iJRASET
International Journal For Research in Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 14 **Issue:** II **Month of publication:** February 2026

DOI: https://doi.org/10.22214/ijraset.2026.77674

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International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 14 Issue II Feb 2026- Available at www.ijraset.com

An Analysis of Supply Chain Management in the Coimbatore Textile Industry

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Abstract: ***The textile industry is one of the oldest and most vital sectors of the Indian economy, contributing significantly to GDP, employment generation, foreign exchange earnings, and industrial output. India is among the largest producers of cotton, yarn, and textile products globally. The sector provides direct and indirect employment to millions of people, especially in semi-urban and rural areas. Within this national framework, Coimbatore, popularly known as the "Manchester of South India," plays a crucial role due to its dense concentration of spinning mills, power looms, dyeing units, garment manufacturers, and export-oriented firms. The textile cluster in Coimbatore operates through a complex and interdependent supply chain network involving cotton farmers, ginning units, spinning mills, fabric manufacturers, processing units, wholesalers, exporters, and retailers. The efficiency and competitiveness of this cluster heavily depend on effective Supply Chain Management (SCM), which ensures the smooth flow of raw materials, semi-finished goods, finished products, information, and financial resources across all stages of production and distribution. This study focuses on analyzing the structure, coordination mechanisms, and operational efficiency of supply chain management practices within the Coimbatore textile industry. It examines the roles of key stakeholders such as suppliers, manufacturers, logistics providers, distributors, and customers. The research also explores the extent of collaboration, information sharing, inventory control practices, transportation systems, and technology adoption (such as ERP systems and digital tracking tools) within the supply chain network. Despite being a well-established industrial cluster, the Coimbatore textile supply chain faces several critical challenges. These include raw material price volatility (especially cotton), power shortages, rising fuel and transportation costs, infrastructure bottlenecks, delays in logistics, limited adoption of advanced technology among SMEs, lack of real-time information sharing, and coordination gaps among supply chain partners. Additionally, increasing global competition, environmental regulations, and demand uncertainty further intensify operational pressures. The study is based on primary data collected from 50 respondents comprising textile manufacturers, suppliers, and intermediaries in Coimbatore. Structured questionnaires and interviews were used to understand existing SCM practices, operational difficulties, and performance outcomes. Secondary data from journals, industry reports, and government publications were also used to support the findings. The analysis reveals that while the supply chain network in Coimbatore is relatively structured and mature, inefficiencies remain in logistics coordination, inventory management, digital integration, and strategic collaboration. Many firms still rely on traditional communication methods, leading to delays and increased operational costs. However, firms that adopt integrated SCM practices, strategic supplier partnerships, real-time information systems, and sustainable sourcing methods show better operational performance and customer satisfaction. The study concludes that strengthening supply chain integration, enhancing technology adoption, improving transportation infrastructure, encouraging sustainable practices, and fostering collaboration among stakeholders can significantly improve efficiency, reduce costs, and enhance global competitiveness of the Coimbatore textile cluster. The research provides practical recommendations for industry practitioners, policymakers, and textile entrepreneurs to build a resilient, sustainable, and technology-driven supply chain ecosystem.***

Keywords: Supply Chain Management, Textile Industry, Coimbatore, SMEs, Logistics, Sustainability, Technology Adoption, Inventory Management.

I. INTRODUCTION

The textile industry is one of the oldest and most important industries in India. It contributes significantly to employment, foreign exchange earnings, and industrial development. Among the major textile hubs in the country, Coimbatore stands out due to its extensive network of spinning mills, weaving units, dyeing and processing plants, and garment manufacturing firms.

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The textile supply chain involves multiple interconnected stages, including procurement of raw cotton, yarn production, fabric manufacturing, processing, garment production, and distribution to domestic and international markets. Each stage is dependent on the smooth functioning of the previous one, making supply chain coordination crucial. In recent years, the Coimbatore textile industry has faced several challenges such as fluctuating raw material prices, rising logistics costs, power shortages, and increasing global competition. These challenges highlight the need for effective supply chain management practices that can reduce costs, enhance coordination, and improve delivery performance. This study aims to analyze existing SCM practices in the Coimbatore textile sector and suggest improvements for better operational efficiency and sustainability.

A. Objectives of the Study

The major objectives of the study are:

1) To understand the structure and functioning of the textile supply chain in Coimbatore.
2) To identify key stakeholders involved in the textile supply chain.
3) To examine the flow of materials, information, and finances across different stages.
4) To identify major challenges and bottlenecks affecting supply chain performance.
5) To suggest practical measures to improve efficiency and sustainability in the textile industry.

II. RESEARCH METHODOLOGY

Research Design

A descriptive research design was adopted to study the existing supply chain management practices in the Coimbatore textile industry.

Data Collection

Primary Data:

Primary data was collected through structured questionnaires distributed to 50 respondents, including textile company managers, employees, students, and customers.

Secondary Data:

Secondary data was collected from industry reports, research journals, textbooks, and publications from textile associations.

Sampling Method

Convenience sampling was used due to accessibility and time constraints.

Tools for Analysis

Simple Percentage Analysis

Descriptive Statistics

These tools helped in analyzing respondent profiles, identifying challenges, and evaluating SCM practices.

III. FINDINGS

The key findings of the study are summarized as follows:

1) The textile supply chain in Coimbatore follows a multi-stage structure from raw material procurement to final distribution.
2) Spinning units form the backbone of the regional textile ecosystem.
3) Small and medium enterprises (SMEs) dominate the textile supply chain.
4) 68% of respondents have experienced delays in receiving textile products.
5) Transportation issues (36%) and raw material shortages (28%) are major causes of supply chain delays.
6) Information flow is less efficient compared to material flow, particularly in small-scale units.
7) Many SMEs still rely on manual record-keeping systems.
8) Financial constraints and delayed payments disrupt supplier relationships.
9) 70% of respondents believe that adopting modern SCM practices is beneficial.
10) Technology adoption, such as ERP systems and digital tracking, improves coordination and transparency.

IV. SUGGESTIONS

Based on the findings, the following suggestions are proposed:

1) Textile units should improve coordination and integration among supply chain stages.
2) SMEs should adopt digital SCM tools and ERP systems to enhance efficiency.

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3) Real-time information-sharing platforms should be implemented.
4) Transportation and logistics planning should be strengthened to reduce delays.
5) Textile firms should diversify raw material sourcing to minimize risk.
6) Financial institutions should provide easier access to credit for technology upgrades.
7) Sustainable practices such as energy efficiency, waste reduction, and water conservation should be encouraged.
8) Government and industry associations should provide training programs and modernization incentives.
9) Regular performance monitoring and evaluation should be implemented.

V. CONCLUSION

The study concludes that the textile supply chain in Coimbatore is well-established and has a strong foundation due to its long industrial history and experienced business network. However, it still faces several operational and structural challenges. Since most of the firms in the cluster are Small and Medium Enterprises (SMEs), they often face limitations in financial resources, advanced technology adoption, skilled manpower, and modern logistics systems. This highlights the need for government support, financial assistance, training programs, and infrastructure development to strengthen these units.

Although the movement of raw materials and finished goods is generally systematic, there are still weaknesses in information sharing, coordination among supply chain partners, and use of digital systems. Many firms depend on traditional communication methods, which sometimes lead to delays, misunderstandings, and increased costs. Financial coordination between suppliers, manufacturers, and distributors also needs improvement to reduce payment delays and cash flow issues.

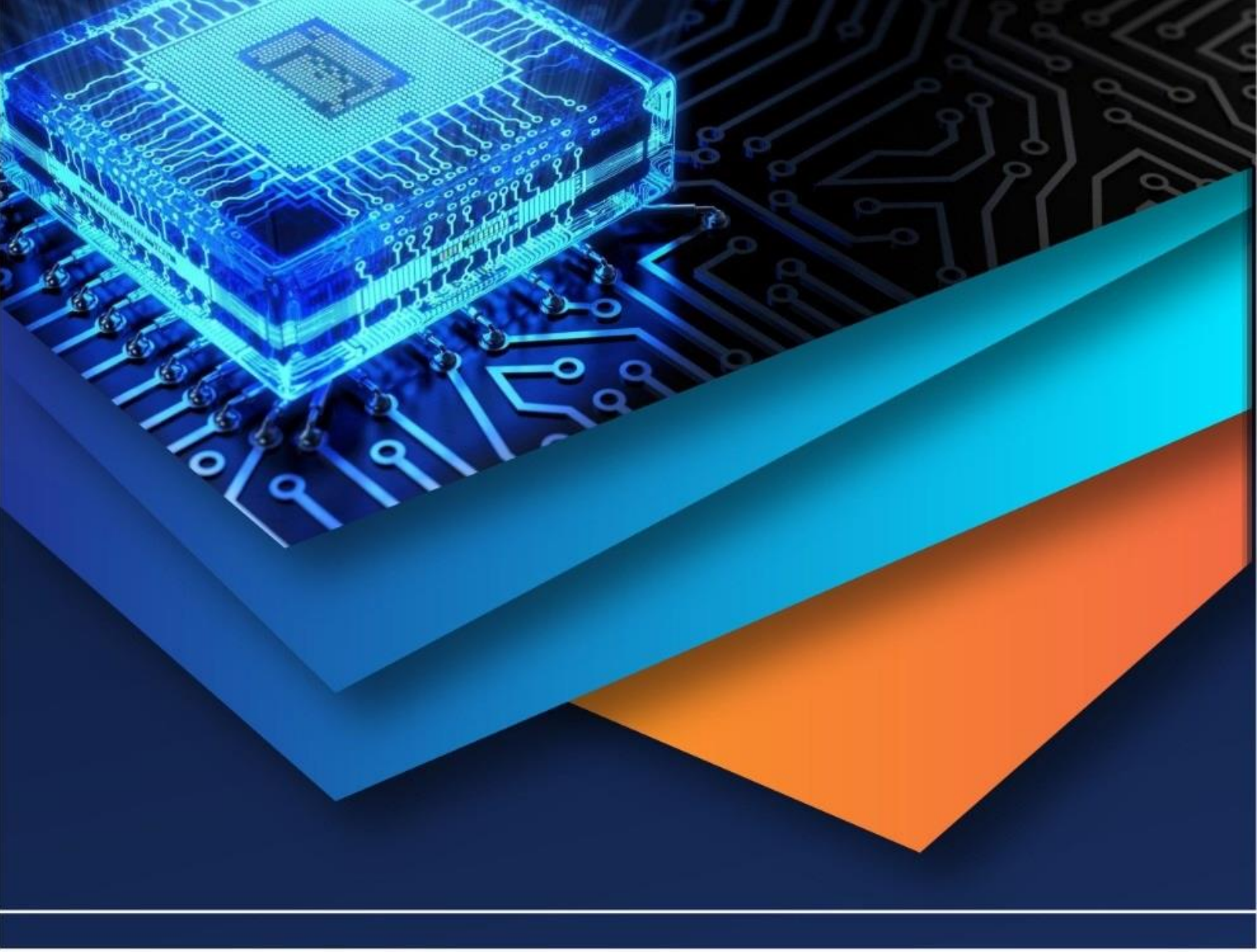
By adopting digital technologies such as ERP systems, inventory tracking software, and real-time communication tools, firms can improve transparency and faster decision-making. Better collaboration among stakeholders, strategic supplier partnerships, and improved transportation planning can further enhance operational efficiency. In addition, focusing on sustainable practices like waste reduction, energy efficiency, and eco-friendly sourcing can improve long-term performance and global acceptance.

If these improvements are properly implemented, the Coimbatore textile industry can increase productivity, reduce costs, improve customer satisfaction, and compete more effectively in both domestic and international markets. This will not only strengthen the industry's competitive position but also ensure stable growth, resilience against market uncertainties, and long-term sustainability.

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