to power their warehouse (Langella & Zanoni, 2011). Using solar energy to power the storage facility can help to reduce greenhouse gas emission, save energy cost as well as protecting the environment from pollution (Langella & Zanoni, 2011).

Green Transportation

Green transportation is the integration of environmental consciousness into the conventional transportation system with a view to reduce the amount of carbon emission released into the environment during transit of goods (Zhang & Zheng, 2010). Erdogan and Miller-Hooks (2012) considered green transportation as any form of transport that does not use or rely on fossil fuels rather it relies on renewable or regenerated energy sources like solar or electricity. In a nut shell, green transportation refers to a system of transportation that uses an eco-friendly method to move goods from one location to another. Green transportation system is implemented to solve the pollution routing problems by using an optimal vehicle route where the polluting emissions and routing costs are jointly minimized (Pelletier et al, 2014). However, in designing and implementing a green transportation system, certain factors need to be considered. They include: fuel, modes of transport, infrastructure and operational practice (Al-Odeh & Smallwood in Mwaura et al, 2016). Using vehicle that utilizes fuels, diesel or gasoline as its sources of

energy to transport goods produces large amount of carbon emission which causes global warming, climate change and acid rain (Langella & Zanoni, 2011). The frequent use of fossil fuel dependent vehicles to transport goods contributes to environmental pollution which constitutes a threat to human health and existence (Pelletier et al, 2014).

Reverse Logistics

Reverse logistics is the flow of materials and products from the point where they are consumed to the point where the original goods had been produced in order to recover or create value or for safe disposal with the overall objective of minimizing the negative impact of a firm's products on the environment (Carter & Ellram, in Ochieng et al, 2016). Belz and Peattie (2009) defined reverse logistics as the process of reclaiming used packaging materials for recycling, reuse or proper disposal. Fortes in Alshura and Awawdeh (2016) described reverse logistics as the recipient of product packaging materials for further manufacturing or recycling. The sub-practices of reverse logistics include product return, packaging material return, material reuse, recycling, disposal of waste and reproduction (Muma et al, in Alshura & Awawdeh, 2016). Toffel in Ochieng et al (2016) noted that firms engage in reverse logistics to reduce their production cost, meet changing customer needs, protect aftermarkets and most importantly promote the environmental image of the firm. Reverse logistics is considered as an extension of the green distribution activities as it has the potentials of achieving a sustainable supply chain process that fulfills both social and environmental needs (Langella & Zanoni, 2011). By taking back wastes packaging materials, companies help to reduce the amount of wastes brought into the landfills since these waste packaging materials will be recycled and put to use again (Belz & Peattie, 2009).

Concept of Customer Satisfaction

Customer satisfaction is a measure of expectations being exceeded, met, or not met (Christensen, 2006). It is the satisfaction of customers with the services and products provided by a firm (Foss & Stone in Hoang, 2015). Customer satisfaction is the key to business growth and survival. It affects the sales, market share and profitability of a company. As Onditi (2016) stated, if a company must grow and survive, it must make customer satisfaction its number one priority since it has a great impact on the sales and profit margin of the company. Chang and Fong (2010) stated that a company must try to meet customers' needs and expectations. When a company is able to meet customer needs and/or surpass their expectations, it will experience massive increase in sales and market share and maximize profitability which is essential for business growth and survival. Gao and Mattila (2014) opined that customer satisfaction is the only way

through which a company can achieve its long and short-term objectives and remain in business. Without satisfying the needs of customers, the companies will find it difficult or impossible to achieve their goals and objectives.

Measures of Customer Satisfaction

Customer satisfaction is measured in this study using customer preference and repeat patronage.

Customer Preference

Customer preference can be defined as a consumer's decision to choose one product, service or organization over other similar products, services and organizations (Bennett et al, 2006). It involves making a choice based on certain criteria which the customer attaches importance to (Cohen & Neira, 2003). Customer preference is a function of the utility (satisfaction) which the customer derived from using the product or service of the organization. Vikraman and Ganesan (2011) noted that customer preference occurs where there are choices that a customer has to choose from. Wilson-Jeanselme and Reynolds (2012) stated that customer preference is not dependent on the consumer's income or his/her capacity to pay for the goods or services; rather it refers to consumer like or dislike for an organization, product or service based on their performance. This implies customer preference has to do with customer like or dislike for a company, product or service.

Repeat Patronage

Repeat patronage is the willingness and desire of a consumer to re-patronize a particular organization in future (Jere et al, 2014). Panda (2013) defined repeat patronage as a behaviour whereby a consumer repeatedly purchases his or her needs from a particular company despite the fact that there are other companies rendering the same services. Repeat patronage is a crucial factor that enhances organizational competitiveness. According to Amelia (2017), repeat patronage gives a company an edge over its competitors. It helps to sustain sales growth and increase profit margin. Garga and Bambale (2016) posited that repeat patronage is the desire of every organization because it helps to sustain the customer base of the organization. An organization that enjoys repeat patronage from its customers stands the chance of achieving business success. Panda (2013) stated that increasing repeat patronage is the key priority for business managers as it helps to sustain the customer base of the firm and increase profit margin.

Theoretical Framework

This study was anchored on the industrial ecology theory which was developed by Robert Frosch and Nicholas E. Gallopoulos in 1989. The theory emphasizes the design and management of production, logistics and consumption system in such a way that the system can interact with the natural system to form a single integrated ecosystem that has an ecological integrity, and supply human beings with a sustainable livelihood. The theory of industrial ecology tends to imagine what the environmental impact of unsustainable production and consumption would be in the next three to four decades considering the growing world population. The theory argues that the amount of natural resources needed to meet the consumption level would probably not be available in the planet since the levels of wastes generated and pollution would exceed the world's regenerated capacity (Frosch & Gallopoulos, in Hond, 2001). This argument has gained widespread support as Schmidheiny in Duchineand Levine (2014) and Von Weizsacker in Korhonen (2005) called for a sustainability approach to production, logistics and consumption.

Industrial ecology theory is relevant in explaining the need for green logistics practices in the shipping companies in order to satisfy customers in the most sustainable way. Pollution prevention and control are the guiding principles of industrial ecology theory and green logistics practices can prevent environmental pollution and climate change. The theory emphasizes the need for the reduction of pollution which can be achieved through the implementation of green logistics strategy. We argued that shipping companies can satisfy the customers by moving goods to their destination in an eco-friendly manner. All shipping companies need to do is to integrate sustainability issues into their logistics processes and increase customer satisfaction level.

Empirical Review

A number of studies have been conducted on green logistics practices and customer satisfaction. For instance, Langella and Zanoni (2011) carried out study to determine eco-efficiency in logistics. Their study focused on the distribution network design. The researchers adopted the descriptive survey where questionnaire was used to elicit data from 200 manufacturers. The data collected were analyzed using both descriptive and influential statistics. After analyzing the data collected, the researchers found out that green transportation has a positive and significant relationship with sustainability performance. The study also found a significant positive relationship between reverse logistics and sustainability performance of manufacturing firms.

Zhang and Zheng (2010) examined green logistics system and the development strategy in Jilin Province. The researchers employed the descriptive survey research design where questionnaire was used to obtain data from managers in 124 manufacturing companies. The data collected were analyzed using the SPSS software program. After analyzing the data collected from the respondents, the researchers found out that green transportation significantly influence environmental performance of manufacturing firms. The study also found a positive and significant relationship between green storage and environmental performance of manufacturing firms. The study equally reported a positive and significant relationship between reverse logistics and environmental performance of manufacturing firms.

Abbasi (2013) carried out a study to determine sustainable logistics operations of leading multinational companies in Pakistan. The researchers employed the survey research design and used a structured questionnaire to collect data from logistics managers and ship captain in six multinational companies in Pakistan. The data collected were analyzed using percentage and frequency analysis, mean, standard deviation, bar chart, pie chart, and the SPSS version 23.0 while the hypotheses were tested using Spearman Rank Order Correlation, factor analysis and ANOVA. The findings showed that leading multinational companies in the maritime sector in Pakistan practice sustainable logistics operations to a moderate extent. The study found a significant relationship between sustainable logistics operations and environmental sustainability in Pakistan. The study equally revealed that sustainable logistics operations would help to address the problem of climate change, global warming and environmental pollution and degradation.

Ali et al (2021) examined the importance of developing a sustainable logistics service quality scale for logistics service providers in Egypt. Their study developed sustainable logistics service quality (SSQ) and adopted the quantitative research approach and the descriptive survey research design. The researchers used a semi-structured interviews to collect data from logistics service providers in Egypt. The data collected were analyzed using Q-sorting technique and the SPSS version 23.0. The results showed that sustainable logistics service quality (SSQ) is very effective in measuring the sustainability service quality of a firm. The study also revealed that sustainable logistics service quality (SSQ) can be applied in any marketing and strategic marketing research.

Ismail et al (2019) carried out a study to determine the level of awareness on green logistics among transportation companies in Johor and its impact on their business performance. Their study adopted the survey research design and quantitative research approach. The researchers developed conceptual

framework with three drivers of green logistics awareness namely green transportation awareness, warehousing and packaging and relate each of them to business performance. Their data were collected from 103 managers of transportation companies in Pasir Gudang and Batu Pahat. The data collected were analyzed using Structural Equation Modeling (SEM) and Partial Least Square (OLS) software technique. The findings revealed that green logistics awareness has a positive relationship with business performance. The study also reported that transportation, warehouse and packaging have significant relationship with business performance.

Umair et al (2019) explored the impact of logistics management on customer satisfaction. The researchers used inventory, lead time and transportation as their dimensions of logistics management and correlate each of them to customer satisfaction. Their study adopted the cross-sectional and descriptive survey research design where a structured questionnaire was used to collect data from 200 stores owners in the twin cities of Islamabad and Rawalpindi. The data collected were analyzed using descriptive statistics such as percentage and frequency tables, mean and standard deviation while the hypotheses were tested using the correlation coefficient, regression analysis and SPSS. After analyzing the data collected, the researchers found out that inventory, lead time and transportation have significant positive effect on customer satisfaction in Islamabad and Rawalpindi. The study concluded that logistics management has significant impact on customer satisfaction in Islamabad and Rawalpindi.

Gap in Reviewed Literature

From the literature reviewed, it was observed that most of the studies conducted on green logistics practices were carried out in Sweden, United States, Pakistan, China and Egypt while empirical studies examined green logistics practices in Nigeria are limited. Also, it was observed that none of the previous studies relate green logistics practices to customer satisfaction of shipping companies in Nigeria. Even the dimensions of green logistics practices (green storage, green transportation and reverse logistics) were not related to customer satisfaction measures such as customer preference and repeat patronage. This has also created a vacuum in empirical literature which the present study is designed to fill.

Methodology

This study adopted the positivist research philosophy and correlational research design. The population of this study consisted of all the 101 shipping companies registered with the Nigeria's Shippers Council (NSC) and Nigeria's Shipping Company Association licensed by the Nigerian Maritime Administration

and Safety Agency (NIMASA). A sample size of 81 shipping companies was selected as representative of the study population. The sample size was determined using the Taro Yamene’s formula while the purposive sampling techniques was used to select the companies based on the criteria that they practice green logistics strategies. The sampling unit consisted of managers of the selected shipping companies in South-West Nigeria. The managers fall under the categories of logistics managers, operational managers, marketing managers and distribution managers. Three hundred and twenty-four (324) managers were drawn from the selected companies on the ratio of 4 managers per company. A structured questionnaire was used to obtain data from the respondents. The questionnaire was structured using the modified four (4) point Likert scale-type which range from Strongly Agree, Agree, Disagree to Strongly Disagree. The certified questionnaire was administered to the respondents (managers) of the selected maritime companies in South-West Nigeria with the aid of four (4) trained research assistants. A total of 324 questionnaires was administered to the respondents and 273 copies were collected from them. The data were analyzed statistically while the hypotheses were tested using Pearson Product Moment Correlation Coefficient (r). The (r) value was computed with the aid of the SPSS and the results were presented and interpreted accordingly.

Results and Discussion

The results of the correlation analysis carried out in the study variables were presented in this section. The SPSS software program version 24.0 was used to perform the correlation analysis for each hypothesis. The results of the correlation analysis are presented in the tables below:

Table 1: Result of correlation analysis between green storage and customer preference of shipping companies

		Green Storage	Customer Preference
Pearson (r)	Green Storage	Correlation Coefficient	1.000
		Sig. (2 tailed)	.728**
		N	.001
	Customer Preference	Correlation Coefficient	.728**
		Sig. (2 tailed)	.001
		N	273

**Correlation is significant at 0.01 levels (2 tailed)

*Correlation is significant at 0.05 levels (2 tailed)

Source: SPSS-generated Output

Table 1 presents the result of correlation analysis carried out between green storage and customer preference of shipping companies in Nigeria. The result shows that green storage has a strong positive correlation with customer preference ($r = .728^{**}$) and this correlation is significant at 0.01 level as indicated by the symbol ** . Based on this result, the null hypothesis (H_{01}) is rejected and the alternate hypothesis is accepted. This means that we then accept that there is significant relationship between green storage and customer preference of shipping companies in Nigeria.

Table 2: Result of correlation analysis between green storage and repeat patronage of shipping companies

		Green Storage	Repeat Patronage
Pearson (r)	Green Storage	Correlation Coefficient	1.000
		Sig. (2 tailed)	.
		N	273
	Repeat Patronage	Correlation Coefficient	.697 **
		Sig. (2 tailed)	.001
		N	273

** Correlation is significant at 0.01 levels (2 tailed)

* Correlation is significant at 0.05 levels (2 tailed)

Source: SPSS-generated Output

Table 2 depicts the result of correlation analysis carried out between green storage and repeat patronage of shipping companies in Nigeria. The result shows a strong positive correlation between green storage and repeat patronage of shipping companies ($r = .697^{**}$) and the symbol ** indicates that this correlation is significant at 0.01 level. Consequently, the null hypothesis (H_{02}) is rejected and the alternate hypothesis is accepted. This means that we then accept that there is significant relationship between green storage and repeat patronage of shipping companies in Nigeria.

Table 3: Result of correlation analysis between green transportation and customer preference of shipping companies

		Green Transportation	Customer Preference
Pearson (r)	Green Transportation	Correlation Coefficient	1.000
		Sig. (2 tailed)	.
		N	273
	Customer Preference	Correlation Coefficient	.619 **
		Sig. (2 tailed)	.001
		N	273

** Correlation is significant at 0.01 levels (2 tailed)

* Correlation is significant at 0.05 levels (2 tailed)

Source: SPSS-generated Output

Table 3 shows the result of correlation analysis carried out between green transportation and customer preference of shipping companies in Nigeria. The result indicates that green transportation has a strong positive correlation with customer preference ($r = .619^{**}$) and this correlation is significant at 0.01 level as indicated by the symbol ** . As a result of this, the null hypothesis (H_{03}) is rejected and the alternate hypothesis is accepted. This implies that we then accept that there is significant relationship between green transportation and customer preference of shipping companies in Nigeria.

Table 4: Result of correlation analysis between green transportation and repeat patronage of shipping companies

			Green Transportation	Repeat Patronage
Pearson (r)	Green Transportation	Correlation Coefficient	1.000	.539 **
		Sig. (2 tailed)	.	.001
		N	273	273
	Repeat Patronage	Correlation Coefficient	.539 **	1.000
		Sig. (2 tailed)	.001	.
		N	273	273

** Correlation is significant at 0.01 levels (2 tailed)

* Correlation is significant at 0.05 levels (2 tailed)

Source: SPSS-generated Output

Table 4 contains the result of correlation analysis carried out between green transportation and repeat patronage of shipping companies in Nigeria. The result indicates that green transportation has a moderate positive correlation with repeat patronage ($r = .539^{**}$) and the symbol ** signifies that this correlation is significant at 0.01 level. Based on this result, the null hypothesis (H_{04}) is rejected and the alternate hypothesis is accepted. This means that we then accept that there is significant relationship between green transportation and repeat patronage of shipping companies in Nigeria.

Table 5: Result of correlation analysis between reverse logistics and customer preference of shipping companies

			Reverse Logistics	Customer Preference
Pearson (r)	Reverse Logistics	Correlation Coefficient	1.000	.604 **
		Sig. (2 tailed)	.	.001
		N	273	273
	Customer Preference	Correlation Coefficient	.604 **	1.000
		Sig. (2 tailed)	.001	.
		N	273	273

** Correlation is significant at 0.01 levels (2 tailed)

* Correlation is significant at 0.05 levels (2 tailed)

Source: SPSS-generated Output

Table 5 presents the result of correlation analysis carried out between reverse logistics and customer preference of shipping companies in Nigeria. The result shows a strong positive correlation between reverse logistics and customer preference of shipping companies ($r = .604^{**}$) and this correlation is significant at 0.01 level as indicated by the symbol ** . As a result of this, we then reject the null hypothesis (H_{05}) and accept the alternate hypothesis. This means that we then accept that there is significant relationship between reverse logistics and customer preference of shipping companies in Nigeria.

Table 6: Result of correlation analysis between reverse logistics and repeat patronage of shipping companies

		Reverse Logistics	Repeat Patronage
Pearson (r)	Reverse Logistics	Correlation Coefficient	1.000
		Sig. (2 tailed)	.646 **
		N	.001
	Repeat Patronage	Correlation Coefficient	.646 **
		Sig. (2 tailed)	.001
		N	.273

** Correlation is significant at 0.01 levels (2 tailed)

* Correlation is significant at 0.05 levels (2 tailed)

Source: SPSS-generated Output

Table 5 presents the result of correlation analysis carried out between reverse logistics and repeat patronage of shipping companies in Nigeria. The result indicates that reverse logistics has a strong positive correlation with repeat patronage ($r = .646^{**}$) and this correlation is significant at 0.01 level as indicated by the symbol ** . As a result of this, we then reject the null hypothesis (H_{06}) and accept the alternate hypothesis which states that there is significant relationship between reverse logistics and repeat patronage of shipping companies in Nigeria.

Discussion of Findings

This study found a significant relationship between green storage and customer preference of shipping companies in Nigeria. This finding emanated from the result of the correlation analysis carried out on the two variables in the first hypothesis. The result revealed that green storage has a strong positive correlation with customer preference ($r = .728^{**}$) and this correlation is significant at 0.01 level. Based on this result, the null hypothesis (H_{01}) was rejected and the alternate hypothesis was accepted. This means that we then accepted that there is significant relationship between green storage and customer preference of shipping companies in Nigeria. This finding is supported by Rahim et al (2016) and Robinson (2018) as both studies revealed that green storage influence customer preference for a company in a competitive industry.

This study also found a significant relationship between green storage and repeat patronage of shipping companies in Nigeria. This finding was derived from the result of the correlation analysis carried out on the two variables in the second hypothesis. The result showed a strong positive correlation between green storage and repeat patronage of shipping companies ($r = .697^{**}$) and this correlation is significant at 0.01 level. Consequently, the null hypothesis (H_{02}) was rejected and the alternate hypothesis was accepted. This means that we then accepted that there is significant relationship between green storage and repeat patronage of shipping companies in Nigeria. This finding is supported by Zhu et al (2005) which reported that green storage encourage customers to make repeat patronage of a firm. Ochieng et al (2016) also agreed with this finding when they stated that customers re-patronize companies that have a well functional green storage system.

This study discovered a significant relationship between green transportation and customer preference of shipping companies in Nigeria. This finding was emerged from the result of the bivariate analysis carried out on the two variables in the third hypothesis. The result showed that green transportation has a strong positive correlation with customer preference ($r = .619^{**}$) and this correlation is significant at 0.01 level. As a result of this, the null hypothesis (H_{03}) was rejected and the alternate hypothesis was accepted. This implies that we then accepted that there is significant relationship between green transportation and customer preference of shipping companies in Nigeria. This finding is in line with the research conducted by Zhang and Zheng (2010) and Ravet (2013) as both studies which revealed that green transportation influence customer preference for a company.

This study also discovered that a significant relationship between green transportation and repeat patronage of shipping companies in Nigeria. This finding emanated from the result of the correlation analysis carried out on the two variables in the fourth hypothesis. The result revealed that green transportation has a moderate positive correlation with repeat patronage ($r = .539^{**}$) and this correlation is significant at 0.01 level. Based on this result, the null hypothesis (H_{04}) was rejected and the alternate hypothesis was accepted. This means that we then accepted that there is significant relationship between green transportation and repeat patronage of shipping companies in Nigeria. This finding is supported by Ismail et al (2019) which reported that green transportation encourages customers to re-patronize transportation companies. Langella and Zanoni (2011) also supported this finding when they revealed that customers are likely to make repeat patronage of a firm that practices green transportation.

This study found a significant relationship between reverse logistics and customer preference of shipping companies in Nigeria. This finding was derived from the result of the correlation analysis carried out on the two variables in the fifth hypothesis. The result showed a strong positive correlation between reverse logistics and customer preference of shipping companies ($r = .604^{**}$) and this correlation is significant at 0.01 level. As a result of this, we then rejected the null hypothesis (H_{05}) and accepted the alternate hypothesis. This means that we then accept that there is significant relationship between reverse logistics and customer preference of shipping companies in Nigeria. This finding is in line with the research conducted by Zhang and Zheng (2010), Langella and Zanoni (2011) and Alshura and Awawdeh (2016) as they all found a significant positive relationship between reverse logistics and customer preference.

Finally, it was revealed that reverse logistics has a significant relationship with repeat patronage of shipping companies in Nigeria. This finding was emerged from the result of the correlation analysis carried out on the two variables in the sixth hypothesis. The result showed that reverse logistics has a strong positive correlation with repeat patronage ($r = .646^{**}$) and this correlation is significant at 0.01 level. As a result of this, we then rejected the null hypothesis (H_{06}) and accepted the alternate hypothesis which states that there is significant relationship between reverse logistics and repeat patronage of shipping companies in Nigeria. This finding is supported by Ochieng et al (2016) who noted that customers usually re-patronize companies that perform reverse logistics function. Ravet (2013) also reported that the reverse logistics significantly encourage customers to make repeat patronage.

Conclusion

Given the fact that today customers are more determined than ever before to satisfy their needs in a sustainable way, companies in the shipping industry need to switch from their unsustainable logistics practices to a sustainable way of providing logistics services. This can be done by constructing a storage facility that meet the criteria of non-pollutant environment (green storage), transporting their goods in a sustainable manner (green transportation), and taking back used packaging materials or plastic containers from customers to reduce the amount of wastes disposed on the landfills (reverse logistics). The results of this study revealed that green storage has a significant relationship with customer preference and repeat patronage of shipping companies in Nigeria. The study also revealed that green transportation has a significant relationship with customer preference and repeat patronage of shipping companies in Nigeria. The study equally discovered that reverse logistics have a significant relationship with customer

preference and repeat patronage of shipping companies in Nigeria. Since green storage, green transportation and reverse logistics are significant predictors of customer preference and repeat patronage, it is therefore concluded that green logistics practices have significant relationship with customer satisfaction of shipping companies in Nigeria.

Recommendations

The following recommendations are provided for the study:

1. That, shipping companies in Nigeria particularly those that are still practicing conventional logistics should switch from their unsustainable logistics practices to green logisticssystem as it would enhance customer satisfaction.
2. That, shipping companies in Nigeriashould provide their transportation services in a sustainable way by using bio-fuel, solar energy and other clean energy to power their vessels since this practice will drastically reduce the gas emissions and satisfy green customers.
3. That, shipping companies in Nigeriashould restructure their storage processes by integrating sustainability issues into their storage activities using a storage facility that will meet the criteria of non-pollutant environment,and maintaining good humidity, corrosion and waterproofing in their warehouse including streamlining the storage processes to reduce energy (electricity) consumption.
4. That, shipping companies in Nigeriashould power their storage facilities using solar energy to reduce the amount of carbon emissions released into the environment as this would enhance customer satisfaction.
5. That, shipping companies in Nigeriashould establish a policy of taking backused packaging materials or plastic containers from their customers (reverse logistics) as this would not only reduce the amount of wastes disposed on the landfills but would also improve their environmental performance and increase customer satisfaction.
6. Finally, it is recommended thatshipping companiesin Nigeria particularly those that are planning to implement green marketing concept should acquire cleaner technology and use it in their logistics processes as it would enhance customer satisfaction and protect the environment from further pollution.

REFERENCES

- Ali, A.H., Melkonyan, A., Noche, B. & Gruchmann, T. (2021). Developing a sustainable logistics service quality scale for logistics service providers in Egypt. *Logistics Journal*, 21 (3), 72-87.
- Alshura, M, S. K. & Awawdeh, H.Z.Y. (2016). Green supply chain practices as determinants of achieving green performance of extractive industries in Jordan. *International Journal of Business and Social Science*, 7 (7), 166-177.
- Amelia (2017). Competitive advantages build with products differentiation strategy and services quality: A study Star Hotels in Jakarta Indonesia. *International Journal of Advancement in Engineering Technology, Management and Applied Science*, 4(3), 114-123.
- Antonova, K, (2014). Organizational competitiveness through strategic knowledge management. *Journal of University of Economics*, 1, 76-86.
- Belz, F. & Peattie, K. (2009). *Sustainability marketing: A global perspective*. John & Wiley & Sons Ltd.
- Bennett, G., Sagas, M., & Dees, W. (2006). Media preferences of action sports consumers: Differences between generation X and Y. *Sport Marketing Quarterly*, 15(1), 40-49.
- Chang, N. & Fong, C. (2010). Green product quality, green corporate image, green customer satisfaction, green customer loyalty. *African Journal of Business Management*, 4 (13), 2836-2845.
- Christensen, V. (2006). Customer experience: Customer satisfaction vs. customer loyalty. <http://www.tmcnet.com/channels/customer-experience-management/articles/936-customer-experience-customer-satisfaction-vs-customer-loyalty.htm>
- Cohen, S.H. & Neira, L. (2003). Measuring preference for product benefits across countries: Overcoming scale usage bias with maximum difference scaling. ESOMAR2003 Latin America Conference Proceedings, Amsterdam, Netherlands.
- Dheeraj, N. & Vishal, N. (2012). An overview of green supply chain management in India. *Research Journal of Recent Sciences*, 1(6), 77-82.

- Eberle, U. & von Helmolt, R. (2010). Sustainable transportation based on electric vehicle concepts: A brief overview. *Energy & Environmental Science*, 3 (6), 689-699.
- Erdogan, S. & Miller-Hooks, E. (2012). A green vehicle routing problem: Transportation research Part E. *Logistics and Transportation Review*, 48 (1), 100-114.
- Flint, D. & Gammelgaard, L. (2008). Exploring processes for customer value insight, supply chain learning and innovation. *Journal of Business Logistics*, 29 (1), 134-142.
- Foreword, S. (2008). Sustainable supply chain management. *International Journal of Production Economics*, 111 (127), 193 - 203.
- Garga, E. & Bambale, A. (2016). The impact of service quality on customer patronage: Mediating effects of switching cost and customer satisfaction. *International Journal of Global Business*, 9(1), 39-58.
- Ismail, F., Ashfaq, M., Irum, S., Alifiah, M.N. & Adnan, H. (2019). Awareness on green logistics among transportation companies in Johor towards business performance. *International Journal of Recent Technology and Engineering*, 8 (25), 249-253.
- Jere, M. G., Aderele, B. A. & Jere, A. (2014). Exploring factors that influence store patronage among low-income consumers in Cape Town, South Africa. *Mediterranean Journal of Social Sciences*, 5(20), 152-162.
- Kushwaha, G.S., & Kumar, A. (2014). Impact of green marketing practices on customer satisfaction among the Leather industries customers. *Asia-Pacific Journal of Management Research and Innovation*, 10(1), 79-88
- Kotler, P. & Armstrong, G. (2013). *Principles of marketing (14 Eds.)*. London: Pearson Education Ltd.
- Langella, I. & Zanoni, S. (2011). Eco-efficiency in logistics: A case study on distribution network design. *International Journal of Sustainable Engineering*, 4 (2), 115-26.
- Mwaura, A.W., Letting, N., Ithinji, G., Orwa, B.H. (2016). Green distribution practices and competitiveness of food manufacturing firms in Kenya. *International Journal of Economics, Commerce and Management*, 4 (3), 189-207.
- Ochieng, O.S., Awino, Z.B., Njihia, M.J. & Iraki, W.N. (2016). Green supply chain management practices and performance of ISO 14001 certified manufacturing firms in East Africa. *DBA Africa Management Review*, 6 (3), 103-128.
- Onditi, A. (2016). Green marketing and customer satisfaction. *Journal of Marketing and Consumer Research*, 29 (2), 37-45.
- Panda, A. (2013). Customer patronage towards food and grocery retail- A case study. *Global Journal of Management and Business Studies*, 3 (9), 955-960.
- Pelletier, S., Jabali, O. & Laporte, G. (2014). Good distribution with electric vehicles: Review and research perspectives. Interuniversity Research Centre on Enterprise Networks, Logistics and Transportation. Retrieved from www.cirrelt.com.
- Ravet, D. (2013). Delivering sustainability through supply chain distribution network redesign. *Central European Business Review Research Papers*, 2(3), 22-29.

- Reibstein, D.J., Bendle, N.T., Farris, P.W. & Pfeifer, P.E. (2006). *Marketing metrics: 50 metrics every executive should master*. London: Pearson Education.
- Sima, V. (2019). Green business: Concepts, methodologies, tools and applications. Retrieved from: <https://www.igi-global.com/chapter/green-customer-satisfaction/221045>
- Vikraman, A. & Ganesan, K. P. (2011). Market segmentation of milk - A study on consumer preferences in Kanchipuram District. *International Journal of Enterprise Innovation Management Studies*, 2 (2), 150-156.
- Wang, R. (2006). Renewable electricity in Sweden: An analysis of policy and regulations. *Energy Policy*, 34, 1209-1220.
- Wilson-Jeanselme, M. & Reynolds, J. (2012). The advantages of preference based segmentation: An investigation of online grocery retailing. Said Business School, University of Oxford, UK.
- Zhang, J. & Zheng, L. (2010). Research on the building of green logistics system and the development strategy in Jilin Province. International Conference on Logistics Engineering and Management, American Society of Civil Engineer
- Zhu, Q., Sarkis, J. and Geng, Y. (2005). Green supply chain management in China: pressures, practices and performance. *International Journal of Operations & Production Management*, 25, 5, 449-468.