



Green Logistics and Organizational Performance of Selected Companies in Lagos State, Nigeria

OLADIMEJI, Kareem¹ & AKINSANYA, Lateef Oremodu, Solomon²

Southwestern University,
Nigeria, Okun-Owa, Ogun State
Department Of Business Administration,
Caleb University, Imota, Lagos-State,
kareemlateef2006@gmail.com

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Abstract

This study examined effects of green logistics on organizational performance of selected companies in Lagos State. Survey research design was adopted in this research. The population of the study was one thousand nine hundred and thirty-three (1,933). Yamane (1967) formula was employed to determine the sample size which was three hundred and thirty-one (331). Simple random sampling technique was employed to select the participants in this study. Questionnaire was used to obtain data. Simple percentage and frequency tables was used to analyzed data collected while hypotheses were tested with regression analysis using SPSS version 23. Findings indicated that greening process in packaging practices ($r = .791$, $R^2 = .152$, $B = .291$ $p < .01$) and greening process in technology ($r = .268$, $R^2 = .129$, $B = .466$, $p < .01$) has significant effects on organizational performance of surveyed companies in Lagos state. It was recommended that corporate organizations and government should embrace greening packaging practices and technology also government should enact laws to support greening process in technology

Keywords: Green logistics, Organization performance, Greening process in packaging practices, Greening process in technology

Introduction

Logistics play important part in bridging gaps between town, nations and landmass worldwide. It incorporate world supply chain networks which comprised of different operations such as clearing and forwarding, information sharing, inventory management etc. (Khan *et al.* 2018). The need to minimize carbon emissions from logistics related activities and ensure friendly environment informed the introduction of green logistics concept measured with route optimization, alternative fuels technology, information technology, internet of things among others. The integration of internet of things (IoT) into logistics chain administration has changed how firms supervises, regulate and manage their supply chain network (Kamble, Gunasekaran & Gawankar, 2018).

Organizational performance is crucial when assessing the success of companies. It is usually displayed in the organization's ability to efficiently start and execute projects that assist companies in reaching their outlined purposes and targets (Ganiyu & Sulaiman, 2024). Recently, due to stiff contest arising from worldwide integration, companies are encouraged to enhance their operations through execution of new techniques, guidelines and programs that can permit them to outsmart their competitors (Hardyman, Daunt & Kitchener, 2015; Mwagona & Kinyua, 2023). Conventional performance indicators concentrated more on fiscal indicators such as return on investment

and return on equity to measure performance. These metrics while important, does not cover all the organization's operations and effects. With increasing social commitment and economic sustainability philosophies, it has become clear that non-fiscal indicators are equally significant. Current perspectives on accomplishment is an integration perspective that includes fiscal, communal and ecological criteria. Performance is therefore evaluated not only in terms of fiscal indicators but also built on how these performances are accomplished and their over all effects on the populace as a whole and its surroundings (Moumin, 2024).

Green logistics and organizational performance were supposed to be the most efficient and best in Sub-sahara Africa, couple with policies and regulations available. Regrettably, many emissions still arises from moving products from place to place. Vehicles, generates exudations and tires which definitely get into the atmosphere (Striebig *et al.*, 2019).

Even though many studies have researched on green logistics and organizational performance combined and independently such as Shailendra & Supriyo (2020) who research on green logistics operations utilizing internet of things as independent variable in India. Sorin *et al.* (2023) that studied impact of automation on customer engagement as well as how automation affect customer satisfaction in Madrid metropolis, Spain. Syed Abdul Rehman (2019) whose research work

assessed the effects of green logistics on economic growth, social impact and environmental sustainability with a special focus on developing countries in Asia. Nwaulune (2024) which studied product sustainability and green logistics practices among selected fast-selling goods manufacturers in Lagos, Nigeria, Ali *et al.* (2021) whose study covered Egypt to research sustainable logistics service quality scale for logistics service providers and Umair *et al* (2019) which studied 200 stores owners in Islamabad and Rawalpindi. It is worthy to note that none of these studies covered Lagos state transport and logistics sector the sectorial gap which this study covered.

Even with all these studies green logistics activities are yet to be fully utilized and many organizations in Nigeria are still inefficient and not performing as expected. The previous studies have also failed to cover population gap and does not measure green logistics with greening process in packaging and technology. Also, past research failed to studied combined effect of packaging and technology on organization performance, the literature gap which this study filled. This study was designed to assess the direct result of green logistics on organizational performance. And also, address practical conflicting gaps, methodological gap, conceptual gap and population gap.

The study analyze effects of green logistics on organizational performance of selected companies in Lagos State, Nigeria. And the study tend to address practical conflicting gap, methodological gap, conceptual gap and population gap.

Objectives of the Study

The primary aim of this research is to assess the effects of green logistics on organizational performance of selected companies in Lagos state, Nigeria.

The specific objectives are to:

1. Evaluate the effect of greening process in packaging practices on organizational performance of selected companies in Lagos State, Nigeria
2. Analyze the effect of greening process in technology on organizational performance of selected companies in Lagos State, Nigeria

Research Questions

The following questions were asked in this study:

1. To what extent does greening process in packaging practices affect organizational performance of selected companies in Lagos State, Nigeria?
2. How does greening process in technology affect organizational performance of selected companies in Lagos State, Nigeria?

Statement of the Hypotheses

The following hypotheses were tested in the study:

H₀₁: Greening process in packaging practices has no significant effect on organizational performance of selected companies in Lagos State, Nigeria

H₀₂: Greening process in technology has no significant effect on organizational performance of selected companies in Lagos State, Nigeria

Literature Review

Conceptual Review

Green Logistics

Green logistics and greening logistics practices are one and the same as used in this research and were used interchangeably. Green logistics practices encompasses the utilization of environmentally pleasant actions, plans, procedures, guidelines and rules among organization's supply chain network with the purpose of minimizing wastages, preserve energy and natural endowments, reduces the bad effects of logistics operations on both eco-system and the community while at the same time enhance collective accomplishment (Agyabeng-Mensah, Afum, 2020; Agyabeng-Mensah & Tang, 2021). Green logistics entails procurement, production and distribution of products in an eco-friendly way, taken into consideration fiscal, ecological and society variables (Sbihi & Eglese, 2007; Kumar, Teichman & Timpernagel, 2012).

Green logistics practices comprise of operations which entails transportation of products from one place to another in environmentally pleasant way (Hampus & Henrik, 2014). Green logistics imply organization coordination of supply chain to minimize their ecological impact (Ismail *et al.*, 2019). Green logistics is an ecological method or scheme that consists of energy-saving processes in freight, storage, delivery and waste reclamation or dumping (Mutua Mutie *et al.*, 2022). Moreover, greening process in packaging practices, transportation practices, route optimization and technology have been viewed as an important component of green logistics in 21st century.

Based on different definitions by authors, the researcher does described green logistics as environmentally pleasant philosophy that promotes the utilization of hybrid and efficient transportation facilities to move goods from one destination to another with aim of minimizing gaseous emission to the environment.

Greening process in packaging

Packaging is the body of knowledge, skill and technique encompassing or safeguarding of goods for transportation, warehousing, sale, and utilization. Packaging can further be defined as the system of carving, assessing and manufacturing of packages. Core aims of packages consists: protection of goods from physical harms, obstacle protection, protection from pollution, data transmission, advertising, safety, design, evaluation, and production of packages. Basic objectives of packaging include; physical protection, barrier protection, containment or agglomeration, information transmission, marketing, safety, fake and counterfeit control. Packaging can be separated into, main, auxiliary and higher type. Labeling is any printed, electronics components or pictorial communications on the packages as it relates to label (Tukamuhabwa, Eyaa & Derek, 2011; Jephumba *et al*, 2022).

Packaging is used for marketing, ensuring that there is favourable impression and aiding impulse buying. This contradicts the auxiliary function of packaging engaged for warehousing, freight and logistics which are intangible but important in the transportation of goods meant for trading (Armistead & Mapes, 2013; Jephumba *et al*, 2022). Packaging is the confinement of physical material, mainly goods that is meant for sale. It is the system of planning materials for moving and warehouse which allows conservation, recognizing and packaging of goods. Packages defend goods from damage, dissolve, leakage, decay, ignite, warm, freezing and so many factors. Packaging most time contribute immensely in protecting or warehousing of goods (Jephumba *et al*, 2022).

Packaging is the process of reservation, safe guarding, containing, and displaying products components through the lasting network of manufacturing, operating and moving to their final destination in a good manner, as were, at the period of manufacturing. Packaging is a key component of branding methods as it ensure that goods disseminate the information, the image and face of a company (Saliba, 2013; Jephumba *et al*, 2022).

Package protect goods that is added inside of it as they transit from different marketing models and when in use. Packaging also extend the life span of goods, which is important to manufacturers, wholesalers and final consumers. Recent mind set is interested in package protection most importantly for drugs and other pharmaceutical products, house cleaners and many goods which are dangerous to health, especially to underage (Peck, 2015; Jephumba *et al*, 2022).

Greening process in technology

Mascus (2003) defined technology as the data which aim to attain sum percentage of manufacturing output from a peculiar product by adding or scrutinizing chosen inputs like manufacturing processes, intra-company organogram, quantitative techniques, funding instruments and advertising techniques or any of selected choice. The concept of technology does not necessarily associate to the technology that encompass in the goods but also related with meaning, knowledge or data utilization and the systems in designing the goods (Lovell, 1998; Bozeman, 2000).

Tihanyi and Roath (2002) asserted that technology encompasses data which can not be readily remodel and conveyed. Reisman (2006) defined technology as the implementation and designing of methods, facilities, items and systems which can assist in finding lasting solutions to human problems.

Levin (1996) defined technology as not mainly an object or thing but best described as an approach. It involves applying scientific techniques to solve feasible human problems. The scholar further asserted that technology has three phases: material artifacts, the usage of artifacts to chase an objective and the knowledge to use the artifacts

Organization Performance

Alahmad (2021) defined organization performance as the real outcome of an organization against expected outcome. This implies that performance evaluate how best a firm activities in respect to achieving goals, customers satisfaction and income maximization. Organizational performance is the firms ability to accomplish its aims and objectives. It is a basic idea in recent business administration and management, which comprised of different criterion spanning from conventional financial indicators to society and ecology impact (Moumin, 2024). Organization performance is an output which center on quantifiable factors such as gain or market share. It is a method which deal with the plans, actions, procedures and strategies executed to attain results (Bourguignon, 2000; Moumin, 2024). Advanced an ideology scheme which merges monetary and non-monetary measures, the academicians lay more emphasis on attainment of goals and effective utilization of resources which were considered key for complete appraisal of performance (Lebas & Euske, 2002; Moumin, 2024)

Organizational performance in the view of (Pitt and Tucker, 2008; Mwagana and Kinyua, 2023) is a vocal sign of the firm that indicates how effective they are in attaining goals and objectives. The concept of organizational performance is grounded on the belief that company is the intentionally combination of profitable assets; including personnel, physical, and monetary resources, to establish the highest value for final consumers and shareholders of the firm (Carton, 2004; Mwagana & Kinyua, 2023). Organizational performance is a key concept and mostly applied as explained variable, and several recommendations made for its advancement. Despite its role, there is not much agreement on its definition or dimensionality (Selvam, Gayathri, Vasanth, Lingaraja & Marxiaoli, 2016; Mwagana & Kinyua, 2023).

Customer Satisfaction

Customer satisfaction is the worldwide concept that affect all firms, irrespective of its size, structure, either profit or non-profit, domestic or international. Firms that meet their customers expectations tends to observe greater economic returns and growth (Bolton & Drew, 2021). Customer satisfaction is a situation which indicates that the customer has experienced his or her desires, wants, and demands as a result of an important goods or service and such customer is motivated to repurchase. The reason while every firm works toward satisfaction of its customer is to expand the development of the business which definitely maximizes the profit of the organization. The implementation of customer satisfaction have a positive effects on the company, which at the end affect the desires of the customers for continuous patronizing the firm (Aksar, Kayani & Ali, 2020). Customer satisfaction is after sales attitude as a result of psychological comparison of the quality a customer intends to get from buying goods or services and the

extent of quality the customer actually received (Mohammad & Mohammad-Alhamadani, 2011).

Customer satisfaction is a customer's emotional displayed of happiness or unhappy as a result of equating the perceived experience in contrast with expectation (Sambo *et al.*, 2021). Customer satisfaction results in observable outcomes such as customer loyalty, satisfaction, retention, happiness, commitment, faithfulness, creation of togetherness benefits and bond between customers and the company offering service, high customer indulgence for services and products disappointment, good word-of-mouth marketing about the firm, high future customer expectations, and selling more of the organization's goods or services, drawing new customers, cheaper prices, and high profit (Adeola & Adebiyi, 2014). Customer satisfaction can also be defined as the extra, additional value and discrepancy between a user's expectation and their prospect. Customers are satisfied when the product or service they purchased and used meets or exceeds their expectations (Suchánek & Králová, 2018)

Customer Loyalty

Customer loyalty is the behavior of repeated and continuous customers patronage as well as those that offer better evaluation, assessment, reviews, good word of mouth or testimony (Kumar & Advani, 2012). Iddrisu (2011) suggested that loyalty is engaged over a period of time from a repeated record of meeting or exceeding customer proposition, or expectations. Jacoby and Chestnut (1978) defined customer loyalty as a behavioral result of consumers' choice, preferences for a specific product or goods from a set of equal ones. Loyalty is a pledge, commitment, dedication to persistently do business with a firm over a long period of time, it is a state of mind, behavior, a set of attitudes, beliefs, intentions or desires to continue to patronize the firm (Zineldin, 2006).

Neal (1999) defined customer loyalty as the percentage of time a customer prefer the same or similar product or service in the same category compared to the whole number of customers made by the customers in that set, under the terms and conditions that other preferable goods or services are equally available in that set. Customer loyalty is defined as pledge to continue to patronize the prefer goods or service in the nearest future, despite conditional factors and advertising efforts which can change the behavior (Oliver, 1997; Too, *et al.*, 2001).

Theoretical Review

The Unified Theory of Logistics by Mentzer *et al.* 2001
The research efforts was anchored on unified theory of logistics as a result of study conducted by Mentzer *et al.* This particular theory got its root from firm theory propounded by Holstrom and Tirole in 1989. There are many theories that were originated from theories of firm, as a result of this Mentzer *et al.* 2001 decided to embark on unified theory of logistics. The unified theory of logistics assumed that companies compete to have advantage over each other in order to continue to

add value to her customers to ensure customer's satisfaction.

After firm theory was reviewed by different authors it give rise to further explanation of the duties perform by logistics firm which includes provision of cross border transit, organization capabilities in respect to supply and demand since the firm primary objective is to gain and which usually associated with value creation in the mind of the customers which result to their loyalty, retention and satisfaction (McNamara, 2005). Since many companies desires to incurcate effectiveness and efficiency in their routine activities which will amount to cost leadership and better customer services.as added in their capability of logistics network concerning competitive advantage, interface capabilities, logistics network, interface capabilities and data administration capabilities; data exchange via computing and network (Bolton & Drew, 2021).

Empirical Review

Shailendra and Supriyo (2020) in their study of how internet of things (IoT) affect green logistics operations in India's transport and logistics sub-sector. Secondary data was the backbone in which the study relied on. The research found that economy activities in India witnessed positive growth in the last ten years which helped to increase the need for transport and logistics services. The research conducted also revealed that innovation adoption especially in information technology cannot be over look. These findings made the study to conclude that advanced competition, political instability, customer's anticipation and quest for good attitude are the major problems battling Indian logistics industry.

Sorin *et. al* (2023) in a study conducted in Madrid community, Spain with aims to investigate the impact of automation on consumer engagement and satisfaction and design effective techniques for automation application of consumers. The researchers utilized survey research technique and questionnaire was employed to obtain information from the participants. Mean and standard deviation was applied to analyze information collected while one sample test was conducted utilizing SPSS version 23 software. The study discovered that automation and improvement of processes can be beneficial for businesses to achieve customer satisfaction

Syed Abdul-Rehman (2019) investigated the impact of green logistics on economic activities growth, social development and ecological sustainability using third world nations in Asia as surveyed area. The conducted research employed Fully Modified Ordinary Least Squares with Dynamic Ordinary Least Squares methods to estimate the relationship between the variables adopted in the study. Report of the research showed that customs clearance procedures, quality, commerce and freight facilities are associated with income per head, production value added and free trade. The research further discovered that transport and logistics operations hinderance include but not limited to climate

variations, global climate crises, carbon emissions, ecological sustainability, ill commerce, poor logistics facilities and toxic atmosphere. Frequent changes in government policies, natural disasters and insecurity are the major causes of inadequate economic growth and development. In addition, the study indicates that implementation of solar energies and greening economy could reduce negative effects on society and ecological sustainability

Nwaulune (2024) carried out inquiry to investigate relationship between product sustainability and green logistics processes surveying fast moving consumer goods manufacturers in Lagos state, Nigeria. The research utilizes efficiency and sustainability as predictable criterion for product sustainability. The research process employed survey research design while Taro Yamane formula was employed to calculate the sample size. Random sampling method was used to choose the participants. Data was obtained with questionnaire and analyzed with simple percentage while multiple and hierarchical regression was employed to proof the formulated hypotheses. The research found that green logistics practices associated well with fast moving consumer goods manufacturers in Lagos state

Ali *et al.* (2021) explored benefits of developing a sustainable logistics service quality measurement for logistics companies in Egypt. The study combines both quantitative research and survey research design methods for the study. The study utilized semi-structured interview to obtain information from surveyed logistics companies. The data was analyzed with Q-sorting technique aided by SPSS version 23.0 software. The findings showed that sustainable logistics service quality (SSQ) is sufficient to determine the sustainability service quality of company. The study further revealed that sustainable logistics service quality (SSQ) can be implemented in marketing research

Umair *et al.* (2019) investigated the effect of logistics administration on customer satisfaction in Islamabad and Rawalpindi. The study used cross-sectional and descriptive survey research methods. Questionnaire was adopted to obtain information from participants.

Percentage, frequency tables, mean and standard deviation was utilized in analyzing data and hypotheses were proofed with correlation coefficient, and regression analysis. The research conducted indicates that stock, lead time and shipping positively associated with customer satisfaction

Methods

The study utilized survey research design method. The utilisation of survey research design was justified due to the fact that it enables data collection from a survey or part of a population in order to make generalization about the whole population with aid of structured questionnaires.

Population of the Study

Information gathered from the yearly audit statements and the official website of the surveyed companies revealed that the total number of their employees was one thousand nine hundred and thirty-three (1,933). (1,107) one thousand one hundred and seven staff from ABC Transport, three hundred (300) staff from Courier Plus and five hundred and twenty-six (526) staff from GIG Logistics Ltd. The selected companies are high profiled and among the most performing logistics firms in Nigerian transport and logistics sub-sector (NBS, 2024).

Transport and logistics sector was studied because previous studies have not adequately covered the sector. Lagos state was chosen because it is the commercial and most economy viable state in Nigeria. Moreover, all the selected companies have their headquarters located in Lagos state, Nigeria.

Sample Size Determination and Sampling Technique

For easy data collection, the study randomly selected ABC Transport, Courier Plus and GIG Logistics in Lagos State, Nigeria as the study's surveyed companies which were among the seven hundred and sixteen (716) couriers and logistics companies who are registered with Nigerian Postal Service as at November, 2024.

The study used simple random sampling procedures when selecting respondents to ensure that all respondents have equal chance of being selected. Taro Yamane (1967) sample size determination formula was used to calculate the sample size used in this study

$$n = \frac{N}{1 + N(e)^2} \dots\dots\dots(i)$$

Where n = sample size, N = population size= 1,933, e = margin of errors = 5% = 0.05

$$n = \frac{1,933}{1 + 1,933(0.05)^2} \dots\dots\dots(ii)$$

n =331. As such the sample size used was 331.

Allocation of research instrument to the participants in each of the surveyed firms was done with Bryman's (2011) scientific formula as follows:

Table 1: Allocation of Sample Size

	Firm	staff and customers	Sample size
1	ABC Transport	1,107	$\frac{1,107 \times 331}{1,933} = 190$
2	*Courier Plus	300	$\frac{300 \times 331}{1,933} = 51$
3	GIG Logistics	526	$\frac{526 \times 331}{1,933} = 90$
	Total	1,933	331

Source: Field Study, 2024

Table 1 showed that 190 (one hundred and ninety) questionnaire was given to workers and customers of ABC Transport, while 51(fifty one) copies of the same instrument was sent to participants who work and patronize Courier Plus and 90 (ninety) was issued to GIG Logistics staff and customers.

Instrumentation

Questionnaire was deployed to obtain data from the respondents. The instrument covered personal information and research questions. The first part covered participant's sex, qualification, years of experience, department as well as level of workers while the second part contained research questions

Validity and Reliability of the Study

The research instrument was validated for face and content validity as prototype questionnaire was submitted to lecturers, supervisor, quality control staff, and management experts for vetting and review before it was administered on the respondents.

Pilot Study

A pilot study was carried out at Redstar Plc. using 66 (sixty-six) respondents in order to sample their opinions about the study before embarking on the main study.

Data collection Procedures

Data was gathered with questionnaires designed. The questionnaires were distributed via google survey form, electronic mail and hand to hand delivery with the help of research assistants

Method of Data Analysis

Descriptive statistics analysis used in the study includes tables, frequency distribution and simple percentage. The cordinal regression analysis was utilized to proof the hypotheses aided by SPSS statistical software version 23.

Model Specification

The research investigated how green logistics affect organizational performance of selected companies in Lagos State, Nigeria. Green logistics (GL) is a function of organizational performance (OP). Greening process in packaging practices (GPP) and greening process in technology (GPT) was used to proxy green logistics (GL) while organization performance (OP) is a dependent variable

The function is represented as follows:

$$OP = f(GL)) \dots\dots\dots (iii)$$

$$OP = \beta_0 + \beta_1 GPP + \beta_2 GPT + \mu t. \dots\dots\dots (iv)$$

Where: OP= Organization performance, β_0 = Constant
 β_1 GPP= Greening process in packaging, β_2 GPT= Greening process in technology

$\beta_0 \dots \beta_2$ = Regression coefficients of the model,

A priori expectation: $\beta_0 > 0$ and $\beta_2 > 0$

μt = error tab

Ethical Consideration

The study protects the privacy of individuals and corporate participants by anonymizing their personal data and sensitive information. Purpose and benefits of the research was revealed to all the respondents and make them understand that they have the right not to

participate The study is for academic purpose and no potential negative consequences or reputational damage for participants

The study carefully chooses methods and respondents to avoid bias and ensure equal chance. Data collected in this study was analyzed, and reported accurately and honestly without any bias or alterations. In order to ensure fair ethical review process, the research topic

and proposal was approved by the supervisor before conducting the research while the research was presented before panel of experts in the faculty for corrections before final approval.

Results

331 (three hundred and thirty-one) questionnaire was sent out, only 290 (two hundred and ninety) was filled which means 87.6% response rate.

Table 2: Personal Data of the study's participants

Variables	Level	Frequency	Percentage (%)
Sex	Male	220	75.9
	Female	70	24.1
Qualification	FSLC	67	23.1
	WAEC	98	33.8
	ND/NCE	109	37.6
	HND/B.Sc. & Others	16	5.5
Years of Experience	3-6 years	95	32.8
	7-10 years	116	40.0
	11 years and above	70	27.2
Departments	Finance	48	16.6
	IT	80	27.6
	Sales/marketing	136	46.9
	HR	26	9.0
Level of Workers	Top	30	10.3
	Medium	108	37.2
	Lower	127	43.8
	Others	25	8.6

Source: Field Study, 2024

Table 2 findings indicates that 220 (75.9%) respondents were male, while 70 (24.1%) respondents are female. This shows that large number of male participated in the study when compared with female. This interpret that the study is not gender biased.

Table 2 also, presents the academic qualifications of the participants. The results showed that 67 (23.1%) respondents had FSLC qualification, 98 (33.8%) respondents had WAEC certificate, 109 (37.6%) respondents had OND/NCE certificates and 16 (5.5%) respondents had HND/B.Sc. and above qualifications. This interpret that the respondents are learned as such they are capable to provide the necessary information needed in this study.

Table 2 further, indicates the years of service of the respondents. The results show that 95 (32.8%) respondents had 3-6years service years, while 116 (40.0%) respondents had 7-10 service years. Additionally, 79 (27.2) respondents had 11years and above service years.

Table 2 demonstrates the departments where the respondents were working in the surveyed companies. The results show that 48 (16.6%) respondents are working in finance department, while 80 (27.6%) respondents worked in Information Technology department. Additionally, 136 (46.9%) respondents are working in sales/marketing department. 26 (9.0%) respondents are working in Human Resources department of the surveyed firms.

Table 2 provides insight into level of workers in the surveyed organizations and signifies that out of the total respondents, 30 (10.3%) are top level staff, 108 (37.2%), were categorized under medium level staff.

Table 3: Pearson correlation analysis

Variables		
1.	GPP	.791**
2.	GPT	.268**
3.	OP	.500**

Key: **p<0.01; N = 290, GPP: Greening Process in Packaging practices; GPT: Greening Process in Technology
Source: SPSS version 25 output

Pearson correlation was computed for each of the variable as shown in Table 3 above and results shows the relationship between greening process in packaging practices and organizational performance. Findings from Table 3 showed that there is a significant relationship between greening process in packaging practices and organizational performance ($r = .791^{**}$; $p < .01$). This implies that greening process in packaging practices tends to increase organizational performance. Furthermore, Table 3 showed the correlation between greening process in technology and organizational performance. Result showed that there is a positive relationship between greening process in technology

Additionally, 127 (43.8%) respondents were identified as lower-level staff and 25 (8.6%) respondents belong to others category.

Test of Hypotheses

and organizational performance ($r = .268^{**}$; $p < .01$), implying that as greening process in technology increases organizational performance tends to improve accordingly

It is worthy to note that, the above correlations test cannot explain causality. Hence, regression analysis was conducted in order to examine cause and effect

Test of Hypotheses

Hypothesis One

Ho₂: Greening process in packaging practices does not affect organizational performance of selected companies in Lagos State, Nigeria

Table 4: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate ²
1	.390 ^a	.152	.149	.49370

a. Predictors: (Constant), GREENING PROCESS IN PACKAGING PRACTICES

Source: SPSS version 25 output

Table 4 above showed the regression output of greening process in packaging practices and organizational performance of surveyed companies. Results from the table 4 showed a regression value ($R = .390^a$), this showed that greening process in packaging practices affect organizational performance of surveyed companies. Further result of the $R^2 = .152$ showed that greening process in packaging practices contributed 15.2% of the variance in organizational performance of

surveyed firms. Since, the value is greater than 0.5 this showed that the model is effective enough to determine the relationship between greening process in packaging practices and organizational performance of surveyed companies. This is a significant amount as such it is safe to conclude that greening process in packaging practices could predict organizational performance of companies covered in the study.

Table 5: ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	12.600	1	12.600	51.697	.000 ^b
	Residual	70.196	288	.244		
	Total	82.797	289			

a. Dependent Variable: ORGANIZATIONAL PERFORMANCE

b. Predictors: (Constant), GREENING PROCESS IN PACKAGING PRACTICES

Source: SPSS version 25 output

Table 5 above showed the ANOVA output of the variables under consideration. Results from the table 5 showed $F(1; 289) = 51.697$; $p = .000$ this indicates that the relationship between greening process in packaging practices and organizational performance is a good fit

and significant, given that the F- calculated is greater than 1. This is also a proof that greening process in packaging practices was a good predictor of organizational performance of sampled companies in Lagos state, Nigeria.

Table 6: Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.102	.155		20.016	.000
	GREENING PROCESS IN PACKAGING PRACTICES	.291	.040	.390	7.190	.000

a. Dependent Variable: ORGANIZATIONAL PERFORMANCE

Source: SPSS version 25 output

Table 6 showed the coefficient between the variables under consideration. Findings showed sig. value =.000 which is below the tolerable level of significance for the study (0.05). Based on the significant value which is .000 the null hypothesis is rejected and the study therefore accepted that greening process in packaging

practices affect organizational performance of selected companies in Lagos State, Nigeria.

Hypothesis Two

HO₃: Greening process in technology has no significant effect on organizational performance of selected companies in Lagos State, Nigeria

Table 7: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.360 ^a	.129	.126	.50031

a. Predictors: (Constant), GREENING PROCESS IN TECHNOLOGY

Source: SPSS version 25 output

Results from table 7 above indicated a regression value (R=.360^a), this showed that greening process in technology has significant effect on organizational performance. Further result of the R² =.129 showed that greening process in technology contributed 12.9% of the variance in organizational performance. Since, the result is less than 0.5 this showed that the model is

ineffective to determine the significant effect that exist between greening process in technology and organizational performance. This is insignificant amount as such it is not safe to conclude that greening process in technology could predict organizational performance of selected companies in Lagos State, Nigeria.

Table 8: ANOVA^a

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	10.708	1	10.708	42.779	.000 ^b
	Residual	72.089	288	.250		
	Total	82.797	289			

a. Dependent Variable: ORGANIZATIONAL PERFORMANCE

b. Predictors: (Constant), GREENING PROCESS IN TECHNOLOGY

Source: SPSS version 25 output

Table 8 above showed the ANOVA output of the variables. Results from the table showed F(1); 289=42.779; p =.000) this indicates that greening process in technology has significant effect on organizational performance. Also, it is a good fit and

significant, given that the F- calculated is greater than 1. This is a proof that greening process in technology was a good predictor of organizational performance of selected companies in Lagos State, Nigeria.

Table 9: Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.248	.299		7.511	.000
	GREENING PROCESS IN TECHNOLOGY	.466	.071	.360	6.541	.000

a. Dependent Variable: ORGANIZATIONAL PERFORMANCE

Source: SPSS version 25 output

Findings from table 9 showed sig. value =.000 which is below the tolerable level of significance for the study (0.05). Based on the significant value which is .000 the null hypothesis is rejected and agreed with assumption that greening process in technology has significant effect on organizational performance of selected companies in Lagos State, Nigeria is accepted.

Discussion

Findings from hypothesis one tested revealed that greening process in packaging practices has significant effect on organizational performance of selected companies in Lagos State, Nigeria. These findings are in view of Umair *et al.* (2019) whose research conducted indicates that stock, lead time and shipping positively associated with customer satisfaction

Furthermore, it was found from hypothesis two that greening process in technology has significant effect on organizational performance of selected companies in Lagos State, Nigeria. The findings align with Sorin *et. al* (2023) who found that automation and optimization of processes can be of great benefits for businesses to address customer satisfaction and organizational performance. The result is also supported by Shailendra and Supriyo (2020) who in their study discovered that internet of things (IoT) affect green logistics operations. Their study also support this study as it revealed that innovation adoption especially in information technology cannot be over look, same as this study found that technology play an important part in enhancing organizational performance

Conclusions

The study examined effects of green logistics on organizational performance of selected companies in Lagos State, Nigeria. The study concluded that greening process in packaging practices significantly relate with organization performance of surveyed companies in Lagos state, Nigeria. This was evidence in hypothesis one tested which agreed with assumption that greening process in packaging practices affect organizational performance of selected companies in Lagos State, Nigeria.

The study also concluded that there is significant relationship between greening process in technology and organizational performance of surveyed firms as agreed by hypothesis two tested and findings of the study.

Recommendations

The study recommends that:

1. Corporate organizations and government should embrace greening packaging practices and technology

2. Government should enact laws to support greening process in technology

3. National Orientation Agency should organize seminar, workshops and programs in order to enlighten the populace about the benefits of green logistics concept

Limitations

The research was limited by inadequate literature materials especially on the total number of road transport and logistics users in Nigeria which was difficult to comeby, reason while the study adopted reports of annual returns and information on the website of the selected companies to make the study population. Lastly, resistance of some respondents to properly fill and return the questionnaires distributed to them constitute another huge barrier to this study in which the study consulted the respondents every two weeks before they were able to fill and return the questionnaires.

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