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## Academic Paper

### Artificial Intelligence for Marketing

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#### Abstract

Artificial Intelligence (AI) is transforming the field of marketing by enabling marketers to analyze large amounts of data, automate repetitive tasks, and provide personalized experiences to customers. AI can help with various marketing activities, particularly generation influencing, customer segmentation, content creation, social media management, and email marketing. By leveraging AI, marketers can improve their targets, increase their efficiency, and enhance their customer experience. The adoption of AI in marketing evidently presents challenges concerning the need for high-quality data, the risk of bias, and the importance of maintaining human oversight. Artificial Intelligence (AI) has essentially supported marketers in analyzing vast amounts of data, personalizing customer experiences, automating various tasks, and generating predictive insights. Major AI applications for marketing include natural language processing (NLP), sentiment analysis, image and video recognition, chatbots and virtual assistants, recommendation engines, and predictive analytics. All these applications can definitely help marketers optimize their advertising and social media campaigns, improve customer segmentation, and enhance customer engagement and retention.

**Keywords:** *Artificial Intelligence (AI), personalization, predictive analytics, chatbots, image recognition, voice assistants, sentiment analysis*

#### 1. Introduction

Nowadays AI has the potential to transform the way marketers operate and offer good personalized experiences to their customers in the following aspects (Ardissono & Goy, 2015; Mouli & Paul, 2020; Zhang, Zhao & Yang, 2021; Talreja Wassan & Ghuriani, 2023):

(1) Personalization: AI can analyze customer data to create personalized marketing messages and experiences. This can increase customer engagement and loyalty.

(2) Predictive analytics: AI algorithms can analyze customer data to predict their behavior and preferences, allowing marketers to make data-driven decisions and develop targeted marketing campaigns.

(3) Chatbots: AI-powered chatbots can provide personalized customer service, answer customer questions, and offer product recommendations.

(4) Image recognition: AI can be used to recognize images and videos, allowing marketers to analyze user-generated content and target ads to the appropriate audience.

(5) Voice assistants: AI-powered voice assistants like Siri and Alexa are increasingly used via voice search and making purchases--making it possible for marketers to optimize their content for voice search.

(6) Sentiment analysis: AI can analyze social media and other online channels to determine customer sentiment toward a brand or product--allowing marketers to make data-driven decisions and adjust their messaging accordingly.

In this paper, the author reports and explains how artificial intelligence or AI for short is transforming the field of marketing by enabling marketers to analyze large amounts of data, automate repetitive tasks, and provide personalized experiences to customers.

## **2. Personalization AI**

Personalization AI refers to the use of artificial intelligence to create personalized experiences for individual customers. This technology involves collecting and analyzing customer data by browsing history, and purchasing history/ demographic information to create a unique profile for each customer. Such a profile can be used to customize marketing messages, product recommendations, and other experiences to individual customers' preferences and needs.

Personalization AI uses machine learning algorithms that can analyze large amounts of data to identify patterns and trends in customers' behavior, particularly their interaction with marketers (An, 2023) and loyalty to companies via specific digital platforms (He et al., 2023). This technology can help marketers to deliver more relevant content, improve customer engagement, and increase interactions. Major examples of personalization AI include:

- (1) Product recommendations: AI algorithms can analyze customer data to suggest products that are likely to be of interest to the individual customer.
- (2) Email marketing: AI can analyze customer data to create personalized email campaigns that fit each customer's interests and behaviors.
- (3) Dynamic website content: AI can be used to create personalized website experiences that match the individual customer's preferences and behaviors.

Overall, personalization AI is becoming an increasingly important tool for marketers who want to create more engaging, relevant, and effective marketing campaigns (Ganotra & Rahi, 2018).

### **3. Predictive analytics AI**

Predictive analytics AI refers to the use of artificial intelligence to analyze data and make predictions about future events or behaviors. This technology involves the use of machine learning algorithms to identify patterns and relationships in large datasets, which can be used to make predictions about future outcomes.

Predictive analytics AI can be used in a wide range of applications, including marketing, finance, and healthcare. In marketing, predictive analytics AI can be used to:

- (1) Identify potential customers: By analyzing customer data, predictive analytics AI can identify individuals who are likely to be interested in a product or service.
- (2) Predict customer behavior: Predictive analytics AI can be used to identify patterns and trends in customer behavior--allowing marketers to anticipate future behavior and make data-driven decisions.
- (3) Optimize marketing campaigns: By analyzing past campaign data, predictive analytics AI can help marketers to optimize future campaigns for maximum effectiveness.
- (4) Forecast sales: Predictive analytics AI can be used to forecast future sales based on historical data, allowing marketers to make data-driven decisions about pricing, promotions, and inventory management (Singh & Prashar, 2021).

Overall, predictive analytics AI serves as a tool for marketers who want to make data-driven decisions and create more effective marketing campaigns. By analyzing large amounts of data and making accurate predictions about future behavior, predictive analytics AI can help marketers to optimize their strategies and achieve expected results.

### **4. Chatbots AI**

Chatbots AI refers to the use of artificial intelligence to power chatbots, which are computer programs designed to simulate conversation with human users. Chatbots AI technology involves natural language processing (NLP), machine learning, and other AI techniques to understand and respond to user input conversationally. Chatbots AI can be used in a variety of applications, including customer service, sales, and marketing. In marketing, chatbots AI can be used to:

- (1) Provide personalized recommendations: Chatbots AI can analyze customer data and provide personalized product recommendations based on individual customer preferences.
- (2) Assist with purchases: Chatbots AI can help customers find the products they are looking for and assist with the checkout process.
- (3) Answer customer questions: Chatbots AI can provide quick and accurate answers to customer questions, reducing the need for human customer service representatives.
- (4) Provide customer support: Chatbots AI can handle basic customer service requests,
- (5) Order status updates and returns: Chatbots AI can be integrated with other marketing

technologies, particularly email marketing and social media marketing, to provide a seamless customer experience across multiple channels (Kuznetsova, 2018).

Overall, chatbots AI supports marketers who want to provide personalized, efficient, and effective customer experiences. By using chatbots AI technology to simulate conversation with human users, marketers can improve customer engagement, increase conversions, and reduce customer service costs.

## **5. Image Recognition AI**

Image recognition AI refers to the use of artificial intelligence to analyze and understand visual content as in images and videos. This technology involves the use of machine learning algorithms to analyze and classify visual content based on its characteristics, such as color, texture, shape, and content. In marketing, image recognition AI can be used to:

(1) Analyze user-generated content: Image recognition AI can be used to analyze user-generated content, particularly social media posts and product reviews, to understand how customers are using and interacting with a brand or product.

(2) Target ads: Image recognition AI can be used to identify objects or scenes in images and videos--allowing marketers to target ads to the appropriate audience based on their interests and behaviors.

(3) Monitor brand presence: Image recognition AI can be used to monitor brand presence online by identifying images and videos that feature a brand or product.

(4) Enhance product search: Image recognition AI can be used to improve product search functionality by allowing customers to search for products based on visual characteristics as in color and shape (McDonagh-Smith & Benjamins, 2018; Mouli & Paul, 2020; Zhang, Zhao & Yang, 2021).

Overall, image recognition AI is an increasingly important tool for marketers who want to analyze and understand visual content and improve their marketing efforts. By using AI-powered image recognition technology, marketers can gain valuable insights into customer behavior and preferences and create precisely targeted and effective marketing campaigns.

## **6. Voice Assistants**

Voice assistants AI-powered voice refers to the use of artificial intelligence to power voice-activated assistants, such as Amazon Alexa, Google Assistant, and Apple Siri, to name but the major ones. This technology involves natural language processing (NLP), machine learning, and other AI techniques to understand and respond to user voice commands in a conversational manner.

In marketing, voice assistants AI-powered voice can be used to:

(1) Provide personalized recommendations: Voice assistants AI-powered voice can analyze customer data and provide personalized product recommendations based on individual customer preferences.

(2) Assist with purchases: Voice assistants AI-powered voice can help customers find the products they are looking for and assist with the checkout process.

(3) Answer customer questions: Voice assistants AI-powered voice can provide quick and accurate answers to customer questions--reducing the need for human customer service representatives.

(4) Provide customer support: Voice assistants AI-powered voice can handle basic customer service requests, as in order status updates and returns (McDonagh-Smith & Benjamins, 2018; Mouli & Paul, 2020).

It should be noted that Voice assistants AI-powered voice can also be integrated with other marketing technologies, such as email marketing and social media marketing, to provide a seamless customer experience across multiple channels.

Overall, voice assistants AI-powered voice is an important tool for marketers who want to provide personalized, efficient, and effective customer experiences. By using voice assistants AI-powered voice technology to simulate conversation with human users, marketers can improve customer engagement, increase conversions, and reduce customer service costs.

## **7. Sentiment Analysis AI**

Sentiment analysis AI refers to the use of artificial intelligence to analyze and understand the sentiment expressed in text data, such as social media posts, customer reviews, and survey responses. This technology involves the use of natural language processing (NLP) and machine learning algorithms to classify texts as positive, negative, or neutral based on the emotions and opinions expressed. In marketing, sentiment analysis AI can be used to:

(1) Monitor brand reputation: Sentiment analysis AI can be used to track social media and online reviews to understand how customers feel about a brand or product, and to identify potential issues or concerns.

(2) Measure campaign effectiveness: Sentiment analysis AI can be used to measure the effectiveness of marketing campaigns by analyzing customer feedback and identifying areas for improvement.

(3) Identify customer preferences: Sentiment analysis AI can be used to analyze customer feedback and identify customer preferences--allowing marketers to personalize their messaging and offerings.

(4) Identify influencers: Sentiment analysis AI can be used to identify influencers who have a positive impact on brand sentiment and engage with them to promote a brand or product (Ardissono & Goy, 2015; Kuznetsova, 2018)

Overall, sentiment analysis AI is an important tool for marketers who want to understand customer sentiment and optimize their marketing efforts by analyzing large amounts of text data and accurately identifying the emotions and opinions expressed. Sentiment analysis AI can provide valuable insights that can inform marketing strategies and improve customer engagement. These resources provide a good starting point for

understanding the research and application of AI in marketing. They cover a range of topics, from deep learning to personalized marketing, and provide insights into how AI can be used to improve marketing strategies and customer engagement. It is for marketers to create personalized, data-driven marketing campaigns that engage and retain customers.

Ganotra & Rahi (2018) discussed the potential impact of AI on digital marketing and provides insights into how AI can be used to improve marketing strategies and customer engagement. The authors covered a range of topics related to AI in digital marketing, including natural language processing, machine learning, and predictive analytics. They provided case studies and examples of how companies are already using AI in their marketing effort. Some of the key insights include:

(1) AI can be used to improve customer targeting and segmentation, allowing marketers to deliver more personalized and relevant content to customers.

(2) Natural language processing can be used to analyze customer sentiment and improve social media marketing campaigns.

(3) Machine learning can be used to identify patterns and trends in customer data, allowing marketers to optimize their campaigns and improve ROI.

(4) Predictive analytics can be used to forecast customer behavior and anticipate customer needs, allowing marketers to stay one step ahead of their competitors.

Overall, "The Future of Artificial Intelligence in Digital Marketing" provides a useful overview of the potential impact of AI on the field of digital marketing. It highlights the key benefits of using AI in marketing, but also acknowledges the challenges that need to be addressed to ensure that AI is used ethically and responsibly.

Singh & Parashar (2021) wrote about artificial intelligence in marketing. They provided a comprehensive review of the literature on AI in marketing and identified key research directions for the future. Their work covers a wide range of topics related to AI in marketing, including personalized marketing, customer segmentation, sentiment analysis, and chatbots. It also provides case studies and examples of how companies are already using AI in their marketing efforts. Some of the key insights from the article include:

(1) Personalized marketing serves as the most promising applications of AI in marketing, widely used by companies to deliver customized content and offers to individual customers.

(2) AI can be used to segment customers based on their behavior and preferences, allowing marketers to tailor their messages to specific groups of customers.

(3) Sentiment analysis is a powerful tool for understanding customer opinions and attitudes, and can be used to improve product development and customer service.

(4) Chatbots are becoming increasingly popular in customer service, as they allow companies to provide quick and efficient responses to customer inquiries.

Overall, Singh & Parashar (2021) highlighted the potential benefits of using AI in marketing and identified some key challenges that need to be addressed, such as privacy concerns and the need for greater transparency in AI decision-making.

McDonagh-Smith & Benjamins (2018) explored the ways in which AI is transforming the marketing industry and providing new opportunities for companies to engage their customers effectively. Their work covers a variety of topics related to AI in marketing, including personalized marketing, chatbots, predictive analytics, and voice assistants. It also provides case studies and examples of how companies are already using AI in their marketing efforts. Some of the key insights include:

(1) Personalized marketing is one of the most promising applications of AI in marketing, as it allows companies to deliver more relevant and engaging content to individual customers.

(2) Chatbots and voice assistants are becoming increasingly popular in customer service, as they allow companies to provide quick and efficient responses to customer inquiries and improve the overall customer experience.

(3) Predictive analytics is a powerful tool for identifying trends and patterns in customer data--allowing marketers to anticipate customer needs and optimize their campaigns accordingly.

(4) AI enables companies to create more engaging and interactive content, as seen in personalized videos and virtual reality experiences.

Overall, McDonagh-Smith & Benjamins (2018) provided a useful overview of the ways in which AI is transforming the marketing industry. They highlighted the key benefits of using AI in marketing, and acknowledged the challenges that need to be addressed, such as the need for greater transparency and accountability in AI decision-making, and the ethical considerations surrounding the use of AI in marketing.

Kuznetsova (2018) provided an overview of the challenges and opportunities associated with using AI in marketing, and explored the potential impact of AI on the marketing industry. Some of the key insights include:

(1) AI has the potential to transform the marketing industry by enabling companies to deliver more personalized and targeted marketing campaigns.

(2) Chatbots and voice assistants can provide a more seamless and convenient customer experience, but companies need to ensure that they are designed and implemented properly to avoid frustrating or alienating customers.

(3) Predictive analytics can help companies to better understand customer behavior and preferences, but there are challenges associated with data quality and privacy that need to be addressed.

(4) Companies need to be mindful of the ethical considerations surrounding the use of AI in marketing, such as the potential for bias and discrimination, and take steps to mitigate these risks.

Overall, Kuznetsova (2018) gave a useful overview of the potential benefits and challenges associated with using AI in marketing. The author highlighted the need for companies to carefully consider the ethical implications of their use of AI, and to ensure that they are using these technologies in a way that benefits both their customers and their business.

## 8. Conclusion

As seen in the benefits of AI applications reported so far, marketers can achieve their targets by increasing their efficiency as well as enhancing their customer experience. Artificial intelligence has evidently supported marketers in analyzing vast amounts of data, personalizing customer experiences, automating various tasks, and generating predictive insights. Major AI applications are currently playing their vital role in marketing: Natural language processing (NLP), sentiment analysis, image and video recognition, chatbots and virtual assistants, recommendation engines, and predictive analytics. All these applications have opened up a new era of digital marketing on a global scale. Marketers can optimize with ease their advertising and social media campaigns, manage customer segmentation, and enhance customer engagement and retention. What they need to keep in mind along with the rapid movement of lucrative AI applications is that such AI-based marketing cannot do without social responsibility, respect for customers' rights and professional ethics toward all stakeholders concerned.

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