THE ROLE OF TECHNOLOGY IN ADVANCING ECO-MARKETING IN THE RETAIL INDUSTRY.

Zilola Davronova Gulomovna
PhD student TSUE, department of Marketing
ziloladavro@gmail.com

Abstract. *The retail industry is increasingly adopting eco-marketing strategies to respond to growing consumer demand for sustainable products and practices. This dissertation explores the role of technology in advancing eco-marketing in the retail sector, with a focus on how digital tools, such as artificial intelligence (AI), big data, and blockchain, are enhancing the effectiveness of sustainability efforts. By leveraging these technologies, retailers are able to optimize their marketing strategies, improve transparency in supply chains, and better engage environmentally conscious consumers. The research examines how AI-driven insights can predict consumer demand for eco-friendly products, how blockchain ensures the authenticity of sustainable sourcing, and how big data provides retailers with valuable consumer preferences. Furthermore, the study discusses the use of digital platforms and smart packaging technologies in promoting eco-friendly initiatives. Through case studies and industry analysis, this dissertation aims to demonstrate the significant impact of technological innovation on the evolution of eco-marketing, ultimately contributing to a more sustainable and consumer-responsive retail environment.*

Keywords: *eco marketing, sustainability, AI, big data, blockchain, digital marketing.*

Introduction.

The retail industry has undergone significant transformation over the past few decades, driven largely by advancements in technology and a growing consumer demand for sustainable products and practices. As environmental concerns continue to rise globally, eco-marketing — the promotion of products based on their environmental benefits — has become an increasingly important strategy for retailers looking to appeal to a more environmentally conscious customer base. In this context, technology plays a critical role in enabling and advancing eco-marketing strategies. From artificial intelligence (AI) to big data, and blockchain, technology is shaping the way retailers approach sustainability, product transparency, and consumer engagement.

As businesses continue to adapt to the digital age, it has become evident that traditional marketing methods, including market research, focus groups, and customer surveys, are no longer sufficient to meet the demands of modern consumers. Instead, the integration of data analytics, real-time insights, and automated marketing tools is key to crafting effective eco-marketing strategies that not only promote sustainability but also drive business success. This dissertation explores the role of technology in enhancing eco-marketing strategies

within the retail sector, focusing on how digital tools can be leveraged to create more sustainable business practices while simultaneously improving customer satisfaction and brand loyalty.

The core aim of this research is to examine how emerging technologies such as AI, big data, and blockchain contribute to the effectiveness of eco-marketing strategies in the retail industry. As businesses become more reliant on data to make decisions, understanding how technology can optimize eco-marketing efforts is essential for companies that want to stay competitive while embracing sustainability. Furthermore, this dissertation seeks to identify the challenges and opportunities that arise when integrating technology into eco-marketing efforts, particularly in the context of the retail industry, which is undergoing rapid technological and consumer-driven changes.

Literature Review

The concept of eco-marketing has gained significant traction in recent years due to the increasing environmental concerns among consumers and the global shift toward sustainability. Retailers are beginning to recognize the importance of integrating green practices into their marketing strategies, aiming to not only improve their environmental footprint but also to engage eco-conscious consumers effectively. Eco-marketing strategies encompass various aspects such as product development, branding, packaging, and advertising, all with a focus on promoting environmental sustainability.

Merchandising involves activities like availability of products, both for sale and in stock, product presentation on shelf and the grouping of products on categories based on some logic. [47]

Here *cloud computing* helps the retailer with managing multiple channel locations, support their point of sales, integrate websites, perform automated merchandising and marketing with an aim to get a holistic view of the customer i.e. the 360-degree view.[48]

With an increased usage of internet, the customers are now leaning towards *online Mobile commerce* which has become an important channel for both selling and communication to its existing and potential customers.[49]

By understanding such customer patterns, the marketer will be able to channelize energy towards the right kind of customers thus leading to efficient marketing. One such example can be of that of a "dweller", who is killing time or is unsure about the product he wants to buy.[50]

Shoppers trying to select a particular product or a brand while trying to compare and choose are termed as "gazers". The act of "reaching out" would indicate the greatest intent

[47] Eastlick M, Lotz S, Shim S (1998) Retail-tainment: factors impacting cross shopping in regional malls. J Shopp Centre Res 5(1):7–33

[48] Silva E, Hassani H, Madsen D (2019) Big data in fashion: transforming the retail sector. J Bus Strategy. https://doi.org/10.1108/JBS-04-2019-0062

[49] Mishra P (2017) Emerging trends in Indian retailing. J Retail Mark Distrib Manag 1(1):1–6

[50] Radhakrishnan M, Eswaran S, Misra A, Chander D, Dasgupta K (2016) Iris: tapping wearable sensing to capture in-store retail insights on shoppers. In: 2016 IEEE international conference on pervasive computing and communications PerCom: Sydney, March 14–19. 7456526-1-8. Research Collection School of Information Systems.

at buying. Activities like reading out indices or checking labels to read written information like that about calorie content or net weight form a part of this habit. Such shoppers are the easiest target for the marketer. It is the gazers, on whom the marketer must focus their efforts on.[51]

Analytics for physical marketing technologies has a major scope as well. Till now display advertisements have been static (e.g., posters, signs, pre-programmed digital displays etc.). This limits the scope of amount and value of the information shared. But with analytics today, the marketing and advertisement displays can be utilized to provide customize information to the potential customers. The system identifies customer in a store through their registered number. On identification, a tailored advertisement content can then be delivered via the user's physical space or to their mobile device based on the cluster the customer falls in post applying analytics.[52]

Methodology

The aim of this thesis is to explore the role of technology in advancing eco-marketing strategies within the retail industry. To achieve this, a mixed-methods approach will be employed, combining both qualitative and quantitative research methods to gather insights and analyze data.

Data Collection

1. Case Studies: In-depth case studies will be conducted on several leading retailers who have successfully implemented eco-marketing strategies. These will include interviews with marketing professionals from companies such as Patagonia, IKEA, and Unilever, to understand how they are leveraging technology in their eco-marketing strategies.
2. Surveys and Questionnaires: A survey will be distributed to consumers to measure their perceptions of eco-marketing strategies, particularly the role of digital tools (AI, big data, blockchain) in promoting sustainability. This will provide insight into how tech-enabled eco-marketing influences consumer behavior and purchase intentions.
3. Secondary Data Analysis: Secondary data from industry reports, academic journals, and market research publications will be analyzed to understand the current landscape of eco-marketing technologies in retail. This will help identify the gaps in existing literature and provide a broader perspective on the issue.

Data Analysis

The data will be analyzed using both statistical methods (for survey responses) and thematic analysis (for case studies and qualitative interviews). The findings will be presented with the help of visual aids such as graphs, tables, and charts to facilitate understanding of key trends and insights.

Results and Discussion

[51] Rallapalli S, Ganesan A, Chintalapudi KK, Padmanabhan VN, Qiu L (2014) Enabling physical analytics in retail stores using smart glasses. In: MobiCom '14 proceedings of the 20th annual international conference on mobile computing and networking, pp 115–126.

[52] O'Donnell C, Rocamora D, Ellenberg S (2013) Web-level engagement and analytics for the physical space. US 2013/0107732 A1. U.S. Patent Application Publication, Brooklyn

Upon analyzing the case studies and survey results, it is expected that technology, particularly AI, big data, and blockchain, will be shown to have a substantial impact on advancing eco-marketing strategies in retail. Retailers leveraging these technologies will be able to enhance consumer engagement, improve product transparency, and create more effective and personalized marketing campaigns.

One key finding may be that AI-driven insights can significantly improve a retailer's ability to predict consumer preferences and personalize eco-marketing campaigns. By using machine learning algorithms, retailers will be able to fine-tune their strategies to target eco-conscious consumers more effectively. Additionally, blockchain technology can foster greater trust in the sustainability claims made by retailers, allowing consumers to trace the origins and production processes of eco-friendly products, leading to greater confidence in their purchasing decisions.

Another significant finding will likely be the growing role of digital platforms and mobile commerce in driving the eco-marketing agenda. With the rise of online shopping, retailers have a unique opportunity to connect with consumers in innovative ways, using social media, websites, and mobile apps to promote sustainable products and drive eco-friendly behavior.

REFERENCES

1. Eastlick M, Lotz S, Shim S (1998) Retail-tainment: factors impacting cross shopping in regional malls. J Shopp Centre Res 5(1):7–33.

2. Silva E, Hassani H, Madsen D (2019) Big data in fashion: transforming the retail sector. J Bus Strategy. https://doi.org/10.1108/JBS-04-2019-0062

3. Mishra P (2017) Emerging trends in Indian retailing. J Retail Mark Distrib Manag 1(1):1–6

4. Radhakrishnan M, Eswaran S, Misra A, Chander D, Dasgupta K (2016) Iris: tapping wearable sensing to capture in-store retail insights on shoppers. In: 2016 IEEE international conference on pervasive computing and communications PerCom: Sydney, March 14–19. 7456526-1-8. Research Collection School of Information Systems.

5. Rallapalli S, Ganesan A, Chintalapudi KK, Padmanabhan VN, Qiu L (2014) Enabling physical analytics in retail stores using smart glasses. In: MobiCom '14 proceedings of the 20th annual international conference on mobile computing and networking, pp 115–126.

6. O'Donnell C, Rocamora D, Ellenberg S (2013) Web-level engagement and analytics for the physical space. US 2013/0107732 A1. U.S. Patent Application Publication, Brooklyn

7. Christensen, C. M. (2013). The Innovator's Dilemma: When New Technologies Cause Great Firms to Fail. Boston, MA: Harvard Business Review Press.

8. Goodman, J. (2005). "Pay-per-Percentage of impressions: an advertising method that is highly robust to fraud," in Workshop Spons. Search Auctions. Citeseer

9. Juniper Research (2017). Ad Fraud to Cost Advertisers $19 Billion in 2018. Availble online at: https://www.juniperresearch.com/press/press-releases/ad-fraud-tocost-advertisers-$19-billion-in-2018 (accessed June 24, 2019).

10. Zamani, E. D., and Giaglis, G. M. (2018). With a little help from the miners: distributed ledger technology and market disintermediation. Ind. Manag. Data Syst. 118, 637–652. doi: 10.1108/IMDS-05-2017-0231.