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# ANALYSING THE IMPACT OF LOGISTICS SOFTWARE ON OPERATIONAL EFFICIENCY IN LOGISTICS FIRMS

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**ABSTRACT**
*The quick development of international trade and e-commerce has made logistics operations much more complicated, requiring the use of cutting-edge technical solutions. With an emphasis on ERP-based systems created by Femtosoft Technologies, this study investigates how logistics software affects operational effectiveness inside logistics companies. Structured questionnaires were used to gather primary data from 100 respondents using a descriptive study approach. The data was analysed using statistical techniques like Spearman correlation, ANOVA, and percentage analysis. The results show that by enhancing real-time tracking, lowering operational mistakes, optimizing route planning, and promoting improved decision-making, logistics software dramatically increases operational efficiency. The study comes to the conclusion that in order to achieve cost effectiveness, productivity, and customer happiness in contemporary logistics, logistics software integration is crucial.*
**KEYWORDS:** *Logistics Software, Operational Efficiency, ERP Systems, Supply Chain Management, Digital Transformation, Data Analytics*

## Introduction

Logistics is essential for facilitating the seamless movement of goods, services, and information throughout supply chains. As globalization intensifies and customer expectations rise, the complexity and urgency of logistics operations have increased. Traditional manual approaches are inadequate for managing this complexity, prompting organizations to implement logistics software solutions. Logistics software encompasses systems like Enterprise Resource Planning (ERP), Transportation Management Systems (TMS), and Warehouse Management Systems (WMS). These tools facilitate automation, real-time tracking, data analysis, and enhanced interdepartmental coordination. By reducing manual errors and improving visibility, logistics software greatly enhances operational efficiency. Femtosoft Technologies, a software company located in Chennai, offers ERP-based logistics solutions aimed at optimizing logistics operations. Their systems unify various logistics functions, including shipment tracking, billing, route optimization, and customer relationship management.

## OBJECTIVES OF THE STUDY

### Primary Objective

- To analyse the impact of logistics software on operational efficiency in logistics companies.

### Secondary Objectives

- To understand the features and functionalities of logistics ERP systems.
- To examine the role of software in automating logistics operations.

To evaluate the contribution of logistics software to productivity, cost efficiency, and customer satisfaction

## LITERATURE REVIEW

Christopher (2016) defines logistics management as the process of planning, implementing, and controlling the efficient flow and storage of goods from the point of origin to the point of consumption. The study emphasizes that logistics software plays a crucial role in enhancing coordination across the supply chain by providing real-time information and improving visibility. As a result, organizations are able to reduce delays, improve delivery performance, and achieve higher levels of operational efficiency.

Bowersox, Closs, and Cooper (2019) highlight the importance of logistics information systems in managing modern supply chain operations. According to the authors, logistics software enhances operational planning and resource utilization by enabling effective tracking of shipments and inventory management. The integration of digital systems helps organizations streamline logistics activities, leading to improved productivity and overall operational performance.

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Porter and Heppelmann (2015) discuss how smart and connected technologies are transforming business operations, including logistics. The authors argue that digital logistics platforms enable real-time monitoring and data-driven decision-making, which significantly improves operational efficiency. These technologies also enhance responsiveness to market changes and enable organizations to optimize logistics processes effectively.
Sanders (2016) emphasizes the role of logistics software in automating operational processes such as order processing and shipment tracking. The study explains that automation reduces human errors, improves operational speed, and enhances coordination among supply chain partners. Consequently, organizations experience improved efficiency, reduced costs, and better service quality.

Chopra and Meindl (2019) state that supply chain technology, including logistics software, plays a vital role in integrating logistics processes such as transportation, inventory management, and demand forecasting. The authors highlight that these systems improve coordination and information flow across the supply chain, resulting in better decision-making and enhanced operational efficiency.

## RESEARCH METHODOLOGY

### Research Design

A descriptive research design was adopted to analyse the impact of logistics software on operational efficiency.

### Data Collection

- **Primary Data**: Collected through structured questionnaires.
- **Secondary Data**: Derived from literature reviews and company reports.

### Sampling Technique

Convenience sampling was used to select respondents who are active users of logistics software.

### Sample Size

- 100 respondents from logistics companies.

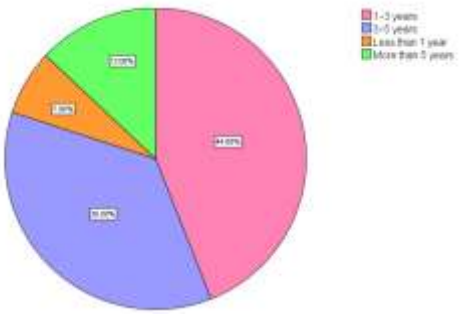
### Statistical Tools

- Percentage Analysis
- One-Way ANOVA
- Spearman Correlation

## DATA ANALYSIS AND RESULTS

**SHOWS USAGE PERIOD OF SOFTWARE BY RESPONDENTS**

| SNO | STATEMENT | NO OF RESPONDENTS | PERCENTAGE |
|---|---|---|---|
| 1 | Less than 1 year | 7 | 7% |
| 2 | 1–3 years | 44 | 44% |
| 3 | 3–5 years | 36 | 36% |
| 4 | More than 5 years | 13 | 13% |



## INTERPRETATION

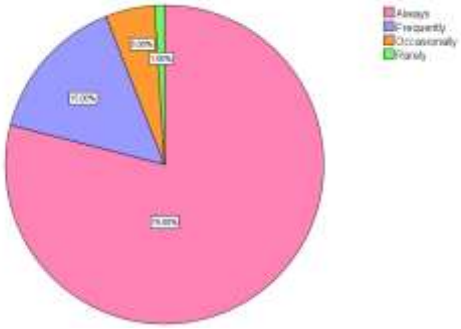
From the above-given data, 44% of the respondents using logistic software for 1 to 3 years, 36% of the respondents using logistic software for 3 to 5 years, 13% of the respondents using logistic software for more than 5 years, 7%

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of the respondents using logistic software for less than 1 years. Most of the responses are using logistic software for 1 to 3 years

**SHOWS HOW OFTEN RESPONDENTS USE SOFTWARE IN THEIR OPERATIONS**

| SNO | STATEMENT | NO OF RESPONDENTS | PERCENTAGE |
|---|---|---|---|
| 1 | Always | 79 | 79% |
| 2 | Frequently | 15 | 15% |
| 3 | Occasionally | 5 | 5% |
| 4 | Rarely | 1 | 1% |

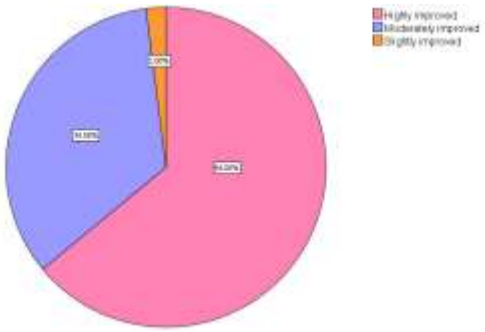



**INTERPRETATION**

From the above-given data, 79% of the respondents responded always to the statement, 15% of the respondents responded Frequently to the statement 5% of the respondents responded Occasionally to the statement 1% of the respondents responded Rarely to the statement. Most of the responses are Medium

**SHOWS IMPROVEMENT IN OPERATIONAL EFFICIENCY**

| SNO | STATEMENT | NO OF RESPONDENTS | PERCENTAGE |
|---|---|---|---|
| 1 | Highly improved | 64 | 64% |
| 2 | Moderately improved | 34 | 34% |
| 3 | Slightly improved | 2 | 2% |
| 4 | No improvement | 0 | 0% |



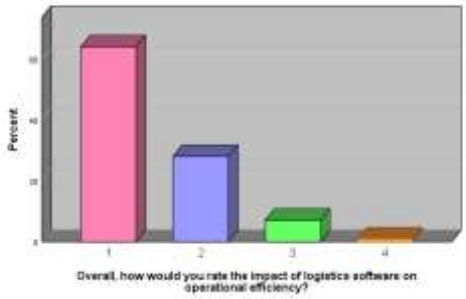
**INTERPRETATION**

From the above-given data, 64% of the respondents responded Highly improved to the statement, 34% of the respondents responded moderately improved to the statement 2% of the respondents responded moderately improved to the statement. Most of the responses are Highly improved

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**SHOWS OVERALL RATING ABOUT THE IMAPCT OF LOGISTIC SOFTWARE ON OPERATIONAL EFFICIENCY**

| SNO | STATEMENT | NO OF RESPONDENTS | PERCENTAGE |
|---|---|---|---|
| 1 | 1(High) | 64 | 64% |
| 2 | 2 | 28 | 28% |
| 3 | 3 | 7 | 7% |
| 4 | 4 | 0 | 0% |
| 5 | 5(Low) | 0 | 0% |




**INTERPRETATION**

From the above-given data, 64% of the respondents chose 1 to the statement which is very high, 28% of the respondents chose 1 to the statement which is high, 7% of the respondents chose 1 to the statement which is Normal Most of the responses are very high 1

**ANOVA Results**

The ANOVA test showed a statistically significant relationship between software usage frequency and operational efficiency ($p < 0.05$). This indicates that increased usage leads to higher efficiency levels.

**Correlation Analysis**

Operational Efficiency vs Cost Reduction: $r = 0.216$
Operational Efficiency vs Real-Time Data: $r = 0.473$
Operational Efficiency vs Performance Monitoring: $r = 0.578$
All relationships were positive and statistically significant, confirming that logistics software enhances operational performance.

**DISCUSSION**

The findings suggest that logistics software plays a crucial role in enhancing operational efficiency through the automation of processes, increased visibility, and the facilitation of data-driven decision-making.

Key features like real-time tracking, route optimization, and performance monitoring are essential in enhancing logistics operations.

The significant relationship between real-time data and efficiency underscores the necessity of digital integration within contemporary logistics systems. Furthermore, the elevated satisfaction levels reported by users reflect the practical effectiveness of these systems in actual operational contexts.

## FINDINGS

- The adoption of logistics software is prevalent among medium and large enterprises.
- Automation greatly diminishes manual labour and the occurrence of errors.
- Real-time tracking enhances transparency and aids in decision-making.
- The integration of software improves coordination among various departments.
- Operational expenses and delays in delivery are considerably lowered.
- Customer satisfaction experiences a positive effect.

## SUGGESTIONS

- Establish organized training initiatives for staff members.

- Enhance system compatibility with ERP and CRM systems.
- Improve the user interface to increase usability.
- Reinforce data protection protocols.
- Embrace cloud-based technologies to ensure scalability.
- Leverage sophisticated analytics for forecasting and strategic planning.
- Consistently refresh software in response to user input**.**

## LIMITATIONS

- Establish organized training initiatives for staff members.
- Enhance system compatibility with ERP and CRM systems.
- Improve the user interface to increase usability.
- Reinforce data protection protocols.
- Embrace cloud-based technologies to ensure scalability.
- Leverage sophisticated analytics for forecasting and strategic planning.
- Consistently refresh software in response to user input.

## CONCLUSION

The research indicates that logistics software plays a vital role in enhancing operational efficiency within contemporary logistics systems. Through the automation of processes, the enhancement of data visibility, and the improvement of coordination, logistics software greatly boosts productivity and the quality of service.

Statistical evaluations reveal a robust correlation between the use of software and operational efficiency, highlighting the significance of digital transformation in the logistics sector. Companies that successfully implement and leverage logistics software are more likely to secure a competitive edge, reduce costs, and foster long-term growth**.**

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