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# CUSTOMER SERVICE QUALITY AND SERVICE DELIVERY EFFICIENCY OF LOGISTIC FIRMS IN CALABAR, CROSS RIVER STATE

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**Abstract**
This study examined the effect of customer service quality on service delivery efficiency of logistics firms in Calabar, Cross River State. Specifically, the study investigated the influence of staff quality, equipment quality, service delivery time, and service accuracy on service delivery efficiency. A survey research design was adopted, and data were collected from staff and customers of five selected logistics firms using structured questionnaires and interviews. The data were analyzed using descriptive statistics and multiple linear regression analysis. Findings revealed that staff quality, equipment quality, service delivery time, and service accuracy have significant positive effects on service delivery efficiency. The regression results showed that service accuracy was the strongest predictor of efficiency, followed by staff quality, equipment quality, and service delivery time. The study concluded that effective human resources, modern logistics technologies, timely deliveries, and accurate order fulfillment are critical determinants of service delivery efficiency. The study recommended staff training, technological investment, improved scheduling, and strengthened quality control measures.

**Keywords:** Customer Service Quality; Service Delivery Efficiency; Staff Quality; Equipment Quality; Service Delivery Time; Logistics Firms.

## Introduction

The logistics industry plays a vital role in facilitating trade and economic activities. Rising customer expectations for reliable, timely, and accurate deliveries have made customer service quality a key determinant of operational efficiency and customer satisfaction (Somuyiwa et al., 2020). Logistics service quality (LSQ) encompasses reliability, timeliness, and order accuracy, all of which influence customer satisfaction, loyalty, and competitiveness (Arabelen & Kaya, 2021). These factors are particularly important in developing economies where infrastructural constraints affect service delivery (Lumanga & Muya, 2024).

Staff quality, reflected in employees' competence, professionalism, and responsiveness, significantly affects customer satisfaction. Likewise, modern equipment and tracking technologies enhance delivery reliability and reduce operational errors (Lumanga & Muya, 2024). Service delivery efficiency is commonly assessed through delivery time and accuracy. Timely and accurate deliveries improve customer trust, satisfaction, and loyalty, whereas delays and errors negatively affect service perceptions (Maesazshandy & Tohir, 2025).

Although studies in Nigeria have linked logistics service quality with customer satisfaction (Okoroji et al., 2017), limited empirical evidence exists on the combined effects of staff quality, equipment quality, delivery time, and delivery accuracy within logistics firms in Calabar. Addressing this gap will provide insights for improving customer satisfaction and competitive performance. Customer service quality remains a major source of competitive advantage because it influences order fulfillment, responsiveness, reliability, and supply chain effectiveness (Ogunnowo & Sule, 2021). Poor service delivery often results in customer dissatisfaction and loss of market share. Consequently, examining the relationship between service quality and delivery efficiency is essential for logistics management and policy development in Cross River State.

**Statement of the Problem**

Despite their importance to trade and distribution, many logistics firms in Nigeria face challenges related to poor service quality and delivery efficiency. Service dimensions such as responsiveness, reliability, and assurance significantly affect customer satisfaction and operational performance (Lumanga & Muya, 2024). Problems including inadequate staff competence, poor equipment, delayed deliveries, and inaccurate order fulfillment continue to hinder service effectiveness.

Staff competence influences customer perceptions of reliability and trust (Hassan et al., 2021), while the quality of vehicles, tracking systems, and handling equipment affects delivery reliability. Timely delivery is a critical determinant of customer satisfaction and operational efficiency (Uvet, 2020), whereas delivery inaccuracies often lead to complaints, returns, and reduced customer loyalty.

In Calabar, there is limited research examining the combined influence of staff quality, equipment quality, delivery time, and delivery accuracy on logistics performance. This knowledge gap restricts the development of effective strategies for improving service quality, customer satisfaction, and operational efficiency within the region's logistics industry.

**Specific Objectives**

The broad objective of the study was to examine the effect of customer service quality on service delivery efficiency of logistic firms in Calabar, Cross River State. The specific objectives include:

1. To examine the effect of staff quality on service delivery efficiency of logistic firms in Calabar, Cross River State.
2. To assess the effect of equipment quality on service delivery efficiency of logistic firms in Calabar, Cross River State.

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3. To determine the effect of service delivery time on service delivery efficiency of logistic firms in Calabar, Cross River State.

**Research questions**

The following research questions were put forward to guide the study;

1. To what extent does staff quality affect the service delivery efficiency of logistic firms in Calabar, Cross River State?
2. To what extent does quality of equipment influence service delivery efficiency of logistic firms in Calabar, Cross River State?
3. Does service delivery time significantly affect service delivery efficiency of logistic firms in Calabar, Cross River State?

**Research hypotheses**

The following null hypotheses were tested in the study:

**$H_{01}$:** Staff quality has no significant effect on customer satisfaction in logistics firms in Calabar.

**$H_{02}$:** Quality of equipment does not significantly influence service delivery efficiency in logistics firms in Calabar.

**$H_{03}$:** Service delivery time has no significant effect on customer satisfaction and loyalty in logistics firms in Calabar.

**Review of Literature**

***Customer Service***

Modern literature views customers as active stakeholders whose expectations and perceptions influence organizational success and sustainability (Halim et al., 2025). In logistics, customers evaluate providers based on delivery accuracy, timeliness, responsiveness, and information transparency, all of which affect satisfaction and loyalty (Hasdiansa & Hasbiah, 2025).

Customer service refers to organizational efforts aimed at supporting customers, resolving complaints, and improving service experiences. In logistics firms, it includes prompt responses, effective communication, and real-time delivery information (Tee et al., 2025). SERVQUAL dimensions—reliability, responsiveness, assurance, empathy, and tangibles—have been widely applied to explain customer satisfaction in logistics services. Studies indicate that customers value both successful delivery and the quality of interactions throughout the service process (Hasdiansa & Hasbiah, 2025).

***Customer Service Delivery***

Service delivery encompasses the processes through which services are provided and experienced by customers. Delivery quality is reflected in timeliness, accuracy, product condition, communication, and tracking systems. Efficient monitoring, delivery updates, and convenient service options significantly enhance customer satisfaction (Alabar & Agema, 2014). Customer service quality and delivery quality are closely related and jointly influence customer retention and loyalty (Ebitu, 2016).

***Service Delivery Efficiency***

Service delivery efficiency refers to the ability of logistics firms to fulfill customer orders accurately, promptly, and with minimal resource wastage. It involves reliability, transparency, cost control, and effective coordination across the supply chain (Burity, 2021). Efficient operations reduce delays, complaints, and service failures, thereby improving customer satisfaction and loyalty.

Research shows that logistics service quality dimensions such as reliability and responsiveness contribute to operational efficiency by minimizing errors and returns (Gangwar & Jadoun, 2025). Efficient logistics operations enhance profitability, competitiveness, and customer retention (Al Zadajali & Ullah, 2024). Last-mile delivery remains a major challenge due to traffic congestion and route complexities, but routing optimization and real-time tracking significantly improve efficiency and customer satisfaction (Zainuddin et al., 2021). Furthermore, digital technologies and data analytics improve planning, monitoring, and service responsiveness, strengthening operational performance (Fitriyani & Mokodompit, 2025).

***Staff Quality and Service Delivery Efficiency***

Staff quality reflects employee competence, skills, professionalism, and experience. In logistics operations, workforce quality significantly influences productivity, responsiveness, and service effectiveness. Odesola and Nwizu (2024) found that competent employees improve coordination, reduce delays, and enhance operational performance. Therefore, staff quality is crucial for reliable and efficient logistics service delivery.

***Quality of Equipment and Service Delivery Efficiency***

Equipment quality includes the condition, availability, and technological capability of logistics assets such as vehicles, handling systems, warehouses, and tracking technologies. Modern and well-maintained equipment improves operational reliability, reduces breakdowns, and enhances delivery speed. Nigerian studies indicate that transport productivity and equipment quality significantly influence logistics service outcomes and customer satisfaction.

***Service Delivery Time and Service Delivery Efficiency***

Service delivery time is the period between order placement and final delivery. It is a key indicator of logistics performance and customer satisfaction. Mbum and Ndubuisi (2025) found that reliable delivery schedules and fleet-tracking systems reduce delays and improve responsiveness. Similarly, Agbeche et al. (2025) reported that efficient delivery time management enhances customer experience and operational performance.

***Empirical Reviews***

Ogunnowo and Sule (2021) examined customer perceptions of logistics service quality among Nigerian 3PL firms. Using survey data analyzed through CSI and CZIPA techniques, they found that delivery accuracy and staff responsiveness significantly affect customer satisfaction and delivery performance.

Ibrahim et al. (2024) studied service quality and consumer patronage in Osun State using a survey of 385 respondents. Findings showed that reliable delivery schedules and responsiveness improved perceived delivery efficiency and customer retention.

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Murfield et al. (2017) investigated logistics service quality in omnichannel retailing using Structural Equation Modeling (SEM). Results indicated that timely delivery and responsive customer service significantly enhanced customer satisfaction and delivery performance.

Ezirim, Etim, and Amadi (2016) surveyed 175 logistics employees in Port Harcourt and found that staff competence positively influenced delivery timeliness, accuracy, and communication. They recommended continuous employee training.

Nwajei and Obieze (2025) reported that employee engagement improved Total Quality Management effectiveness, delivery coordination, and customer responsiveness within GIG Logistics Nigeria. Somuyiwa, Oduwole, and Babatunde (2020) found that logistics graduates outperformed non-specialists in logistics roles, suggesting that workforce competence enhances operational efficiency.

Arabelen and Kaya (2021) identified personnel quality, including staff attitude, knowledge, and responsiveness, as major determinants of logistics service quality and delivery performance. Ogbeide (2024) found that haulage productivity significantly improved service delivery speed and reliability among logistics firms in Nigeria. Ifekanandu, Obinna, and Asagba (2024) reported strong positive relationships between logistics technology adoption and on-time delivery performance in shipping companies. Ciani (2023) concluded that shorter delivery times significantly enhance competitiveness and performance in international markets.

## Theoretical Framework

### *Expectation-Disconfirmation Theory (EDT)*

Expectation-Disconfirmation Theory was developed by Oliver (1980) to explain customer satisfaction. The theory argues that satisfaction depends on the comparison between expected and actual performance. Positive disconfirmation occurs when performance meets or exceeds expectations, while negative disconfirmation results from unmet expectations.

The theory assumes that customers form expectations before service consumption and evaluate performance against those expectations. Positive evaluations lead to satisfaction, loyalty, and repeat patronage (Oliver, 1980). In logistics, timely, accurate, and responsive services generate positive disconfirmation and improved customer satisfaction.

Critics argue that EDT overemphasizes expectations and overlooks emotional and situational influences on satisfaction (Bhattacherjee, 2001). Nevertheless, the theory is relevant because it explains how customer service quality dimensions such as reliability, responsiveness, assurance, and empathy influence perceptions of delivery efficiency and satisfaction.

### *Just-in-Time (JIT) Theory*

Just-in-Time (JIT) originated from the Toyota Production System and gained prominence in the 1980s as a strategy for reducing waste, inventory costs, and lead times (Olhager, 2002). The theory advocates producing and delivering goods only when needed to improve efficiency and responsiveness.

JIT assumes predictable demand, reliable suppliers, efficient communication systems, and effective internal coordination (Adebayo & Olufemi, 2020). In logistics, these assumptions require dependable transportation, competent personnel, and accurate information systems.

Critics argue that JIT makes supply chains vulnerable to disruptions such as transportation failures and demand fluctuations (Akinwale & Adepoju, 2019). Despite this limitation, JIT remains highly relevant to logistics because it emphasizes timely delivery, delivery accuracy, waste reduction, and coordinated operations. It also highlights the importance of staff quality and equipment quality in achieving efficient service delivery while balancing efficiency with flexibility.

**Research methodology**

The population of the study comprised staff and customers of five selected logistics firms in Calabar. The sample size was considered adequate to represent the population and to allow for meaningful statistical analysis. The study employed the purposive sampling technique. This technique involves selecting respondents based on specific characteristics relevant to the study. Staff and customers who have direct experience with logistics services were intentionally selected to provide reliable and relevant information.

The study utilized primary data. Data were collected through: Administration of structured questionnaires to respondents. Personal interviews with selected staff and customers, these methods ensured the collection of firsthand and relevant data needed to achieve the study objectives. The main instrument used for data collection was a structured questionnaire designed using a five-point Likert scale. The questionnaire was divided into sections covering demographic information and variables related to service quality and service delivery efficiency.

The data collected were analyzed using descriptive and inferential statistical techniques. Descriptive statistics such as mean and standard deviation were used to summarize the responses, while multiple linear regression analysis was used to examine the effect of independent variables on the dependent variable.

The multiple linear regression model used in this study is expressed as:

SDE = \beta_0 + \beta_1 SQ + \beta_2 QE + \beta_3 SDT + \beta_4 SDA + \mu

**Data Presentation and Analysis**

The demographic characteristics of the respondents indicates that the majority of respondents were male (67%), while female respondents accounted for 33%. This suggests that males are more actively involved in the utilization of logistics services in the study area. In terms of age distribution, the largest proportion of respondents falls within the 20–30 years age group (44%), followed by those aged 31–40 years (36%), while respondents aged 41 years and above represent 20%. This implies that younger individuals constitute the majority of logistics service users, possibly due to their higher engagement in commercial and online activities.

Regarding the number of visits, 45% of the respondents from the logistics firms, 20 (20%) of the respondents were from GIG Logistics Calabar, 20 (20%) of the respondents were from DHL International Nigeria Ltd, 20 (20%) of the respondents were from ABC Cargo &

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Logistics, 20 (20%) of the respondents were from IFEX Express Ltd and 20 (20%) of the respondents were from UPS Nigeria Ltd.

**Table 1**

**Staff quality**

| Item | SA | A | U | D | SD | Mean | Std. Dev |
|---|---|---|---|---|---|---|---|
| The staff of logistics firms in Calabar are well-trained to perform their duties effectively. | 39 | 41 | 9 | 7 | 4 | 4.04 | 1.06 |
| Staff professionalism improves the efficiency of service delivery in logistics firms. | 52 | 28 | 8 | 6 | 6 | 4.14 | 1.12 |
| Staff responsiveness to customer needs enhances service delivery efficiency. | 36 | 44 | 10 | 5 | 5 | 4.01 | 1.03 |
| The attitude and behavior of staff positively influence timely and effective service delivery. | 47 | 31 | 11 | 6 | 5 | 4.09 | 1.08 |

**Source: Researcher field survey 2026**

**Table 2**

**Quality of equipment**

| Item | SA | A | U | D | SD | Mean | Std. Dev |
|---|---|---|---|---|---|---|---|
| Modern equipment used by logistics firms improves service delivery efficiency. | 41 | 38 | 12 | 4 | 5 | 4.06 | 1.02 |
| The availability of adequate equipment enhances operational performance in logistics firms. | 49 | 30 | 7 | 8 | 6 | 4.08 | 1.14 |
| Poor or outdated equipment reduces the efficiency of service delivery. | 34 | 46 | 9 | 6 | 5 | 3.98 | 1.05 |
| The use of technology (e.g., tracking systems) improves logistics service delivery efficiency. | 53 | 27 | 6 | 9 | 5 | 4.14 | 1.16 |

**Source: Researcher field survey 2026**

**Table 3**

**Service time**

| Item | SA | A | U | D | SD | Mean | Std. Dev |
|---|---|---|---|---|---|---|---|
| Timely delivery of goods significantly improves customer satisfaction and efficiency. | 45 | 33 | 13 | 5 | 4 | 4.10 | 1.01 |
| Delays in service delivery negatively affect the efficiency of logistics firms. | 38 | 42 | 8 | 7 | 5 | 4.01 | 1.07 |
| Fast service delivery enhances the overall performance of logistics firms. | 50 | 29 | 10 | 6 | 5 | 4.13 | 1.09 |
| Adherence to delivery schedules improves operational efficiency | 43 | 35 | 11 | 8 | 3 | 4.07 | 1.00 |

**Source: Researcher field survey 2026**

**Staff quality and service delivery efficiency in logistics firms**

The findings on staff quality indicate a generally positive perception among respondents regarding the competence and effectiveness of employees in logistics firms in Calabar. The item "Staff professionalism improves the efficiency of service delivery in logistics firms" recorded the highest mean score of 4.14 (SD = 1.12), suggesting strong agreement that professionalism plays a key role in enhancing service efficiency. Similarly, respondents agreed that staff attitude and behavior positively influence timely and effective service delivery, with a mean of 4.09 (SD = 1.08). The statement that staff are well-trained also recorded a high mean of 4.04 (SD = 1.06), while staff responsiveness to customer needs had a mean of 4.01 (SD = 1.03). Overall, the results show that respondents generally agree that staff quality significantly contributes to improved service delivery efficiency in logistics firms.

**Quality of equipment and service delivery efficiency in logistics firms**

The results on quality of equipment reveal that respondents strongly acknowledge the importance of modern tools and technology in logistics operations. The use of technology such as tracking systems recorded the highest mean score of 4.14 (SD = 1.16), indicating strong agreement that technological adoption enhances service efficiency. This is closely followed by the availability of adequate equipment, with a mean of 4.08 (SD = 1.14), and modern equipment usage, which recorded 4.06 (SD = 1.02). Interestingly, the statement that poor or outdated equipment reduces efficiency recorded a slightly lower mean of 3.98 (SD = 1.05), though it still reflects agreement among respondents. Overall, the findings suggest that equipment quality is a significant determinant of service delivery efficiency in logistics firms.

**Service delivery time and service delivery efficiency in logistics firms**

The analysis of service delivery time shows that respondents place high importance on timeliness in logistics operations. The highest-rated item was "Fast service delivery enhances the overall performance of logistics firms", with a mean of 4.13 (SD = 1.09). This is followed closely by the belief that timely delivery improves customer satisfaction and efficiency, which recorded a mean of 4.10 (SD = 1.01). Adherence to delivery schedules also scored highly with a mean of 4.07 (SD = 1.00), while delays in service delivery negatively affecting efficiency recorded a mean of 4.01 (SD = 1.07). These results indicate that respondents strongly agree that time-related factors are critical in determining logistics performance.

**Multiple regression analysis**
**Dependent Variable:**
Service Delivery Efficiency
**Independent Variables:** Staff Quality, Quality of Equipment, Service Time,
**Sample Size (N) = 100**

**Table 4**

**Model Summary**

| Model | R | R Square | Adjusted R Square | Std. Error |
|---|---|---|---|---|

| Model | R | R Square | Adjusted R Square | Std. Error |
|---|---|---|---|---|
| 1 | 0.812 | 0.659 | 0.645 | 0.528 |

**Source: Researcher field survey 2026**

**Table 5**

**ANOVA**

| Model | Sum of Squares | Df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Regression | 51.402 | 4 | 12.851 | 46.022 | 0.000 |
| Residual | 26.588 | 95 | 0.280 | | |
| Total | 77.990 | 99 | | | |

**Source: Researcher field survey 2026**

**Table 6**

**Coefficients Table**

| Variable | B | Std. Error | Beta (β) | t-value | Sig. | VIF |
|---|---|---|---|---|---|---|
| Constant | 0.905 | 0.338 | — | 2.676 | 0.009 | — |
| Staff Quality (SQ) | 0.276 | 0.075 | 0.289 | 3.680 | 0.000 | 1.812 |
| Quality of Equipment (QE) | 0.214 | 0.071 | 0.232 | 3.014 | 0.003 | 1.764 |
| Service Time (ST) | 0.193 | 0.069 | 0.205 | 2.797 | 0.006 | 1.698 |
| Service Accuracy (SA) | 0.341 | 0.078 | 0.352 | 4.372 | 0.000 | 1.845 |

**Source: Researcher field survey 2026**

**Interpretation of results**

**Model Summary Interpretation**

The Model Summary table shows an R value of 0.812, indicating a strong positive relationship between the independent variables (staff quality, equipment quality and service time) and service delivery efficiency. The $R^2$ value of 0.659 reveals that approximately 65.9% of the variation in service delivery efficiency is explained by the combined influence of the four independent variables. The remaining 34.1% is explained by other factors not included in the model.

**ANOVA Interpretation**

The ANOVA result shows an F-value of 46.022 with a significance value of 0.000 ($p < 0.05$). This indicates that the overall regression model is statistically significant. Therefore, it can be concluded that staff quality, quality of equipment and service time jointly have a significant effect on service delivery efficiency of logistics firms in Calabar, Cross River State.

**Coefficients Interpretation**

The coefficients table shows that all independent variables have a positive and significant effect on service delivery efficiency. Service Accuracy ($\beta = 0.352$, $p = 0.000$) has the strongest influence, meaning that accuracy in delivery greatly improves efficiency in logistics operations. Staff Quality ($\beta = 0.289$, $p = 0.000$) also has a strong positive effect, indicating that well-trained and professional staff significantly enhance service delivery efficiency.

Quality of Equipment ($\beta = 0.232$, $p = 0.003$) shows that the use of modern logistics tools and equipment improves operational performance and efficiency. Service Time ($\beta = 0.205$, $p = 0.006$) indicates that timely delivery contributes positively to service delivery efficiency, though its impact is slightly lower compared to other variables.

The regression analysis demonstrates that service quality dimensions (staff quality, equipment quality and service time) significantly influence service delivery efficiency of logistics firms in Calabar. Among the predictors, service accuracy is the most influential factor, followed by staff quality, equipment quality, and service time.

**Findings of the study**

The study found out the followings.

1. The findings revealed that staff quality has a significant positive effect on service delivery efficiency of logistics firms in Calabar. Firms with well-trained, competent, and customer-oriented employees were found to deliver services more efficiently.
2. The study found that the quality of equipment significantly influences service delivery efficiency. Logistics firms that utilize modern, functional, and well-maintained equipment demonstrated higher operational efficiency.
3. The findings indicated that service delivery time has a strong impact on service delivery efficiency. Firms that adhered strictly to delivery schedules and minimized delays achieved higher levels of efficiency. Timeliness was also closely linked to customer satisfaction and repeat patronage.

**Conclusion**

The study concludes that staff quality plays a vital role in enhancing service delivery efficiency in logistics firms in Calabar. Competent and well-trained employees are essential for effective service operations, as they ensure professionalism, quick response to customer needs, and overall service excellence. Therefore, human capital remains a critical driver of efficiency in the logistics sector. Furthermore, the quality of equipment was found to be a key determinant of operational efficiency. Logistics firms that invest in modern technologies and maintain their equipment properly are better positioned to deliver services efficiently. The integration of advanced logistics tools and systems significantly reduces delays and improves service reliability.

Service delivery time emerged as a crucial factor influencing efficiency. Timely delivery not only enhances operational performance but also strengthens customer satisfaction and loyalty. Logistics firms that prioritize speed and adherence to schedules are more competitive and effective in their service delivery. Ensuring that goods are delivered correctly, without errors or damages, improves customer trust and reduces operational costs

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associated with returns and complaints. Accuracy, therefore, is fundamental to achieving high service delivery efficiency in logistics firms.

**Recommendations of the study**

**The researches recommended the following.**

Logistics firms should invest in regular staff training and development programs to enhance employees' skills, professionalism, and customer service orientation. Recruitment should also focus on hiring qualified and competent personnel.

1. Firms should adopt modern logistics technologies such as GPS tracking systems, automated sorting, and digital inventory management systems to improve efficiency and reduce operational delays.
2. Logistics firms should implement effective scheduling, route planning, and time management strategies to ensure prompt delivery of goods. Monitoring systems should also be put in place to track and minimize delays
3. Firms should establish strict quality control measures, including proper documentation, verification processes, and tracking systems, to ensure accurate delivery of goods and reduce errors.

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