



# A Study On Impact Of IT In Logistics Supply Chain Management At Shadowfax Technologies, Bangalore

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## **ABSTRACT:**

This research delves into the critical role of Information Technology (IT) in optimizing logistics supply chain management (SCM) at Shadowfax Technologies, Bangalore. Focused on evaluating IT significance, identifying influential variables, and uncovering advantages for SCM, the study aims to enhance planning strategies for IT inputs. Through a dual-method approach, this research contributes insights essential for adapting to the evolving logistics industry landscape.

Moreover, the research investigates the transformative impact of Information Technology (IT) on Logistics Supply Chain Management (SCM) within the context of Shadowfax Technologies, Bangalore. The primary objectives of the study are to comprehensively assess the role and significance of IT in optimizing supply chain operations, identify the key variables influenced by the adoption of IT in the logistics sector, and explore the substantial contributions and advantages that IT brings to SCM within this industry. Additionally, the research aims to enhance planning strategies for IT inputs to further augment SCM efficiency in the logistics sector. Through a combination of quantitative and qualitative analyses, this study seeks to provide valuable insights into the evolving landscape of logistics SCM in the era of technological integration, with implications for both academic research and practical applications within the logistics industry.

Key Words: IT-Enabled Dynamic, SCOR Model, supply chain management

## INTRODUCTION:

In an era marked by rapid technological advancements, the integration of Information Technology (IT) has become pivotal for businesses across various sectors. This holds particularly true for the logistics industry, where efficient Supply Chain Management (SCM) plays a decisive role in meeting customer demands and maintaining a competitive edge. The present study focuses on the specific context of Shadowfax Technologies, situated in the technology hub of Bangalore, aiming to investigate the profound impact of IT on Logistics Supply Chain Management.

As a key player in the logistics sector, Shadowfax Technologies serves as an ideal setting to explore the intricate relationship between IT and SCM. The objectives of this research are multifaceted, encompassing the evaluation of IT's function and significance in the realm of supply chain operations. By identifying the variables influenced by IT adoption in the logistics sector, the study aims to provide valuable insights into the nuanced dynamics of this integration.

The research further delves into understanding the substantial contributions and advantages that IT brings to Logistics SCM. As industries evolve and consumer expectations rise, it becomes imperative to leverage IT for streamlining processes, enhancing efficiency, and ultimately ensuring a seamless supply chain. Through a comprehensive examination of IT's role, this study seeks to illuminate the ways in which technological advancements can be harnessed to benefit the logistics sector.

Moreover, the research endeavors to contribute actionable insights by exploring strategies to enhance planning through the judicious incorporation of IT inputs. By doing so, it aims to offer practical recommendations that can be employed by logistics professionals to optimize their SCM practices in the ever-evolving landscape of the industry.

## Information Technology in Supply Chain Management

Information Technology (IT) plays a pivotal role in streamlining operations and eliminating bottlenecks in Supply Chain Management (SCM). In manufacturing, businesses are approaching on-time procurement, reduced inventory, and improved efficiency. These advancements benefit all aspects of the logistics sector, including trucking, international shipping, supply chain management, and shipment tracking.

Supply chain technology facilitates data analysis, provides insights into issues like consumer demand and transportation constraints, and supports decision-making that impacts the overall supply chain performance. To achieve higher service levels, reduced inventory, and lower supply chain costs, organizations are restructuring their entire distribution system with the use of information technology. IT innovations offer companies a significant advantage, making IT investment a necessity for competitiveness.

Supply Chain Management (SCM) involves the movement of goods and information among supply chain participants. Recent technological progress enables organizations to access information efficiently. The three primary benefits of developing an inter-organizational information system for the supply chain include cost reduction, improved efficiency, and enhanced product/market strategy.

Technological advancements have allowed supply chain operations to be coordinated, and the increasing speed of technology has lowered the cost of information. IT infrastructure capacity provides a competitive advantage by supporting activities such as cycle time reduction, deployment, and integrating cross-functional processes.

Early information exchange in the late 1980s occurred on paper, causing cumbersome transactions and communication. However, the significance of information as a crucial competitive resource was often overlooked. The shift in the importance of information has been influenced by the customer-centric focus, the role of information in lowering inventory and human resource needs, and the critical role of information flows in strategic planning. As a result, integration through information technology has become essential for organizations engaged in supply chain relationships, yielding substantial benefits for those adopting it.

### **THEORETICAL BACKGROUND OF THE STUDY:**

The theoretical background of the study on the impact of IT in Logistics Supply Chain Management at Shadowfax Technologies, Bangalore, draws from various key concepts and frameworks within the fields of Information Technology (IT), Supply Chain Management (SCM), and logistics. The integration of IT in logistics SCM is a multifaceted area that involves several theoretical foundations:

#### **Supply Chain Management Theories:**

**Bullwhip Effect:** This concept highlights the amplification of demand fluctuations as they move upstream in the supply chain. IT can play a crucial role in mitigating the bullwhip effect by providing real-time information and improving coordination among supply chain partners.

**Lean and Agile Supply Chain Management:** The study may explore how IT contributes to achieving lean and agile supply chain objectives. Lean principles focus on minimizing waste, while agility involves responsiveness to dynamic market changes, both of which can benefit from IT integration.

#### **Information Systems Theories:**

**Resource-Based View (RBV):** RBV posits that resources, including IT capabilities, can be a source of sustained competitive advantage. The study can explore how IT resources at Shadowfax contribute to the overall competitiveness in the logistics sector.

**IT-Enabled Dynamic Capabilities:** Dynamic capabilities theory suggests that organizations need to adapt and reconfigure their resources, including IT, to respond to changes in the business environment. This can be applied to understand how Shadowfax adapts its IT capabilities to dynamic logistics challenges.

## **Logistics and Supply Chain Information Technology Frameworks:**

**SCOR Model (Supply Chain Operations Reference Model):** SCOR provides a comprehensive framework for understanding, designing, and evaluating supply chain processes. The study may use SCOR to assess how IT aligns with and enhances various aspects of the logistics supply chain.

**Blockchain Technology in Supply Chain:** Theoretical perspectives related to the use of blockchain in supply chain transparency, security, and traceability can be considered. This technology may play a role in enhancing trust and efficiency in logistics operations.

By integrating these theoretical foundations, the study can develop a robust framework for analyzing and interpreting the impact of IT on Logistics Supply Chain Management at Shadowfax Technologies, Bangalore. This theoretical background will guide the research design, data collection, and analysis, providing a structured approach to understanding the complex dynamics of IT integration in logistics SCM.

## **STATEMENT OF THE PROBLEM**

In the rapidly evolving landscape of Logistics Supply Chain Management (SCM), the integration of Information Technology (IT) has become increasingly vital for organizations seeking to optimize their operations and gain a competitive edge. The extent to which IT functions contribute to the efficiency and effectiveness of Supply Chain Management at Shadowfax Technologies is not well-understood. This research aims to assess the role and significance of IT in the various stages of the supply chain process, identifying areas where IT can be leveraged for maximum impact. The adoption of IT in the logistics sector is expected to have diverse effects on various variables within the supply chain. This research seeks to identify and analyze the specific variables, such as process efficiency, cost reduction, and responsiveness, that are influenced by the integration of IT in logistics operations.

By addressing these problem areas, the research aims to provide valuable insights into the specific challenges and opportunities associated with the impact of IT in Logistics Supply Chain Management, contributing to the knowledge base and offering practical recommendations for industry professionals and stakeholders.

## **SIGNIFICANCE OF THE STUDY:**

The significance of the study on the impact of IT in Logistics Supply Chain Management at Shadowfax Technologies, Bangalore, lies in its potential to provide valuable insights and contribute to various stakeholders in the logistics industry. Understanding the impact of IT on Logistics Supply Chain Management enables decision-makers at Shadowfax Technologies and similar organizations to make informed and strategic decisions regarding technology adoption. The research can highlight areas within logistics SCM where IT interventions can lead to enhanced operational efficiency. By identifying IT's contributions and advantages, the study offers practical insights that can be translated into operational improvements, cost savings, and streamlined processes at Shadowfax Technologies.

## OBJECTIVES OF THE STUDY

- To evaluate IT function & significance in supply chain management.
- To identify the variables that the adoption of IT in the logistics sector affects.
- To learn about IT significant contributions to & advantages for the logistics sector's in SCM.
- To enhance planning IT inputs to enhance SCM in the logistics sector.

## HYPOTHESIS

- Null Hypothesis ( $H_0$ ): There is no significant difference in the perceived significance of IT in supply chain management across different departments.
- Alternative Hypothesis ( $H_1$ ): There is a significant difference in the perceived significance of IT in supply chain management across different departments.
- Null Hypothesis ( $H_0$ ): There is no significant difference in the perceived impact of IT on logistics variables (e.g., process efficiency, cost reduction) across different groups.
- Alternative Hypothesis ( $H_1$ ): There is a significant difference in the perceived impact of IT on logistics variables across different groups.

## SCOPE OF THE STUDY:

The Study on the Impact of IT in Logistics Supply Chain Management is defined by the specific boundaries and parameters within which the research will be conducted. The scope encompasses various dimensions, including the geographical, organizational, and contextual aspects of the study.

## LITERATURE REVIEW:

- **Sunil Chopra & Peter Meindl (2003)** "The Impact of Information Technology on Supply Chain Management" - This article explores the role of information technology in improving supply chain management processes, such as inventory management, demand forecasting, & order fulfillment. It also discusses the challenges & benefits associated with implementing IT systems in supply chains.
- **Michael S. Hugos (2006)** "Leveraging Information Technology to Improve supply chain management" - This article focuses on the use of IT tools & technologies, such as enterprise resource planning (ERP) systems, radio frequency identification (RFID), & supply chain analytics, to enhance supply chain visibility, coordination, & performance.
- **Suresh K. Tadisina et al. (2009)** "The Impact of Information Technology on Supply Chain Capabilities & Firm Performance: A Resource-Based View" - This article examines the relationship between IT capabilities, supply chain capabilities, & firm performance. It discusses how IT-enabled capabilities, such as information integration, collaboration, & agility, can contribute to competitive advantage in supply chain management.
- **Nada R. Sanders & Qing Li (2010)** "The Role of Information Technology in Supply Chain Management: A Literature Review" - This literature review provides an overview of research on the role of IT in supply

chain management. It discusses various IT applications, such as electronic data interchange (EDI), supply chain planning systems, & collaborative platforms, are their effect of chain management.

- **Rameshwar Dubey et al. (2019)** "Emerging Trends in Information Technology in Supply Chain Management: A Systematic Literature Review"- This article reviews recent trends in IT adoption in supply chain management, including topics such as blockchain, Internet of Things (IoT), big data analytics, & artificial intelligence (AI). It highlights the potential benefits & challenges associated with these emerging technologies.
- **Nada R. Sanders & Ibrahim Helo (2013)**: "The Impact of Information Technology on Supply Chain Management" This article examines the influence of information technology on various aspects of supply chain management, including inventory management, demand forecasting, & logistics. It discusses the potential benefits & challenges associated with implementing IT systems in supply chains.
- **Haozhe Chen & David A. Taylor (2012)** "Leveraging Information Technology for Effective Supply Chain Integration" : This article focuses on the role of information technology in achieving supply chain integration. It discusses how IT can facilitate collaboration, coordination,
- **Zhaohui Wu, Tianlong Gu, & Shaoyi He (2015)** "The Role of Information Technology in Supply Chain Management: A Literature Review": This literature review provides an overview of the various ways in which information technology can enhance supply chain management. It covers topics such as supply chain visibility, real-time data analytics, & the use of technologies like RFID & cloud computing in supply chains.

#### **LIMITATIONS OF THE STUDY:**

- The study may face limitations in accessing comprehensive and detailed data related to the IT infrastructure, processes, and performance
- The dynamic nature of both the logistics industry and Information Technology may impose time constraints on the study.
- The study is limited to a sample size of 58.
- External factors beyond the control of the research, such as global economic changes, regulatory shifts, or unforeseen events like natural disasters, can influence the logistics industry and, consequently, the impact of IT.

#### **RESEARCH METHODOLOGY:**

**Type of Research:** The study adopts a mixed-methods approach, combining qualitative and quantitative research methods. This approach allows for a comprehensive understanding of the impact of IT on Logistics Supply Chain Management.

**Cross-Sectional Design:** The research collects data at a specific point in time to assess the current state of IT integration and its impact within the logistics operations at Shadowfax Technologies.

**Population:** The population under consideration includes employees at different levels within Shadowfax Technologies involved in logistics and IT operations Bangalore.



**Sample Selection:** A stratified random sampling method will be employed to ensure representation from various departments, such as logistics, IT, and management. The sample size n=58 personnel were selected from department of IT specialists, logistics managers, and operational staff, will be targeted for interviews and surveys.

### Data Collection Methods:

**Surveys:** Structured surveys will be distributed to employees to collect quantitative data on their perceptions of IT's impact on logistics SCM. The surveys will include Likert-scale questions and closed-ended items.

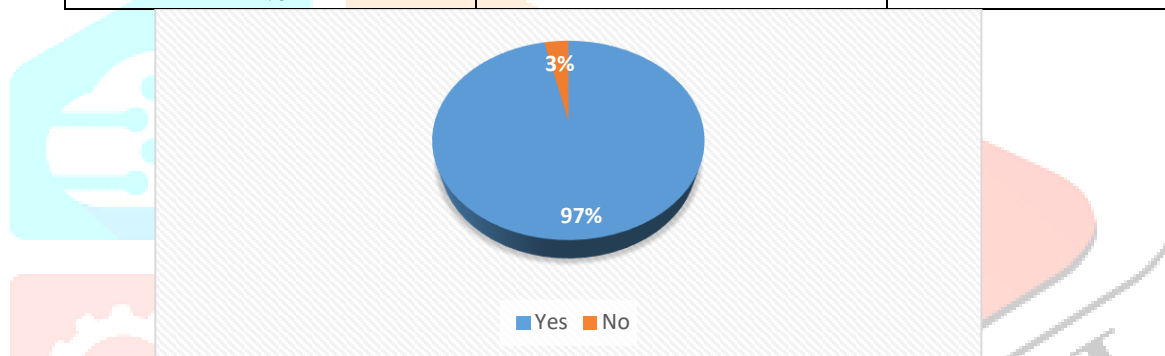
### Data Analysis:

**Quantitative Analysis:** Statistical tools such as descriptive statistics, percentage analysis, is used to analyze survey data and identify patterns.

## DATA ANALYSIS

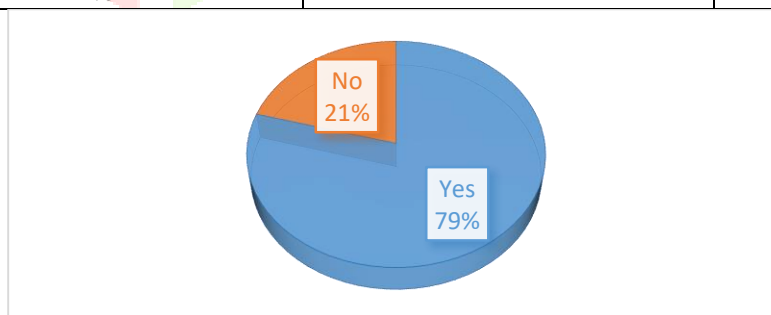
1) Information technology's use in supply chain management improves the organization.

2) Particulars	No of Participants	Percentage (%)
Yes	56	96.6%
No	2	3.4%



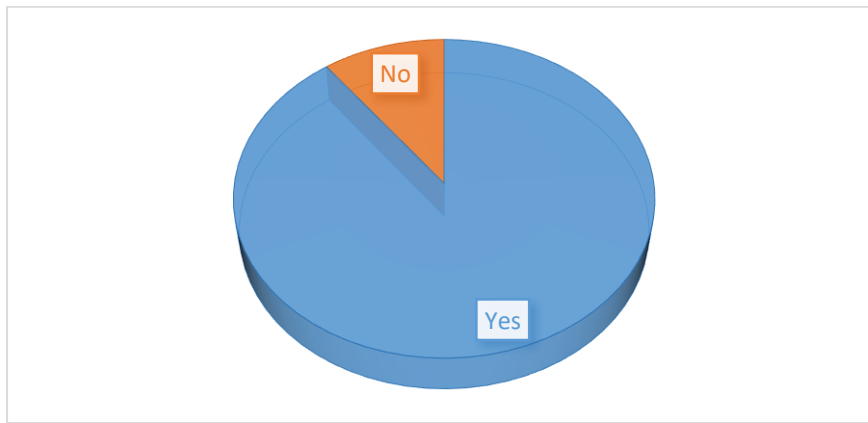
2. The preparation of orders is aided by the use of information technology in supply chain operations.

Particulars	No of Participants	Percentage (%)
Yes	46	79.3%
No	12	20.7%



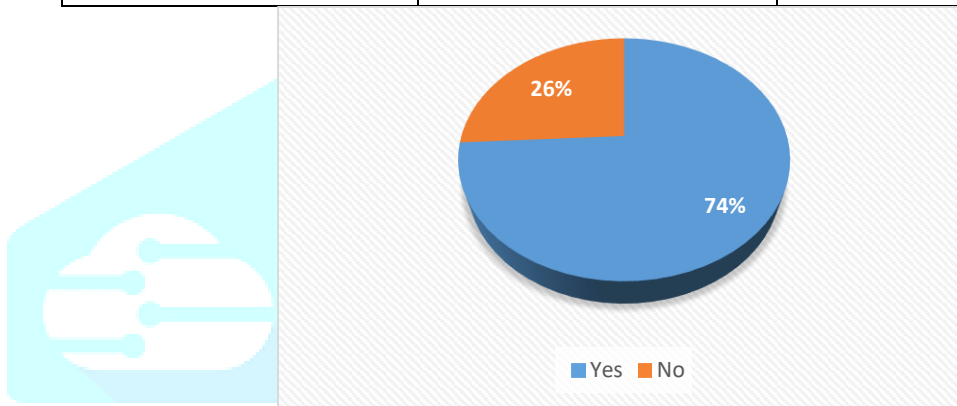
3. The system promotes task effectiveness & efficiency.

Particulars	No of Participants	Percentage (%)
Yes	52	89.7%
No	6	10.3%



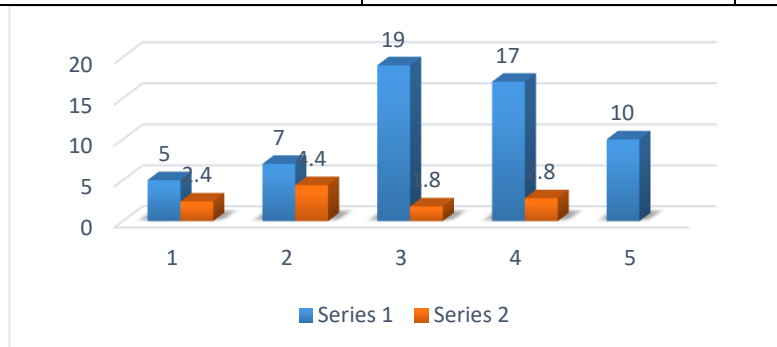
4. Information technology has decreased serving time & cost in the supply chain.

Particulars	No of Participants	Percentage (%)
Yes	43	74.1%
No	15	29.5%



5. The organization's capacity to use IT applications has affected how well it coordinates with its suppliers.

Particulars	No of Participants	Percentage (%)
1	5	8.6%
2	7	12.1%
3	19	32.8%
4	17	29.3%
5	10	17.2%





## FINDINGS:

- 97% Majority of the employees are Information technology's use in supply chain management improves the organization.
- 79.3% people want the IT to be introduced into the organization.
- 84% people require there work to be accurate &make sure complete on time.
- 89.7% people says that IT provides effective &efficient work process.
- 74% people say it decreases service time &cost.
- 76.4% IT in SCM improves operational effectiveness.
- 87.9% population uses computerized software in there organization.
- 81% population says quality of work has become easier.
- 93.1% population says that monitoring changes in inventory &condition of market.
- 79.3% of population says material handing has become faster &easier.
- 96.6% population has been said that decision making has become easier.
- It help to keep up with better correspondence between accomplices &costumers.
- The imperative effect of IT execution in SCM is assisting with taking basic choice based on information accessible in IT framework.

## CONCLUSION

Organizations benefit significantly from adopting IT in their supply chain to cut costs and boost revenue. The rising demand for internet, audio, visual communication, and other technologies adds value and anticipates market trends. IT aids in coordinating factors and tasks, allowing service providers to achieve set goals efficiently. Assessing the current level of demand is essential, and traditional systems may not suffice. Information technology plays a crucial role in determining ongoing demand, predicting future requirements, and preventing stock-related issues. The results highlight the significance of IT in organizations employing Supply Chain Management (SCM) and planned operations.

## SUGGESTION

Study suggests that Little specialist co-ops particularly in the Strategies &activities area ought to involve IT in their production network tasks to further develop proficiency. Deals &client support levels have worked on over the long haul with the reception of IT in the store network.

Associations ought to coordinate store network capability &different capabilities engaged with their activities to work on by &large effectiveness &be more serious than contenders through better costs &items.

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