

# Effect of Applications of SCM Technology In E - Commerce Activities among Indian Industries

Dr. Santhi Chebiyyam

HOD & Assistant Professor, Loyola Academy, Alwal, Secunderabad,  
Email: [cheb.santhi\[at\]gmail.com](mailto:cheb.santhi[at]gmail.com)

**Abstract:** *Digitalization is obviously altering practically every domain, but the logistics and industrial industries may be seeing the most significant influence. Companies are employing advanced supply chain technology to promote company innovation as they face expanding globalization, increased product complexity, and ever-changing client needs. The current epidemic and war events have created an imbalance in the demand and supply of products, influencing supply chain technology throughout the globe. However, these terrible scenarios have increased the necessity for businesses to use tech-driven supply chain management solutions to deal with the issues. As businesses become more concerned about an unpredictable future, they are investing in clever supply chain optimization solutions.*

**Keywords:** Digitization, Information Technology, Supply Chain management, Optimization solutions.

## 1. Introduction

E-commerce applications have catalyzed a significant transformation in the realm of industrial supply chain management. Traditionally, industrial supply chains were characterized by complex interactions, involving multiple suppliers, manufacturers, distributors, and customers. The integration of e-commerce technologies has streamlined these intricate processes, offering unprecedented efficiency and transparency.

E-commerce applications in industrial supply chain management facilitate seamless procurement and sourcing activities. Online platforms enable businesses to connect with a diverse network of suppliers, both local and global, to source raw materials, components, and finished products. The transparency of these platforms empowers companies to compare prices, quality, and delivery times, fostering healthy competition and informed decision-making.

Furthermore, e-commerce has revolutionized inventory management. Real-time tracking and monitoring of inventory levels across multiple locations are made possible through integrated e-commerce solutions. This data-driven approach aids in demand forecasting, optimizing stock levels, and reducing wastage, thus enhancing overall supply chain efficiency.

E-commerce applications also extend their benefits to logistics and distribution. Automated order processing, online tracking, and electronic communication ensure smoother transportation and delivery processes. Moreover, digital documentation and paperless transactions minimize errors, reduce lead times, and lower operational costs.

### Problems in the Current Supply Chain Technology

Even though the present economic crisis has expedited the adoption of digitization in the supply chain, it has also exposed some flaws. A revelation that necessitated critical responsibilities for information technology in supply chain management.

### Material and labor shortages

Multiple layoffs occurred in 2020-21, and quarantine disrupted the worldwide market. Leaders are increasingly having difficulty filling critical procurement and supply chain operations jobs, in addition to dealing with delegation challenges.

According to a research by the Institute of Supply Chain Management, every critical commodity, both human and material, is limited or expensive, causing industry complications and shortages. A scarcity necessitates the use of next-generation technologies in supply chain management.

### Increasing freight costs

Intermodal transport expanded dramatically in 2021, while spot costs doubled; for example, reefer prices increased by 25%, van prices increased by 18%, and flatbed prices increased by 27 percent. Furthermore, air and sea freight charges have increased, making it difficult for businesses to carry freight at significant volumes. Businesses have invested in cutting-edge logistics and supply chain technologies to identify the most cost-effective solutions.

### Port congestion

Over the last two years, there have been huge wait periods for ships arriving at ports across the world. Last year, in October 2021, around 50 container ships gathered just outside of Los Angeles and Long Beach to offload goods from China. Gridlocks like these, particularly at the foreign port, cause delays when ships attempt to acquire goods. Such delays on both ends cause additional time in importing and exporting processes, disrupting domestic supply chains.

While port congestion is not a new problem, the National Customers Brokers & Forwarders Association of America (NCBFAA) expects that 2022 will see significant wait times and supply chain disruptions. As a result, we will see more usage of technology throughout the supply chain.

### Limitations in demand forecasting

Over the previous two years, there have been lengthy wait times for ships landing at ports throughout the globe. Last

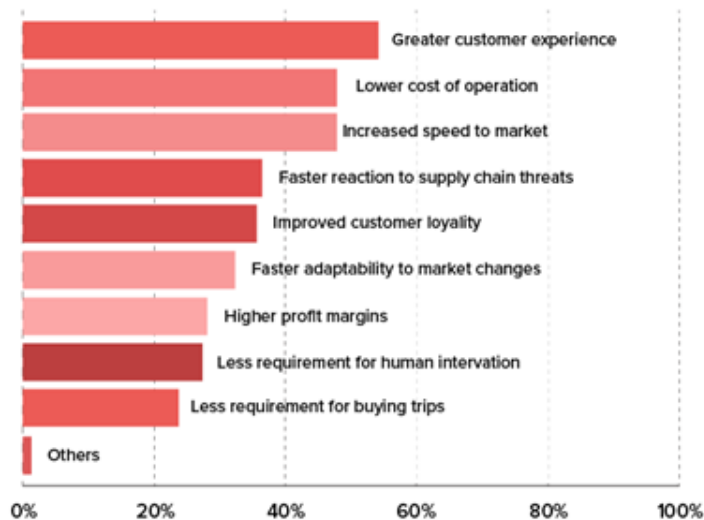
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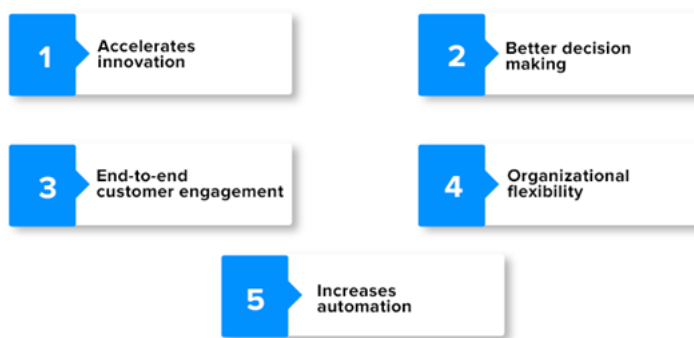
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year, in October 2021, over 50 container ships gathered just outside of Los Angeles and Long Beach to unload products from China. Gridlocks like these, especially at foreign ports, cause delays when ships try to obtain commodities. Such delays on both ends prolong the importing and exporting procedures, upsetting domestic supply networks.

While port congestion is not new, the National Customers Brokers & Forwarders Association of America (NCBFAA) predicts severe wait times and supply chain disruptions in 2022. As a result, we will see more use of technology throughout the supply chain.



(a)



(b)

Figure 1: Benefits of Digitizing SCM

Technology in the supply chain is rapidly evolving. What was formerly limited to paperwork and spreadsheets is now being enhanced by smart technologies such as AI, Internet of Things (IoT), Blockchain, RPA, and others to make processes more efficient and transparent. Let us now look at the technology and how they are helping to tackle supply chain management difficulties.

**Objectives of the Study**

Following objectives are formulated for the proposed study:

- a) To study the application of SCM technology in E-Commerce activities among Indian industries in Hyderabad city.
- b) To examine the effect of E-Commerce application on industrial supplychain management.

**2. Research Methodology**

Research technique is a systematic approach to investigating a research topic. It outlines numerous stages for conducting research in a methodical and logical manner. It is critical to identify the problem, objectives, and hypothesis precisely.

The demographics studied are manufacturing industries that operate on a business-to-business (B2B) basis. However, due to the infinite size of the population, the population will be limited to electronic goods (Sindhu Electronics and Communication Pvt. Ltd.), auto components (Vidarbha Auto Components Private Limited), and textile machinery (GIMATex Industries Pvt. Ltd.) manufacturing companies in India.

**3. Review of Literature**

Following are some reviews of literature for the proposed study:

- **John. F., (2012)** in his dissertation on “**The Impact of Supply Chain Management Business Processes on Competitive Advantage and Organizational Performance**”, which deals about the Organizational performance has routinely been viewed through a limited scope primarily focused on functions, practices, and resources directly controlled by the focal organization, but supply chain management (SCM) has broadened this scope to incorporate all organizations along the supply chain.
- **Nastassia and Natalija (2012)** in their dissertation

on “Flexibility in Supply Chain, A case study of ICA AB (Non-Food/Clothing) and sub-case of ZARA”, where they concentrate on providing suggestions on improvement of supply chain flexibility for ICA AB (Clothing) based on comparative analysis on sub-case study of ZARA.

- **Koshy and Joseph (2008)** in their dissertation on “Factors that Enhance Customer Trust in E-Commerce Web Sites: An Examination of E-Commerce Success Metrics Using Internet Audience Rating”, the goal of this dissertation is to identify critical success factors that enhance customer trust in ecommerce Web sites and examine those factors in relation to the E-Commerce success metrics using an Internet audience measurement tool.
- **Andryce and Zurick (2007)** in dissertation on “E-Business Planning and Decision Making Processes a Qualitative Study of Strategy”, the purpose of this dissertation is to find out the success of the medium sized companies in this field.
- **Haozhe Chen Norman and Oklahoma (2007)** in their dissertation on “Supply Chain Process Integration: A Conceptual and Empirical Examination”, it about that there is sequencing between the supply chain process integration constructs: a firm needs to be internally integrated before achieving external process integration.
- **Daniela Portuese (2006)** in dissertation on “E-Commerce and the Internet: A Study on the Impact of Relationship Marketing Opportunities for Better Online Consumer Intentional Relationship”, this research is to integrate the two areas or research, Relationship Marketing (RM) and e-tailing by investigating online consumer RM issues.
- **Kusumal Ruamsook (2005)** in his dissertation on “Sourcing from Emerging Nations: Issues and Opportunities for Supply Chain Management”, he concentrate on the importance of overseas sourcing in the achievement of better results in the purchasing function and in overall business performance has been widely investigated since the late 1980s.
- **Yie wang (1998)** in his dissertation titled “An Electronic Commerce Web Benchmark”; the thesis proposes the Web Electronic commerce benchmark specification for an E-Commerce web based application based on an electronic commerce broker model.

### E- Commerce in SCM

Electronic commerce, often known as E-Commerce, is a sort of industry in which products and services are bought and sold over electronic systems such as the Internet and other computer networks. Electronic commerce uses technology including mobile commerce, electronic money transfer, supply chain management, Internet marketing, and online transaction processing. Modern electronic commerce often employs the World Wide Web at some point throughout the transaction's life cycle, while it may use a broader variety of technologies such as E-mail, mobile devices, social media, and telephones as well.

E-Commerce can be divided into:

- 1) E-tailing or virtual storefronts on websites with online catalogue, sometimes gathered into a virtual mall.
- 2) The gathering and use of demographic data through Web contacts and social media.
- 3) Electronic Data Interchange (EDI), the Business-to-Business exchange of data.
- 4) E-mail and fax and their use as media for reaching prospective and established customers (for example, with newsletters).
- 5) Business-to-Business buying and selling. The security of business transactions.

### a) E-Commerce Trends in Industrial Manufacturing

The adoption of E-Commerce by industrial producers has been disappointingly delayed, owing to constraints such as the requirement to custom configure items, offer sophisticated promotions with customised terms and conditions, and promptly execute multiple bulk orders. However, when executed correctly, E-Commerce provides an engaging, buyer-centric online experience while allowing industrial businesses to cut administrative expenses, increase revenues, and strengthen brand loyalty.

### b) E-Commerce Application In Auto Components Industry

The automobile component business is an important sector of the Indian economy, contributing significantly to the country's foreign exchange earnings. There are around 400 main businesses in the auto component market. The Automotive Component Manufacturers Association (ACMA) predicts that the Indian auto component market would more than quadruple to US\$ 113 billion by 2020.



Figure 2: Example of E-Commerce in Auto Industry

### c) E-Commerce Application in Textile Machinery Companies

The Indian textile and apparel market was predicted to be worth USD 58 billion in 2011, and it is expected to expand at a 9% CAGR to USD 141 billion by 2021. Menswear now accounts for 43% of the Indian market; however, this figure is predicted to fall to 40% by 2021 due to quicker development in womenswear and childrenswear. The domestic home textile industry is increasing at an 8% CAGR and is expected to reach USD 9 billion by 2021. India's technical textiles industry is anticipated to be worth USD 14 billion and would grow to USD 34 billion by 2021, at a 10% CAGR.

The Indian textile and garment business employs 45 million people, with an additional 60 million working in the associated sector, bringing the overall employment count to 105 million.

### d) E-Commerce Application in Electronic Goods Manufacturing Company

Companies in this industry make semiconductors and other

electronic components. Products include diodes, transistors, integrated circuits, silicon wafers, and other solid-state and semiconductor components. This sector includes manufacturers of capacitors, resistors, transformers, electron tubes (cathode ray tubes and vacuum tubes), printed circuit assemblies and connections.

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#### **4. Conclusion**

According to Deloitte (2011), the worldwide industry is transitioning from version 1 to version 2.0 of the sustainability strategy. Sustainability strategy 2.0 focuses on firms' responsibilities for collaborative growth among supply chain partners. This has been a popular and attractive approach among businesses, and the necessity of developing connections with suppliers and consumers is becoming increasingly apparent.

An efficient supply chain strategy may help Indian enterprises overcome the majority of their issues. With information technology serving as a critical facilitator of supply chain performance, addressing SCM adoption difficulties is an essential need. This research examined the elements that impact SCM adoption. With India's expertise in software development, the inherent challenges of technology adoption must be addressed, such as organizational scale, product pricing, implementation concerns, and so on. Recent technologies, such as cloud computing and SaaS, must be created specifically to meet the demands of Indian companies with their own traits and culture.

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