

# Effect of Information and Communication Technology on the Performance of Logistics Company in Nigeria

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**Abstract:** The logistics industry is really important for economic growth. It helps move products from where they're made to where they're sold. In Nigeria, technology plays a big role in making logistics better. It helps fix issues like slow services and high costs.

But Nigeria hasn't fully used technology yet. There are problems like bad infrastructure, high costs to set up technology, and not enough skilled workers. This study looks at how technology affects logistics companies in Nigeria. It focuses on how efficient they are, how much money they make, and how they compete with others.

To gather information, researchers surveyed 150 people from small and medium-sized logistics firms in Lagos. They used surveys and some existing data. The results showed that using technology really helped with efficiency, lowered costs, and made customers happier.

Still, there are challenges like money issues, poor infrastructure, and some people's reluctance to change. The study suggests that the government should help with technology costs, train employees better, and partner with tech companies to improve logistics. This research helps us understand how technology influences Nigeria's logistics industry and sets the stage for looking into future tech like artificial intelligence and block chain.

**Keywords:** Technology, Cargo, Logistics, Information, Communication, ICT, Performance

## 1. INTRODUCTION

The logistics industry is super important for our economy. It helps move goods and services from where they are made to where they are needed. Logistics is the backbone of supply chains. It has to be precise, fast, and efficient to keep up with what businesses and consumers want. In recent years, the adoption of Information and Communication Technology (ICT) has revolutionized the logistics sector globally, enabling firms to optimize operations, reduce costs, improve service delivery, and gain a competitive edge.

In Nigeria, the logistics industry is experiencing significant growth, driven by factors such as

urbanization, increasing trade volumes, and the rise of e-commerce. Logistics companies have a lot of problems. They deal with slow service, high costs, and messy operations. Some tools like cargo tracking and fleet management can help. But many companies don't use them. Why? It's often because they lack the right infrastructure, can't afford the costs, or don't have the skills needed.

This study looks at how using technology impacts the efficiency, profits, and market competitiveness of logistics firms in Nigeria. It will also find out what stops companies from using tech better.

The research will focus on small and medium-sized logistics firms in Lagos, Nigeria. Lagos is a busy spot for logistics work. The study will use surveys and data analysis to see how technology can help companies grow and serve customers better. Ultimately, it aims to help Nigerian logistics firms compete globally.

## 2. GAPS IN THE LITERATURE

There's been a lot of research on how ICT is used in logistics around the world. But when it comes to Nigeria's logistics industry, we don't have much information. Most studies look at general ICT use but don't dig into the specific tools and how they impact logistics performance. Additionally, there is a gap in understanding the challenges and opportunities faced by small and medium-sized logistics firms in Nigeria.

## 3. STATEMENT OF THE PROBLEM

Logistics companies in Nigeria face significant challenges such as inefficiencies in operations, delays in service delivery, and high operational costs. While Information and Communication Technology (ICT) can help with these problems, many logistics companies find it hard to use it well. Issues like poor infrastructure, high costs, and not

enough tech skills make it tough to fully adopt and use ICT. This research aims to explore these challenges and examine how ICT can help improve the performance of logistics firms in Nigeria.

#### 4. LITERATURE REVIEW

The literature review focuses on the role of Information and Communication Technology (ICT) in enhancing logistics performance, examining various studies conducted by scholars globally and locally. Key themes explored include the adoption of ICT in logistics, its benefits, challenges, and its specific impact on operational efficiency and profitability.

According to Christopher (2011), ICT is a fundamental enabler in modern supply chains, enhancing visibility, improving tracking capabilities, and ensuring real-time communication across various stakeholders. Effective ICT tools such as Enterprise Resource Planning (ERP) systems, cargo tracking software, and fleet management solutions are critical for logistics firms to streamline operations and achieve operational efficiency. Gunasekaran et al. (2004) argue that ICT adoption significantly reduces lead times and operational costs while boosting customer satisfaction and competitive advantage.

Similarly, Lai et al. (2008) emphasized the role of ICT in improving logistics integration and coordination across multiple supply chain partners. Their study found that logistics firms adopting ICT witnessed improved service delivery, faster response times, and higher profitability.

Operational efficiency is a core aspect of logistics performance. Prajogo and Olhager (2012) examined the relationship between ICT and operational efficiency in logistics and found that firms utilizing ICT tools such as route optimization systems and inventory management technologies experienced significant cost savings and process improvements.

In the Nigerian context, Eze et al. (2013) highlighted that ICT adoption could address critical challenges such as service delays, inefficient cargo handling, and communication gaps. However, they noted that most logistics firms in Nigeria have yet to fully integrate ICT due to infrastructural deficits and inadequate investments in technology.

Profitability is another critical outcome of ICT adoption in logistics operations. Ismail et al. (2018) demonstrated that logistics firms using advanced ICT systems, such as fleet monitoring and warehouse management systems, reported higher profitability due to cost reduction and increased resource utilization. They stressed that ICT tools minimize manual errors, enhance productivity, and provide real-time data for informed decision-making.

In a related study, Ogunlela and Lekhanya (2019) found that ICT adoption among small and medium-sized enterprises (SMEs) in Nigeria directly improved their profitability and competitiveness. However, their research also highlighted that high implementation costs and inadequate infrastructure were significant barriers to adoption.

While ICT offers numerous benefits, its implementation is often hampered by various challenges. Raymond and Bergeron (2008) argue that the lack of technical expertise and resistance to change among employees can limit ICT adoption. They stressed the importance of staff training and change management strategies to ensure effective ICT implementation.

In Nigeria, Adebayo and Olamide (2015) identified poor infrastructure, unreliable power supply, and high implementation costs as major barriers to ICT adoption. Their study suggested that government interventions, such as subsidies and infrastructure development, are necessary to foster ICT integration in the logistics sector.

The role of government in supporting ICT adoption cannot be overlooked. Zhang et al. (2016) argued that supportive government policies, such as tax incentives and funding programs, encourage logistics firms to invest in ICT. Similarly, Ekong and Ekong (2018) noted that Nigerian logistics firms require more policy support to overcome infrastructural and financial constraints hindering ICT adoption.

#### 5. RESEARCH DESIGN

This study uses a survey to look at how ICT affects logistics performance. A descriptive survey is appropriate because it allows for the collection of data from respondents, enabling a detailed analysis of ICT adoption, its influence on operational

efficiency and profitability, and the challenges faced by logistics firms.

## 6. OBJECTIVES

- i. To understand the concept of Information and Communication Information
- ii. To understand the concept of logistics
- iii. To examine the effect of Information and Communication Technology on the performance of logistics company in Nigeria.
- iv. To establish the influence of cargo tracking and security system on the performance of logistics company in Nigeria.

## 7. SCOPE AND LIMITATION

The study specifically discussed the effect of Information and Communication Technology (ICT) Performance on Logistics Company in Nigeria. Therefore, the scope selected was Logistics Company in Nigeria. This study will look at small and medium-sized logistics companies. These companies offer services like cargo tracking, fleet management, and delivery of goods. We'll talk to managers from these companies to get their insights.

We have two main ideas to test:

1. Null Hypothesis (H0): Using ICT won't make logistics firms better or more efficient.

Alternative Hypothesis (H1): Using ICT will make logistics firms better and more efficient.

2. Null Hypothesis (H0): Starting ICT strategies won't help these companies reach their goals.

Alternative Hypothesis (H1): Starting ICT strategies will help these companies reach their goals.

That's the plan!

## 8. METHODOLOGY

The research method explains how we did the study on how Information and Communication Technology (ICT) affects logistics companies in Nigeria. This section details the research design, population, sampling methods, data collection techniques, and methods of data analysis.

## 9. POPULATION OF THE STUDY

The population for this study comprises logistics companies operating in Lagos, Nigeria, including

both small and medium-sized firms. Lagos was picked because it's the main business center in Nigeria. There's a lot of logistics work happening there. We're talking to managers and workers who help with ICT and logistics.

## 10. SAMPLING TECHNIQUE AND SAMPLE SIZE

The study picked a mix of logistics firms in Lagos. It made sure to include different sizes, like small and medium businesses. Then, it randomly chose people from each group to get their opinions. The sample size for the study is 150 respondents, which includes managers, IT specialists, and logistics officers. This sample size is considered adequate for statistical analysis and ensures that the results are representative of the target population.

### 10.1 Sources of Data Collection

The study utilizes both primary and secondary data sources:

#### 1. Primary Data:

Data were collected through structured questionnaires distributed to respondents in the selected logistics firms.

The questionnaire was designed to capture information on ICT adoption, operational efficiency, profitability, and challenges to ICT implementation.

A Likert-scale format (e.g., Strongly Agree to Strongly Disagree) was used to measure responses on ICT usage and its impact.

#### 2. Secondary Data:

Secondary data were sourced from academic journals, industry reports, books, and relevant online publications. These sources provided background information on ICT tools, logistics performance metrics, and previous research findings.

### 10.2 Instrumentation

The structured questionnaire was divided into the following sections:

Section A: Demographic information of respondents (e.g., age, position, years of experience).

Section B: Level of ICT adoption in the logistics firms.

Section C: Impact of ICT on operational efficiency and profitability.

Section D: Challenges associated with ICT adoption.

The instrument was pre-tested for reliability and validity to ensure it accurately captured the required data.

11. DATA COLLECTION PROCEDURE

The questionnaires were distributed in person to the selected logistics firms in Lagos.

Follow-up visits and phone calls were made to ensure a high response rate.

The collected questionnaires were checked for completeness before proceeding to data analysis.

12. DATA ANALYSIS

The data collected were analyzed using Statistical Package for the Social Sciences (SPSS) software. The following statistical tools were employed:

Discussion of Findings

This chapter starts with the analysis of socio-demographic characteristics of the respondents to reveal the background factors influencing the respondents’ understanding of the subject matter of the study. The analysis of respondents’ socio-demographic characteristics was the analysis of respondents’ opinions about the objectives of the study. The analysis is therefore presented Table 4

Table 4.3.1: ICT comprises a number of technologies, which may, but need not be internet-based.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	75	50.0	50.0	50.0
	Agree	58	38.7	38.7	88.7
	Strongly Disagree	4	2.7	2.7	91.3
	Disagree	13	8.7	8.7	100.0
	Total	150	100.0	100.0	

Source: Research Work, 2017

Table 4.3.1 above shows that 50.0% of the respondents strongly agree, 38.7% agree while 2.7% and 8.7% strongly disagree and disagree respectively. It can be inferred however that ICT comprises a number of technologies, which may, but need not be internet-based.

Table 4.3.2: Logistics is the management of all activities which facilitate movement and coordination of supply and demand in the creation of and place utility.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly	54	36.0	36.0	36.0

	Agree				
	Agree	61	40.7	40.7	76.7
	Strongly Disagree	19	12.7	12.7	89.3
	Disagree	16	10.7	10.7	100.0
	Total	150	100.0	100.0	

Source: Research Work, 2017

Table 4.3.2 above shows that 36.0% and 40.7% of the respondents gave strongly agree and agree responses respectively while a combined 23.4% of the respondents gave a contrary opinion. Hence, it is concluded that the research item above is true.

1. Descriptive Statistics:

Mean, frequency, and percentage distributions were used to summarize and describe the responses.

2. Inferential Statistics:

The chi-square test was used to test the relationship between ICT adoption and logistics performance.

We checked to see if using ICT really helps logistics companies do better in Nigeria.

3. Results Presentation:

The results were presented in the form of tables, charts, and graphs for easy interpretation and understanding.

13. SCOPE OF THE STUDY

The study focuses on small and medium-sized logistics firms in Lagos, Nigeria. The scope includes examining ICT tools such as cargo tracking systems, fleet management software, and inventory control systems, while evaluating their effects on operational efficiency, cost reduction, and customer satisfaction.

Ethical Considerations

To ensure the ethical conduct of the study:

1. Participation was voluntary, and informed consent was obtained from all respondents.
2. Respondents' identities and information were kept confidential.
3. The data collected were used strictly for research purposes.

14. CONCLUSION

This research methodology provides a systematic approach to collecting and analyzing data on the role of ICT in improving logistics performance in Nigeria. By employing both primary and secondary data, and utilizing statistical tools for analysis, the study ensures reliability, validity, and accuracy of its findings.

## 15. SCOPE OF FUTURE RESEARCH

Future studies can look into how using tech affects the money side for logistics companies in Nigeria over time. It would also be good to check how new tools like AI, blockchain, and big data can help improve logistics. Another idea is to compare how Nigeria uses tech in logistics with other countries. This could help find better ways to handle local issues.

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