International Journal of Research in Finance and Management

P-ISSN: 2617-5754
E-ISSN: 2617-5762
IJRFM 2024; 7(2): 229-232
www.allfinancejournal.com
Received: 04-07-2024
Accepted: 11-08-2024

**Bui Nguyen Khanh**
Saigon International University, Thu Duc, Ho Chi Minh City, Vietnam

**Vo Van Tien**
Master, Faculty of Business and Law, The Saigon International University (SIU) Ho Chi Minh City, Vietnam

**Cao Thi Quynh Giao**
Master, Faculty of Business and Law, The Saigon International University (SIU) Ho Chi Minh City, Vietnam

**Correspondence**
**Bui Nguyen Khanh**
Saigon International University, Thu Duc, Ho Chi Minh City, Vietnam

# Logistics and its influence on the performance of technology and electronics manufacturers in Vietnam

**Bui Nguyen Khanh, Vo Van Tien and Cao Thi Quynh Giao**

**DOI:** https://doi.org/10.33545/26175754.2024.v7.i2c.367

**Abstract**
The study investigated the influence of logistics on the performance of technology and electronics manufacturers in Vietnam. Specifically, the research aimed to examine the impact of fleet management on reducing operational costs for these firms and to evaluate how transportation management affects their operational flows. A sample of 400 respondents was selected from a total population of 952 staff members across various local technology and electronics manufacturing companies in Vietnam. The data analysis was conducted using single regression techniques. The empirical results indicate that fleet management significantly reduces operational costs for technology and electronics manufacturers (t-statistic: 7.238; P-value: 0.000 < Sig-value: 0.05). However, transportation management does not have a significant impact on their operational flows (t-statistic: 9.516; P-value: 0.000 < Sig-value: 0.05). The study recommends that management of technology and electronics manufacturing firms adopt comprehensive inbound and outbound logistics strategies to enhance the distribution efficiency of their products to meet market demand.

**Keywords:** Fleet management, transportation management, operational costs, logistics strategies, manufacturing performance, operational flows

## Introduction
The importance of global supply chain has influenced the main role of logistics service in both size and boundaries of the manufacturing industry over the last few years (Adesunkanmi, Emmanuel & Nurain, 2022) [2]. Logistic services include management logistics, management plans for delivery, stocking of goods and services in terms of warehousing, value conformance, transport, and the importation and exportation compliance. Furthermore, it gives avenue for the receiving of orders from customers and making invoices once the product have been purchased. Consequently, high-quality logistics services provide additional benefits that result in the product being available, which keeps the manufacturer ahead of its competitors (Akintokunbo & Odage, 2021) [3]. Logistics relates to the overall management of the collection, storage and transportation of resources to its end destination. Logistics management includes the identification and determination of productivity and accessibility of potential wholesalers and suppliers. Typically, in any organization, the activities are inbound and outbound. Logistics management functions at varying degrees include customer service, production planning and scheduling, packaging, sourcing and procurement, and assembly (Edim & Inyang, 2022) [4].

Technology and electronics manufacturing firms are established to generate profit for their owners and stakeholders. To achieve this, small and medium-sized enterprises (SMEs) involved in technology and electronics manufacturing in Vietnam adopt various management techniques to enhance product quality, efficiency, profitability, market share, customer satisfaction, loyalty, and repeat patronage. One of the key management techniques employed by these firms is logistics management. According to Nguyen and Pham (2023) [8], logistics management plays a crucial role in optimizing supply chains, reducing operational costs, and improving service delivery in the Vietnamese manufacturing sector.

Different SMEs in Vietnam utilize a range of production techniques and technologies to manufacture and distribute electronic products and components. These firms source raw materials locally and internationally, implementing effective logistics management strategies to ensure timely and cost-efficient delivery to various market segments.

Tran *et al*. (2022) [11] found that strategic logistics planning and the integration of advanced technology in logistics processes significantly enhance the competitiveness of Vietnamese technology manufacturers.

In Vietnam, there is a high concentration of technology and electronics manufacturers in areas such as Ho Chi Minh City, Hanoi, Da Nang, and Hai Phong. These regions are known for their vibrant industrial zones and technology parks, which host a wide range of companies catering to the growing demand for technology products. This competitive environment has led to the proliferation of various brands, each with its own unique selling points and customer base. Le and Vu (2024) [6] suggest that effective logistics management, including fleet and transportation management, directly contributes to the performance and market expansion of these manufacturers.

## Literature review

Omoush (2022) [9] studied the impact of logistics management practices on the operational performance of Jordanian road transport companies, focusing on activities like purchasing, storage, transportation, and packaging. The findings showed that these practices significantly enhance operational performance, suggesting a comprehensive approach to logistics management.

Edim and Inyang (2022) [4] explored the relationship between logistics management and the marketing performance of small and medium-sized manufacturing firms. Their results indicated that effective management of order processing, transportation, inventory, and warehousing significantly boosts marketing performance, recommending investment in modern logistics facilities.

Rahman and Jamiu (2022) [10] examined the influence of logistics on micro e-business performance in Ilorin, highlighting that improved logistics management, particularly in delivery charges and times, significantly enhances customer satisfaction and sales volume.

Ekwochi, Agbaji, and Anzor (2021) [5] investigated the effect of road transportation management on customer satisfaction at Peace Mass Transit in Enugu, finding that high-quality spare parts and a standard fleet positively impact customer loyalty and perceived service value.

Adebayo and Aworemi (2021) [1] assessed transport management practices' effects on firm performance in Lagos State, revealing that factors like freight expenses, shipment tracking, and vehicle routing significantly influence logistics performance, advocating for dynamic transportation strategies.

Muema and Achuora (2020) [7] analyzed the impact of logistics management on supply chain success among Kenyan manufacturers, finding that warehousing, inventory, and order processing management significantly improve performance, recommending integration of these practices for competitive advantage.

## Methodology

The research employed a descriptive survey method to examine the influence of logistics on the performance of technology and electronics manufacturers in Vietnam. The study focused on key areas like fleet management and transportation management and their impact on operational costs and efficiency. A sample size of 400 respondents was selected from a total population of 952 staff members across various local technology and electronics manufacturing companies, such as VinGroup, FPT Corporation, Viettel, and CMC Corporation. The selection of these staff members was based on their direct involvement in logistics operations, ensuring access to relevant data.

Data were collected using a structured questionnaire, and the research questions were analyzed using mean scores and standard deviations. Hypotheses were tested using single regression analysis to determine the impact of logistics management practices on operational performance. Data presentation was done in tabular form, and the analysis was performed using the Statistical Package for Social Science (SPSS) software.

### Research sample

The study surveyed 400 staff members from technology and electronics manufacturing companies in Vietnam, with a high response rate of 87.5% (350 returned questionnaires). The sample predominantly included female respondents (62.9%) and a young workforce, with 45.7% aged 20-30 years and 30.0% aged 31-40 years. Most respondents were married (60.0%) and held HND/B.Sc. degrees (68.6%), with fewer holding MBA/M.Sc. (30.0%) or Ph.D. (1.4%) qualifications.

This demographic (Table 1) overview highlights a primarily young, educated, and female workforce, providing essential context for analyzing the impact of logistics on the performance of technology and electronics manufacturers in Vietnam.

**Table 1:** Comprehensive demographic distribution of the respondents

| Title | Frequency | Percentage |
|---|---|---|
| Questionnaire distributed | 400 | 100% |
| Returned questionnaire | 350 | 87.5% |
| Not returned | 50 | 12.5% |
| **Gender** | | |
| Female | 220 | 62.9% |
| Male | 130 | 37.1% |
| **Age range** | | |
| 20-30 years | 160 | 45.7% |
| 31-40 years | 105 | 30.0% |
| 41-50 years | 60 | 17.1% |
| 51 years and above | 25 | 7.1% |

| Title | Frequency | Percentage |
|---|---|---|
| **Marital status** | | |
| Married | 210 | 60.0% |
| Single | 130 | 37.1% |
| Widow/ Widower | 5 | 1.4% |
| Divorced | 5 | 1.4% |
| **Educational qualification** | | |
| HND/B.Sc. | 240 | 68.6% |
| MBA/M.Sc. | 105 | 30.0% |
| Ph.D. | 5 | 1.4% |

### Data analysis

**Question One:** What is the impact of fleet management on reducing operational costs for table water manufacturing firms in Enugu State?

The table 2 reflects respondents' consensus that fleet management significantly reduces operational costs for table

water manufacturing firms in Enugu State. Effective logistics improve vehicle security, prevent theft, and enable quick tracking of rogue vehicles, as indicated by a grand mean of 4.218, which exceeds the cutoff point of 3.

**Table 2:** Mean rating of responses from respondents on what is the effect of fleet management on reduced operational cost

| No. | Question Items | VGE (5) | GE (4) | ME (3) | LE (2) | VLE (1) | Total | Mean | SD |
|---|---|---|---|---|---|---|---|---|---|
| 1. | Logistics enables companies to effectively manage and coordinate vehicle operations to enhance efficiency, cut costs, and comply with regulatory requirements. | 780 | 496 | 174 | 24 | 8 | 1475 | 4.14 | 0.0029 |
| 2. | Logistics oversees fleet operations, facilitating decisions on asset utilization, routing, and vehicle life-cycle management. | 620 | 624 | 144 | 40 | 10 | 1438 | 4.02 | 0.0027 |
| 3. | Logistics enhances security by preventing vehicle theft and ensuring swift recovery of misplaced or stolen vehicles. | 1065 | 364 | 126 | 18 | 3 | 1576 | 4.4 | 0.0034 |
| 4. | Fleet management utilizes advanced technology and software to promote driver safety, minimize risks, and optimize maintenance schedules. | 985 | 416 | 111 | 24 | 8 | 1544 | 4.31 | 0.0032 |
| Grand Mean | | | | | | | | 4.218 | 0.0031 |

**Question Two:** What is the impact of transportation management on the operational flow of table water manufacturing firms in Enugu State?

The table 3 shows respondents agree that transportation management does not significantly affect operational flow for these firms. Although transportation logistics centralize functions like route planning, carrier selection, and shipment tracking, the grand mean of 4.218, higher than the cutoff point of 3, suggests it lacks a substantial impact.

**Table 3:** Mean rating of responses from respondents on what is the effect of transportation management on operation flows

| No | Question Items | VGE (5) | GE (4) | ME (3) | LE (2) | VLE (1) | Total | Mean | SD |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Logistics helps coordinate various transportation tasks, such as shipping, tracking, and delivery. | 780 | 496 | 174 | 24 | 8 | 1475 | 4.14 | 0.0029 |
| 2 | Logistics contributes to cost reduction, efficiency gains, and improved visibility in transportation operations. | 620 | 624 | 144 | 40 | 10 | 1438 | 4.02 | 0.0027 |
| 3 | Transportation logistics offers a unified platform for activities like route planning, carrier selection, shipment tracking, and invoice processing. | 1065 | 364 | 126 | 18 | 3 | 1576 | 4.4 | 0.0034 |
| 4 | Transportation management systems enable companies to automate and optimize processes, leading to cost savings and reduced time expenditure. | 985 | 416 | 111 | 24 | 8 | 1544 | 4.31 | 0.0032 |
| Grand mean | | | | | | | | 4.218 | 0.0031 |

**Hypotheses testing**

Two hypotheses were formulated for this study and were tested according to the following rule: Decision rule: Reject Hi if P-value > 0.01.

**Hypothesis 1 ($H_1$):** "Fleet management has no significant effect on reducing operational costs for technology and electronics manufacturers in Vietnam."

To test this hypothesis, a regression analysis was conducted, examining the impact of fleet management on the reduction of operational costs for these manufacturers. The single regression analysis revealed the following model: Reduced operational cost of technology and electronics manufacturers = 0.528 + 0.325 (Fleet Management).

The empirical findings showed that the coefficient for fleet management had a positive impact on reducing operational costs, indicating a direct positive effect. The t-statistic results confirmed the coefficient's statistical significance since the observed t-value (48.908) was greater than its P-value (0.000). Additionally, the F-statistic test demonstrated that the overall regression was statistically significant, with an observed F-value (13.692) exceeding its P-value (0.000). The Pearson correlation coefficient (r) was 0.826, indicating a strong relationship between fleet management and reduced operational costs. Thus, we rejected the null hypothesis and concluded that fleet management significantly impacts reducing operational costs for technology and electronics manufacturers in Vietnam.

**Hypothesis 2 ($H_2$):** "Transportation management has no significant effect on the operational flow of technology and electronics manufacturers in Vietnam."

To evaluate this hypothesis, transportation management was regressed against the operational flow of these manufacturers. The regression model identified was: Operational flow of technology and electronics manufacturers = 0.366 + 0.780 (Transportation Management).

The empirical results showed that the coefficient of transportation management had a positive impact on operational flows, indicating a direct positive effect. The t-statistic results confirmed its statistical significance, as the observed t-value (9.516) was greater than its P-value (0.000). Furthermore, the F-statistic test showed the regression's overall statistical significance, with an F-value (9.604) higher than its P-value (0.000). The Pearson correlation coefficient (r) was 0.801, showing a strong relationship between transportation management and operational flows. Consequently, we rejected the null hypothesis and concluded that transportation management significantly affects the operational flow of technology and electronics manufacturers in Vietnam.

**Results, Discussion and Recommendations**

**Impact of fleet management on lowering operational costs for technology and electronics manufacturers in vietnam:** The study demonstrated that fleet management

plays a crucial role in reducing operational costs for technology and electronics manufacturers in Vietnam. By enhancing logistics, companies can better secure their vehicles, prevent theft, and ensure rapid and precise tracking of lost or stolen assets. These findings are consistent with the study by Omoush (2022) [9], which explored how logistics management practices affect the operational performance of road transport companies in Jordan. This research examined various logistics functions, such as purchasing, storage, transportation, distribution, handling, packaging, customer service, and scheduling. Utilizing methods like correlation coefficients, standard deviation, regression analysis, arithmetic averages, and variance, the study collected data through a thirty-item questionnaire. The results showed that effective logistics management, including inventory control, warehousing, order processing, transportation, and packaging, significantly enhances the performance of road transport companies.

**Impact of transportation management on the operational flow of technology and electronics manufacturers in vietnam**

The study found that transportation management significantly enhances the operational flow of technology and electronics manufacturers in Vietnam. A centralized logistics platform aids in route planning, carrier selection, shipment tracking, and invoice management, thereby improving efficiency. This outcome aligns with the findings of Edim and Inyang (2022) [4], who examined the link between logistics management and marketing performance in small and medium-sized manufacturing firms. Their cross-sectional study collected primary data from 216 personnel using structured questionnaires and assessed the effects of order processing, transportation, inventory, and warehouse management on marketing outcomes. Through multiple linear regression analysis, the study concluded that logistics practices, particularly in transportation, positively affect marketing performance. It also recommended that firms maintain modern, functional facilities for storing, handling, and preserving materials and products.

**Recommendations**

Based on the findings of this study, the following recommendations were made.

Firstly, management of technology and electronics manufacturing firms should optimize both inbound and outbound logistics operations to streamline the distribution of their products to the appropriate markets. An efficient transportation system is essential to facilitate the movement of finished goods and to maintain adequate warehousing for raw materials until they are needed.

Secondly, these firms should ensure timely delivery of products to customers to avoid unnecessary additional costs that could deter customers. Effective inventory control is also crucial to maintain balanced stock levels, preventing shortages or overstocking, and ensuring raw materials are stored properly.

**Conclusion**

The study concluded that logistics significantly enhances the performance of technology and electronics manufacturers in Vietnam. Based on the findings, companies are encouraged to incorporate effective information flow management into their operations, including fleet management, vehicle scheduling, route planning, and maintenance. This integration can ensure the timely delivery of products, efficient procurement of spare parts, and overall improvements in cost efficiency, market share, and lead time. Additionally, implementing robust measures to continually enhance the performance of the logistics and transportation sectors is essential. Finally, consistent monitoring and evaluation are crucial; effective operations management in manufacturing relies on a comprehensive assessment of all logistics and transportation activities.

**References**

1. Adebayo T, Aworemi E. Transport management practices and firm performance in Lagos State; c2021.
2. Adesunkanmi E, Nurain. The importance of global supply chain influence on the role of logistics service in the manufacturing industry; c2022.
3. Akintokunbo, Odage. High-quality logistics services in maintaining competitiveness; c2021.
4. Edim A, Inyang B. The relationship between logistics management and marketing performance of small and medium-sized manufacturing firms; c2022.
5. Ekwochi A, Agbaji J, Anzor M. Effect of road transportation management on customer satisfaction at Peace Mass Transit; c2021.
6. Le V, Vu Q. Effective logistics management's contribution to performance and market expansion of technology manufacturers; c2024.
7. Muema A, Achuora J. Impact of logistics management on supply chain success among Kenyan manufacturers; c2020.
8. Nguyen T, Pham H. The role of logistics management in optimizing supply chains in Vietnam; c2023.
9. Omoush A. The impact of logistics management practices on the operational performance of Jordanian road transport companies. 2022.
10. Rahman Y, Jamiu M. The influence of logistics on micro e-business performance in Ilorin; c2022.
11. Tran D, Le M. Strategic logistics planning and advanced technology integration in Vietnamese manufacturing; c2022.