

A Study on the Role of AI in Predicting Consumer Behavior and Shaping Marketing Strategies

Dr. L. Baby Victoria

*Assistant Professor, Department of Computer Applications
Vellalar College for Women(Autonomous), Erode*

OPEN ACCESS

Volume: 13

Special Issue: 1

Month: March

Year: 2025

E-ISSN: 2582-6190

Citation:

Baby Victoria, L. "A Study on the Role of AI in Predicting Consumer Behavior and Shaping Marketing Strategies." *ComFin Research*, vol. 13, no. S1-i2, 2025, pp. 171–76.

DOI:

<https://doi.org/10.34293/commerce.v13iS1-i2.8759>

Abstract

In this study, explore the revolutionary impact of AI in predicting consumer behavior and its influence on shaping modern marketing strategies. AI technologies, such as machine learning, natural language processing, and predictive analytics, allow marketers to analyze vast consumer data, providing deeper insights into customer preferences, purchasing behaviors, and emerging trends. This research examines how AI tools, like sentiment analysis, recommendation engines and customized marketing automation, enable companies to deliver experiences that enhance customer engagement, improve targeting accuracy, and optimize marketing campaigns in real-time. Furthermore, investigate the challenges and limitations of AI adoption, including concerns related to data privacy, algorithmic biases, and the need for skilled talent. The findings demonstrate that AI not only facilitates better decision-making and resource allocation but also creates a more personalized and efficient customer journey, thereby increasing overall marketing effectiveness. The paper concludes with actionable recommendations for businesses seeking to leverage AI to predict consumer behavior and drive marketing innovation, while also addressing ethical considerations and implementation challenges.

Keywords: Artificial Intelligence, AI-driven Tools, Consumer, Data Privacy

Introduction

Artificial Intelligence (AI) is a mechanism to create human intelligence that can perform complicated tasks bravely as a human brain. In AI, interdisciplinary concept with many different techniques like Machine Learning, Deep Learning, Neural Network and Convolutional Neural Network are revolutionizing every area of the IT industry. AI is becoming a more effective and useful part of daily life and is a field that businesses in every sector are investing in. The growing importance of AI in marketing, especially in consumer behavior analysis will help to improve the marketing strategies and shaping strategies in marketing. AI is being used to predict purchasing patterns of the products, improving marketing efforts, and optimize customer engagement. Highlight the challenges to marketers face in predicting and utilizing consumer behavior, and how AI tools are solving these challenges, improve the successful rate in high manner.

Recent years, a mass revolution in the industry of Artificial intelligence and it helps to transform the strategies of how we perceive and understand marketing. Predict Consumer Behavior is a process

of analyzing the behavior of buying products of consumers and how to improve the shaping marketing strategies. Now, with the help of AI technology can achieve this.. It helps to improve their marketing plans and strategies more effective, marketers can know the behavior of consumers while purchasing through online and change the mood of the consumer. Gathering information about products through browsing habits, using social medias, searches in online and views has helped the marketers grasp the preferences of the target market and the target consumers. In recent years, marketing industry achieve the goal with the help of AI technology. Marketing and Advertising industries, are quickly integrating with artificial intelligence to make the prediction of the consumer behavior effectively and shaping their selling products strategies increasingly.

Literature Review

Ransbotham, et al. (2017), digital marketing based on AI techniques enables industries to reach their suitable consumers at the correct time. Such insights are essential for AI to guide stores on product displays and cataloging (Avinaash, 2018). With the help of AI, Marketers can gain insights and engage their consumers of their different stages of their journey interestingly (Kietzmann, 2018). Larson (2019), AI interfaces can help the retailers for utilizing AI technologies to enhance the shopping experience by resources , offering more customizable services, and setting their company apart from the competitors. Haenlein & Kaplan(2019) explained that Artificial intelligence (AI), replicates human intelligence processes through computers and can transform data into strategies that impact consumer. Laith T Khrais (2020) explained the impact of AI on influencing Consumer Demand in E-Commerce. Alka Awasthi and Anitha Vishwakarma (2023), reveals that AI has enhanced marketers' ability to enhance and gathering the behavior of the consumer. Koushiki Biswas and Gourango Patra (2023), explained that AI has affected Marketers capacity for purchasing habits and to analyse and comprehend consumer behavior.

Research Methodology

Research methodology focuses three methods: Qualitative methods focus on uncovering the underlying reasons, motivations, attitudes, and emotions that drive consumer behavior. AI models analyze qualitative data sources such as reviews from the consumers, social media like whatsapp and Instagram posts, feedback of the consumer, survey responses, and online forums. Natural Language Processing (NLP) techniques help interpret consumer sentiments and emotions, enabling marketers to understand the motivations behind consumer actions. By leveraging qualitative AI insights, marketers can craft personalized campaigns, enhance the better experiences of the customer, and tailor messaging to align with consumer needs and preferences. This approach fosters a strong emotional connection with customers and helps anticipate changes in consumer perceptions.

Quantitative methods involve to quantify consumer behavior patterns for collecting and analyzing numerical data. AI uses algorithms to process large-scale data, such as transactional data, website clicks, and purchase histories. Machine learning models can predict future behavior, such as purchasing a product, or segmenting customers based on buying patterns. AI-powered analytics provide concrete data on which products are selling well, which are most profitable, and how marketing campaigns are performing. This information allows marketers to optimize campaigns, allocate resources more efficiently, to personalize marketing efforts.

By integrating both methods, AI can provide richer insights and more accurate predictions. AI can analyze consumer opinions and sentiment alongside purchase history and website interactions to generate more nuanced predictions. For example, sentiment analysis could be combined with transactional data to predict a consumer's likelihood of repeat purchasing based on their emotional

connection to a brand. By merging insights from both types of data, AI helps marketers not only predict what will happen but also understand the context and reasons behind consumer actions. This approach can refine targeting strategies, optimize customer journeys, and create marketing content that resonates deeply. AI could analyze customer sentiment from social media and compare it with purchase frequency to develop a campaign that specifically addresses consumer concerns or interests while predicting future purchasing behavior.

Data Collection: AI tools can classify the data like primary data and secondary data. Collect the data through conduct surveys, interviews, focus industry professionals in marketing, and consumer analytics. In secondary data like case studies, reports and publications from AI-Focused marketing firms or consulting companies. Sampling that have adopted AI for marketing purposes. Decision trees and Neural Networks are used for consumer prediction and segmentation.



Fig. 1. Life Cycle of Predicting Consumer Behavior

Predicting Consumer Behavior

In consumer data collection, gathering large volumes of consumer data via online browsing patterns, purchase history, social media activity, customer feedback. AI uses this data to predict customer behavior, such as brand preferences, price, and future purchasing decisions to make the consumer behavior changes.

Shaping Marketing Strategies with AI

AI enables brands to personalize marketing campaigns by predicting consumer needs, creating offers, and delivering customized products within a time. In Automated Marketing AI-powered tools like search engines, chatbots, email automation, and social media management platforms are revolutionizing customer engagement and improving the customer journey. AI's role in analyze customer feedback through organizing marketing campaigns by adjusting strategies based on real-time data. AI tools are improving the overall consumer experience by providing interactions, instant responses, and relevant content to get customer experience enhancement.

Understanding the Importance of Predicting Consumer Behavior



Fig. 2. Steps for shaping Marketing Strategies

By utilizing AI, businesses gain insights about the factors that change the human behavior: Consumer can have different moods in different situations, that feelings and moods can connect with making purchase decisions. And also some reviews and recommendations of their friends impact choices to select the products. Different States have different cultural backgrounds that also affects preferences and ethical considerations, economical status, and trends play significant roles. These are influence buying habits of consumers and reshaping the marketing strategies. Customers from either rural or urban, familiar technologies that shapes the ability to how customers interact with digital platforms. In prediction of consumer behavior, improve accuracy and efficiency in the powerful models of AI like Bayesian probabilistic models and logistic regression techniques. Bayesian probabilistic model used to make predictions based on their existing knowledge of the consumers, continuously update their predictions based on complex data available. Logistic regression model is based on the statistical method. It is used to predict the probability of a certain event occurring, either a customer make a purchase or not. It helps to segment consumer community based on their purchasing behavior patterns.

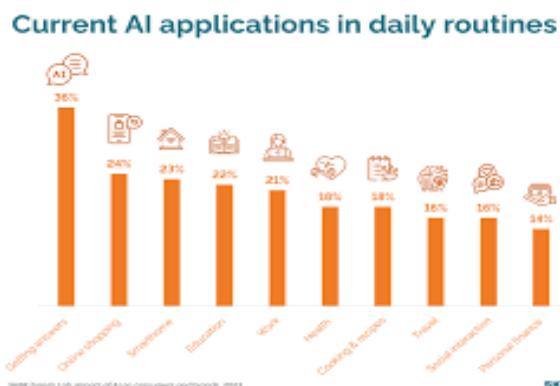


Fig. 3 AI improves the marketing strategies in daily routines

Discussion

Predict future market is challenging one in marketing industry. Through AI possible to predict future market directions accurately based on the existing and current trends of the consumer preferences. Improving customer service effort will lead the success of new products marketing and achieve the goal. In 2025, marketing field is becoming more competitive and predicting customer behavior correctly with the help of AI technology. The role in customer behavior prediction and shape the marketing strategies will evolve significantly by using AI technology. For businesses,

marketing significantly facing new challenges, new opportunities for growth and innovation. AI technology helps to all range of users like lower user and average user, makes it greater convenience to operate the technology, relevant offerings, and make the shopping is enjoyable experience. AI take the responsibility to follow the rules in marketing. Marketing teams must follow the business rule for utilizing customer data responsibly.

Conclusion

Predicting consumer behavior and shaping marketing strategies are multifaceted by the role of AI, harnessing the power of data labeling, classification, normalization, and predictive analytics to provide retailers with unparalleled insights. The retailers should transform the raw data in marketing into actionable one for consumers getting better shopping experience and involvement. Today, the consumer demands are very high. In e-commerce, expand its features rapidly in future and appreciating for influencing consumer demands by implementing AI applications. The number of people using e-commerce has been rapidly increasing. This helps for purchasing capability to access various platforms related to e-commerce. Note that AI technology has implemented in e-commerce for extending the consumer retention and satisfaction. As a result, it enhances customer engagement and facilitates the development of customer relationship management systems. Marketers can enhance the user experience by utilizing language-based AI for sales tools, payment processing, delivery management, and customer engagement. Language-based AI is evolving rapidly, enhancing its ability to learn from past experiences and automatically improve future interactions. In marketing, AI enables content generation through observation, data collection, analysis, and reporting. In today's digital era, email marketing is a key service that helps reach the target audience at the right time and place, ensuring their convenience. One of the most significant advantages of AI in marketing is data analysis. This technology helps to process vast amounts of data and delivers to real-world, get the insights to marketers.

References

1. R.Kishen, S.Upadhyay, F.Jaimon, S.Suresh, "Prospects for artificial intelligence Implementation to design personalized customer engagement strategies", Journal of Legal, Ethical and Regulatory Issues, Volume 24, Special issue 6, 2021.
2. MitraMadanchian, "Generative AI for Consumer Behavior Prediction : Techniques and Applications", MDPI, Volume 16, 16(22), 9963, 2024.
3. RaturajPatil, Shivashankar K, ShantavvaM.Porapur and ShivanandKagawade, "The role of AI-driven social media marketing in shaping consumer purchasing behaviour: An empirical analysis of personalization, predictive analytics and engagement", ITM Web of Conferences, Volume 68, 01032, 2024.
4. Natalia Bobro, Roman Hyshchuk, ArturStrunhar, OleksandrBukovskyi, VitaliiAlekseiko, Exploring the role of AI in shaping future marketing strategies: evaluations and outlooks, Volume 13, Issue 80, August 2024.
5. Anoop, M. R, Artificial intelligence and marketing. Turkish Journal of Computer and Mathematics Education, 12(4), 1247-1256, 2021.
6. LaithT.Khrais, Role of Artificial Intelligence in Shaping Consumer Demand in E-Commerce, Future Internet, Volume 12- Issue 12, 12(12),226, December 2020.
7. Richali Jain and Ajay Kumar, Artificial Intelligence in Marketing : Two Decades Review, NMIMS Management Review, Volume 32, Issue 2, September 2024.
8. ShirsenduKar, Impact of Artificial Intelligence on Digital Marketing, International Journal of Scientific Research in Engineering and Management, July 2023.

9. BinduMaheshwari, Impact of Artificial Intelligence on Digital Marketing, An Online Peer Reviewed / Refereed Journal, Volume 1, Issue 5, December 2023, ISSN : 2583-973X.
10. Ibrahim HalilEfendioglu, The Change of Digital Marketing with Artificial Intelligence, 7th International Conference on Applied Research in Management, Economics and Accounting, July 2023.
11. <https://www.forbes.com>
12. <https://www.linkedin.com>
13. <https://www.salesforce.net>
14. <https://www.ibm.com>
15. <https://www.marketinghire.org>