

# Research on the Development of Advertising Industry under the Trend of AI Application

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**Abstract.** The rapid advancement of artificial intelligence (AI) is transforming the advertising industry by enhancing precision, personalization, and operational efficiency. AI's ability to analyze consumer behavior in real time allows for highly targeted advertising, while machine learning algorithms optimize ad delivery and content generation. Despite these benefits, the integration of AI also introduces challenges such as data privacy concerns, algorithmic biases, and potential reductions in creative originality. This research explores the advancement of advertising and marketing under AI application patterns, intending to assess both the benefits and the obstacles presented by modern AI technologies. By analyzing present techniques and problems, the research seeks to offer recommendations for leveraging AI efficiently while dealing with arising issues and incorporating strategies such as the bolstering of data privacy protections, the rectification of algorithmic prejudices, the synchronization of artificial intelligence with human creativity, the enhancement of AI's cultural sensitivity and emotional intelligence, and the optimization of methodologies employed in evaluating advertising efficacy. The findings will certainly provide beneficial insights for industry experts, tech developers, and policymakers to navigate the progressing landscape and ensure lasting development in the AI-driven marketing field.

**Keywords:** Artificial Intelligence; Targeted advertising; Personalized advertising; Data privacy; Algorithmic bias.

## 1. Introduction

The quick development of artificial intelligence (AI) is driving a significant improvement in the advertising and marketing industry, highlighting the relevance of research into "the development of advertising and marketing under AI application trends." AI's assimilation right into advertising has in truth altered data exams, product development, targeting approaches, and work performance assessment. By leveraging creative algorithms and artificial intelligence, marketing experts can take a look at client actions in real-time, exactly target market, and instantaneously generate personalized items, substantially boosting advertising efficiency.

However, this technical change additionally gives substantial barriers, consisting of data privacy problems, algorithmic bias, and the possible fragmentation of cutting-edge creativity. These issues not only affect the efficiency of ads but similarly impact customer trust funds and the industry's dependability. As a result, taking a look at AI application patterns in marketing and advertising is vital for comprehending the creating landscape, resolving arising difficulties, and boosting the benefits of technical enhancements. This research is important for sector experts, technology developers, and policymakers to ensure the enduring growth of the marketing sector and to minimize potential dangers connected with AI integration.

The advancement of the modern technology of artificial intelligence has actually altered the advertising industry greatly, which has an impact on ad preparation, deployment, and analysis of the effectiveness of the process. The current body of academic literary works has concentrated on exactly how AI is transforming the sector, what issues it is, and how to resolve them. The following is a summary of crucial academic posts that analyze the state of the research study and exactly how it influences advertising and marketing. Wang evaluated the AI applications in advertisement

preparation, deployment, and performance analysis. Wang found that AI had actually arisen as a vital tool, permitting advertisers to precisely target audiences and maximize techniques via data analysis and anticipating modeling. Nevertheless, the exploitation of AI boosts threats such as problems pertaining to data privacy and algorithmic bias. The research study encourages sustaining the regulation of AI innovation to protect user privacy and guarantee algorithmic justness, thus maximizing its benefits [1].

Chen checked out the function of Artificial Intelligence Generated Content (AIGC) in advertising and marketing. Chen said that AIGC boosts advertisement production performance by producing personalized material on a large scale. However, it might lead to creative homogenization and diminish the emotional impact, as AIGC lacks the delicate touch of human creators. While AIGC breaks standard advertisement production constraints, the industry still needs to focus on maintaining creative quality [2]. Tan examined the profound alterations AI has actually brought to advertising. The study stresses that AI has driven digital improvement in ad method, media choice, and effectiveness assessment, making ad releases smarter and data-driven. However, it likewise requires a reevaluation of ad efficiency and value measurement standards. Future exploration needs to center on integrating AI with human imagination to enhance advertisement effectiveness and value [3]. Liu talked about the concerns and countermeasures related to AI in advertising. Liu discovers that although AI offers convenience, it likewise provides obstacles such as technological restrictions, ethical concerns, and data security issues. For instance, AI may misinterpret complex emotions and cultural contexts, affecting ad effectiveness. The study suggests adopting various measures, including advancing technological development, establishing ethical norms, and ensuring data protection to address these challenges [4].

In summary, the literature shows that AI technology has brought great changes to advertising, improving the level of accuracy of the planning and implementation, and also has problems, which is not only difficult to achieve, the research shows that artificial intelligence technology has brought significant changes to the advertising industry, which should pay more attention to solving the ethical problems, improve the creative quality of the design, and realize the integration of technology with human creativity to promote the continuous innovation of advertising industry.

As mentioned above, previous research has explored how AI enhances precision and personalization in advertising while also highlighting challenges such as data privacy, algorithmic biases, and the impact on creative originality. This study aims to investigate the application of AI in advertising further, evaluating both its benefits and the issues it presents. By evaluating AI's impacts on advertisement planning, release, and efficiency evaluation, the goal is to offer actionable insights and services for advertisers, tech developers, and policymakers to promote sustainable growth and innovation in the advertising industry.

## **2. AI Empowers Advertising**

The empowerment of artificial intelligence (AI) in the advertising field is triggering profound modifications in the industry, particularly in the accuracy and personalization of advertising.

### **2.1. The Precision of Advertising is Enhanced**

AI can dive deep right into individual habits patterns and choices with data-driven analysis. This data-driven understanding makes it possible for online marketers to produce even more targeted marketing approaches [5]. AI can evaluate an individual's browsing background, clicking habits, and social interactions in real time to anticipate their future acquisition intents. Via device discovering algorithms, marketing platforms can continuously enhance advertising and marketing distribution to ensure that the material is very in accordance with the passions and needs of consumers. Such precise distribution does not simply enhance the click-through cost and conversion price of the advertisement but also reduces the waste of the advertising budget strategy.

## **2.2. The Advancement of Advertising Personalization**

Wang and Peng highlight the innovation of AI in advertising customization. Via advanced data assessment and computer system vision approaches, AI can produce marketing material that is extremely congruent with individuals' interests and needs [6]. Personalized marketing includes not only advising items but also adjusting the presentation of ads based on the individual's mental and mental state. This extremely personalized marketing experience can considerably increase private participation and satisfaction, therefore improving the efficacy of marketing.

## **2.3. Reconstruction of the Advertising Operation Process**

AI has not just changed the way marketing material is developed but also reshaped the whole marketing treatment process. While standard marketing and advertising positioning normally need a considerable amount of human treatment and time, AI modern-day technology can automate these treatments, varying from data collection and analysis to marketing and advertising style and delivery. This automation not only enhances efficiency but furthermore permits marketers to respond immediately to market modifications and individual requirements, for that reason, keeping an edge in a very open market [7].

## **2.4. AI Empowers the Demand Side of Advertising**

According to Zhu, AI empowers the advertising need side to have a better understanding of market patterns and consumer needs [8]. AI tools and platforms supply marketers with powerful data analytics and predictive abilities, allowing them to develop more reliable marketing techniques. This not only enhances the result of advertising but also assists brands in standing out in the strong market competition.

These changes do not just boost the performance of advertising; nevertheless, likewise produce more worth for marketers and customers. With the continuous improvement of AI innovation, the future marketing sector will definitely accept a cleverer and more reputable phase of advancement.

## **3. The Potential and Shortcomings in AI-Powered Advertising**

Although AI has brought lots of advantages to the marketing industry, it has actually also increased some concerns and difficulties. Companies need to keep this in mind of these issues to ensure the sensible application and enduring growth of AI in the advertising and marketing field.

### **3.1. Ethical Issues: Algorithm Bias and Data Privacy**

Among the largest challenges in AI marketing are algorithmic bias and data privacy. AI calls for a large quantity of data to be picked. Nevertheless, this data may have predispositions and produce unfair advertising and marketing placements. For instance, some promotions might only target particular gender or race groups due to AI's inaccurate judgment. In addition, AI depends on user data to customize advertisements, which may breach consumers' privacy rights.

For instance, the Facebook Cambridge Analytica detraction is a typical case. Cambridge Analytica got data from countless Facebook users without permission and used modern AI technology for exact advertising and marketing positioning. This incident has actually raised people's concerns relating to data privacy issues and set off a circumstance of relying on the marketing and advertising industry. Wang and Gao discuss the negative impact of AI-driven advertising, emphasizing that algorithmic bias can lead to unethical outcomes and diminish the consumer experience. They argue that this bias distorts marketing strategies, alienates certain demographic groups, and ultimately damages consumer trust, perpetuating stereotypes in the process [9].

### **3.2. Technical Limitations: Misunderstandings in Complex Scenarios**

Although AI can produce marketing and advertising products with data analysis, it still has restrictions in understanding complex cultural and mental histories. Marketing is not merely the result of data, it additionally needs to share trademark name worths and emotions, and AI's mechanical handling techniques might need to have the ability to handle these complex situations, leading to a mismatch with target market presumptions.

In 2021, the worldwide style trademark name H&M launched an AI-driven suggestion system, trying to provide customized fashion recommendations based on consumers' surfing and buying data. However, the system has really performed poorly in several markets, specifically in the Asian market. The garments and accessories suggested by AI need to accurately mirror local social preferences and aesthetic differences, causing many customers to feel perplexed and disappointed with the recommended material. For instance, some designs recommended by AI are taken into consideration as too vibrant in the Japanese market and do not fit the neighborhood fashion design. Ultimately, H&M needed to make adjustments to its recommendation system and spend even more workforce in centering the data.

This instance demonstrates that although AI can perform large data analysis and customized referrals, it still calls for human intervention and adjustment when taking care of various cultural histories and intricate visual preferences, or else it will certainly result in the failing of advertising and marketing or recommended web content.

### **3.3. Creative Bottleneck: Weakening of Human Creativity**

Although AI has improved effectiveness in marketing content manufacturing, it may also bring about the homogenization of imagination. Since AI depends on existing patterns and data, the produced material might lack novelty, resulting in ads becoming common and incapable of exciting target markets.

In 2023, Coca-Cola collaborated with OpenAI to utilize AI to design ads. Although this has boosted the efficiency of marketing manufacturing, some visitors think that these advertisements lack imagination and emotion and really feel much less attractive than standard ads created by humans. This shows that marketing companies are still required to balance the connection between performance and human creative thinking when making use of AI.

### **3.4. Regulatory Challenges: Compliance and Standards**

The rapid development of AI innovation has actually gone beyond the governing scope of existing laws, particularly when it concerns data privacy and local operations. The inconsistent lawful needs in different regions have actually brought conformity obstacles to marketers.

In 2020, Google was fined 50 million euros by the French data security company for breaking European GDPR privacy laws. Google has fallen short of completely educating customers concerning how their data is being made use of, specifically in terms of tailored marketing. This instance highlights that advertising and marketing businesses have to abide purely by data security regulations when using AI, or else they may encounter extreme penalties.

Additionally, Liu examined the impact of generative AI on advertising regulation, noting that the unique characteristics of AI-generated content pose new challenges for existing regulatory frameworks, emphasizing the need for updated guidelines to address these complexities [10].

### **3.5. Data Quality Issues: Accuracy of Data Affects Advertising Effectiveness**

The effectiveness of AI advertising depends on the quality of the data. If the data is inaccurate or incomplete, AI may make incorrect advertising positioning, resulting in delivery failure. For example, incorrect data may cause AI to misjudge consumer preferences and push irrelevant advertisements.

In 2019, American retail giant Target used incorrect user data, which led to its AI system targeting inappropriate customer groups with advertisements, resulting in a significant decrease in ad click-through rates and conversion rates. This indicates that data quality is crucial in AI advertising, as incorrect data can greatly reduce advertising effectiveness.

#### **4. Suggestions**

The previous section discussed the advantages of AI applications in the advertising industry (Part 2) and the problems and challenges it brings (Part 3). To help the advertising industry better adapt to AI technology and address these issues, the following suggestions are proposed.

##### **4.1. Strengthen Data Privacy Protection**

Section 3.1 points out the data privacy problems produced by modern AI technology. However, AI assists advertising businesses to find users a lot more precisely, which also increases the threat of customer data being abused, which might affect brand name pictures. Therefore, advertising companies need to take difficult privacy safety and security activities to ensure the safety and safety of private data. For instance, using data document security and anonymization techniques to reduce the possibility of data leakages. At the same time, service needs to offer individuals even more informed and vital lawful civil liberties concerning making use of data and improve openness.

##### **4.2. Enhancing AI's Cultural Sensitivity and Emotional Intelligence**

Section 3.2 highlights AI's restraints in dealing with complex cultural and psychological situations, which can bring about unreliable advertising referrals and a lack of resonance with the target audience. In order to eliminate these troubles, organizations are required to integrate AI-driven understandings with human understanding, particularly when participating in culturally varied markets. This implies consisting of regional cultural understanding and psychological intelligence into AI designs to guarantee the web content is lined up with the target market's choices and worths. Moreover, AI systems can be trained on local datasets to enhance their accuracy in recognizing social nuances. Routine human oversight and teamwork with regional online marketing experts can a lot more make certain that AI-generated material is both contextually considerable and psychologically appealing, lessening the danger of cultural errors.

##### **4.3. Balancing AI Technology and Creative Innovation**

For section 3.3, although AI has solid abilities in producing advertising internet material, it typically does not have creative thinking and human touch, which could bring about the homogenization of marketing and advertising items. Advertising businesses can include AI and human creativity to use their particular toughness. AI can handle data analysis and particular circulation, while human innovative teams are in charge of developing content with psychological vibration. This collective model can preserve efficiency while guaranteeing the individuality of advertising and marketing.

##### **4.4. Developing Industry Norms and Ethical Standards**

Section 3.4 discusses that the quick advancement of AI has actually brought about new moral issues, such as algorithm openness, data use, and advertisement material evaluation. Advertising companies ought to proactively join the growth of sector criteria to ensure that the application of AI meets ethical requirements. The company must additionally conduct regular self-audits to make certain that using AI marketing innovation is legal and compliant and advertise third-party bookkeeping mechanisms to ensure transparency and fairness in the market.

##### **4.5. Improving the Evaluation Method of Advertising Effectiveness**

As discussed in area 3.5, AI technology has transformed the means advertising effectiveness is reviewed. Standard metrics such as click-via price and conversion price may not have the ability to

gauge the efficiency of AI-produced ads comprehensively. Advertising businesses should establish brand-new evaluation criteria that not only concentrate on momentary clicks and conversions but likewise examine long-lasting user sensations and brand dedication. AI belief evaluation tools can be used to improve the accuracy of marketing performance evaluations.

## 5. Conclusion

This paper has actually checked out the quick change in the marketing and advertising industry via AI, focusing on its advantages and difficulties. AI is transforming the way online marketers target the market, making advertising more precise, personalized, and efficient. Nevertheless, this substantial application likewise brings considerable challenges, such as concerns over data privacy, algorithmic bias, a reduction in creativity, and problems with cultural adjustment.

The findings highlight that while AI improves advertising accuracy, it provides dangers related to data privacy and algorithmic bias. Advertising firms need to guarantee that AI is used to enhance advertising performance while securing consumer privacy and mitigating the unfairness brought on by prejudiced algorithms. Businesses must preserve transparency and moral requirements when utilizing customer data to ensure trust funds and fairness in advertising. Moreover, while AI-generated advertisements are a lot more reliable, they frequently lack originality and creative thinking. This can lead to homogenized advertising material, reducing its capacity to engage and mentally reverberate with target markets. To address this, marketers ought to integrate the technological benefits of AI with human imagination, making sure that ads not only reach their target market but also retain emotional deepness and originality. Lastly, the application of AI in worldwide markets provides cultural adjustment difficulties. AI-driven ads may stop working to line up with regional social standards and preferences, possibly creating misconceptions and also offenses. For that reason, marketing professionals should tailor AI-generated material to fit the social context of each market, ensuring of level of sensitivity and importance.

In recap, the advertising industry should welcome AI thoughtfully, stabilizing the demand for development with a cautious focus on issues like privacy security, algorithmic justness, creativity, and social modification. By taking care of these problems, the combination of AI in advertising will certainly remain to drive the industry's innovation, opening up new paths for smarter, much more resourceful advertising in the future.

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