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A Study on Effectiveness of Warehousing and Distribution Strategies Adopted by Textile Industries in Tirupur

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Abstract: ***Warehousing plays a pivotal role in strengthening supply chain efficiency in textile clusters. This study examines the effectiveness of warehousing and distribution strategies adopted by textile industries in Tirupur. Using a descriptive research design and percentage analysis, primary data were collected from 130 respondents involved in supply chain and distribution activities. The findings reveal that centralized warehouse systems (53.8%) and barcode-based inventory management (45.4%) are widely adopted. However, 84.6% of respondents experience delivery delays and 85.4% indicate the need for infrastructure improvements. The study concludes that technology adoption, automation, and infrastructure modernization are critical for enhancing distribution performance in Tirupur's textile sector.***
Keywords: Warehousing, Distribution Strategy, Textile Industry, Inventory Management, Supply Chain Efficiency, Tirupur.

I. INTRODUCTION

Tirupur, popularly known as the "Knitwear Capital of India," is a leading textile export hub contributing significantly to India's garment exports. Efficient warehousing and distribution systems are essential to manage high production volumes, seasonal demand fluctuations, and global delivery schedules. Warehouses function as strategic nodes in supply chains by ensuring inventory availability, reducing lead time, and facilitating order fulfilment. With increasing globalization and e-commerce integration, textile firms in Tirupur must adopt modern warehouse management systems (WMS), automation, and digital logistics solutions to remain competitive. Despite advancements, challenges such as labour shortages, transportation delays, and infrastructure gaps continue to affect operational performance. This study evaluates the effectiveness of current warehousing practices and identifies areas for improvement.

II. REVIEW OF LITERATURE:

Earlier research highlights the strategic importance of warehousing in supply chain management. Supply Chain Management: Strategy, Planning, and Operation emphasizes the role of warehouses in reducing transportation cost and improving service levels. Martin Christopher (2013) argues that warehouse integration with logistics networks reduces lead time and enhances responsiveness. Donald J. Bowersox et al. (2015) discuss inventory control techniques such as FIFO and LIFO in improving warehouse efficiency. Recent studies stress automation, IoT, AI, and blockchain integration for operational transparency and accuracy. However, limited empirical studies focus specifically on Tirupur's textile warehousing system, creating scope for the present research.

III. RESEARCH METHODOLOGY

Research Design: Descriptive research design.
Sample Size: 130 respondents from textile supply chain stakeholders.
Data Collection:
Primary data – Structured questionnaire
Secondary data – Journals, books, industry reports
Statistical Tool Used: Simple Percentage Analysis
Percentage= Number of Respondents/Total Respondents× 100
Limitation: Study confined to Tirupur textile industries; findings may not generalize to other regions.

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IV. DATA ANALYSIS AND INTERPRETATION

Table 1: Demographic Profile of Respondents

Variable	Category	Respondents	Percentage
Age	Above 35	52	40%
Gender	Male	99	76.2%
Role	Supplier	55	42.3%

Interpretation: The majority of respondents are above 35 years (40%) and predominantly male (76.2%). Suppliers represent the largest stakeholder group (42.3%).

Table 2: Warehousing Practices

Variable	Category	Percentage
Warehouse System	Centralized	53.8%
Inventory Method	Barcode Scanning	45.4%
Primary Function	Storing & Packaging	53.8%
Stock Audit	Regularly Conducted	53.8%

Interpretation: Most textile firms prefer centralized warehouses and barcode-based inventory systems. Warehouses primarily focus on storing and packaging functions.

Table 3: Distribution & Operational Efficiency

Variable	Category	Percentage
Transport Mode	Trucks	54.6%
Delivery Delays	Yes	84.6%
Infrastructure Improvement Needed	Yes	85.4%
Key Efficiency Factor	Labour Availability	37.7%
Suggested Improvement	More Automation	61.5%

Interpretation: Although transportation is rated efficient by 42.4%, a significant majority experience delays. Respondents strongly recommend automation and infrastructure upgrades.

V. FINDINGS

Majority (53.8%) use centralized warehouse systems.
Barcode scanning is the dominant inventory method (45.4%).
80.8% face operational challenges.
84.6% report delivery delays.
85.4% demand infrastructure improvement.
61.5% recommend automation as the key improvement strategy.

VI. SUGGESTION

Adoption of advanced WMS and AI-based forecasting systems.
Expansion of warehouse infrastructure and layout optimization.
Workforce training in digital inventory tools.
Integration of supply chain partners through real-time data sharing.
Investment in sustainable warehousing practices (solar energy, smart lighting).

VII. CONCLUSION

Warehousing significantly influences distribution efficiency in Tirupur's textile sector. While centralized systems and barcode technology are widely adopted, persistent delays and infrastructure gaps hinder optimal performance.

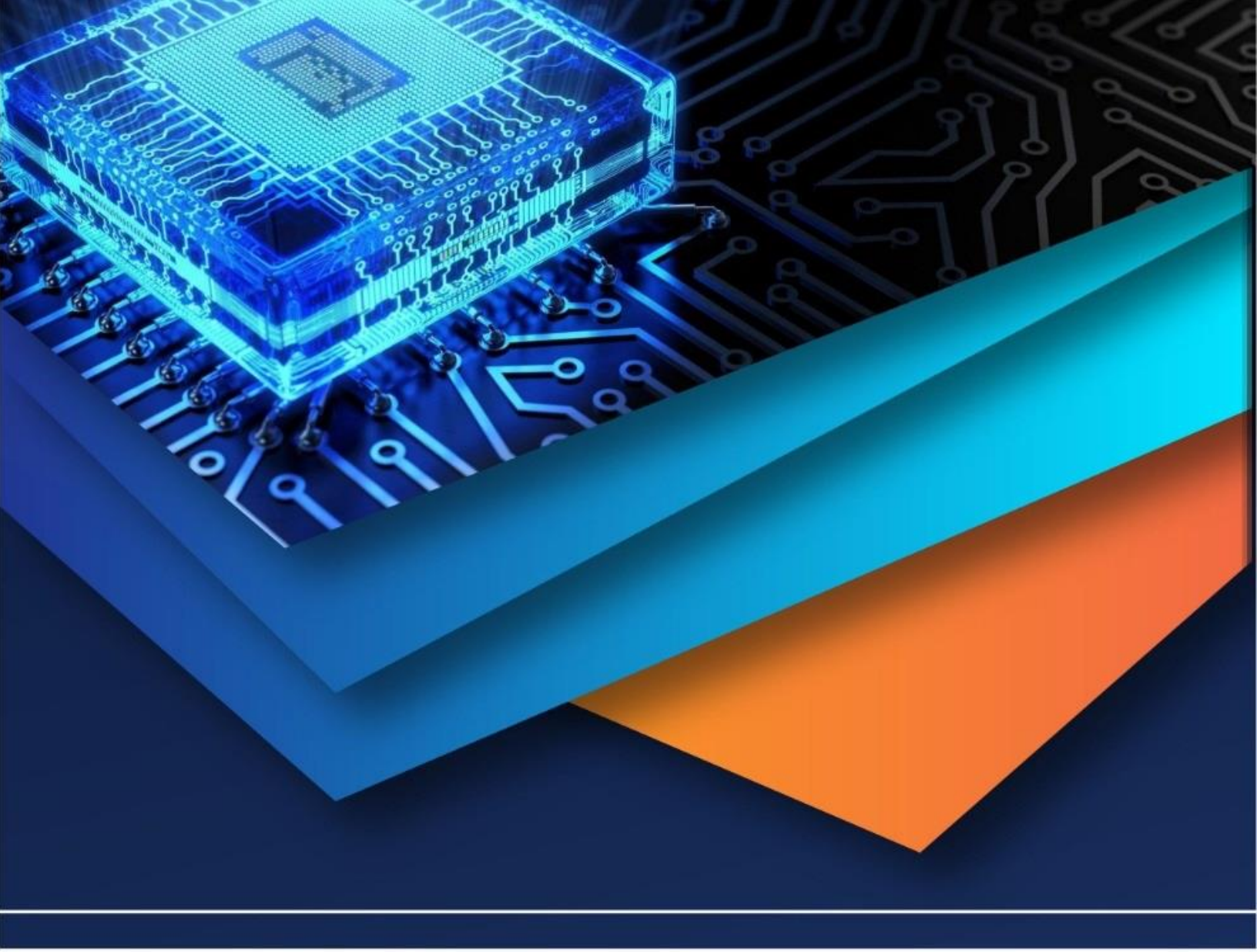
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Automation, digital transformation, and improved logistics coordination are essential to enhance supply chain resilience and global competitiveness. Upgrading warehouse systems will not only reduce operational inefficiencies but also strengthen Tirupur's position in international textile markets.

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