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A study on impact of e-commerce on textile logistics and distribution networks in universal textile solutions, Coimbatore

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Abstract
The rapid growth of e-commerce has significantly transformed logistics and distribution practices across various industries, including the textile sector. This study examines the impact of e-commerce on the logistics and distribution networks of Universal Textile Solutions, Coimbatore. The research aims to understand how digital retail platforms, changing customer expectations, and online order fulfilment requirements have influenced operational efficiency, inventory management, lead times, and last-mile delivery processes within the company. Using a combination of primary data collected through interviews and surveys, along with secondary data from industry reports, the study analyses key challenges such as increased delivery frequency, demand fluctuations, and the need for real-time tracking systems. The findings reveal that e-commerce has led to improved market reach and customer convenience but has simultaneously created pressure on logistics infrastructure and supply chain coordination.

Keywords: E-commerce logistics, textile industry, distribution network

Introduction
The rapid proliferation of e-commerce has revolutionized the global business landscape, reshaping traditional models of supply chain management and logistics. The textile industry, one of the oldest and most dynamic sectors in India, is witnessing profound transformations in its distribution and logistics strategies due to the growing influence of digital commerce. As consumers increasingly shift towards online shopping platforms for apparel and fabric products, textile companies are compelled to reconfigure their operations to meet the evolving demands of speed, efficiency, and customer satisfaction. Universal Textile Solutions, based in Coimbatore a city renowned for its rich textile heritage stands at a pivotal point in navigating this digital disruption. This study aims to explore how e commerce is influencing the logistics and distribution frameworks within the organization. Coimbatore, often referred to as the "Manchester of South India," is a major textile hub with a strong manufacturing and export base.

Objectives of the study
1. To understand how quickly and efficiently Universal Textile Solutions delivers textile products ordered through e-commerce platforms.
2. To assess the accuracy and reliability of order fulfilment, including correct product delivery and packaging quality.
3. To evaluate the convenience and user-friendliness of the company's online ordering and tracking systems.

Review of literature
1. **Shemesh (2024) [1]:** Outlines the ten best practices for e-commerce SEO, focusing on boosting visibility and performance. He emphasizes the role of unique product descriptions and structured data to enhance search engine indexing. Mobile optimization is stressed due to Google's mobile-first approach, making responsiveness crucial. Shemesh also highlights the importance of fast loading speed and HTTPS security to improve ranking. Additionally, he recommends optimizing meta tags and internal

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linking for better navigation. The article provides a comprehensive and practical guide for improving SEO strategies in online stores.

2. **SEO Analizi (2024)** [2]**:** This article highlights emerging trends in e-commerce SEO for 2024, emphasizing AI-powered content optimization. It discusses how voice and visual search will shape future strategies for online businesses. Mobile-first indexing and Core Web Vitals are presented as critical ranking factors. The author advises creating engaging and multimedia rich product pages to attract users. Strategies also include semantic keyword usage and technical audits. This review serves as a forward-looking analysis for brands aiming to stay ahead in SEO.

3. **Toxigon (2024)** [3]**:** offers a beginner-friendly guide to e-commerce SEO, especially useful for new entrants in digital commerce. The article breaks down keyword research, emphasizing the importance of long-tail and buyer-intent keywords. It stresses the use of clean URL structures and schema markup to improve product visibility. On-page strategies such as optimized titles, descriptions, and image alt text are explored. Toxigon also touches on link building basics and user-experience-focused design. This resource is a solid starting point for small e-commerce businesses launching their SEO campaigns.

Research Methodology
The present study adopts a quantitative research methodology to analyse the impact of e- commerce on textile logistics and distribution networks in Universal Textile Solutions, Coimbatore. Structured questionnaires were distributed to customers to collect measurable data on delivery efficiency, service satisfaction, and logistics performance. The data was statistically analyzed to identify patterns and relationships between e-commerce practices and customer experiences. This approach ensures objectivity and helps in drawing reliable conclusions based on numerical evidence.

Statistical Tools
- **Simple Percentage:** Simple percentage analysis is used to summarize and present the survey data in a clear and understandable format. It helps in calculating the proportion of respondents who share similar views or experiences regarding e-commerce and textile logistics. This method is useful for describing demographic distributions and customer preferences. By converting raw data into percentages, the study provides easy-to-interpret results.
- **Chi-Square Test:** Used to examine the association between respondents' occupation and their perception of the accuracy of order fulfilment. Pearson Correlation

Analysis: Applied to measure the strength and direction of the relationship between delivery satisfaction and the likelihood to recommend the service.

Data analysis and interpretation

Table 1: Gender distribution of respondents

Gender	No. of Respondents	Percentage (%)
Male	65	50.00%
Female	59	45.38%
Prefer not to say	6	4.62%
Total	130	100%
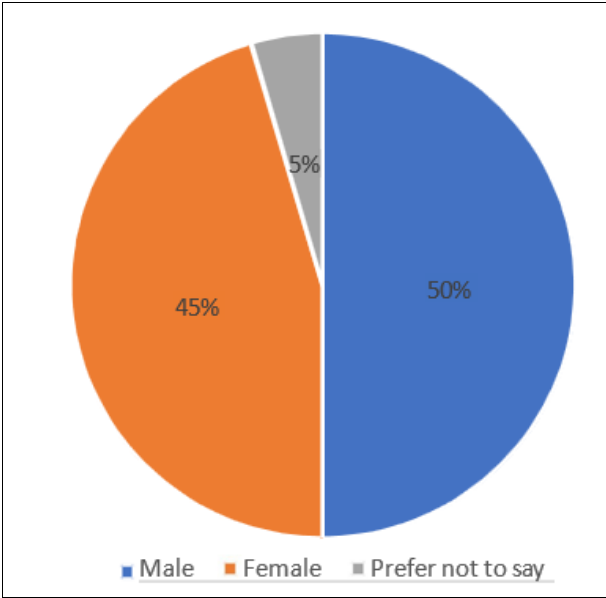
Chart 1: Showing Gender Distribution

Interpretation
The gender distribution among respondents is fairly balanced, with males constituting exactly 50% of the sample. Female respondents account for 45.38%, indicating strong female participation in the textile logistics sector. A small segment (4.62%) chose not to disclose their gender, reflecting respect for privacy and inclusivity in the study. This mix provides a diverse perspective on the impact of e-commerce on textile logistics and distribution.

Correlation between delivery satisfaction and likelihood to recommend
- **Null Hypothesis (H₀):** There is no significant correlation between delivery satisfaction and the likelihood to recommend.
- **Alternative Hypothesis (H₁):** There is a significant correlation between delivery satisfaction and the likelihood to recommend.

Table 2: Correlations

		Logistics efficiency	Likelihood to recommend
Delivery Satisfaction	Pearson Correlation Sig. (2-tailed) N	1	.373**
			.000
		130	130
	Pearson Correlation	.373**	1
Likelihood to recommend	Sig. (2-tailed)	.000	
	N	130	130

Interpretation

The Pearson correlation coefficient between delivery satisfaction and likelihood to recommend is 0.373, with a significance level of 0.000. This indicates a moderate positive correlation that is statistically significant at the 0.01 level ($p < 0.01$). Hence, as delivery satisfaction increases, the likelihood of recommending the service also increases. With $N = 130$, the result confirms that customer satisfaction with delivery plays an important role in promoting positive word-of-mouth or recommendations.

Findings

1. The majority of the respondents belonged to the 21–30 age group, which indicates that young adults are the most engaged demographic in using e-commerce platforms for textile purchases. This suggests that Universal Textile Solutions should continue to tailor its services and marketing strategies to younger, tech-savvy consumers who are comfortable shopping online.
2. More male respondents participated in the study compared to female respondents, though there was also a fair representation from females and a small portion who preferred not to disclose their gender. This shows that the e-commerce textile platform caters to a diverse audience, with male consumers being slightly more active in online textile purchases.
3. The largest occupational group in the survey was salaried professionals, followed by students and self-employed individuals, indicating that working individuals and the younger generation are primary consumers of online textile services. The presence of homemakers and retired individuals shows the platform appeals across a broad demographic but is used more actively by economically engaged groups.

Suggestions

1. Since many respondents highlighted the need for faster delivery and some experienced delays, the company should optimize logistics partnerships, warehouse management, and route planning to reduce transit time and meet promised delivery dates consistently.
2. To address issues related to damaged or incorrect products and packaging concerns, Universal Textile Solutions should implement stricter quality checks before dispatch, along with improved protective and branded packaging for a better customer experience.
3. As some customers found product descriptions, images, and shipping charges unclear or misleading, the platform should ensure clear, detailed, and realistic product visuals and pricing breakdowns during checkout.

Conclusion

The study reveals that the company has made notable progress in adapting to the demands of online textile retail. Most respondents expressed satisfaction with the platform's delivery speed, product quality, and overall online shopping experience. Factors such as quality assurance, product variety, and user-friendly interfaces emerged as significant strengths that encourage online purchases. The research also identified several areas requiring improvement. A significant portion of customers experienced occasional delivery delays, technical issues while ordering or tracking, and confusion regarding shipping charges and return policies. These issues impact customer satisfaction and trust, especially when returns or refunds are delayed or customer support fails to resolve concerns efficiently. The information from this study suggest that while Universal Textile Solutions has established a solid foundation in textile e-commerce, there is a need for strategic investments in logistics optimization, return processing, tracking systems, and policy transparency. By enhancing these aspects, the company can deliver a seamless shopping experience, increase customer loyalty, and strengthen its competitive position in the digital textile marketplace. The study concludes that e-commerce has positively influenced the textile logistics and distribution system of Universal Textile Solutions, but continuous improvements and customer-centric innovations are essential for sustaining growth and long-term success in a highly competitive and evolving online retail environment.

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