

A Study on Role of Artificial Intelligence and Big Data in Marketing Consumer Durable Products

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Abstract

Artificial intelligence (AI) and big data analytics have emerged as potent tools for organisations to acquire useful insights into consumer behaviour and make sensible marketing decisions as a result of the rapid growth of technology. This study investigates the use of AI and big data in consumer durable product marketing, focusing on how these technologies affect consumer insights, targeted marketing, and customer relationship management. The research article opens with an introduction to AI and big data, highlighting their potential to transform advertising strategies in the market for consumer durable goods. It examines how machine learning and AI algorithms can analyse enormous volumes of customer data to help marketer's spot trends, patterns, and preferences. Big data analytics may help businesses understand the wants and needs of their customers, allowing them to create more focused marketing campaigns and individualised product recommendations. The article also looks at how AI-powered chatbots and virtual assistants might improve the consumer experience by offering individualised assistance, product knowledge, and post-purchase services. These clever solutions may comprehend client enquiries, offer in-the-moment support, and make pertinent product recommendations, increasing client delight and loyalty. The paper also looks at the problems and ethical issues surrounding the application of AI and big data in marketing. Building consumer trust and ensuring ethical use of their data need addressing privacy issues, data security concerns, and transparency concerns. The paper concludes by highlighting successful case studies and instances of businesses using AI and big data in marketing consumer durable goods. It exemplifies how businesses have used AI algorithms to examine

customer data, forecast consumer preferences, and fine-tune marketing strategies, enhancing sales success and boosting customer engagement. This study's conclusion highlights the importance of AI and big data in marketing consumer durable goods. Organisations may gather useful consumer insights, improve targeted advertising campaigns, and deliver individualised customer experiences by leveraging the power of AI and big data analytics. To sustain consumer trust in the age of AI-driven marketing, organisations must address ethical issues and assure transparency. Organisations may maintain their competitiveness and adapt to changing consumer expectations in the market for consumer durable goods by using AI and big data in marketing

Keywords: Growth of Technology, Artificial Intelligence, Big Data, Marketing Consumer Durable Products, Customer Experiences

Introduction

Consumer durable goods including electronics, home appliances, and cars make up a major market segment. It takes a thorough understanding of consumer tastes, behaviour, and purchase patterns to sell these products in an efficient manner. Big Data and AI present special prospects for deriving useful insights from enormous amounts of data, allowing marketers to adjust their tactics and run more specialized and individualised marketing campaigns. The landscape of marketing is always changing as a result of technological breakthroughs. Artificial Intelligence (AI) and Big Data are two well-known technologies that have emerged as game-changers in the marketing industry. AI is the emulation of human intelligence in machines, allowing them to carry out operations like

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data processing, decision-making, and problem-solving that otherwise need human intellect. Massive amounts of structured and unstructured data produced from numerous sources are referred to as “big data.” Consumer durable goods including electronics, home appliances, and cars make up a major market segment. It takes a thorough understanding of consumer tastes, behaviour, and purchase patterns to sell these products in an efficient manner. Big Data and AI present special prospects for deriving useful insights from enormous amounts of data, allowing marketers to adjust their tactics and run more specialized and individualised marketing campaigns. The landscape of marketing is always changing as a result of technological breakthroughs. Artificial Intelligence (AI) and Big Data are two well-known technologies that have emerged as game-changers in the marketing industry. AI is the emulation of human intelligence in machines, allowing them to carry out operations like data processing, decision-making, and problem-solving that otherwise need human intellect. Massive amounts of structured and unstructured data produced from numerous sources are referred to as “big data.” Big Data and artificial intelligence have developed into indispensable tools for companies looking to acquire a competitive edge in the marketing of consumer durable goods. Products that fall under the category of consumer durables include electronics, appliances, furniture, and automobiles. It takes a thorough understanding of consumer behaviour, interests, and trends to advertise these products successfully. Businesses can gain useful insights, boost decision-making procedures, and improve consumer experiences by integrating AI and Big Data into marketing initiatives. In order to gain a thorough understanding of their effects on consumer behaviour analysis, personalised marketing tactics, and overall marketing efficacy, this study intends to analyse the use of AI and Big Data in marketing consumer durable products. Businesses can obtain useful insights into consumer behaviour by utilising AI algorithms and analysing enormous amounts of data. This includes being aware of consumer purchasing trends, tastes, and drivers. These data give marketers the ability to customize their marketing plans and messaging for particular consumer groups, improving the likelihood that their messages will resonate with their target market and result in conversions. In the cutthroat market for consumer durables, personalised marketing tactics have emerged as a critical difference. Businesses can develop highly targeted marketing, provide individualised product recommendations,

and optimize pricing strategies thanks to AI and Big Data. These methods increase consumer pleasure and engagement while also boosting conversion rates and patronage. In the consumer durables sector, improving customer experiences is another important function of AI and Big Data. Chatbots and virtual assistants powered by AI offer customers immediate help and guidance, enhancing response times and overall happiness. Predictive customer service use AI algorithms to anticipate and proactively handle client demands, ensuring a smooth customer experience. Big data and artificial intelligence have a significant potential impact on consumer durables marketing. Businesses must, however, invest in infrastructure, expertise, and data privacy and security safeguards in order to properly utilise these technologies. To ensure appropriate and open use of consumer data, ethical considerations must also be taken into account. In conclusion, the marketing environment for consumer durable products has changed as a result of the integration of AI and Big Data. Businesses may get profound insights into consumer behaviour, create individualised marketing strategies, and provide outstanding customer experiences by utilising the potential of these technologies. The goal of this study is to go deeper into these topics by delivering a thorough understanding of the role of AI and Big Data in marketing consumer durables and by providing business owners with guidance on how to survive and thrive in this dynamic environment. Big Data and artificial intelligence have developed into indispensable tools for companies looking to acquire a competitive edge in the marketing of consumer durable goods. Products that fall under the category of consumer durables include electronics, appliances, furniture, and automobiles. It takes a thorough understanding of consumer behaviour, interests, and trends to advertise these products successfully. Businesses can gain useful insights, boost decision-making procedures, and improve consumer experiences by integrating AI and Big Data into marketing initiatives. In order to gain a thorough understanding of their effects on consumer behaviour analysis, personalised marketing tactics, and overall marketing efficacy, this study intends to analyse the use of AI and Big Data in marketing consumer durable products. Businesses can obtain useful insights into consumer behaviour by utilising AI algorithms and analysing enormous amounts of data. This includes being aware of consumer purchasing trends, tastes, and drivers. These data give marketers the ability to customize their marketing plans and messaging for particular consumer groups, improving the likelihood

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Review of Literature on the Role of Artificial Intelligence and Big Data in Marketing Consumer Durables: A Comprehensive Study

Li, Su and Zhang (2020) in their research paper the authors provide a comprehensive review of the impact of Big Data and AI on consumer behavior. It discusses how the analysis of large datasets using AI algorithms can reveal valuable insights into consumer preferences, purchasing patterns, and decision-making processes. The study emphasizes the potential of leveraging Big Data and AI to enhance marketing strategies for consumer durables.

Zhang, Song and Zhou (2020) their research article focuses on personalized recommendation systems in e-commerce, which are often powered by AI and Big Data. It discusses the application of these systems in marketing consumer durables, highlighting their ability to analyze user behavior, predict preferences, and generate personalized product recommendations. The review provides insights into the effectiveness and challenges of implementing personalized recommendation systems in the consumer durables industry.

Pappas, Mikalef and Giannakos (2017) the authors here investigate the Role of Social Media in Promoting the Adoption of Technological Innovations for Sustainable Homes. This research article explores the role of social media, AI, and Big Data in promoting the adoption of sustainable technologies in homes. It discusses the use of AI algorithms and Big Data analytics to analyze social media data and consumer behavior, aiding in the development of targeted marketing strategies for sustainable consumer durables. The study highlights the potential of integrating AI, Big Data, and social media platforms to drive the adoption of eco-friendly consumer durables.

Grewal, Roggeveen and Nordfält (2020) in their research article focus on the role of AI in consumer engagement, discussing how AI technologies can be used to understand consumer preferences, provide personalized recommendations, and create engaging customer experiences. The study examines the application of AI in the context of marketing consumer durables, highlighting the potential for AI to improve customer engagement and drive sales.

Davenport (2018) their article provides an overview of the advantages of AI in various business domains, including marketing. It discusses how AI and Big Data can enable businesses to gain a competitive edge by analyzing vast amounts of data, identifying patterns, and making data-driven decisions. The article emphasizes the importance of integrating AI into marketing strategies, including those focused on consumer durables.

Major Objectives of the Study

Depending on the precise research focus and scope, the goals of a study on the use of artificial intelligence (AI) and big data in marketing consumer durable goods can

change. However, the following are some typical goals that researchers may take into account:

- To understand the impact of AI and big data on consumer behavior related to consumer durable products.
- To examine the effectiveness of AI powered marketing strategies on targeted advertising, predictive analysis in promoting consumer durable products.
- To assess the customer experience and satisfaction including pre-purchase research, product selection, post-purchase support and also engagement with brands.
- To explore the role of AI and big data in product development and innovation.

Impact of AI and Big Data on Consumer Behavior Related to Consumer Durable Products

Big data and artificial intelligence are having a significant impact on how consumers behave with regard to durable goods and can have an impact on many different aspects of consumer decision-making. Here are a few significant effects:

- *Personalized Recommendations:* For the purpose of making personalised product recommendations, AI algorithms examine a variety of consumer data, such as browsing history, purchasing patterns, and demographic data. By directing customers towards interesting and useful consumer durable products, this personalization can affect consumer behaviour.
- *Targeted Advertising:* By analysing consumer data, marketers can develop targeted advertising campaigns thanks to AI and big data. This enables advertisers to target very specific consumer segments with highly relevant advertisements, increasing the likelihood of grabbing attention and influencing consumer decisions.
- *Enhanced Product Research:* Consumers can use AI-powered tools and platforms to gather thorough information about consumer durable products, which will improve their product research. Natural language processing-powered AI chatbots, virtual assistants, and online reviews can offer comprehensive product information, comparisons,

and recommendations to help customers make wise purchase decisions.

- *Improved Customer Experience:* Enhancement of the customer experience: AI-driven technologies, like chatbots and virtual assistants, can improve the customer experience by offering immediate and individualised customer support. These technologies can respond to customer questions, make product recommendations, and offer assistance after a purchase, increasing customer satisfaction and loyalty.
- *Predictive Analytics:* AI and big data can foretell consumer preferences, behaviours, and future needs by analysing consumer data. Marketers can use this data to forecast consumer demands, improve product offerings, and create targeted marketing strategies that connect with consumers and ultimately affect their purchasing decisions.
- *Monitoring and Sentiment Analysis on Social Media:* AI and big data analytics make it possible to monitor and analyse social media platforms in order to ascertain consumer sentiment, opinions, and preferences regarding durable goods. This data can assist marketers in trend identification, consumer perception research, and campaign customization.
- *Pricing Optimization:* AI algorithms are capable of optimizing pricing strategies for consumer durable products by analysing market data, competitor pricing, and consumer demand trends. Depending on variables like demand, inventory levels, and consumer behaviour, dynamic pricing algorithms can change prices in real-time, maximizing profits and influencing consumer purchasing decisions.
- *Product Development and Customization:* AI and big data can give businesses insights into consumer preferences, market trends, and product performance, enabling them to create and alter durable consumer goods that are in line with customers' wants and needs. By providing specialized services and experiences, this customization can have a positive impact on consumer behaviour.

All things considered, AI and big data have a significant impact on consumer behaviour in relation to consumer durable goods, giving consumers access to personalised experiences, pertinent recommendations, and improved decision-making abilities, while also giving marketers useful information for efficient targeting and engagement.

Effectiveness of AI Powered Marketing Strategies on Targeted Advertising, Predictive Analysis in Promoting Consumer Durable Products

Targeted Advertising and Predictive Analysis: These are two AI-powered marketing tactics that have excelled at promoting consumer durable goods. Here is a summary of how effective they are:

Targeted Advertising

Marketing professionals can now deliver highly targeted ads to particular consumer segments thanks to AI, which increases the effectiveness of advertising campaigns. How it works is as follows:

- *Precision Targeting:* It uses AI algorithms to identify relevant demographics, interests, and behaviours by analysing vast amounts of consumer data. This increases the likelihood of engagement and conversion by enabling marketers to precisely target their advertisements to the most receptive audience.
- *Personalization:* AI can modify advertisements in accordance with the preferences and past purchases of specific customers. Marketers can provide a more individualised experience, increasing engagement and influencing consumer behaviour, by delivering personalised ads.
- *Improved Ad Relevance:* AI-powered algorithms that analyse customer feedback and responses continuously optimize ad delivery. By ensuring that consumers see relevant ads, this optimisation helps to increase the overall effectiveness of the marketing campaign.

Predictive Analysis

Big data and AI-enabled predictive analysis help marketers predict consumer behaviour and preferences. It works in the ways listed below:

In order to forecast consumer demand for particular consumer durable products, AI algorithms can analyse historical and current data. This assists marketers in adjusting inventory control, production scheduling, and marketing tactics to match anticipated demand, lowering the possibility of overstocking or stockouts.

- *Customer Segmentation:* Using AI-powered predictive analysis, it is possible to pinpoint specific customer groups based on their purchasing patterns, preferences, and behaviour. By segmenting their audience, marketers can better target each group with messaging and marketing tactics, boosting relevance and engagement.
- *Personalised Product Recommendations:* Based on consumer data, AI algorithms can create personalised product recommendations, enhancing cross-selling and upselling opportunities. Marketers can affect consumer purchasing decisions and boost sales by recommending related or complimentary products.
- *Churn Prediction and Retention:* Using predictive analysis, it is possible to pinpoint customers who are most likely to stop using a specific consumer durable product. Through targeted retention strategies like personalised offers or loyalty programmes, marketers can actively engage with these customers to prevent churn and retain valuable clients.
- *Pricing Optimisation:* To optimize pricing strategies for consumer durable products, predictive analysis can examine market trends, competitor pricing, and consumer behaviour. Marketing professionals can increase sales and have an impact on consumer buying decisions by identifying the best price points.

Predictive analysis and targeted advertising are just two examples of AI-powered marketing techniques that offer improved precision, customization, and optimisation. Marketers can predict consumer behaviour, deliver more timely and relevant advertising, and optimise their marketing campaigns by utilising AI and big data. As a result, they can more successfully promote consumer durable goods and produce better business results.

Customer Experience and Satisfaction Including Pre-Purchase Research, Product Selection, Post-Purchase Support and also Engagement with Brands

In order to improve customer satisfaction and experience across the entire consumer journey, from pre-purchase research to post-purchase support and engagement with brands, AI and big data are essential. How they affect each stage is as follows:

Pre-Purchase Research

- *Personalized Recommendations:* AI algorithms analyze consumer data to provide personalized product recommendations, helping customers discover relevant consumer durable products based on their preferences and needs.
- *Advanced Search Capabilities:* AI-powered search algorithms enable customers to find specific products quickly and efficiently, enhancing the pre-purchase research process.
- *Comparison Tools:* AI and big data analytics can assist customers in comparing different consumer durable products based on features, prices, reviews, and other relevant factors, empowering them to make informed decisions.

Product Selection

- *Customization Options:* AI-powered systems can enable product customization based on customer preferences, allowing customers to personalize consumer durable products to their liking.
- *Virtual Try-On:* AI technologies, such as augmented reality (AR), can simulate product experiences virtually, enabling customers to visualize how consumer durable products will look or fit in their own environment before making a purchase decision.

Post-Purchase Support

- *Chatbots and Virtual Assistants:* AI-powered chatbots and virtual assistants provide instant and personalized support to customers, addressing their queries, assisting with troubleshooting, and providing guidance on product usage.
- *Proactive notifications:* AI algorithms can send automated notifications to customers regarding product updates, maintenance reminders, and relevant offers, ensuring customers receive timely and valuable post-purchase support.

Engagement with Brands

- *Social Media Monitoring and Sentiment Analysis:* AI and big data analytics enable brands to monitor

social media platforms to understand customer sentiment, engage in conversations, and respond to customer feedback and inquiries promptly.

- *Personalized Communication:* AI can facilitate personalized communication with customers through targeted messaging, tailored promotions, and follow-up emails, fostering a sense of engagement and loyalty.
- *Predictive Analytics:* By leveraging predictive analysis, brands can anticipate customer needs and preferences, allowing them to offer proactive recommendations, exclusive offers, and personalized experiences, strengthening brand engagement and customer satisfaction.

Role of AI and Big Data in Product Development and Innovation

Big data and AI are important for innovation and product development. Some salient features of their contribution are as follows:

- *Market Research and Trend Analysis:* AI and big data analytics help businesses gather and analyze large volumes of market data, consumer feedback, and social media trends. This data-driven approach provides insights into market demands, consumer preferences, and emerging trends, enabling businesses to identify new opportunities for product development and innovation.
- *Consumer Insights and Predictive Analytics:* AI algorithms can analyze consumer data to uncover patterns, preferences, and behavior. By leveraging predictive analytics, businesses can anticipate future consumer needs, identify gaps in the market, and develop innovative consumer durable products that align with customer expectations.
- *Prototyping and Design Optimization:* AI-powered tools can assist in the creation of product prototypes and facilitate design optimization. Virtual simulations and computer-aided design (CAD) systems, coupled with AI algorithms, can help streamline the prototyping process, test different design iterations, and optimize product features and performance based on user feedback and predictive models.
- *Personalization and Customization:* AI and big data enable businesses to offer personalized

and customized consumer durable products. By analyzing consumer data, businesses can understand individual preferences, tailor product offerings, and provide personalized experiences. This level of customization enhances customer satisfaction and increases the appeal of the products.

- *Quality Control and Defect Detection:* AI can be employed in quality control processes to detect defects and ensure product consistency. Machine learning algorithms can analyze product data, images, and sensor readings to identify anomalies or deviations from desired quality standards. This helps businesses maintain high-quality standards and minimize product defects.
- *Supply Chain Optimization:* AI and big data analytics can optimize supply chain processes, including inventory management, demand forecasting, and logistics. By analyzing historical and real-time data, businesses can optimize inventory levels, improve production planning, and ensure timely delivery of consumer durable products, reducing costs and enhancing customer satisfaction.
- *Predictive Maintenance and Product Performance Monitoring:* AI algorithms can monitor the performance of consumer durable products and predict maintenance needs. By analyzing sensor data and performance metrics, businesses can proactively address potential issues, offer timely maintenance recommendations, and enhance the overall customer experience.
- *Continuous Improvement and Iteration:* AI and big data enable businesses to collect real-time data on product usage, customer feedback, and performance metrics. This data can be leveraged to drive continuous improvement and iterate on existing consumer durable products. Through iterative design cycles and data-driven insights, businesses can refine and enhance their products to meet evolving customer needs.

Major Suggestions and Recommendations Related to the Study

Following are some ideas and advice for conducting a study on the use of big data and artificial intelligence (AI) in the marketing of consumer durable goods:

- Clearly state your research goals. Start by outlining your study's goals in detail. Identify the specific applications of AI and big data in consumer durable product marketing that you want to investigate, such as customised product recommendations, targeted advertising, customer experience, or product development.
- Select a suitable research methodology: Choose a research methodology that supports your goals and enables you to gather pertinent data. This can include quantitative techniques like surveys or data analysis of consumer behaviour and market trends as well as qualitative techniques like interviews or focus groups with marketers, customers, or industry experts.
- Gather information from trustworthy sources, such as consumer surveys, online forums, or industry reports, and analyse it. Think about gathering both primary and secondary data, such as through surveys, interviews, and market reports. Use the right statistical or qualitative analysis techniques to analyse the collected data in order to derive insightful conclusions.
- Examine case studies and actual examples from the world: Include case studies or actual instances of companies marketing consumer durable products effectively using AI and big data strategies. To offer marketers and businesses useful insights and lessons, analyse their approaches, difficulties encountered, and successes.
- Think about the privacy and ethical implications: Recognise the privacy and ethical issues raised by the use of AI and big data in marketing. Discuss the potential risks, such as algorithmic biases or data privacy violations, and consider ways to address these worries. Make suggestions for the ethical and responsible use of AI and big data in marketing strategies.
- The implementation of AI and big data strategies in the marketing of consumer durable products presents both opportunities and challenges for marketers. Explore the challenges related to resources, organisations, and technology and offer suggestions for how to get past them. Also emphasize the chances and potential gains that big data and AI can offer marketers in this field. On the basis of your research's conclusions, offer

marketing professionals, business executives, and policymaker's actionable insights and suggestions.

Conclusion

In summary, research on the use of artificial intelligence (AI) and big data in the marketing of consumer durable goods shows that these two factors have a significant influence on a number of marketing tactics and consumer behaviour. Artificial intelligence (AI) and big data improve marketing efficiency, customer experience, and product innovation in the consumer durables sector through personalised recommendations, targeted advertising, and predictive analytics. The study emphasises the value of using AI-driven data analysis to understand consumer behaviour and preferences. It highlights the effectiveness of tailored recommendations, which can point customers in the direction of useful consumer durable products based on their unique requirements and preferences. Marketing professionals can deliver customised messages to certain consumer segments using targeted advertising, which boosts consumer engagement and conversion rates. Marketers can optimise inventory management, create specialized offerings, and improve pricing strategies by using predictive analytics to foresee consumer needs and market trends. By offering information about market demands, assisting with design optimisation, and enabling customization options, AI and big data also support the creation of new products and innovation. The study also acknowledges the ethical and privacy concerns related to the use of AI and big data in marketing. It emphasises the significance of careful data management and the requirement for reducing potential risks like data breaches and algorithmic biases. Overall, the study highlights how AI and big data can transform consumer durable product marketing strategies. For marketers, business executives, and policymakers, it offers practical insights and suggestions on how to best use these technologies, improve customer satisfaction, and spur business growth in the rapidly changing consumer durables sector.

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