

Transportation Management Strategies and Customer Satisfaction of Logistics Companies in Port Harcourt, Rivers State

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Abstract

This study examined the relationship between transportation management strategies and customer satisfaction of logistics companies in Port Harcourt, Rivers State. Effective transportation management is essential for improving service delivery and customer satisfaction in the logistics industry. However, inefficient route planning, delivery delays and unreliable carriers continue to affect customer loyalty and repeat patronage. The study was anchored on the SERVQUAL Model and Expectation Confirmation Theory. A cross-sectional survey research design was adopted, and data were collected from customers of logistics companies using a structured questionnaire. Of the 384 questionnaires administered, 368 valid responses were analysed using Pearson Product Moment Correlation at the 0.05 significance level. The findings revealed significant positive relationships between route planning and customer loyalty ($r = 0.804$) and repeat purchase ($r = 0.782$). Similarly, carrier management was positively related to customer loyalty ($r = 0.791$) and repeat purchase ($r = 0.769$). The study concluded that effective transportation management strategies are associated with improved customer satisfaction. It recommended that logistics companies adopt modern route-planning technologies, strengthen carrier selection and monitoring, and improve delivery reliability to enhance customer loyalty and encourage repeat patronage.

Key Words: Transportation Management, Route Planning, Carrier Management, Customer Loyalty, Repeat Purchase

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1. Introduction

Customer satisfaction refers to the extent to which a firm meets or exceeds customer expectations in service delivery, often reflected through customer loyalty and repeat purchase behavior. Customer loyalty represents the commitment of customers to continue using a firm's services, while repeat purchase refers to the frequency at which customers return to patronize the same service provider. These dimensions are critical because they determine long term profitability and sustainability of organizations (Kotler & Keller, 2022). Scholars have debated the drivers of customer satisfaction. While some argued that satisfaction is primarily influenced by service quality and pricing, others contend that operational efficiency and service delivery processes play a more

significant role. For instance, Parasuraman, et al. (1988) emphasized service quality dimensions such as reliability and responsiveness as key determinants of satisfaction.

However, Christopher (2016) argued that logistics performance, particularly delivery speed and reliability, is equally critical in shaping customer perceptions and satisfaction outcomes. This suggests that customer satisfaction is not only a marketing outcome but also an operational achievement. This interconnected and operationally driven nature of customer satisfaction links it directly to transportation management strategies within logistics firms. Transportation management strategies refer to the planning, execution, and control of transportation activities to ensure efficient movement of goods from origin to destination. These strategies are essential in logistics operations because they influence delivery speed, cost efficiency, and service reliability (Chopra & Meindl, 2019). Transportation management strategies is dimensionalized using route planning, which involves the systematic determination of optimal paths for transporting goods in order to minimize distance, time, and cost (Ifekanandu et al., 2024). Effective route planning enhances delivery efficiency by reducing travel time and fuel consumption, thereby improving service reliability. Studies have shown that optimized routing systems significantly improve delivery performance and customer satisfaction by ensuring timely and predictable service (Rushton et al., 2017). However, some scholars argued that route planning may be constrained by factors such as traffic conditions, infrastructure limitations, and unpredictable demand, which can affect its effectiveness.

Another important dimension is carrier management, which involves the selection, coordination, and monitoring of transportation service providers. Effective carrier management ensures that logistics firms partner with reliable carriers who can deliver goods efficiently and consistently. According to Langley et al. (2020), strong carrier relationships improve service quality, reduce delays, and enhance overall logistics performance. However, critics argue that poor carrier selection and weak monitoring systems can lead to service failures, delays, and customer dissatisfaction. From a critical perspective, the relationship between transportation management strategies and customer satisfaction has been widely examined in the literature. Some scholars argued that efficient transportation systems directly enhance customer satisfaction by improving delivery reliability and reducing delays. Others suggest that the relationship is indirect, as transportation efficiency influences service quality, which in turn affects customer satisfaction (Mentzer et al., 2001).

Empirical evidence largely supports the positive nexus between transportation management strategies and customer satisfaction. Studies indicate that effective route planning and carrier management significantly improve delivery performance, which leads to higher customer loyalty and repeat purchase behavior. For example, research shows that logistics performance attributes such as timeliness, accuracy, and reliability are key determinants of customer satisfaction in logistics services (Stank, et al. 1999). Despite the growing importance of transportation management strategies, there is limited empirical evidence on how specific dimensions such as route planning and carrier management influence customer loyalty and repeat purchase behavior within the context of logistics companies in Port Harcourt. This gap highlights the need for a context specific investigation. Therefore, the motivation for this study arises from the need to examine the relationship between transportation management strategies and customer satisfaction of logistics companies in Port Harcourt.

1.1 Statement of the Problem

The logistics industry plays a crucial role in facilitating the movement of goods and supporting economic activities, particularly in urban centers such as Port Harcourt. However, logistics companies

continue to face significant challenges related to inefficient transportation systems, delivery delays, and inconsistent service quality. Customers often experience late deliveries, damaged goods, and unreliable service schedules, which negatively affect their overall satisfaction. These issues have resulted in declining customer loyalty and reduced repeat patronage, thereby threatening the long term sustainability and competitiveness of logistics firms.

One of the major causes of these challenges is the ineffective management of transportation activities within logistics companies. Poor route planning often leads to longer delivery times, increased fuel costs, and inefficient use of resources. Similarly, weak carrier management practices, such as poor selection and monitoring of transport partners, contribute to service failures and inconsistencies. Although logistics firms attempt to improve service delivery through technological tools and operational adjustments, these efforts are often fragmented and insufficient to address the underlying inefficiencies in transportation management.

Various strategies have been adopted by logistics companies to improve service delivery and customer satisfaction, including the use of routing software, outsourcing of transport services, and improved tracking systems. However, these approaches have largely focused on general logistics improvements without specifically examining how key transportation management strategies such as route planning and carrier management influence customer satisfaction outcomes.

1.2 Conceptual Framework

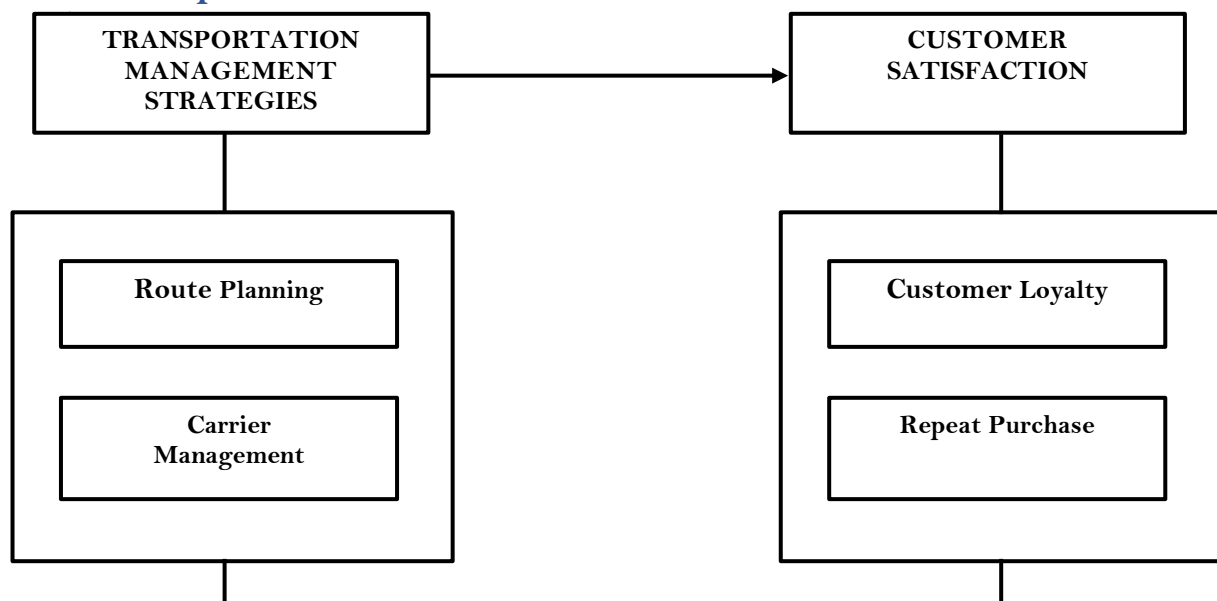


Figure 1: The conceptual framework showing the relationship between transportation management strategies and customer satisfaction of logistics companies in Port Harcourt.

Sources: Agabaenwere, E., U., Okwandu, G. A., & Nwulu C. S., (2025).

1.3 Research Objectives

- Examine the relationship between route planning and customer loyalty of logistics companies in Port Harcourt.

- Determine the relationship between route planning and repeat purchase of logistics companies in Port Harcourt.
- Examine the relationship between carrier management and customer loyalty of logistics companies in Port Harcourt.
- Determine the relationship between carrier management and repeat purchase of logistics companies in Port Harcourt.

1.4 Research Hypotheses

- H₀₁: Route planning has no significant relationship with customer loyalty of logistics companies in Port Harcourt.
- H₀₂: Route planning has no significant relationship with repeat purchase of logistics companies in Port Harcourt.
- H₀₃: Carrier management has no significant relationship with customer loyalty of logistics companies in Port Harcourt.
- H₀₄: Carrier management has no significant relationship with repeat purchase of logistics companies in Port Harcourt.

2 Literature Review

2.1 Conceptual Review

Transportation Management Strategies

The need for materials movement along a supply chain puts transport management at the core of logistics. Transportation management strategies refer to the coordinated planning, execution, and control of transportation activities to ensure the efficient movement of goods from origin to destination while meeting customer expectations (Chopra & Meindl, 2019). These strategies are central to logistics performance because transportation often accounts for a significant portion of total logistics costs and directly influences service delivery outcomes. Christopher (2016) argued that transportation is a key driver of supply chain responsiveness, as it determines how quickly products can reach customers. Similarly, Rushton, et al. (2017) emphasized that effective transportation management improves both cost efficiency and service quality by optimizing resource utilization and minimizing delivery delays. Kithiia (2015) submitted that e-logistics influenced performance of logistic firms positively. However, scholars present differing viewpoints on the primary role of transportation management strategies. While some researchers view transportation as a cost center that must be minimized, others argued that it should be treated as a strategic function that creates customer value. Chopra and Meindl (2019) contend that organizations must balance cost efficiency with responsiveness, as excessive cost cutting in transportation may lead to delays and reduced service quality. Conversely, Mentzer, et al. (2001) emphasized that logistics service quality, including delivery reliability and timeliness, is a critical determinant of customer satisfaction and loyalty.

The effectiveness of transportation management strategies is influenced by several factors, including infrastructure, technology, coordination mechanisms, and managerial capability. Langley et al. (2020) highlighted that advancements in transportation technologies such as route optimization systems and tracking tools have significantly improved logistics performance. However, these benefits may be limited in developing economies where infrastructure challenges and operational constraints affect transportation efficiency. Empirical evidence supports the argument that effective

transportation management strategies significantly enhance customer satisfaction. A number of studies have consequently been conducted locally with a view of exploring the role of transport management in supply chain management. Kithiia (2015) conducted a study on Maersk Kenya Limited, a logistics firm to examine effects electronic logistics has on the performance of logistics firms. Using a sample of 75 individuals drawn from 107 employees of the firm, the study revealed that e-logistics influenced performance of logistic firms positively. Stank et al. (1999) stated that timely and reliable delivery services improve customer perceptions and increase the likelihood of repeat patronage. Furthermore, efficient transportation systems have been linked to improved service quality and customer retention, particularly in logistics and distribution industries (Mentzer et al., 2001).

2.2 Dimensions of Transportation Management Strategies

Route Planning

Route planning is a fundamental component of transportation management strategies that involves determining the most efficient paths for the movement of goods from origin to destination. It encompasses the selection of optimal routes based on factors such as distance, time, cost, traffic conditions, and delivery schedules in order to enhance operational efficiency and service reliability (Chopra & Meindl, 2019). In logistics operations, route planning plays a critical role in minimizing transportation costs while ensuring timely delivery of goods, which is essential for achieving customer satisfaction. According to Rushton, et al. (2017), effective route planning reduces travel time, fuel consumption, and vehicle wear and tear, thereby improving overall operational efficiency. Similarly, Christopher (2016) argued that route optimization enhances delivery reliability and reduces variability in service performance, which are key determinants of customer satisfaction in logistics services. These perspectives suggest that route planning is not merely a technical activity but a strategic tool for achieving competitive advantage.

However, the effectiveness of route planning has been subject to critical debate. While some researchers emphasize its efficiency benefits, others argue that route planning is often constrained by external environmental factors. For instance, traffic congestion, poor road infrastructure, and unpredictable demand patterns can significantly affect the accuracy and effectiveness of route planning systems (Langley et al., 2020). Chopra and Meindl (2019) noted that the use of information technology in route planning enables firms to dynamically adjust routes based on changing conditions, thereby improving responsiveness and efficiency. However, the adoption of such technologies requires significant investment and technical expertise, which may limit their implementation in some logistics firms. Mentzer, Flint, and Hult (2001) emphasized that timely and reliable delivery is a key component of logistics service quality, which directly affects customer satisfaction and loyalty. Efficient route planning ensures that deliveries are made within expected time frames, thereby enhancing customer trust and encouraging repeat patronage.

Carrier Management

Carrier management involves selecting and managing third-party transportation providers. It is essential for companies that rely on external carriers for the distribution of their products. Effective carrier management ensures that carriers meet performance standards, adhere to schedules, and maintain high levels of service quality (Ogunleye & Akinola (2022). It involves selecting appropriate carriers, negotiating contracts, monitoring carrier performance, and maintaining relationships with carriers to ensure timely and cost-effective transportation of goods. The goal is to optimize logistics operations by selecting carriers that meet specific operational requirements, including delivery speed,

reliability, and cost-effectiveness (Adeleke & Oyeniyi, 2020). This process requires a thorough understanding of the transportation landscape, including the capabilities and limitations of various carriers, as well as the regulatory environment governing transportation in Nigeria.

Carrier management is essential for several reasons. First, it directly impacts lead time the period between the initiation of an order and its fulfillment. Efficient carrier management can significantly reduce lead time, ensuring that goods are delivered promptly. This is particularly important in the transportation industry, where delays can lead to significant financial losses and operational disruptions (Eze & Eze, 2018). Additionally, effective carrier management contributes to cost reduction. By negotiating favorable contracts and selecting cost-effective carriers, companies can minimize transportation expenses, thereby enhancing their overall profitability (Okeke, 2019).

The Nigerian transportation industry faces several challenges in carrier management. One of the primary challenges is the inadequacy of infrastructure. Poor road networks, limited rail connectivity, and inadequate port facilities can impede the efficient movement of goods. This situation is exacerbated by traffic congestion, particularly in major cities like Lagos and Port Harcourt, which are critical hubs for the transportation industry (Ugochukwu & Onyekwe, 2021). Additionally, regulatory challenges, including stringent customs procedures and inconsistent enforcement of transportation regulations, can create bottlenecks in the supply chain. To overcome these challenges, logistics firms in Nigeria must adopt strategic approaches to carrier management. One effective strategy is the implementation of technology-driven solutions. For instance, the use of transportation management systems (TMS) can streamline carrier selection, contract management, and performance monitoring. TMS platforms provide real-time visibility into transportation operations, enabling companies to track shipments, optimize routes, and identify potential issues before they escalate (Afolabi & Oladele, 2020). Moreover, integrating data analytics into carrier management can help firms make informed decisions based on historical performance data and predictive insights. In the transportation industry, where the timely delivery of equipment and supplies is critical, efficient carrier management can prevent operational disruptions and minimize downtime (Nwachukwu, 2020).

Concept of Customer Satisfaction

Customer satisfaction is a central concept in marketing and service management, representing the extent to which a firm's service performance meets or exceeds customer expectations. As stated by Kotler and Armstrong, (2010), satisfaction is a person's feelings of pleasure or disappointment resulting from the comparison of product's perceived performance in reference to expectations. Satisfaction or dissatisfaction is a measure or evaluation of a product or service's ability to meet a customer's need or expectations. Customers compare their expectations about a specific product or services and its actual benefits. Customer's feelings and beliefs also affect their satisfaction level. It reflects customers' evaluation of their overall experience with a service provider and is widely regarded as a key determinant of business success, particularly in service industries such as logistics where customer experience is directly linked to operational performance (Kotler & Keller, 2022). Gronroos (1990) as cited in Katua, (2012), describes customer satisfaction as encompassing customer expectations and perceptions, while Kotler et al, (1990) notes that, it is how well the product or service meets the customer's expectations. Thus Customer satisfaction is the most important issue in customer oriented business, and this emanates from a comparison process between the customer expectations and the perceived performance, If the perceived worth shall meet or surpass the customer's expectations, and then the customer shall be seen as been well satisfied or delighted by the product or service, while if the perceived worth doesn't meet or exceed the customers perception then

s/he will not be satisfied. Similarly, Parasuraman, et al. (1988) argued that satisfaction is largely influenced by service quality dimensions such as reliability, responsiveness, and assurance. However, Mentzer, et al. (2001) contended that in logistics services, satisfaction is strongly influenced by operational factors such as delivery timeliness, order accuracy, and service consistency.

2.3 Measures of Customer Satisfaction

Customer Loyalty

Customer loyalty refers to the willingness of customers to maintain a long-term relationship with a service provider and consistently choose that provider over competitors. It represents a strong commitment to repurchase or continue using a service, often accompanied by positive attitudes and trust toward the firm (Kotler & Keller, 2022). According to Parasuraman et al. (1988), reliable and consistent service delivery is a key driver of loyalty, as customers tend to remain loyal to service providers that meet their expectations. Similarly, Mentzer et al. (2001) argued that logistics service quality, particularly in terms of delivery reliability and responsiveness significantly influences customer loyalty. Customers may remain loyal to a service provider due to convenience, lack of alternatives, or contractual obligations, even if satisfaction levels are moderate. However, in highly competitive markets such as logistics, sustained loyalty is largely dependent on consistent service quality and positive customer experiences.

Loyalty is a multidimensional construct, which is defined and viewed differently by researchers. Consumer loyalty is comprised of three distinct constructs: behavioral loyalty, attitudinal loyalty, and composite loyalty (Taylor, et al. 2006). These constructs affect consumers' expectations, satisfaction (Leingpibul, et al. 2009) and repurchase behavior. In order to build loyalty and to retain consumers, some companies impose high switching costs, which in turn impede switching intentions (Lee & Romaniuk 2009). These switching costs negatively affect consumer relations with the provider. Taylor et al. (2006) identified that the problem lies in the disagreement on the definition of loyalty, due to the multitude of constructs. Again, the success of the firm's strategy depends on the company's ability to fulfill its promises to consumers, which in turn leads to forming long-term, profitable relationships (Carpenter & Fairhurst 2005). Chow and Zhang (2008) proposed that it is important for managers to identify satisfying product attributes from dissatisfying ones, because brand switching is more likely to occur as a result of dissatisfaction.

Repeat Purchase

Repeat purchase refers to the behavior of customers who continue to use the same service provider over time after an initial transaction. It reflects the frequency of customer patronage and is a key indicator of customer satisfaction and business performance (Kotler & Keller, 2022). Repurchase is defined as a consumer's actual behavior resulting in the purchase of the same product or service on more than one occasion. The majority of consumers' purchases are potential repeat purchases (Peyrot & Van Doren 1994). Customers buy similar products repeatedly from similar sellers, and most purchases represent a series of events rather than a single isolated event.

Scholars argued that repeat purchase behavior is closely linked to customer satisfaction and service quality. When customers have positive experiences with a service provider, they are more likely to return and continue using the service. Parasuraman et al. (1988) highlighted that consistent service performance enhances customer confidence, which encourages repeat patronage. Similarly, Mentzer et al. (2001) emphasized that reliable logistics services increase the likelihood of repeat

transactions. Firms that consistently deliver goods on time and maintain high service standards are more likely to retain customers and encourage repeat patronage (Stank et al., 1999).

Two forms of repurchase are identified: the intention to re-buy (repurchase), and the intention to engage in positive word-of-mouth and recommendation (referral) (Zeithaml, et al. 1996). There have been discussions in the marketing research literature as to whether purchase intentions and past purchasing behavior are correlated with actual consumer behavior in the future (Dixon, et al. 2005). In effect, does repurchase intent actually result in repurchase? Powers and Valentine (2008) have suggested that cumulative levels of satisfaction influence the consumer's loyalty to the product or service, which in turn, influences behavioral intentions including purchase behavior (Powers & Valentine 2008). Managers need to focus on marketing in order to ensure that they have satisfied customers, which ensure higher levels of repurchase behavior and an increase in loyal customers (Solvang 2007).

2.4 Theoretical Review

This study is anchored on SERVQUAL Model and the Expectation Confirmation Theory (ECT).

SERVQUAL Model

The SERVQUAL model was developed by Parasuraman, et al. (1988) to measure service quality based on the gap between customer expectations and perceived service performance. The model identifies five key dimensions of service quality: reliability, responsiveness, assurance, empathy, and tangibles. The central assumption of the SERVQUAL model is that customer satisfaction is determined by the extent to which a service meets or exceeds customer expectations. Reliability, which refers to the ability to perform promised services dependably and accurately, is particularly relevant in logistics operations where timely and consistent delivery is critical. Responsiveness, which involves the willingness to help customers and provide prompt service, is also essential in ensuring customer satisfaction.

In transportation management strategies, route planning and carrier management directly influence key SERVQUAL dimensions. Effective route planning enhances delivery reliability and timeliness, while efficient carrier management ensures responsiveness and consistency in service delivery. Therefore, transportation strategies play a crucial role in shaping perceived service quality. However, the SERVQUAL model has been criticized for its subjective nature and difficulty in measuring expectations accurately. Some scholars argue that customer expectations may vary widely and change over time, making it challenging to apply the model consistently. Despite these criticisms, SERVQUAL remains one of the most widely used frameworks for analyzing service quality and customer satisfaction. The relevance of SERVQUAL to this study lies in its ability to explain how improvements in transportation management strategies can enhance service quality, which in turn leads to increased customer satisfaction, loyalty, and repeat purchase behavior.

Expectation Confirmation Theory (ECT)

Expectation Confirmation Theory was developed by Oliver (1980) to explain customer satisfaction and post purchase behavior. The theory posits that customer satisfaction is determined by the comparison between initial expectations and actual performance. When performance meets or exceeds expectations, positive confirmation occurs, leading to satisfaction. Conversely, when performance falls below expectations, negative confirmation occurs, resulting in dissatisfaction.

The core assumptions of ECT are based on three elements: expectations, perceived performance, and confirmation. Customers form expectations before using a service, evaluate the actual performance after experiencing the service, and then compare the two to determine satisfaction. This process influences future behavioral intentions such as loyalty and repeat purchase. In logistics operations, transportation management strategies significantly influence perceived performance. Efficient route planning ensures timely delivery, while effective carrier management enhances service reliability. When these strategies meet or exceed customer expectations, they lead to satisfaction, which subsequently drives customer loyalty and repeat patronage.

From a critical perspective, ECT has been criticized for focusing primarily on cognitive evaluation while overlooking emotional and contextual factors that may influence customer satisfaction. Additionally, expectations may be influenced by external factors such as market competition and prior experiences, which are not fully captured by the theory. Nevertheless, ECT remains a robust framework for explaining satisfaction and post purchase behavior. The relevance of ECT to this study lies in its ability to explain how transportation management strategies influence customer satisfaction and subsequent behavioral outcomes. By ensuring that service delivery meets or exceeds customer expectations, logistics firms can enhance customer loyalty and encourage repeat purchase behavior.

Relevance of Theories to the Study

Both SERVQUAL and Expectation Confirmation Theory provide complementary explanations for the relationship between transportation management strategies and customer satisfaction. SERVQUAL explains how service quality dimensions influenced by route planning and carrier management affect customer perceptions, while Expectation Confirmation Theory explains how these perceptions translate into satisfaction, loyalty, and repeat purchase behavior.

2.5 Empirical Review

Stank et al. (1999) examined the relationship between logistics service performance and customer satisfaction in the United States logistics industry. The aim of the study was to determine how logistics service quality influences customer loyalty. The study adopted a survey research design with a population of logistics service users and a sample size of 142 respondents. Data were collected using structured questionnaires. Reliability was confirmed with Cronbach alpha values above 0.70, while validity was established through factor analysis. Regression analysis was used for data analysis. The findings revealed that delivery reliability and timeliness significantly influence customer satisfaction and loyalty. The study concluded that logistics performance is a key determinant of customer retention. It recommended that firms improve delivery consistency to enhance customer loyalty.

Mentzer, et al. (2001) examined logistics service quality and its impact on customer satisfaction. The aim was to assess how operational logistics performance influences customer perceptions and behavioral outcomes. The study adopted a survey design with a sample size of 188 respondents. Data were collected through questionnaires. Reliability and validity were confirmed through statistical testing. Structural equation modeling was used. The findings indicated that logistics service quality significantly affects customer satisfaction, which in turn influences repeat purchase behavior. The study concluded that service quality is a critical driver of customer retention. It recommended continuous improvement in logistics service delivery.

Rahman (2015) examined transportation service quality and customer satisfaction in the logistics sector. The aim of the study was to determine how transportation efficiency influences customer loyalty. The study adopted a survey research design with a sample size of 120 logistics customers. Data were collected using structured questionnaires. Reliability values exceeded 0.70, and validity was confirmed through factor analysis. Regression analysis was used. The findings showed that efficient transportation systems significantly improve customer satisfaction and loyalty. The study concluded that transportation management plays a crucial role in customer retention. It recommended investment in transportation infrastructure and planning systems.

Nguyen, et al. (2017) examined the effect of service quality on customer satisfaction and loyalty in logistics services. The aim was to determine how delivery performance influences customer behavior. The study adopted a quantitative research design with a sample size of 210 respondents. Data were collected through questionnaires. Reliability and validity were established through statistical analysis. Structural equation modeling was used. The findings revealed that delivery speed and reliability significantly influence customer satisfaction and loyalty. The study concluded that efficient logistics operations enhance customer retention. It recommended improved service reliability.

Huo, et al. (2016) examined the relationship between logistics capabilities and customer satisfaction in supply chain management. The aim was to determine how operational capabilities influence performance outcomes. The study adopted a survey research design with a sample size of 156 firms. Data were collected using questionnaires. Reliability and validity were confirmed through statistical methods. Regression analysis was used. The findings showed that transportation efficiency significantly improves customer satisfaction and operational performance. The study concluded that logistics capabilities are critical for customer retention. It recommended strengthening transportation management systems.

Thai (2013) examined logistics service quality and customer satisfaction in maritime logistics. The aim was to assess the influence of logistics service performance on customer loyalty. The study adopted a survey research design with a sample size of 130 respondents. Data were collected through questionnaires. Reliability values exceeded 0.70, and validity was established through factor analysis. Regression analysis was used. The findings indicated that service reliability and timeliness significantly influence customer satisfaction and loyalty. The study concluded that logistics service quality is essential for customer retention. It recommended improving delivery performance.

Saura, et al. (2008) examined the impact of service quality on customer satisfaction and loyalty in transportation services. The aim was to determine how service performance affects customer behavior. The study adopted a survey research design with a sample size of 175 respondents. Data were collected using questionnaires. Reliability and validity were confirmed through statistical testing. Structural equation modeling was used. The findings revealed that service quality significantly influences customer satisfaction and loyalty. The study concluded that efficient transportation services enhance repeat purchase behavior. It recommended improving service delivery systems.

2.6 Research Gap

First, most existing studies focus broadly on logistics service quality and general operational performance, with limited emphasis on specific transportation management strategies such as route planning and carrier management. This creates a dimensional gap, as the distinct effects of these strategies on customer satisfaction outcomes are not adequately examined. Second, many studies

conceptualize customer satisfaction in general terms without breaking it down into specific behavioral outcomes such as customer loyalty and repeat purchase. This creates a measurement gap, limiting a deeper understanding of how operational strategies translate into specific customer behaviors. Third, the majority of empirical studies have been conducted in developed economies, with limited research in developing countries such as Nigeria. This geographical gap reduces the applicability of existing findings to the local logistics environment in Port Harcourt, where infrastructural challenges and operational constraints may influence transportation efficiency and customer satisfaction. Fourth, prior studies often examine logistics performance as a whole, without isolating the role of transportation management strategies as a critical component of service delivery. This creates a contextual gap, particularly in understanding how transportation specific decisions affect customer outcomes in logistics firms. Finally, there is limited integration of both operational variables (route planning, carrier management) and behavioral outcomes (customer loyalty, repeat purchase) within a single analytical framework, especially in the Nigerian logistics sector. Therefore, this study addresses these gaps by examining the relationship between transportation management strategies (route planning and carrier management) and customer satisfaction (customer loyalty and repeat purchase) of logistics companies in Port Harcourt, Rivers State.

2.7 Summary of Literature Reviewed

This chapter reviewed the conceptual, theoretical, and empirical literature related to transportation management strategies and customer satisfaction. The conceptual review examined key variables including transportation management strategies, route planning, carrier management, and customer satisfaction. The review established that efficient transportation systems enhance delivery performance, reduce delays, and improve service reliability, which are critical for achieving customer satisfaction. The theoretical framework was anchored on the SERVQUAL Model and Expectation Confirmation Theory. The SERVQUAL model explains how service quality dimensions influence customer perceptions, while Expectation Confirmation Theory explains how these perceptions translate into satisfaction and behavioral outcomes such as loyalty and repeat purchase.

The empirical review highlighted that logistics service performance significantly influences customer satisfaction outcomes. Most studies found that delivery reliability, timeliness, and service efficiency are key determinants of customer loyalty and repeat patronage. However, the review also identified gaps related to variable specificity, measurement, and geographical context. The literature provides a strong foundation for this study and supports the argument that transportation management strategies have the potential to significantly influence customer satisfaction outcomes.

3 Methodology

Research Design: This study adopted a cross-sectional survey research design. This design is considered appropriate because it allows for the collection of quantitative data from respondents at a single point in time in order to examine the relationship between transportation management strategies and customer satisfaction. According to Creswell (2014), survey research is suitable for studies that seek to generalize findings from a sample to a population. Similarly, Saunders, Lewis, and Thornhill (2019) assert that survey design is effective for analyzing relationships among variables using structured instruments. Bryman (2016) further emphasizes that cross sectional surveys are useful for identifying patterns and associations between variables within a specific timeframe. The

design is therefore appropriate for examining how route planning and carrier management relate with customer loyalty and repeat purchase.

Population of the Study: The population comprised of customers of logistics companies in Port Harcourt. The number of customers that patronize logistics companies is unknown (infinite) as there are no available records of customers.

Sample/Sampling Techniques: The sample for this study consisted of customers that patronize logistics companies in Port Harcourt. Since the population is unknown, the Cochran's formula was used to determine the sample size for the study. The Cochran's formula is given as:

Where:

e = the desire level of precision (i.e. margin of error which is 5% in this case)

p = the proportion of the population which has the attributes in question (95% confidence level)

$q = 1 - p$ (which is 0.5)

$Z = 1.96$ (which is found in Z-table)

$n = 384$

Therefore, the sample size is 384. Convenience sampling technique will be used to reach out to the sample size (384 customers) for the study.

Sources of Data: The study relied on primary data, which are collected directly from respondents using a structured questionnaire. Creswell (2014) emphasizes that primary data provide firsthand and context specific information relevant to the research objectives.

Instrument for Data Collection: The instrument that was used for data collection was a structured questionnaire designed to obtain relevant information on transportation management strategies and customer satisfaction. The questionnaire is structured on a four-point Likert scale with response options of Strongly Agree, Agree, Disagree, and Strongly Disagree, allowing respondents to indicate their level of agreement with each statement. It is divided into two sections: Section A captures demographic information, while Section B contains items measuring route planning, carrier management, customer loyalty, and repeat purchase. The use of a structured questionnaire ensures uniformity of responses and facilitates quantitative analysis, consistent with the recommendations of Bryman (2016) and Creswell (2014).

Validity of the Instrument: Validity refers to the extent to which the instrument measures what it is intended to measure. The study adopts face and content validity. Experts in marketing reviewed the questionnaire to ensure that the items adequately capture the constructs under investigation. Saunders et al. (2019) note that expert validation improves the accuracy and relevance of research instruments.

Reliability of the Instrument: Reliability refers to the consistency of a measurement instrument. The reliability of the questionnaire will be tested using the Cronbach Alpha method. According to Nunnally (1978), a reliability coefficient of 0.70 or above is considered acceptable for research purposes. A pilot study will be conducted using a small sample outside the main study area to test the reliability of the instrument.

Method of Data Analysis: Data collected was analyzed using both descriptive and inferential statistics. Descriptive statistics such as frequency distribution, percentages, and mean scores was used to summarize the data. Inferential statistics will be used to test the hypotheses. Specifically, the Pearson Product Moment Correlation will be employed to examine the relationship between transportation management strategies and customer satisfaction. Saunders et al. (2019) state that

Spearman correlation is appropriate for analyzing relationships between variables measured on ordinal scales such as Likert scale data.

4 Data Presentation, Analysis and Results

This chapter presents the analysis and results of the study on transportation management strategies and customer satisfaction of logistics companies in Port Harcourt, Rivers State.

Table 1 Questionnaire Administration

	Frequency	Percentage (%)
Copies Distributed	384	100.0
Copies Retrieved	372	96.9
Copies Not Retrieved	12	3.1
Valid Copies Used	368	95.8
Invalid Copies	4	1.1
Total	384	100.0

Source: Field Survey, 2026.

Table 1 indicates that 384 copies of the questionnaire were administered to customers of selected logistics companies in Port Harcourt. Out of this number, 372 questionnaires representing 96.9% were retrieved, while 12 questionnaires representing 3.1% were not returned. Four of the retrieved questionnaires were discarded because they contained incomplete responses, leaving 368 valid questionnaires representing 95.8% of the total distributed for analysis. The high response rate indicates excellent participation by respondents and provides sufficient data for reliable statistical analysis. Consequently, the study proceeded with the analysis based on the 368 valid responses.

In line with the objectives of the study, the analysis focuses specifically on the relationships between the dimensions of transportation management strategies, namely route planning and carrier management, and the measures of customer satisfaction, namely customer loyalty and repeat purchase. The hypotheses were tested using Pearson Product Moment Correlation (PPMC) at the 0.05 level of significance. Only the tables relevant to answering the research objectives and testing the hypotheses are presented.

4.1 Composite Descriptive Results

Table 2: Composite Descriptive Results of the Study Variables

Study Variables	Grand Mean	Decision
Route Planning	3.20	Agree
Carrier Management	3.19	Agree
Customer Loyalty	3.20	Agree
Repeat Purchase	3.20	Agree

Source: Research Survey, 2026

Table 2 indicates that route planning recorded a grand mean of 3.20, while carrier management recorded a grand mean of 3.19. Customer loyalty and repeat purchase both recorded a grand mean of 3.20. The results indicate that respondents generally agreed with the statements measuring the dimensions of transportation management strategies and customer satisfaction. However, the

descriptive results only provide an indication of the observed responses. The relationship between the variables is determined through the inferential analysis presented below.

4.2 Test of Hypotheses

Table 3: Summary of Pearson Product Moment Correlation Results

Hypothesis	Relationship Tested	r-value	p-value	Decision
H ₀₁	Route Planning → Customer Loyalty	0.804	0.000	Reject H ₀₁
H ₀₂	Route Planning → Repeat Purchase	0.782	0.000	Reject H ₀₂
H ₀₃	Carrier Management → Customer Loyalty	0.791	0.000	Reject H ₀₃
H ₀₄	Carrier Management → Repeat Purchase	0.769	0.000	Reject H ₀₄

Source: Research Survey, 2026

N = 368; Significance level = 0.05

The results presented in Table 4.3 indicate that all four relationships are positive and statistically significant. Since each probability value of 0.000 is less than the 0.05 significance level, all four null hypotheses are rejected.

Hypothesis One

H₀₁: *Route planning has no significant relationship with customer loyalty of logistics companies in Port Harcourt, Rivers State.*

The result indicates a strong positive relationship between route planning and customer loyalty, with a correlation coefficient of $r = 0.804$ and a probability value of $p = 0.000$. Since the p-value is less than 0.05, the relationship is statistically significant. Therefore, the null hypothesis is rejected. The result implies that improvements in route planning are associated with higher levels of customer loyalty among customers of logistics companies in Port Harcourt.

Hypothesis Two

H₀₂: *Route planning has no significant relationship with repeat purchase of logistics companies in Port Harcourt, Rivers State.*

The analysis produced a correlation coefficient of $r = 0.782$ with a probability value of $p = 0.000$. This indicates a strong positive and statistically significant relationship between route planning and repeat purchase. Since $p < 0.05$, the null hypothesis is rejected. The result suggests that effective route planning is associated with customers' willingness to use the services of logistics companies repeatedly.

Hypothesis Three

H₀₃: *Carrier management has no significant relationship with customer loyalty of logistics companies in Port Harcourt, Rivers State.*

The result shows a correlation coefficient of $r = 0.791$ and a probability value of $p = 0.000$. The relationship between carrier management and customer loyalty is therefore positive, strong and statistically significant at the 0.05 level. Consequently, the null hypothesis is rejected. This result indicates that effective management of carriers is associated with stronger customer loyalty among customers of logistics companies in Port Harcourt.

Hypothesis Four

H₀₄: *Carrier management has no significant relationship with repeat purchase of logistics companies in Port Harcourt, Rivers State.*

The analysis produced a correlation coefficient of $r = 0.769$ and a probability value of $p = 0.000$. The result demonstrates a strong positive and statistically significant relationship between carrier management and repeat purchase. Since $p < 0.05$, the null hypothesis is rejected. The result implies that effective carrier management is associated with customers' willingness to patronize logistics companies repeatedly.

4.3 Summary of Findings

The study examined transportation management strategies and customer satisfaction of logistics companies in Port Harcourt, Rivers State. Transportation management strategies were operationalised through route planning and carrier management, while customer satisfaction was measured through customer loyalty and repeat purchase. The findings established four statistically significant positive relationships. First, route planning had a strong positive relationship with customer loyalty, with $r = 0.804$ and $p = 0.000$. Second, route planning had a strong positive relationship with repeat purchase, with $r = 0.782$ and $p = 0.000$. Third, carrier management had a strong positive relationship with customer loyalty, with $r = 0.791$ and $p = 0.000$. Fourth, carrier management had a strong positive relationship with repeat purchase, with $r = 0.769$ and $p = 0.000$. Thus, all four null hypotheses were rejected.

4.4 Discussion of Findings

Route Planning and Customer Loyalty: The finding established a strong positive relationship between route planning and customer loyalty. This suggests that effective planning of transportation routes is associated with stronger customer loyalty among logistics customers. Appropriate route planning can facilitate more reliable delivery schedules, reduce unnecessary delays and improve consistency in service delivery. The finding is consistent with the logistics literature which emphasises the importance of transportation efficiency and service reliability in sustaining customer relationships. Christopher (2016) emphasised the strategic relevance of logistics performance to customer value, while Rushton, Croucher and Baker (2017) identified transportation efficiency as an important element of logistics operations.

Route Planning and Repeat Purchase: The study also established a strong positive relationship between route planning and repeat purchase. The result indicates that customers are more likely to continue using logistics services when transportation activities are organised in a manner that supports reliable and timely delivery. Effective route planning can reduce avoidable delays and improve delivery predictability. These operational outcomes can contribute to favourable customer experiences and encourage customers to continue patronising the logistics provider.

Carrier Management and Customer Loyalty: The study established a strong positive relationship between carrier management and customer loyalty. This finding indicates that how logistics firms select, coordinate and monitor their carriers is associated with the loyalty of their customers. Effective carrier management can enhance service consistency because transportation providers are better coordinated and monitored. Where carriers consistently meet expected delivery requirements, customers may develop greater confidence in the logistics provider.

Carrier Management and Repeat Purchase: The findings further established a strong positive relationship between carrier management and repeat purchase. The result indicates that effective management of transportation providers is associated with customers' continued patronage. This relationship can be explained by the importance of delivery reliability in logistics services. Customers who experience dependable transportation services may be more willing to use the same logistics provider for subsequent transactions.

5 Conclusion and Recommendations

5.1 Conclusion

Based on the empirical evidence, the study concludes that transportation management strategies are significantly associated with customer satisfaction among logistics companies in Port Harcourt, Rivers State. Specifically, route planning is significantly related to both customer loyalty and repeat purchase, while carrier management is also significantly related to both customer loyalty and repeat purchase. The findings demonstrate that transportation activities have implications beyond the movement of goods because their effectiveness is associated with important customer-related outcomes.

5.2 Recommendations

Based on the findings, the following recommendations are made:

- Logistics companies should strengthen route-planning systems by regularly reviewing delivery routes, traffic conditions, delivery schedules and transportation requirements.
- Management should establish effective carrier-selection and monitoring procedures to ensure that transportation providers consistently meet required service standards.
- Logistics firms should adopt appropriate transportation-monitoring technologies to improve visibility of deliveries and facilitate rapid responses to transportation delays.
- Customer feedback should be regularly obtained and analysed to identify transportation-related service problems that may affect customer loyalty and repeat patronage.

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