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A Study on Challenges in Export Logistics Faced by Coimbatore's Textile Industry

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Abstract: ***This study examines the impact of supply chain digitalization on logistics efficiency in Textile, a leading manufacturer in the Indian textile sector. With globalization and technological advancement, digitalization has become essential to improve transparency, coordination, and operational efficiency. The study employs both quantitative and qualitative methods to explore how digital tools enhance supplier coordination, delivery reliability, inventory management, and cost optimization. Findings reveal that digital communication significantly improves supplier transparency and that order processing speed is the most critical factor contributing to cost reduction. However, challenges such as technical issues, poor IT support, and weak system integration persist. The research concludes that comprehensive digital strategies and strong organizational support are key to achieving sustainable logistics efficiency.***

Keywords: Supply Chain Digitalization, Logistics Efficiency, Textile Industry, ERP Systems, Textile, Supplier Coordination, Cost Optimization.

I. INTRODUCTION

The apparel industry is a very vast and dynamic industry producing millions of garments per day. Here, one of the greatest challenges found and faced by this industry is the increased cost of garment making and the price of both local and imported raw materials also increasing. Manufacturers manufacture garments both for the local and export markets but industrial-oriented production is majorly for export. It is known that the export market is highly competitive because China, Bangladesh, Vietnam, and India all are competing to offer a good price to garment buyers to hold the export share high. One can compete and survive in the market but first of all, it needs to minimize the direct and indirect costs engaged with the production of the garments and the right solution is to use supply chain management by which appropriate sourcing is possible where cost is minimum. This is the reason why supply chain management is very important for the apparel and textile industry.

II. REVIEW OF LITERATURE

Existing studies emphasize the importance of digital tools in enhancing supply chain performance.Kodicara Asoka Gunaratne, (2009), "Barriers to internationalization of SMEs in a developing country". A high percentage of small and medium sized enterprise (SMEs) in the developing countries fail to enter foreign markets due to their inability to overcome the entry barriers. This study therefore investigated the barriers to internationalization of SMEs in Sri Lanka. Result are based on a postal questionnaire survey.
Reetu Sharma, (2012), "Problems and Prospectus of Small Scale Industrial units (A case study of exporting and non – exporting units in Haryana)". All over the world, the unorganized manufacturing sector is known as small and medium enterprises (SMEs) while in India this is known as SSI defined in terms of investment. This is essential in order to bring Indian SSI sector at par with the global Small Medium Enterprises (SMEs) sector.

III. OBJECTIVE OF THE STUDY

- To examine the impact of transportation-related issues (such as freight delays, port congestion, and high transportation costs) on textile export efficiency.
- To assess the role of documentation and customs procedures in causing delays or additional costs for textile exporters.
- To evaluate the effect of supply chain coordination challenges among suppliers, logistics partners, freight forwarders, and export agencies.
- To analyze infrastructure-related constraints, including warehousing, road connectivity, and port accessibility, that affect export logistics.

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IV. RESEARCH METHODOLOGY

The research adopts a descriptive and analytical design using both primary and secondary data. Primary data were collected from 88 employees across logistics, procurement, warehouse, and IT departments using structured questionnaires and interviews. Statistical tools such as Chisquare and regression analyses were employed to test hypotheses using SPSS software.

V. DATA ANALYSIS & RESULTS

The Chi-square test revealed a significant association (p = 0.027) between the frequency of digital communication and transparency in supplier transactions. Regression analysis indicated that order processing speed (p = 0.022) significantly affects cost reduction, though overall digitalization impact remains modest (R^2 = 0.064). Reliability analysis revealed recurring technical issues and insufficient IT support, highlighting areas for improvement.

ASPECTS OF SCM

Factors of the following		
N	Valid	52
	Missing	0

		Frequency	Percent (%)	Cumulative Percent	Simple Rank
Valid	Social Media Influencer marketing trends	27	52	52	1
	Enhanced production efficiency	12	23.2	75.2	2
	Better coordination with suppliers	3	5.7	80.9	3
	Streamlined distribution and logistics	3	5.7	86.6	3
	Increased customer satisfaction	0	0	86.6	9
	Reduced operational costs	0	0	86.6	9
	Facilitated market expansion	1	1.9	88.5	7
	Minimized risk of disruptions	1	1.9	90.4	7
	Implemented sustainability initiatives	2	3.9	94.3	6
	Enhanced competitiveness	3	5.7	100	3
	Total	52	100	100	

INTERPRETATION

The above table shows the rank analysis of Aspects of SCM stated by the respondents. As per the above table percentage, Improved inventory management ranked 1, Enhanced production efficiency ranked 2, Better coordination with suppliers, streamlined distribution and logistics and Enhanced competitiveness ranked 3, Implemented sustainability initiatives ranked 4, Facilitated market expansion and Minimized risk of disruptions ranked 5, Reduced operational costs and Increased customer satisfaction ranked 6.

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INFERENCE

From the table, it is clear that Improved inventory management is the major Aspect of SCM faced by the respondents and Reduced operational costs and Increased customer satisfaction is considered as the low rank and not a major Aspect of SCM faced by the respondents.

ANOVA

Analysis of variance (ANOVA) is an analysis tool used in statistics that splits an observed aggregate variability found inside a data set into two parts: systematic factors and random factors. The systematic factors have a statistical influence on the given data set, while the random factors do not. Analysts use the ANOVA test to determine independent variables' influence on the dependent variable in a regression study.

INFLUENCE OF SCM IN THE TEXTILE INDUSTRY

Influence ofSCM	Source ofVariation	Sum of Squares	Df.	Mean Square	Fvalue	Sig.	Result
	Between Groups	.352	3	.176	.235	.791	HS
Boosts efficiency, cuts costs	Within Groups	36.629	49	.748			
	Total	36.981	52				
Improves quality, satisfies customers	Between Groups	1.794	3	.897			
	Within Groups	34.129	49	.697	1.288	.285	S
	Total	35.923	52				
Responds quickly to the market	Between Groups	3.596	3	1.798			
	Within Groups	31.385	49	.641	2.807	.070	N
	Total	34.981	52				
Supports eco-friendly practices	Between Groups	1.292	3	.646			
	Within Groups	36.400	49	.743	.870	.426	S
	Total	37.692	52				
Strengthens	Between Groups	.369	3	.184	.179	.836	HS
market position	Within Groups	50.400	49	1.029			
	Total	50.769	52				

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INTERPRETATION

The table of the Analysis of Variance (ANOVA) of the Influence of SCM in the Textile Industry indicates that except for the factor 'Responds quickly to the market,' where a potentially significant difference was observed (F = 2.807, p = 0.070), there were no statistically significant differences in the groups related to boosting efficiency, cutting costs, improving quality, satisfying customers, supporting eco-friendly practices, and strengthening market position.

INFERENCE

F value is 0.237 with the corresponding significant value of 0.791 is greater than the level of significant 0.05. Hence the null hypothesis is accepted. It is inferred that there is no significant variance between the Ownership of the Respondent and the Influence of SCM in the Textile Industry.

F value is 1.288 with the corresponding significant value of 0.285 is greater than the level of significant 0.05. Hence the null hypothesis is accepted. It is inferred that there is no significant variance between the Ownership of the Respondent and the Influence of SCM in the Textile Industry.

F value is 2.807 with the corresponding significant value of 0.070 is greater than the level of significant 0.05. Hence the null hypothesis is accepted. It is inferred that there is no significant variance between the Ownership of the Respondent and the Influence of SCM in the Textile Industry.

F value is 0.870 with the corresponding significant value of 0.426 is greater than the level of significant 0.05. Hence the null hypothesis is accepted. It is inferred that there is no significant variance between the Ownership of the Respondent and the Influence of SCM in the Textile Industry.

F value is 0.179 with the corresponding significant value of 0.836 is greater than the level of significant 0.05. Hence the null hypothesis is accepted. It is inferred that there is no significant variance between the Ownership of the Respondent and the Influence of SCM in the Textile Industry.

VI. FINDINGS

1) The age range of the majority of responders is 18 to 24.
2) Males make up the majority of the responders.
3) The vast majority of those surveyed are married.
4) The majority of responders have finished their UG
5) The majority of those surveyed are earning between 3,00,000 – 6,00,000.
6) The majority of those surveyed work in manufacturing.
7) The majority of responders fall into the categories of less than five and five to ten years.
8) The vast majority of those surveyed are Private Limited.
9) The majority of those surveyed work in manufacturing or production.
10) The majority of responders feel that it is important.

VII. SUGGESTIONS

1) Implement advanced inventory management systems to optimize stock levels and reduce excess inventory.
2) Establish strategic partnerships with reliable suppliers to ensure timely and costeffective procurement of raw materials.
3) Consolidate vendor relationships where possible to simplify procurement processes and negotiate better terms.
4) Conduct regular meetings and discussions to identify and resolve supply chain coordination challenges.
5) Schedule regular meetings with stakeholders across the supply chain to discuss challenges, opportunities, and strategies for improvement.

VIII. CONCLUSION

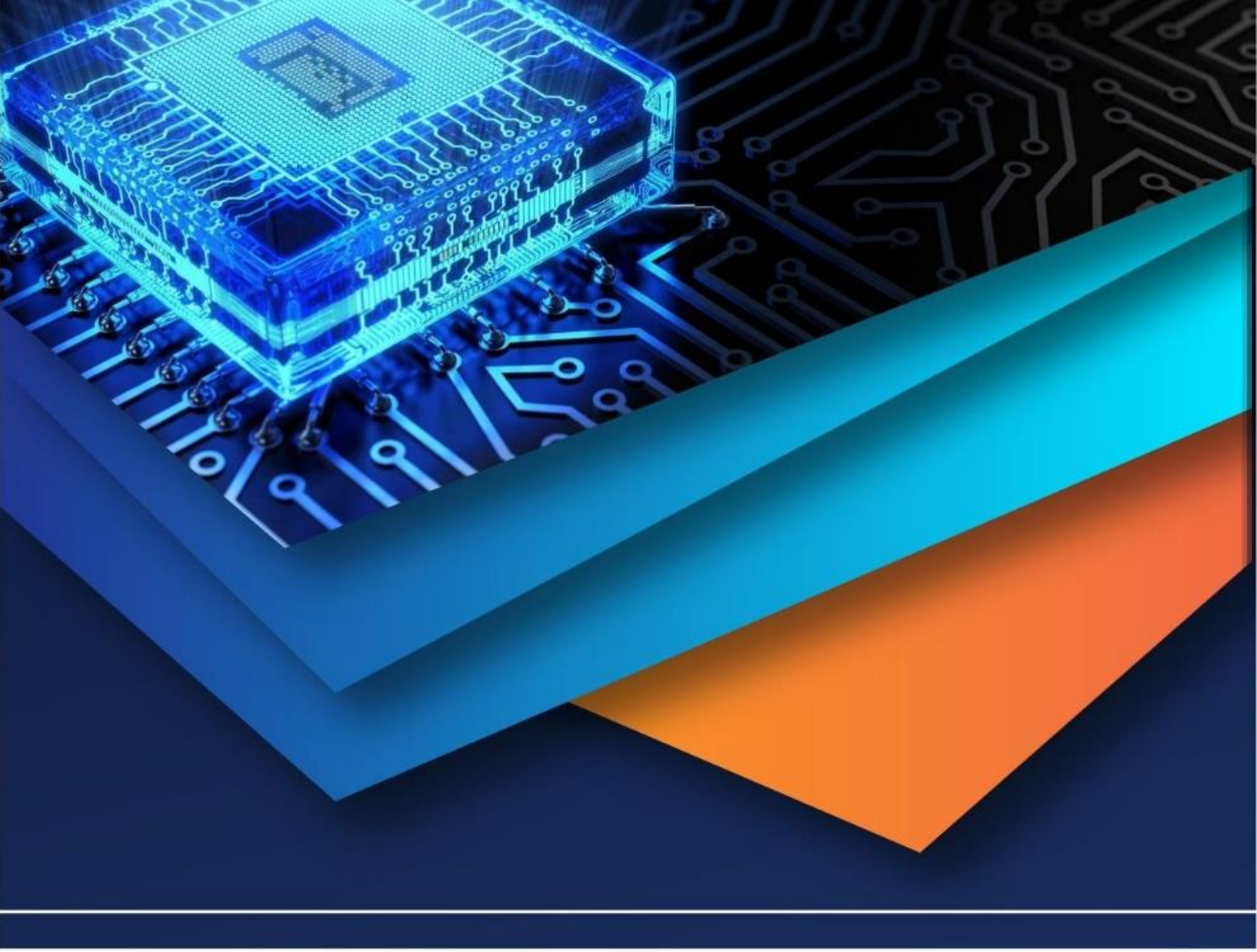
The study stresses efficient inventory management and strategic supplier partnerships for optimized stock levels and timely procurement. Effective vendor management and communication streamline processes and enhance negotiation leverage. Proactive measures like regular meetings address supply chain coordination challenges. Staying informed through trade publications guides strategies, while a positive work environment boosts morale and productivity.

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