

Stochastic Modelling and Computational Sciences

IMPACT OF SUSTAINABILITY PRACTICES IN DEPARTMENTAL STORES

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ABSTRACT

Sustainability measures are essential for guaranteeing resource efficiency, reducing the negative effects on the environment, and building long-term corporate resilience. Department stores function as one-stop shops that provide a variety of goods, ease of access, and customized shopping experiences. The purpose of this research paper is to analyze the impact of sustainability practices in departmental stores. The technique used in this study is one sample t-test. The outcome of the study indicated that there is a significant high impact of Reduce environmental footprint, Increased Customer loyalty, Cost saving, Employee satisfaction, Waste reduction, Environmental preservation, Enhance Retail Sales, Brand image, and Competitive Advantage.

Keywords: Sustainability Practices, Departmental Stores, One Sample t-test.

1. INTRODUCTION

In recent times, there has been a notable focus on the incorporation of sustainable practices in the retail industry, namely in department stores. Growing consumer awareness, governmental pressure, and the general need to reduce environmental effects are the main drivers of this change. Department stores are in a unique position to impact downstream consumers and upstream suppliers by implementing sustainable practices since they are multifunctional retail spaces that house a diverse range of products (Harrison et al., 2020). These practices cover a broad spectrum of tactics, including energy efficiency, sustainable sourcing, waste reduction, and product promotion for environmentally friendly items.

1.1. Sustainability Practices

Strategies to reduce environmental impact and encourage ethical resource use are included in the broad category of sustainability practices. Reducing waste, using energy efficiently, sourcing sustainably, and implementing environmentally friendly production techniques are some of these strategies (Gavinolla et al., 2021). Enterprises can reduce their environmental impact and promote the sustainable growth of the environment and community by incorporating sustainability into their operations. With a focus on addressing current demands without compromising the capacity of future generations to satisfy their requirements, sustainable practices are informed by the concepts of conservation, circularity, and social responsibility (Ghaffar et al., 2023). According to Smith et al. (2016), organisations can effectively tackle environmental issues, improve operational efficiency, curtail expenses, and cultivate favorable connections with stakeholders by incorporating sustainable practises.

1.2. Department Stores

Department stores are essential to the retail industry because of their size, variety of products, and high customer traffic. They have the power to establish standards and trends in the retail industry and serve as important nodes in the consumer supply chain (Smith & Perks, 2019). Department shops can improve their corporate image and operational efficiency while also addressing environmental issues by using sustainable practices. Research have demonstrated that through better resource efficiency and waste management, sustainable practices can result in cost savings (Smith & Perks, 2019). Furthermore, research indicates that customers are favouring shops that exhibit a commitment to sustainability more and more, which boosts brand loyalty and increases sales (Jones et al., 2021).

1.3. Sustainable Practises in Departmental Stores

The shift to sustainable operations at department shops is not without its difficulties, though. These include the necessary initial investment of funds, the difficulty of completely redesigning current supply chains, and the ongoing innovation required to satisfy changing sustainability criteria (Thompson & Scott, 2018). The long-term

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advantages of implementing sustainable practices are strong, notwithstanding these difficulties. Successfully implementing sustainability programs can give department shops a competitive advantage, enhance their brand, and satisfy their corporate social obligation.

The purpose of this study paper is to investigate the effects of sustainable practices in department stores, looking at both the advantages and disadvantages. The study will offer insights into how these practices can be successfully applied and their potential implications for the retail industry. The results will enhance comprehension of the strategic significance of sustainability in the retail industry and its influence on department stores' future.

2.1. REVIEW OF LITERATURE

1. **Abdul Ghaffar, et al. (2023).** The study investigates how millennials' intentions for sustainable consumption are influenced by sustainable stores, product packaging, availability, and price perception. The findings point to a growing millennial tendency towards ecologically friendly consumption habits. It has been discovered that perceived lower prices, product packaging, availability, and sustainable retailers all favourably affect consumers' inclinations to engage in sustainable behaviour. The results highlight the significance of encouraging ecological practices and creating environmentally conscious consumer behaviour, as these can support ecological stability and aid emerging countries in their efforts towards sustainability.
2. **Luana, Gomes, et al. (2022).** The purpose of the study was to examine how consumers in Brasilia, Brazil, perceived sustainability procedures slowly and rapidly establishments. The study evaluated the effect of awareness on perceptions through the examination of documented behaviors and surveys with 118 customers of slow fashion and 400 customers of rapid fashion in 2018 and 2017. Results revealed that when consumers learned about sustainable methods, their perceptions significantly improved, affecting 78% of fast fashion buyers and 91% of slow fashion buyers. Though they understood the value of sustainability, customers were not prepared to pay extra for products that were more environmentally friendly. This demonstrates the discrepancy between consumer attitudes and purchase patterns, indicating the necessity for additional initiatives to include sustainability into the fashion sector.
3. **Sharfah, Ahmad, Qazi, et al. (2022).** This study aims to explore how sustainability performance metrics in the fresh food retail supply chain are affected by green in-store operations. Results show a positive correlation between environmental, social, and economic performance measures and green in-store activities. The study also shows that organisation size moderates the strength of these correlations. More specifically, green in-store operations have been shown to have better positive connections with environmental and social performance indicators in larger retail establishments. On the other hand, there was no discernible moderating effect on economic performance metrics.
4. **Antonio, Marín-García, et al. (2022)** The study's goal was to investigate how consumer views of sustainable retail operations affect overall store equity while taking into account the retail industry's diverse assessment based on behavioural characteristics. According to the study, social sustainability had the biggest influence on consumer perception and was the primary driver of the store's brand equity development. The other dimensions of sustainability also drove brand equity in the direction of the retail institution.
5. **Caroline, Kopot., Brenda, J., Cude. (2021).** The purpose of the study was to comprehend consumer perceptions of omnichannel fashion department shops in light of shifting consumer trends and technology improvements. Relationships were investigated by confirmatory factor analysis and structural equation modelling on data collected from 552 U.S. customers. The results showed that the influence of perceived fluency on purchase intentions was mediated by brand sentiment. Perceived channel fluency was significantly impacted by consistency in both content and process. Consistent content and processes across all channels are preferred by customers, providing practitioners with valuable insights to create enduring omnichannel strategies.

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6. **Antonio, Marín-García., et al. (2021).** The study's goals were to increase knowledge of the nature and aspects of sustainability in retail, investigate how it affects store equity and customer satisfaction, and assess how gender and brand equity work together to moderate the effects of sustainability on consumer satisfaction. The study discovered that, with gender influencing the strength of their effects, sustainability and brand equity were critical for fostering consumer pleasure in the retail sector. Furthermore, brand equity played a crucial role since it acted as a mediator between customer satisfaction and sustainability, emphasising the need for more sustainable business models.
7. **Eleonora, Bottani.,et al. (2019).** The study's objective was to develop a model for assessing the financial and ecological sustainability of retail establishments by quantitatively replicating the key procedures and offering an analysis of overall expenses and carbon dioxide emissions. According to the study, the return management procedure only slightly increased the overall cost, whereas the sales area management method had the largest overall cost and the greatest environmental impact. A sensitivity analysis also revealed important areas that managers could concentrate on to increase the retail store's sustainability, offering helpful advice for streamlining internal procedures.
8. **M. Sivagnanasundaram, (2018).** This article examines sustainable practices in the retail industry in light of the industry's significant global economic power and growing customer awareness of environmental issues. The Indian retail industry is still in the early stages of adopting sustainable practices, according to the findings. Indian retailers fall well short of their global competitors in terms of implementing and disclosing sustainable practices. This survey indicates that there is still a long way to go until Indian retailers embrace sustainable practices and leverage them as a powerful marketing weapon.
9. **Kumar, P. (2016).** This study explores the problems and obstacles that Indian merchants confront in the context of green retailing. The credibility of environmental claims, consumer knowledge and views of green items, product displays in retail establishments, and the financial and marketing viability of environmentally friendly retail operations are some of the major problems and obstacles that have been identified. Particular difficulties that affect Indian sellers were also mentioned.
10. **Christian, Fuentes., Cecilia, Fredriksson. (2016).** The study set out to investigate, clarify, and conceptualise the practice of sustainability services and their function in encouraging sustainable consumption. According to the study, three service techniques were used by the retail chain W-Store to provide sustainability services: setting up green shopping trails, responding to inquiries about sustainability, and encouraging sustainability to environmentally conscious customers in-store. The investigation demonstrated that retailing sustainable items required a wide range of intricate, socio-material, and performative procedures in addition to simply stocking sustainable products.

3. OBJECTIVES OF THE STUDY

1. To analyze the impact of sustainability practices in departmental stores
2. To give appropriate suggestions for the implementation of sustainable practices

3.1. Hypothesis

H_0 : The impact of sustainability practices in departmental stores is insignificant. (Mean score < 3)

H_1 : The impact of sustainability practices in departmental stores is significant. (Mean score > 3)

4. RESEARCH METHODOLOGY

Research Design	Descriptive
Data Collection	Primary and Secondary
Sampling Technique	Non-Probability Purposive Sampling
Sample Size	50 Employees (Supervisors) of Departmental stores

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Sample Size Determination	According to Faul et al., a minimum sample size of 45 for conducting a one-tailed one-sample t-test.
Statistical Technique	Parametric One-Sample t-test
Statistical Tool	R Studio Software

Data Analysis and Interpretation:

Table No: 1 Demographic Table			
Category	Variables	Frequency	Percentage
Gender	Male	31	62.00
	Female	19	38.00
Years of Experiences	2 years	13	26.00
	5 years	16	32.00
	More than 10 years	21	42.00
Which Departmental Store Currently Employed at?	Dmart	16	32.00
	Jio mart	13	26.00
	Smart bazaar	12	24.00
	Star bazaar	9	18.00

Source Primary Data

Data was collected from 50 employees of departmental stores. Out of which 31 were male (62%) and 19 were female (38%). In terms of years of experience, 13 respondents (26%) reported having 2 years of experience, while 16 respondents (32%) had 5 years of experience, and the remaining 21 respondents (42%) had more than 10 years of experience. Regarding employment at departmental stores, 16 respondents (32%) were employed at Dmart, followed by 13 respondents (26%) at Jio mart, 12 respondents (24%) at Smart bazaar, and 9 respondents (18%) at Star bazaar.

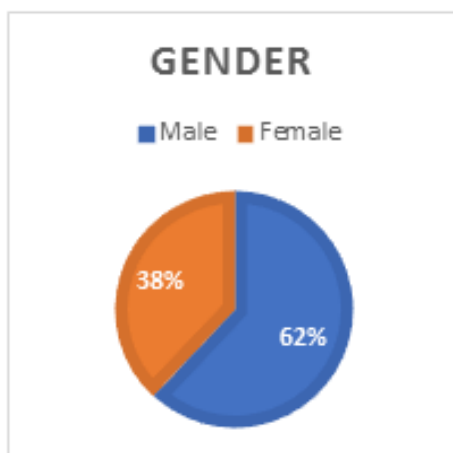


Diagram I
Source: Primary Data

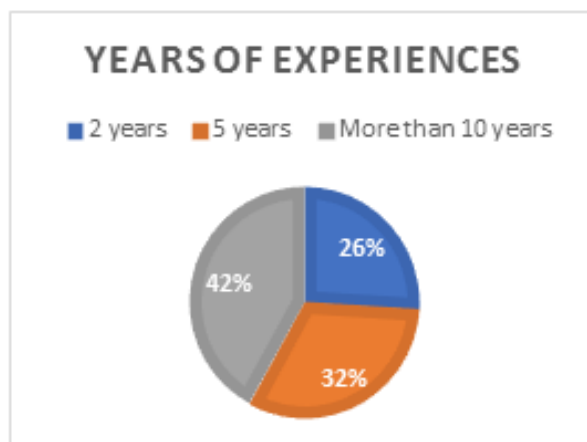


Diagram II
Source: Primary Data

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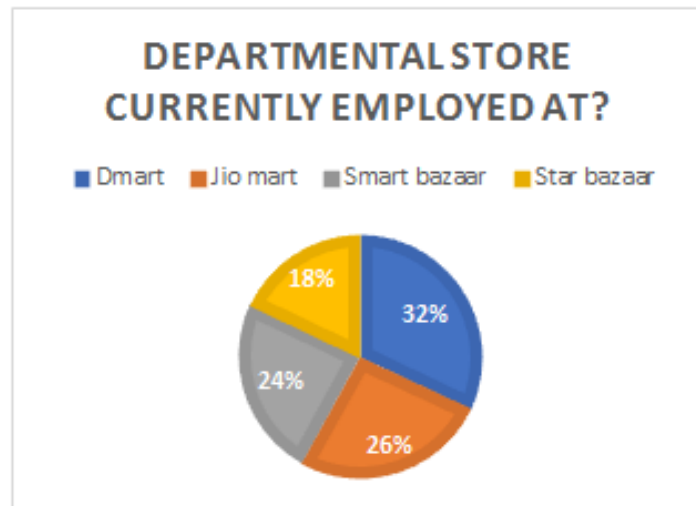


Diagram III
Source: Primary Data

Table No: 1 One sample t test

Items	t – statistics	P – value	Ha: mean score of Impact of sustainability practices in departmental stores > 3
Reduce environmental footprint (minimize waste and energy consumption)	21.09	0.000	High impact
Increased Customer loyalty (Customers are more likely to remain loyal to stores that prioritize sustainability)	23.77	0.000	High impact
Cost saving (waste reduction and energy efficient)	22.22	0.000	High impact
Employee satisfaction (Sustainability initiatives can improve employee morale and satisfaction)	24.76	0.000	High impact
Waste reduction (recycling and composting programs reduces the amount of waste)	20.18	0.000	High impact
Environmental preservation	23.00	0.000	High impact
Enhance Retail Sales	24.77	0.000	High impact
Brand image	20.90	0.000	High impact
Competitive Advantage	21.12	0.000	High impact

Source Primary Data

Parametric one sample t – test (one tailed) is applied to examine significant Impact of sustainability practices in departmental stores on customers. It is seen that p – value < 0.05 and t statistics > 1.96 for. Reduce environmental footprint, Increased Customer loyalty, Cost saving, Employee satisfaction, Waste reduction, Environmental preservation, Enhance Retail Sales, Brand image, and Competitive Advantage.

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5. CONCLUSION

The study's conclusions highlight the important and varied effects of department stores' adoption of sustainable practices. Notably, implementing such approaches into reality has produced a wide range of beneficial effects, from improving employee happiness and customer loyalty to decreasing waste and environmental impact. Furthermore, it has been demonstrated that sustainability measures are profitable, resulting in lower costs and higher operational efficiency. Significantly, these actions enhance department shops' competitive edge and brand image while also supporting larger initiatives towards sustainability and environmental preservation. Additionally, department stores are positioned as leaders in ethical and progressive retailing when sustainability principles are integrated into their operations. This promotes innovation and boosts retail sales. Overall, these results show how crucial it is for department stores to operate using sustainable principles, not just for their prosperity but also for the greater good of society and the environment. The beneficial part is waste reduction that leads to recycling and composting programs which helps in reducing the amount of waste produce by the customers and employees working in departmental stores. This sustainability practices of departmental stores assist to cost saving and also waste reduction and energy efficient.

6. SUGGESTIONS

- Establish measurable, precise goals for lowering the impact on the environment, raising employee happiness, and increasing operational effectiveness.
- Use renewable energy sources and energy-efficient heating, cooling, and lighting systems to cut down on carbon emissions and resource usage.
- Implement recycling schemes, composting projects, and eco-friendly packaging options to reduce waste production and advance the circular economy.
- Encourage staff involvement, train them in sustainable practices, and give them the authority to spot areas for improvement.
- Collaborate with vendors who value sustainability, ethical and local sourcing, and the effects of products on people and the environment at every stage of the supply chain.
- Increase consumer knowledge of sustainability activities, be open and honest about environmental efforts, and use loyalty programmes and educational campaigns to encourage environmentally friendly behaviour.

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