Analyse the Customer Return Behaviour and its Impact on Supply Chain Management at Vaibhav Creation

Dr. Jayashree R[2], Tharun R[2]

[1]MBA, M.Phil, PhD., Assistant Professor, [2]II MBA, Student, Sri Ramakrishna College of Arts & Science, Coimbatore, India

Abstract--Customer return behaviour has become a critical determinant in shaping supply chain efficiency, particularly in the retail and apparel sectors. This study investigates the key reasons behind customer product returns at Vaibhav Creation, identifies whether returns are driven by defects, mismatched expectations, or delivery issues, and examines how return policies and customer communication influence return rates. Using a descriptive research design supported by statistical tools such as Chi-square and ANOVA, the study found that mismatched expectations, unclear product information, and policy communication gaps were major contributors to product returns. Findings emphasize the need for enhanced customer communication, improved product description accuracy, and efficient reverse logistics to strengthen supply chain performance.

Keywords-- Customer Return Behaviour, Reverse Logistics, Return Policy, Supply Chain Management, Apparel Industry, Vaibhav Creation, Customer Communication.

I. INTRODUCTION

In today's competitive retail environment, customer returns significantly influence the structure and efficiency of supply chains. The rapid expansion of e-commerce has amplified return rates, with nearly 30% of online apparel purchases being returned due to unmet expectations rather than actual defects. For Vaibhav Creation—a textile and apparel manufacturer—return management is vital for ensuring operational stability, cost control, and customer satisfaction. This study focuses on understanding the causes of product returns, their operational implications, and the impact of return policy clarity on consumer behaviour.

II. OBJECTIVES

1. To identify key reasons behind customer product returns at Vaibhav Creation.

2. To understand whether returns are driven by product defects, mismatch in expectations, delivery issues, or other factors.

3. To examine how return policies and customer communication influence return rates.

III. LITERATURE REVIEW

1. Zhang, S. S., Wang, Y., Zhang, X., & Xu, H. (2023). Omni-channel reverse logistics: The 2023 review by Zhang, Wang, Zhang, & Xu on Omni-channel Reverse Logistics (ORL) serves as a synthesis of the current state of research and a roadmap for future study in this complex, evolving area. The paper focuses on the immense operational challenge created when consumers can purchase a product via one channel (e.g., online) and return it via another (e.g., a physical store), demanding seamless integration across a retailer's entire network. The authors categorize the literature, identifying key research themes such as ORL network design, inventory management under return uncertainty, operational efficiency, and the increasing role of technology (like AI and big data) in predicting and handling returns.

2. Wirtz, B. W., Mory, L., & Gaus, S. (2022). The 2022 systematic literature review by Wirtz, Mory, & Gaus addresses the complexity of customer returns in the e-commerce sector by "unravelling the determinants"—that is, identifying and structuring the vast array of factors that cause consumers to return products. The authors synthesized fragmented research across marketing and operations fields to create a comprehensive framework. This framework classifies determinants into categories such as product-related factors (e.g., fit and quality uncertainty), consumer-related factors (e.g., consumer demographics and attitude toward returns), and retailer-related factors (e.g., lenient return policies and quality of product information).

3. DE maestri, E., Gallantries, J., & Gold, S. (2022). The 2022 paper by DE maestri, Gallantries, & Gold directly investigates the often-overlooked negative consequences of customer returns, specifically focusing on the environmental impact of free returns in e-commerce. Titled "The hidden costs of convenience," the research models and quantifies the substantial ecological footprint generated by the reverse flow of merchandise.

4. Mann, A., Moussavi, S., & Shulman, J. D. (2021). The 2021 study by Mann, Moussavi, Shulman provides an analytical framework for determining optimal product returns policies specifically tailored for online retail.

This research models the complex trade-off faced by e-commerce companies: setting a lenient policy to stimulate demand by mitigating consumer purchase risk versus setting a strict policy to control costs from high return volumes and opportunistic behaviour.

5. Zhang, Z. J., Tang, M., & Yang, S. (2020). The 2020 study by Zhang, Tang, & Yang focuses on leveraging advanced technology to proactively manage the costly issue of returns by predicting customer return behaviour in e-commerce. The authors utilize a novel approach combining machine learning (ML) algorithms with the rich, unstructured data found in textual customer reviews. By analysing review sentiment, product feedback, and the characteristics of the customer and product, the study develops a decision support system that can more accurately forecast whether a specific purchase is likely to result in a return.

6. Wagner, H. M., & Martínez-de Albéniz, V. (2020). The 2020 paper by Wagner & Martínez-de Albéniz focuses on the complex analytical problem of managing consumer returns in omni-channel retailing. They developed a quantitative model to help retailers optimize pricing, inventory, and fulfilment decisions when customers can purchase and return products across multiple channels (e.g., buying online but returning to a brick-and-mortar store). The research highlights that the ability to return in-store increases initial demand, but complicates the logistics by decentralizing the return flow and creating inventory visibility challenges.

7. Kim, M., Shin, K., & Kim, M. S. (2020). The 2020 study by Kim, Shin, & Kim addresses a core operational challenge in supply chain management by demonstrating how machine learning (ML) can be leveraged to improve the reverse logistics (RL) process through predictive modelling.

The research focuses on the high costs and uncertainties associated with processing returns by utilizing historical customer, product, and transactional data to develop ML algorithms capable of accurately predicting the likelihood of a product being returned.

8. Choi, T. M., Siu, Y. K., & Liu, X. (2020). The 2020 study by Choi, Siu, & Liu presents a data-driven approach focused on leveraging predictive analytics to manage returns in the high-risk fashion e-commerce sector. Recognizing that clothing and footwear frequently have the highest return rates due to issues like size and fit uncertainty, the authors utilize various machine learning (ML) techniques on large transactional and product datasets to accurately predict product return rates.

9. Chen, J., Chen, H., & Xu, Z. (2020). The 2020 study by Chen, Chen, & Xu investigates the operational strategy of inventory pooling and its specific effect on supply chain performance when faced with the uncertainty of customer returns. The authors analytically model a scenario where a retailer or firm can consolidate inventory from multiple selling locations or channels into a single pool. They demonstrate that pooling inventory effectively mitigates the risk and reduces the required safety stock level caused by the unpredictable volume and timing of customer returns.

10. Lee, T., Lee, E., & Kim, Y. (2019). The 2019 study by Lee, Lee, & Kim provides a psychological perspective on understanding consumer return behaviour within the challenging omni-channel environment. Moving beyond purely economic or logistical factors, the authors investigate how consumers' psychological states, such as product valuation and perceived risk, are influenced by the choice of channel (online vs. physical store) for purchase and return. The key finding is that the ability to utilize multiple channels (e.g., buying online and returning in-store).

IV. ANALYSIS

TABLE 1:
DEMOGRAPHICS

VARIABLE	CATEGORY	FREQUENCY	PERCENTAGE(%)
AGE	25-35 years	32	38.6
	35-45 years	28	33.7
	18-25 years	20	24
	Above 45	03	03.7
GENDER	MALE	56	67.5
	FEMALE	26	31.3
	PREFER NOT TOSAY	01	01.2
EDUCATIONAL QUALIFICATION	POST GRADUATE	25	30
	RESEARCH SCHOLAR	19	22.9
	UNDER GRADUATE	08	09.7
	WORKING	24	29
	EMPLOYEMENT	07	8.4
TOTAL RESPONDENTS	-	83	100

SOURCE: Primary Data

Interpretation:

The demographic profile shows that most respondents (38.6%) are aged 25–35 years, followed by 33.7% in the 35–45 years category, indicating a predominantly young to middle-aged sample. A majority of respondents are male (67.5%), while females account for 31.3%, reflecting male dominance in the workforce. Educationally, postgraduates (30%) and working professionals (29%) form the largest groups, showing that respondents are well-qualified and career-oriented. Research scholars (22.9%) and undergraduates (9.7%) represent the academic segment of the sample. Only a small portion (8.4%) are employed in other categories, and 1.2% preferred not to disclose gender. Overall, the demographic data indicate a diverse, educated, and predominantly male population, concentrated in the active working-age group.

Hypothesis:

H1: Age of the respondents does not significantly influence their perception of customer return behaviour

H2: Gender of the respondents has a significant effect on their attitude towards product returns and return policy clarity.

H3: Educational qualification of the respondents does not significantly impact their understanding of return processes and supply chain efficiency.

H4: Work experience significantly affects respondents' views on the effectiveness of reverse logistics and return management at Vaibhav Creation.

<div align="center">

TABLE 2.1:
CHI SQUARE

</div>

2.1 Relationship between Product Quality and Return Behaviour.

Particulars	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	15.842	4	0.016
Likelihood Ratio	16.770	4	0.012
Linear-by-Linear Assoc.	7.156	1	0.008
N of Valid Cases	80		

Source :Primary Data

Interpretation:

The Chi-square value ($p = 0.016 < 0.05$) indicates a significant relationship between product quality and customer return behaviour.

This implies that even small variations in product quality or perceived quality (e.g., texture, color, stitching) influence return decisions. However, when compared to expectation mismatch, quality issues contribute relatively less to overall return rates.

<div align="center">

TABLE 2.2
CHI-SQUARE

</div>

2.2 Customer Communication and Satisfaction:

Particulars	Value	df	A symp. Sig. (2-sided)
Pearson Chi-Square	18.246	6	0.008
Likelihood Ratio	17.928	6	0.009
Linear-by-Linear Assoc.	6.211	1	0.013
N of Valid Cases	80		

Source : Primary Data

Interpretation:

The Chi-square significance ($p = 0.008 < 0.05$) demonstrates that there is a strong association between effective communication and customer satisfaction during the return process. Customers who receive clear instructions, timely responses, and transparent updates are less likely to experience dissatisfaction or repeat returns.

TABLE 3:
ANOVA

3.1 Impact of Product Expectation Mismatch on Return Frequency

Source of Variation	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	7.625	3	2.541	3.112	0.031
Within Groups	62.345	76	0.820		
Total	69.970	79			

Source: Primary Data

Interpretation:

The ANOVA result (F = 3.112, p = 0.031) shows that there is a statistically significant difference between expectation mismatch levels and return frequency.

Customers with unmet expectations are significantly more likely to return products. This finding underlines the importance of precise product descriptions, accurate size charts, and realistic images on online platforms.

TABLE 4:
DESCRIPTIVE

4.1 Influence of Return Policy and Communication Clarity

Clarity of Return Policy	Frequency	Percentage (%)
Very Clear	12	15%
Somewhat Clear	42	53%
Unclear	19	24%
No Information Provided	7	8%
Total	80	100%

Source: Primary Data

Interpretation:

More than half (53%) of respondents found Vaibhav Creation's return policies "somewhat clear," while nearly one-third found them unclear or not communicated. The lack of policy clarity increases customer uncertainty and frustration, leading to repetitive inquiries and delayed returns. Enhancing communication through email confirmations, SMS alerts, and online policy visibility can significantly improve customer trust and reduce unnecessary returns.

V. FINDINGS

- The primary reasons for product returns are size mismatch and unmet expectations rather than product defects.
- Expectation mismatches significantly influence return frequency, verified by ANOVA analysis.
- Product quality has a moderate but significant impact on return behaviour.
- Return policy clarity and communication directly affect customer satisfaction levels.

- Lack of transparency and poor updates during the return process lead to distrust and higher return repetition.

VI. SUGGESTIONS

- Provide accurate size charts and realistic product images to reduce expectation-based returns.
- Strengthen return policy communication through digital channels.
- Train customer service teams to offer real-time updates on returns and refunds.
- Implement a data-driven reverse logistics system to analyze frequent return causes.
- Introduce customer education initiatives about return timelines and procedures.

VII. CONCLUSION

The study concludes that customer return behaviour at Vaibhav Creation is predominantly shaped by expectation mismatches and communication clarity rather than by inherent product defects. Enhancing transparency in return policies and strengthening customer engagement throughout the return process can substantially reduce operational disruptions and build long-term trust. Effective return management not only improves supply chain performance but also enhances overall customer satisfaction and brand loyalty.

REFERENCES

[1] Aydinliyim, T., & Altug, S. (2016). Optimal pricing and inventory control for a retailer with consumer returns. Naval Research Logistics (NRL), 63(8), 643–660.

[2] Bakker, C., Den Hollander, M., Van Hinte, E., & Zijlstra, H. (2014). Products that flow: Circular business models and design strategies. BIS Publishers.

[3] Bernon, M., & Cullen, J. (2007). The challenges of reverse logistics in the grocery sector. International Journal of Logistics Management, 18(2), 266–282.

[4] Bernon, M., Rossi, S., & Cullen, J. (2013). Retail logistics and its interface with marketing: A systematic literature review and research agenda. International Journal of Physical Distribution & Logistics Management, 43(10), 834–852.*

[5] Cachon, G. P., & Lariviere, M. A. (2005). Supply chain coordination with effective consumer returns. Production and Operations Management, 14(4), 462–479.*

[6] Chen, J., Chen, H., & Xu, Z. (2020). The effect of inventory pooling on supply chain performance in the presence of customer returns. International Journal of Production Economics, 227, 107694.*

[7] Demaestri, E., Gualandris, J., & Gold, S. (2022). The hidden costs of convenience: Understanding the environmental impact of free returns in e-commerce. Journal of Operations Management, 68(3), 269–295.*

[8] Ferguson, M., & Toktay, L. B. (2005). The effect of competition on pricing and recovery in a closed-loop supply chain. Production and Operations Management, 14(4), 452–461.*

[9] Fleischmann, M., Bloemhof-Ruwaard, J. M., Dekker, R., Laan, E. A., van Nunen, J. A. E. E., & Van Wassenhove, L. N. (1997). Quantitative models for reverse logistics: A review. European Journal of Operational Research, 103(1), 1–17.*

[10] 11. Genchev, S. E., Richey, R. G., & Gabler, C. B. (2017). Forecasting and planning in reverse logistics: The role of demand uncertainty and the return process. International Journal of Physical Distribution & Logistics Management, 47(10), 1014–1035.*

[11] Gopal, A., & Van Westerhof, L. N. (2003). Reverse logistics in closed-loop supply chains: An investigation of operational trade-offs. Journal of Operations Management, 21(5), 579–608.*

[12] Govindan, K., Soleimani, H., & Kannan, D. (2015). Reverse logistics and closed-loop supply chain: A comprehensive review to explore the future. European Journal of Operational Research, 240(3), 603–626.*

[13] Guide, V. D. R., & Van Westerhof, L. N. (2003). The reverse supply chain. Harvard Business Review, 81(2), 25–26.*

[14] Guide, V. D. R., & Van Westerhof, L. N. (2009). The evolution of closed-loop supply chain research. Operations Research, 57(1), 10–18.*

[15] Ms. C. Ranganayaki, (2024). Customer satisfaction on inbound and out bound logistics of VL appliances India PVT ltd, Rabindra Bharati University Journal of Economics, Pg. No: 49 – 54.

[16] Dr D Mythili, Vishva S & Vishnu Prabhu C (2023), A Study on Effective Logistics Management on Organizational Performance Evidence from Global Logistics, Rabindra Bharati Journal Of Philosophy, 0973 – 0087, Vol. XXXI No.16, PP 94-101.

[17] Dr. D. Suganya,(2017) A Study on Consumer Awareness towards Eco Friendly Products at Coimbatore. International Journal of Current Research and Modern Education, December 2017, Volume 2. Citation 11, h-index 1, i10-index 1.

WEBSITES

[1] https://www.researchgate.net/publication/244504129_Strategic_Issues_in_Product_Recovery_Management

[2] https://www.researchgate.net/publication/237255734_Invited_Review_Quantitative_models_for_reverse_logistics_A_review

[3] https://www.researchgate.net/publication/254764120_Analysis_of_concentration_response_curves_to_describe_and_compare_the_antimicrobial_activity_of_model_cationic_alpha-helical_peptides

[4] https://www.researchgate.net/publication/272703459_Improving_Competitiveness_Trough_Creation_of_Knowledge_and_Reverse_Logistics

[5] https://www.researchgate.net/publication/378942956_OPTIMIZING_REVERSE_LOGISTICS_PROCESSES_FOR_PRODUCT_RETURNS_IN_E-_COMMERCE

[6] https://www.researchgate.net/publication/392181125_Research_on_Optimization_Strategies_of_Supply_Chain_Pricing_and_Returns_Management_under_O2O_Model

[7] https://www.researchgate.net/publication/285484203_The_Impact_of_Reverse_Logistics_on_the_Total_Cost_of_Ownership

[8] https://www.researchgate.net/publication/235322400_Differences_between_Forward_and_Reverse_Logistics_in_a_retail_environment

[9] https://www.researchgate.net/publication/382115879_Reverse_logistics_and_closed-loop_supply_chains_for_sustainability

[10] https://www.researchgate.net/publication/385947684_Impact_of_supply_chain_digitalization_business_enterprise_RD_expenditure_and_government_budget_allocations_for_RD_A_roadmap_towards_carbon_neutrality