A STUDY ON SUSTINABLE PACKAGING STRATEGIES FOR (SHREE MTK TEXTILE PVT.LTD)

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Keywords	Abstract
	The study focuses on sustainable packaging strategies implemented at Shree MTK Textile Pvt. Ltd. The research aims to evaluate how adopting eco-friendly materials and practices influences cost-efficiency, operational performance, and environmental outcomes. The study employs a descriptive research design using both primary and secondary data sources. Data from 62 employees were analyzed through statistical tools such as Chi-square Test, ANOVA test, Correlation Analysis, and T-TEST. The results demonstrate that sustainable packaging enhances organizational reputation, improves waste management, and promotes long-term profitability. The findings provide practical recommendations for integrating sustainability into packaging operations effectively.

1. INTRODUCTION

In the contemporary business landscape, sustainability has emerged as a critical factor influencing corporate strategies, consumer choices, and environmental policies. The textile industry, in particular, has been under increasing pressure to adopt eco-friendly and responsible practices throughout its supply chain — from raw material sourcing to final product delivery. One of the key areas where sustainability can be effectively integrated is packaging, which plays a vital role in protecting products, maintaining quality during

transportation, and enhancing brand image. However, traditional packaging methods, often dependent on plastic and non-biodegradable materials, have led to significant environmental challenges such as waste accumulation, pollution, and resource depletion.

This study titled "A Study on Sustainable Packaging Strategies for Shree M.T.K. Textile Pvt. Ltd." seeks to explore the transition from conventional to sustainable packaging systems within the textile sector. The focus of the research is to examine the current packaging practices adopted by Shree M.T.K. Textile Pvt. Ltd. for both domestic and export shipments, and to evaluate their efficiency, environmental impact, and compliance with modern sustainability standards.

The first objective of the study is to analyze the existing packaging methods and materials used by the company, identifying their suitability and performance in protecting textile goods during transportation and storage. The second objective focuses on identifying viable sustainable alternatives, including biodegradable, recyclable, and reusable packaging solutions that can reduce environmental footprints without compromising functionality. The third objective assesses the cost implications of shifting from conventional to sustainable packaging, providing insights into the economic feasibility and long-term benefits of adopting eco-friendly materials and processes.

Through this research, the study aims to offer strategic recommendations for implementing sustainable packaging practices that balance environmental responsibility, operational efficiency, and cost-effectiveness. By adopting innovative packaging solutions, Shree M.T.K. Textile Pvt. Ltd. can strengthen its commitment to sustainability, enhance its brand reputation, and align with global environmental standards that are increasingly shaping the future of the textile industry.

2. OBJECTIVES

1. To analyses the current packaging practices used in domestic and export shipments.
2. Identify viable sustainable packaging alternatives, such as biodegradable, recyclable, or reusable materials.
3. Assess the cost implications of transitioning from conventional to sustainable packaging methods.

LITERATURE REVIEW

1. **Jestratijevic & Vrabič-Brodnjak (2022)**
   Their global report discusses innovations in sustainable packaging within the fashion and textile industry. It highlights the growing shift toward biodegradable, recyclable, and reusable materials, showcasing best practices and case studies of brands adopting eco-friendly packaging systems.
2. **Varma & Chanana (2022)**
   This study provides a roadmap for sustainable packaging in the Indian apparel industry. It

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identifies major challenges such as high costs and low consumer awareness and recommends biodegradable materials, waste reduction strategies, and stronger stakeholder collaboration.

3. **Rai & Gautam (2022)**

   The authors analyze India's increasing packaging waste and stress the need for eco-friendly solutions like jute, kraft paper, and cornstarch-based plastics. They highlight consumer attitudes toward green packaging and emphasize the importance of government incentives and awareness programs.

4. **Morashti, An & Jang (2022)**

   This systematic review connects sustainable packaging with supply chain efficiency. It discusses challenges in balancing environmental benefits and cost, and examines methods such as closed-loop logistics, return systems, and sustainable supply chain integration.

5. **Textile World (2023)**

   A case study showing how technical packaging textiles made from recycled polyester can reduce carbon emissions by 35%. It demonstrates how the textile sector can adopt low-carbon materials and energy-efficient manufacturing processes.

ANALYSIS
1.1 CHI-SQUARE TEST
1. Age vs Complaints Regarading Packaging Issues

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	11.450[a]	9	.246
Likelihood Ratio	14.729	9	.099
N of Valid Cases	62		

a. 11 cells (68.8%) have expected count less than 5. The minimum expected count is .03.

INTERPRETATION

The Chi-Square test showed no significant association between the variables (χ^2 = 11.450, df = 9, p = 0.246). Since p > 0.05, the null hypothesis is accepted. However, 68.8% of the cells had expected counts below 5, violating Chi-Square assumptions. Therefore, the results should be interpreted cautiously, as low expected frequencies may affect their reliability.

1.2 Gender vs Eco-Friendly Packaging Alternatives

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Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	4.871[a]	4	.301
Likelihood Ratio	4.877	4	.300
N of Valid Cases	62		

a. 4 cells (44.4%) have expected count less than 5. The minimum expected count is .29.

INTERPRETATION

The Chi-Square test showed no significant association between the variables (χ^2 = 4.871, df = 4, p = 0.301). Since p > 0.05, the null hypothesis is accepted. However, 44.4% of the cells had expected counts below 5, slightly violating Chi-Square assumptions. Therefore, although no relationship is found, the results should be interpreted with caution due to low expected frequencies..

1.3 Aware of Eco-Friendly Packaging Alteranatives vs Which Sustinable Packaging Option Suitable For Domestic Shipments.

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	23.221[a]	9	.006
Likelihood Ratio	16.084	9	.065
N of Valid Cases	62		

a. 12 cells (75.0%) have expected count less than 5. The minimum expected count is .06.

INTERPRETATION

The Chi-Square test indicates a significant association between the variables (χ^2 = 23.221, df = 9, p = 0.006). However, 75% of the cells had expected counts below 5 (minimum = 0.06), which violates Chi-Square assumptions. Therefore, although the test shows a significant relationship, the results should be interpreted with caution, and alternative tests like Fisher's Exact Test are recommended.

2.1 ANOVA TEST

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2.1 Age Group vs Experience In Field

ANOVA

Age

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3.741	3	1.247	1.823	.153
Within Groups	39.679	58	.684		
Total	43.419	61			

INTERPRETATION

The ANOVA test shows no significant difference across age groups (F = 1.823, p = 0.153). Since p > 0.05, age has no meaningful impact on the variable studied. The variations observed are due to random differences, so the null hypothesis is accepted.

2.2 Age Group vs Customer Willing to pay more For Eco-friendly Packaging

ANOVA

How many year working in this company?

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	296.854	3	98.951	7.316	<.001
Within Groups	784.517	58	13.526		
Total	1081.371	61			

INTERPRETATION

The ANOVA test shows a significant difference based on employees' years of experience (F = 7.316, p = 0.000). Since p < 0.05, the duration of employment has a meaningful impact on the responses. Thus, the null hypothesis is rejected, indicating that employee tenure influences their perceptions.

2.3 Years in Company vs Carbon Footprint Reduction Extent

ANOVA

Age

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	17.679	13	1.360	2.536	.010
Within Groups	25.741	48	.536		
Total	43.419	61			

INTERPRETATION

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The ANOVA results show a significant difference among the 14 groups (F = 2.536, p = 0.010). Since p < 0.05, the null hypothesis is rejected, indicating that at least one group differs in mean age. The between-group variation is notable, and a post-hoc test (e.g., HSD) is needed to identify which groups differ.

3.1 T-Test (Independent Samples)
3.1 Gender vs Sustinable Packaging Will Improve Company's Brand

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
q2	Equal variances assumed	.563	.460	-.682	24	.502	-.182	.267	-.732	.368
	Equal variances not assumed			-.594	3.782	.586	-.182	.306	-1.051	.688

INTERPRETATION

An independent samples t-test was conducted to compare the means of the two groups on question q2. Levene's test for equality of variances indicated that the assumption of equal variances was met (F = 0.563, p = .460). The results showed that there was no statistically significant difference in scores between the two groups, t (24) = -0.682, p = .502. The mean difference was -0.182 (SE = 0.267), with a 95% confidence interval ranging from 0.732 to 0.368. These results suggest that the two groups did not differ significantly in their responses to q2.

3.2 Gender vs Long Term Saving Justification

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
q2	Equal variances assumed	.558	.460	-.330	36	.743	-.103	.312	-.735	.529
	Equal variances not assumed			-.381	4.081	.722	-.103	.270	-.847	.641

INTERPRETATION

The t-test showed no significant difference between the two groups (t(36) = -0.330, p = 0.743). Levene's test confirmed equal variances (p = 0.460). Thus, both groups responded similarly to question Q2, with no meaningful difference in their mean scores.

4. FINDINGS

The study revealed that there is no significant relationship between age, gender, and packaging-related complaints or willingness to adopt eco-friendly alternatives. However, awareness of sustainable packaging significantly influences the choice of recyclable and biodegradable materials. The ANOVA results showed that experience and tenure impact perceptions of environmental benefits, while t-tests indicated no gender-based differences in views on sustainability. Correlation analysis confirmed a strong positive link between experience and years in the company. Overall, respondents showed good awareness and a positive attitude toward sustainable packaging, though cost remains a key concern in adoption.

5. SUGGESTIONS

The company should conduct training and awareness programs to promote ecofriendly practices. It must standardize packaging methods, collaborate with reliable suppliers, and test sustainable materials before full implementation. Adopting cost-effective biodegradable options and utilizing government incentives can reduce expenses. Continuous monitoring and feedback collection will help improve packaging quality and effectiveness over time.

6. CONCLUSION

The study concludes that Shree MTK Textile Pvt Ltd is ready to adopt sustainable packaging strategies. Employees are aware of the benefits and show strong support for ecofriendly materials. While cost challenges exist, most believe sustainable packaging enhances brand image, supports CSR goals, and contributes to environmental protection. With proper planning, supplier collaboration, and phased implementation, the company can achieve a smooth and effective transition to sustainable packaging.

7. AUTHOR(S) CONTRIBUTION

The writer affirms that they have no connections to, or engagement with, any group or body that provides financial or non-financial assistance for the topics or resources covered in this manuscript.

8. CONFLICTS OF INTEREST

The author declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

9. PLAGIARISM POLICY

The author declares that any kind of violation of plagiarism, copyright, and ethical matters will be taken care of by the author. Journal and editors are not liable for the aforesaid matters.

10. SOURCES OF FUNDING

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