International Journal of Creative and Open Research in Engineering and Management
ISSN: **3108-1754 (Online)**
Volume 02 Issue 08 August-2026 | Impact Factor: 3.5

A Study on Logistics Software Development and Its Impact on Supply Chain Performance

ARUN KUMAR .S

II MBA (LSCM), Department of Management Studies, School of Management Studies,

Vels Institute of Science Technology and Advanced Studies (VISTAS),Pallavaram,Chennai ,India.

Under the Guidence of

Dr.P.G.Thirumagal, Director, Department of Management Studies, VISTAS

Dr.R. Senthil Kumar,Assistant professor,Department of management Studies,VISTAS

How to Cite this Article:

.S, A. K., P.G.Thirumagal, & Kumar, R. S. (2026). A Study on Logistics Software Development and Its Impact on Supply Chain Performance. International Journal of Creative and Open Research in Engineering and Management, 02(8), 1-9. https://doi.org/10.55041/ijcope.v2i8.278

https://doi.org/10.55041/ijcope.v2i8.278

ABSTRACT

Increasingly, logistics activities depend on the availability of accurate information, fast communication, and efficient coordination among different activities, such as procurement, warehousing, transport, order handling, and delivery. Paper-based information storage and processing and the lack of coordination of activities through software become challenging when the number of transactions grows. This paper explores how software solutions are applied in logistics operations and the impact employees perceive this software solution has on the supply chain performance. Primary data were collected using structured questionnaire from 50 respondents, with additional information gathered through observations and informal discussions in practical exposure to enterprise and logistics software. Descriptive statistics, frequency analysis, and percentage analysis were performed for interpreting responses. It was found that logistics software solutions are extensively used, with 90% of respondents reporting their company's use of logistics software and 70% daily use of these solutions. Warehouse Management Systems and Enterprise Resource Planning were the most commonly mentioned software types. Employees tended to rate the effect of logistics software highly, especially in shipment tracking in real time and communication within departments. Operational efficiency and improvements in order handling were considered less important by respondents. Overall, this paper shows that logistics software solutions alone are insufficient for achieving desired performance improvements; proper training, standardization of workflows, support of users, and constant feedback are required.

KEYWORDS

Logistics software; supply chain performance; digitalization; ERP; WMS; shipment tracking; operational efficiency; logistics technology

INTRODUCTION

Logistics is centered around the movement of goods, information and documents from one place to another. In practical logistics, employees have to coordinate activities related to purchasing, sales, stock management, transportation, document preparation, payments and deliveries. To perform such activities efficiently, logistics software has emerged as a solution to this problem. Rather than keeping data scattered in various places, logistics

software allows for organizing all information in a single environment. Depending on the particular type of software, employees can manage inventory, orders, transportation, tracking of shipments, billing, documentation and reporting. However, in addition, data that are entered in one workflow can be used to support other activities. For instance, sales data can assist in inventory planning and scheduling deliveries, and procurement data can be used for stock management and payments.

It is evident, however, that simply having a software solution installed does not guarantee any benefits of such implementation. Proper usage of a tool by employees, correct entry of information, proper resolution of technical issues, and possible changes in workflows are critical. This study therefore considers both the benefits and the practical difficulties associated with logistics software, with particular attention to operational efficiency, inventory accuracy, shipment visibility, communication and overall supply chain performance.

REVIEW OF LITERATURE

The current body of literature provides consistent evidence that there is a connection between the digitalization of logistics processes and their performance. However, technology implementation is also described as an important aspect of successful software solutions. Attiany et al. (2025) examine digital technologies, automation and integration of data and emphasize the role of digital transformation in turning technology investments into supply chain value. Sahan (2025) describes the increasing role of digital transformation in improving logistics performance and industrial competitiveness.

The topic of integration of information in enterprise systems has been explored in many studies. In particular, Chaimae, Dounia, Yassine and Ezzahra (2025) analyzed ERP systems and supply chain management performance and found that they provide contributions related to centralized information, automation, coordination and visibility. The role of information technology in supply chain performance within the environment of uncertainty was explored by Dagdeviren and Mirza (2024), who suggested that digital capabilities might become especially important in case of changing operating conditions.

Chauhan, Bangwal and Kumar (2023) explored digitalization in logistics distribution and concluded that digital technologies help to reveal the inefficiency in transportation and warehousing operations. Li, Liu, Jin, Cheng and Yang (2025) added that the use of digital systems does not guarantee better results of organizations; at the same time, the implementation of technology into processes plays its role. Wang, Gao and Wang (2025) connected supply chain digitization and logistics efficiency with the competitiveness of enterprises. The study by Revina, Nofrisel and Abidin (2024) showed that efficient and user-friendly logistics information systems could contribute to improvement of work processes and users' satisfaction and performance.

As a result, the literature reviewed above indicated the fact that logistics software is able to create high value thanks to visibility, integration, automation and coordination. However, in order to be successful, its implementation should be done properly, people should have the necessary skills and the alignment between software functionality and processes should be established. This study continues this line and investigates employees' perceptions of logistics software and its contribution to supply chain activities.

RESEARCH METHODOLOGY

◆ **Research Design** Descriptive research design was used because the study aimed to describe the existing situation of logistics software usage and respondents' experience with digital systems. There was no need to create any experimental conditions; at the same time, the situation of software usage in working environments and employees' perception of its influence on supply chain performance should be captured.

◆ **Nature of the Study** The study has descriptive and analytical orientation. Its descriptive part describes the characteristics of respondents, software usage and its perception. Analytical part analyzes the responses with regard to operational efficiency, order processing, inventory accuracy, shipment tracking, communication and errors reduction.

◆ **Sources of Data** Data collection for primary data involved the use of structured questionnaires for the selected respondents. Additionally, practical observation and interactions with the respondents on the internship program aided in establishing the link between software features and logistics operations. The secondary data was obtained from scholarly articles, journals, books, Google Scholar, reports and other relevant online resources concerning logistics technology and supply chain management.

◆ **Sampling and Sample Size** The convenience sampling technique was used to get respondents that could be accessed easily, could participate in the study and also have knowledge on the issue being studied. The total number of respondents included in this study was 50.

◆ **Questionnaire Design** The 26 questions in the questionnaire were grouped into categories of respondents' profile, software usage, supply chain performance, features of software and practical issues. The statements on supply chain performance were rated based on a five-point Likert Scale (strongly disagree to strongly agree).

◆ **Statistical Tools** The responses were analyzed through frequency tables and percentages. Bar charts and pie charts were used in analyzing categorical responses. Mean and standard deviation were used in analyzing the Likert scale statements to determine the overall direction and variance among the responses.

RESULTS AND ANALYSIS

Respondent Profile

Out of the respondents, 40 respondents (80%) were males and 10 (20%) were females. The highest age range was 21-30 with 42% respondents. This is followed by the 31-40 range with 36% respondents. 0-20 respondents formed 16% while those within 41-50 ranged 6%. In terms of educational qualifications, the recorded table has 28 respondents (56%) as undergraduate, 15 (30%) as postgraduate, 4 (8%) as diploma and 3 respondents under other qualifications (6%).

There were representatives from a variety of functional departments in the respondents. Supply Chain represented the largest number of participants (28%), followed by Logistics (24%), Warehouse (18%), IT (12%), Operations (4%) and others (14%). As per the respondents' experience, 40% have less than 1 year of experience, 22% have 1-3 years of experience, 26% have 4-6 years of experience and 12% have more than six years of experience.

Logistics Software Usage

The most widely used software was WMS (26%), followed by ERP (24%). TMS and OMS accounted for 18%, FMS for 4% and others 10%. 90% of respondents noted that the organization uses logistics software. As per the period of using the software, 32% of respondents used the software for 3-5 years, 28% used the software for 1-3 years, 26% less than 1 year and 14% more than 5 years. Software was used daily by 70% of respondents, 16%

- weekly, 4% - monthly and 10% - occasionally. Hence, it can be concluded that digital technology is not just an occasional tool but becomes an integral part of everyday operations.Training was another important finding. While 84% of respondents reported receiving training to use logistics software, 16% had not received training. This remaining gap is significant because employees who are unfamiliar with system functions may rely on manual workarounds or may not use available features effectively.

Descriptive Statistics on Supply Chain Performance

Supply Chain Performance Statement	Mean	Std. Deviation
Logistics software improves operational efficiency	3.480	0.8862
Software reduces order processing time	3.500	1.0351

Inventory accuracy has improved after implementation	3.500	0.9313
Software helps in real-time tracking of shipments	3.760	1.0012
Software minimizes logistics errors	3.620	0.9666
Software improves communication between departments	3.740	0.7231
Software improves overall supply chain performance	3.620	0.9010

All seven statements were answered with mean values above the neutral value of 3.00, meaning an overall positive attitude towards logistics software. Real-time shipment tracking got the highest mean value (3.760), followed by communication between departments (3.740). The comparatively low mean value of operational efficiency (3.480) indicates that the presence of software does not resolve all possible operational bottlenecks. Order processing time and inventory accuracy got the mean value of 3.500.

The standard deviations range from 0.7231 to 1.0351 indicating moderate differences in opinion among respondents. The statement with the lowest standard deviation is communication between departments indicating relatively similar attitudes. The statement with the highest standard deviation is order processing time, indicating that employees might experience different effects of the impact of software on this activity.

Discussion

The results reveal an unequivocal yet nuanced image of logistics software. While the adoption is widespread and frequent - 90% of the respondents reported the software use and 70% used it on a daily basis it shows that digital systems have become an integral part of logistics operations. In other words, they are no longer optional and occasional, but rather a standard component of routine business activities. The most valued benefit was shipment visibility. The real-time tracking got the highest mean score, and this makes perfect sense since the knowledge about the current location of the shipment and access to its status reduces uncertainty and improves coordination. Departmental communication was also highly rated and exhibited the smallest variance in answers. This finding confirms the suggestion that digital data sharing helps maintain consistent coordination, thus minimizing the need for repetitive communication.

Still, the results indicate a critical drawback: technology doesn't necessarily lead to efficiency. While operational efficiency scored the lowest mean among the seven performance statements, it was still higher than neutral one. At the same time, order processing had the largest variance. All of this is fully aligned with the broader literature on the topic and proves once again that the advantages of digitization are conditional on proper implementation, alignment of processes and capabilities of the staff. In practice, this means that the software needs to be used in combination with effective procedures and skilled employees.

Key Findings

1. Logistics software is widely adopted; 90% of the respondents reported the use of such systems in their organizations. 2. The daily usage is quite common; 70% of the respondents report the daily use of logistics software. 3. WMS was the most frequently mentioned software type (26%); the next place was taken by ERP (24%). 4. Most of

the respondents (84%) have received the software training; however, 16% haven't. 5. The real-time shipment tracking recorded the highest mean score (3.760). 6. The second place in rating was occupied by the communication between departments (3.740); at the same time, it had the lowest variance in the answers. 7. The operational efficiency had the lowest mean score (3.480), meaning that there still might be some room for process improvement in spite of the software availability. 8. Order processing time was the variable that showed the highest variance in answers. 9. All in all, all the seven supply chain performance variables got the mean scores above 3.00.

Suggestions

First, the training gap needs to be addressed. As 16% of the respondents have never been trained, organizations should develop an onboarding program and conduct regular refresher courses for all the software users. Practical guides and video references will also assist the employees in handling routine tasks.

Secondly, organizations need to focus on the processes that are more inefficient. By conducting workflow analysis, one can find out which particular processes still have problems related to redundant input of data, approvals, and other activities. It is necessary to make the process itself more efficient rather than relying solely on software solutions.

Thirdly, order processing procedures must be standardized in the form of checklists and stages of the process within the system as well as certain rules related to the updates of orders to eliminate differences between the departments and facilitate the monitoring process.

Fourthly, organizations can take advantage of the already effective shipment tracking and interdepartmental communication by creating shared dashboards and expanding the scope of tracking to allow access to the data for employees and, wherever possible, customers and transport providers.

Finally, organizations must collect user feedback from time to time to detect training needs, technological issues, and unused features before they become workarounds. Mentoring of less experienced staff members by more experienced ones is beneficial during the first period of system usage.

Conclusion

From the results obtained in this study, it can be concluded that logistics software has become an essential element of supply chain management. Responses to the questions demonstrate its wide adoption and usage, as well as high level of satisfaction of respondents regarding the influence of this tool on performance. The most noticeable advantages mentioned by respondents include shipment tracking in real-time and interdepartmental communication.

In addition, the study brings to light the importance of not considering digitalization as a purely technological endeavor. The relatively poor score for operational efficiency as well as the inconsistency in the responses regarding order processing show that software needs to have the right processes, training, and improvements.Put differently, installation is just the first step; value is created by using the system efficiently on a day-to-day basis. In general, logistics software can contribute to better visibility, connectivity, and control within the supply chain process, yet its full capabilities will depend on what is going on around this software. Improved training, workflow uniformity, and consistent user feedback review can enable companies to get the most out of software they already have.

REFRENCES

- Atieh, A. A., Abu Hussein, A., Al-Jaghoub, S., Alheet, A. F., & Attiany, M. (2025). The impact of digital technology, automation, and data integration on supply chain performance: Exploring the moderating role of digital transformation. Chauhan, P., Bangwal, D., & Kumar, R. (2023). Managing the logistics distribution performance using digitalization in the FMCG sector. Vision: The Journal of Business Perspective. https://doi.org/10.1177/09722629221143261 Chaimae, K., Dounia, G., Yassine, H., & Ezzahra, F. F. (2025).
- ERP systems and supply chain management performance. International Conference on Logistics, LOGISTIQUA 2025. https://doi.org/10.1109/LOGISTIQUA66323.2025.11122856 Chauhan, P.,

Bangwal, D., & Kumar, R. (2023). Managing the logistics distribution performance using digitalization in the FMCG sector. Vision: The Journal of Business Perspective. https://doi.org/10.1177/09722629221143261 Dagdeviren, & Mirza. (2024). Information technology, environmental uncertainty and supply chain performance. Le, & Fan. (2023). Digital twins in logistics and supply chain systems: A review. Li, L., Liu, J., Jin, Z., Cheng,