

The Role of Artificial Intelligence in Modern Marketing

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Abstract

In recent years, artificial intelligence (AI) has progressed from being an emerging technological innovation to becoming one of the central elements of marketing strategies. The present paper aims at discussing the current role of artificial intelligence in marketing through a literature review, which includes peer-reviewed articles, which can be found in databases such as Google Scholar, Scopus, and Web of Science, as well as market data that is relevant to the topic today. With the help of theoretical frameworks, such as the three-stage model of AI application introduced by Huang and Rust (2021) and the multidimensional framework offered by Davenport et al. (2020), this paper will discuss the role of AI in personalization, predictions, conversational marketing, content creation, and programmatic advertising. In addition, the market growth numbers will be discussed alongside a table summarizing the results of the reviewed literature. The ethical, privacy, and human resource problems related to the implementation of AI in marketing will also be identified.

Keywords: Artificial Intelligence, Marketing, Personalization, Predictive Analytics, Chatbots, Digital Marketing, Consumer Behavior.

Introduction

Marketing has been a data-rich field for a long time, yet the speed at which data is being produced through the digital economy is overwhelming the abilities of existing data analysis techniques. AI, or artificial intelligence, defined as any computational process that can execute functions which usually need human intelligence, such as learning and pattern recognition, has been found to be the perfect tool to address this problem (Davenport et al., 2020). In the last ten years, AI has made its way from back-office analysis experiments to being the driving force behind everyday interactions with recommendation engines, chatbots, dynamic pricing mechanisms, and automated content generation.

The academic engagement in AI-fuelled marketing has increased accordingly. Vlačić et al. (2021), in a review of 164 papers in Web of Science and Scopus, found that the number of scholarly publications on AI and marketing has risen significantly since 2017, which coincides with the maturing of machine learning and natural language processing technologies. Likewise, Jain and Kumar (2024), reviewing two decades of AI-marketing research, found prediction analysis, consumer relationship management, and human-AI interaction to be the major thematic groupings. These findings confirm the observation of industry professionals who noticed that the use of AI in marketing is no longer a niche practice limited to big technology companies, but is becoming mainstream practice within retail, banking, consumer goods, and travel sectors (Davenport et al., 2020).

The purpose of this paper is to critically assess the state of the art of literature on AI in marketing to address three interconnected research questions. Specifically, which functions and processes in the domain of marketing have experienced the most transformation from the application of AI? What do the available empirical evidence and industry reports say about the speed and scale of AI adoption in the marketing field? Finally, what challenges does this transformation pose and how can organizations effectively respond to those challenges?

It is important to understand this transformation for several reasons. For marketing academics, AI provides a new category of technologies that not only replace traditional processes but, in some cases, execute judgemental actions that used to be exclusively human activities of marketers. Practically, while the question of implementing AI is not relevant anymore, the critical issue for many marketing managers is how to implement specific AI functions and how to deal with the implications of doing that.

The rest of the paper is structured as follows. Section 2 covers the literature relating to artificial intelligence in marketing, theoretically and empirically. Section 3 describes the methodology for conducting this review. Section 4 focuses on the application of AI in specific aspects of the marketing value chain. Section 5 contains information about market growth and industry trends. Section 6 considers the strategic framework outlined by Huang and Rust (2021). Section 7 covers ethical and managerial challenges. Sections 8 and 9 provide conclusions and recommendations for further research respectively.

Literature Review

The scholarly literature on AI in marketing goes back further than the contemporary craze for generative AI, although much of this work has occurred more recently. Huang and Rust (2021) introduced a highly influential strategic model for AI divided into three stages: mechanical AI (which automates mundane tasks like collecting data and monitoring the status of deliveries), thinking AI (which processes data for use in decision-making, such as market segmentation), and feeling AI (which analyzes human emotions and interactions to inform relational marketing). This framework ties together these three forms of AI intelligence into the traditional three-step marketing planning process of research, strategy (segmentation, targeting, and positioning), and action (the traditional 4 Ps), thus providing a structured way to determine what kind of AI is most appropriate for any marketing activity. Related to this work, Huang and Rust (2022) have also provided a model for AI collaboration in marketing, noting the fact that AI often works best when it enhances rather than substitutes human marketers, as Davenport et al. (2020) contended, arguing that AI in marketing is context-specific, contingent on the level of intelligence, the nature of the task, and its physical embodiment.

De Bruyn et al. (2020) however, were more cautious and drew attention to not only the promising aspects of using AI in marketing but also the possible risks related to such things as algorithmic bias, loss of consumer trust due to AI-fueled personalization being seen as an intrusion on privacy, and difficulties many companies experience trying to implement AI in practice beyond pilot programs. The same issues were confirmed by Vlačić et al. (2021) in their bibliometric and content analysis of literature, which revealed such topics as data protection, ethics, and change in the necessary marketing competencies. Finally, Verma et al. (2021) in their systematic review in the *International Journal of Information Management Data Insights* noted that although there is much interest, many companies do not have a strategy in choosing the right AI for their marketing purposes.

On a more microscopic level, there are several studies focusing on particular applications of AI. For example, Deng et al. (2019) analyzed AI systems for creating personalized advertising texts and showed that machine-written ads could outperform those created by humans if properly trained on brand-specific data. In other words, generative AI systems can produce highly effective ads, which means that AI will play an increasingly important role in creating advertisements in the future. Kietzmann et al. (2018) considered AI's potential across the whole customer journey, starting from awareness and ending with post-purchase activities, and claimed that AI systems' full potential becomes evident when AI is implemented holistically and throughout the customer journey. Jain & Kumar (2024) two-decade analysis of AI use in marketing highlighted three application areas, which were consumer relationship management, predictive analytics, and personalization via AI. Furthermore, Jain & Kumar (2024) stated that ethical and legal aspects of AI use in marketing are significantly understudied compared to technical aspects and performance measures.

Research Objectives and Methodology

- **Research Objectives**

Three specific goals are the basis for this study. First, it will seek to establish and classify the most important functional areas of marketing, such as personalization, predictive analytics, conversation, content creation, and media buying, in which the use of AI has made a significant difference. Second, it will attempt to compare the rate and extent of AI adoption in marketing by using the results found in the literature against market sizing information available today to ascertain whether the adoption trends in industry reflect the value that researchers believe AI brings to marketing. Lastly, it will seek to summarize the management and organizational challenges of AI-driven marketing that have been identified in the literature and point out the issues that have received inadequate coverage thus far.

- **Data Sources and Search Strategy**

The academic references used for this paper have been primarily obtained from Google Scholar and then cross-checked with references from the Scopus/Web of Science indexed journals. Such journals include the Journal of the Academy of Marketing Science, Journal of Interactive Marketing, Journal of Business Research, Journal of Advertising, Journal of Advertising Research, Journal of Retailing, and the International Journal of Information Management Data Insights. The keywords used for these searches were “artificial intelligence,” “marketing,” “personalization,” “predictive analytics,” and “consumer behavior.” In addition, to supplement academic research with current industry information, market sizing data on artificial intelligence in marketing have been used from Grand View Research and Global Industry Analysts, provided by Research and Markets.

- **Inclusion and Exclusion Criteria**

Preferably, peer-reviewed journal articles published during the period from 2018 to 2024, providing a conceptual framework or systematic or bibliometric reviews and empirical results related to marketing theory and practice were chosen. The articles that explicitly focused on the interconnection of AI with one of the known marketing functions, like personalization, segmentation, advertising, or CRM were selected. Articles devoted exclusively to machine learning techniques without any relation to marketing practices, opinion papers that had no empirical or conceptual foundation, and non-peer-reviewed comments in blogs were not taken into account, except for market-research industry papers used just to provide market-size and growth trends.

- **Limitations of the Approach**

This article is presented in a form of narrative instead of systematic literature review and, therefore, does not use a completely reproducible protocol for searching and sifting through the data. Moreover, this paper does not strive to include all the existing literature on AI applications in marketing field. Sources of data used in this review are chosen in the way that considers their relevance and quality, yet leaves some degree of freedom to the researcher. Moreover, since the numbers on the market size provided in the industry are based on proprietary forecasting models of respective companies, they can only be considered directional indicators of market movements.

Applications of Artificial Intelligence in Modern Marketing

- **Personalization and Customer Experience**

Personalization is viewed as the most advanced and commercially viable use case for AI in marketing. Machine learning algorithms process browsing and purchasing data, as well as various other contextual information to personalize products and marketing content for individual consumers in real-time. The framework developed by Huang and Rust (2021) considers this technology mostly as part of “thinking AI” where data-based inference serves as the basis for segmentation and targeting and “feeling AI” where machine learning systems try to make guesses about people’s emotions and preferences to develop relationship marketing. According to Kietzmann et al. (2018), personalization through AI technologies is most powerful when it is used throughout the whole customer journey and not only on specific points like the checkout page.

- **Predictive Analytics and Customer Insight**

The capacity to predict future customer behavior based on historical and real-time information is another major use case of predictive analytics in marketing. In this way, marketers can go from reacting to customer actions to predicting their behavior. For instance, marketers may start running retention campaigns even before the customer becomes disengaged. The connection between this type of AI

application and the return on marketing investment makes predictive analytics one of the most researched areas within AI applications in marketing, as stated by Verma et al. (2021). Additionally, Davenport et al. (2020) state that predictive capabilities are key for disruption caused by AI in marketing decision-making, as they replace intuitive judgments of marketers with probabilistic predictions.

- **Conversational AI and Virtual Assistants**

One of the fastest-growing application areas are chatbots and voice-based virtual assistants, which enable firms to provide customers with round-the-clock customer service and product recommendations. Chatbots, which can be seen as a part of natural language processing, allow firms to engage in continuous communication with customers and save on costs associated with customer service. Jain and Kumar (2024) see conversational AI as one of the main drivers of the transition to relationship-oriented marketing.

- **AI-Generated Content and Creative Production**

There are generative AI tools that help generate advertising copy, product descriptions, and even creative visual content. Deng et al. (2019) have demonstrated empirically that advertising copy produced using generative AI, once trained on rich enough brand-specific data sets, could match human-produced copy in its ability to affect engagement metrics such as click-through rate. The use case described here represents a transition in the marketer's function from being a content creator to becoming a content curator and quality control, ensuring consistency of AI-generated content with respect to brands, facts, and tones.

- **Programmatic Advertising and Media Buying**

Programmatic advertising employs AI algorithms for automation of buying and placing of digital advertising inventory in real time, automatically matching audiences to ads. This practice represents one of the most mechanically automated areas of marketing activity and relates very well to the notion of mechanical AI by Huang and Rust (2021), although increasingly often "thinking AI" components are used, like bid optimization. However, according to De Bruyn et al. (2020), lack of transparency in programmatic systems may create gaps in accountability of advertising decisions made.

Market Growth and Industry Trends

Scholarly insights about the strategic importance of AI get further validated by the fast-growing usage in business. As noted by Grand View Research (2025), the global AI in marketing market had a market valuation of around USD 20.4 billion in 2024 and is expected to rise to USD 35.0 billion in 2026 and USD 82.2 billion in 2030, with the compound annual growth rate (CAGR) for the period 2025 to 2030 being around 25.0 percent (see Figure 1). North America is the leading regional market for AI in marketing, making up 32.4 percent of the total market revenue worldwide in 2024 due to the presence of major tech providers and early enterprise usage in this region (Grand View Research, 2025).

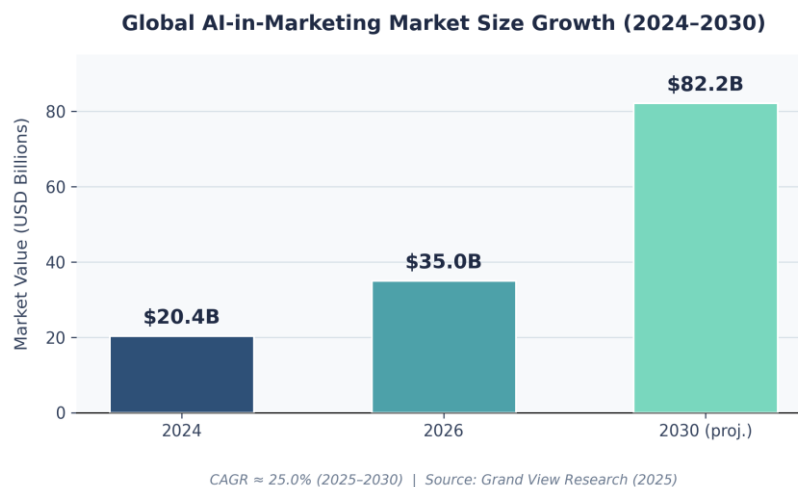
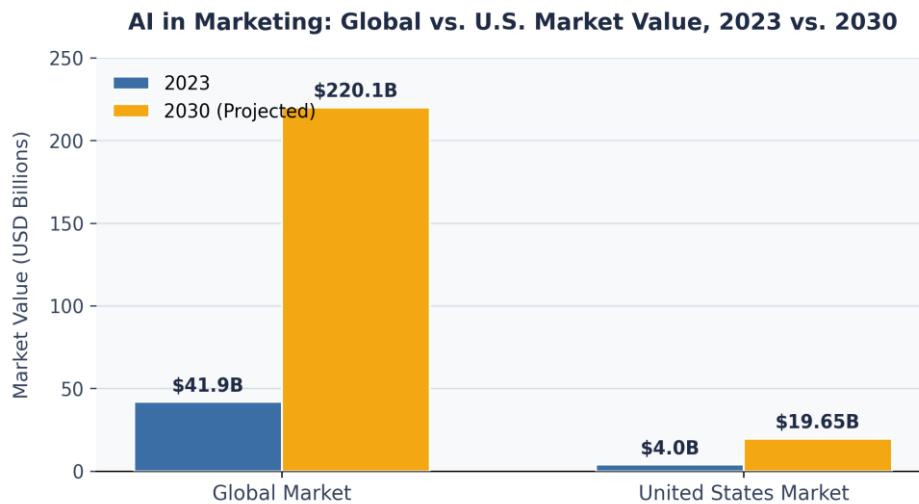


Figure 1: Global AI-in-marketing market size growth, 2024–2030 (USD billions). Source: Grand View Research (2025).

However, a separate market study carried out by Global Industry Analysts and made available by Research and Markets (2024), presents another perspective. According to this estimate, the global AI-in-marketing market size in 2023 was USD 41.9 billion and is predicted to be at USD 220.1 billion in 2030. Specifically, the USA's market was estimated at USD 4.0 billion in 2023 and is forecasted to grow up to USD 19.65 billion in 2030 (see Figure 2). Discrepancies in market-sizing estimates made by various research companies are typical for emerging technologies due to methodological inconsistencies. Nevertheless, despite some discrepancies in market-sizing numbers, all forecasts point to one direction — high double-digit growth every year up to 2030.



Source: ResearchAndMarkets / Global Industry Analysts (2024)

Figure 2: AI-in-marketing market value – global vs. U.S., 2023 vs. 2030 (projected). Source: ResearchAndMarkets (2024).

Table 1 synthesizes the key peer-reviewed studies reviewed in this paper, summarizing their primary focus and contribution to the literature on AI in marketing.

Table 1: Summary of key peer-reviewed studies on AI in Marketing

Author(s) & Year	Journal	Key Focus / Contribution
Davenport et al. (2020)	J. of the Academy of Marketing Science	Multidimensional framework for AI impact: intelligence level, task type, embodiment
Huang & Rust (2021)	J. of the Academy of Marketing Science	Three-stage strategic framework: mechanical, thinking, feeling AI
Huang & Rust (2022)	Journal of Retailing	Collaborative AI framework; AI augments rather than replaces marketers
De Bruyn et al. (2020)	Journal of Interactive Marketing	Pitfalls of AI marketing: bias, trust erosion, implementation barriers
Vlačić et al. (2021)	Journal of Business Research	Bibliometric review of 164 studies; ethics, data protection, labor themes
Verma et al. (2021)	Int'l J. of Information Mgmt Data Insights	Systematic review; gap between AI potential and function-specific use
Deng et al. (2019)	Journal of Advertising	AI-generated ad copy performs comparably to human-written copy
Kietzmann et al. (2018)	Journal of Advertising Research	AI across the consumer journey; holistic touchpoint integration
Jain & Kumar (2024)	NMIMS Management Review	Two-decade review; CRM, prediction, and AI-human interaction themes

A Strategic Lens: Mechanical, Thinking, and Feeling AI

The three stages proposed by Huang & Rust (2021) are among the most frequently referenced frameworks used to conceptualize the mapping between AI intelligences and marketing activities. Table 2 applies this framework to show the application of mechanical, thinking, and feeling AI across the three classic stages of marketing: research, strategy, and action.

Table 2: Application of Huang and Rust's (2021) mechanical–thinking–feeling AI framework across marketing planning stages

Marketing Stage	Mechanical AI	Thinking AI	Feeling AI
Research	Automated data collection & web scraping	Market and competitor analysis via ML	Sentiment and emotion detection in reviews
Strategy (STP)	Rule-based audience filtering	Data-driven segmentation & targeting	Emotionally-informed positioning strategy
Action (4Ps)	Automated pricing, delivery & bidding	Predictive personalization & recommendations	Empathetic chatbot & relational engagement

According to Table 2, mechanical AI plays an important role in mechanical processes involving many activities such as data gathering and bidding since speed and accuracy become more important compared to sophisticated decision making. The use of thinking AI increases in strategic activities when companies need to analyze large volumes of data to make segmentation, targeting and positioning decisions. Feeling AI represents the most challenging category among the three and it is critical for performing relationship-oriented activities, although according to Huang & Rust (2021), it is still the least developed one.

Challenges and Ethical Considerations

Although there are undeniable benefits that arise out of the adoption of artificial intelligence in the field of marketing, there remain certain challenges which need to be overcome. The first of these challenges is data privacy. AI-powered personalization necessitates collection of large volumes of data about consumers and De Bruyn et al. (2020) highlight that any personalization which may be considered invasive or excessive will negatively impact consumer trust, creating what has been termed as "personalization paradox." Secondly, there is the problem of algorithmic bias which can emerge due to biases which exist within historical data used to train AI systems (Vlačić et al., 2021).

Thirdly, the reconfiguration of marketing labour and requisite competencies constitute another important organisational challenge which arises out of the adoption of AI technology. Among the main research themes which emerged from the analysis of studies on AI and marketing done by Vlačić et al. (2021), "the revolution of the labor market and marketers' competencies" constitutes one of the central themes. In a similar fashion, Davenport et al. (2020) argue that the effective application of AI systems in marketing requires augmentation of the judgmental skills of marketers as opposed to substituting their decision-making ability.

Fourth, problems related to accountability and transparency continue to exist in relation to the use of AI in programmatic advertising and automated pricing systems, since the complexity of algorithms used is such that sometimes it becomes difficult for companies to explain their marketing choices to regulators or even to consumers (De Bruyn et al., 2020). Finally, there is the problem related to implementation; some scholars highlight the existence of an implementation gap, since organizations claim to be enthusiastic about using AI technologies but cannot implement them beyond pilot projects (Verma et al., 2021).

Discussion

From the review of existing literature done in the course of this study, it becomes evident that the role of AI in modern marketing cannot be considered within the scope of one single technology, but rather a portfolio of technologies with three major components – mechanical, analytical, and gradually emotional or relational in nature, which need to be carefully chosen and implemented depending on the marketing task in question. The approach suggested by Huang & Rust (2021), for example, provides a useful framework for such thinking and serves as a good alternative to overly generic statements about AI that "will transform marketing" in general.

As evidenced by the growth data from independent sources cited in Section 5, the transformation process is already underway and in full swing on the industry-wide level with impressive double-digit compound annual growth rates. At the same time, the persistent problems highlighted in Section 7 suggest that the current state of technological development in terms of AI is already ahead of the organizational readiness and regulatory framework for it. It is, in line with Vlačić et al. (2021), consistent with the idea that the issues of data protection, ethics, and workforce transformation are somewhat underrepresented in terms of AI marketing research compared to purely performance-related studies.

Furthermore, it must be noted that the reviewed studies differ quite substantially in their methodologies, ranging from bibliometric analysis (Vlačić et al., 2021) to conceptual framework (Huang & Rust, 2021) to empirical study (Deng et al., 2019). The diverse methodologies are a great advantage because they provide multiple views on the application of AI in marketing, although direct comparisons between the results may have some limitations, especially when translating the results of theoretical studies into practical managerial solutions.

Another implication pertains to the size of organizations. Most of the existing literature, including conceptual frameworks by Huang and Rust (2021) and Davenport et al. (2020), relies on the evidence gathered in relation to large and resourceful corporations with advanced IT infrastructure. Small and medium-sized companies, which represent most firms in any economy, usually lack the amount of data, skilled IT professionals, or financial resources needed for the implementation of AI in a comparable fashion. It seems that there could be an emergence of even greater disparities in competition between large and small firms unless affordable marketing AI solutions keep emerging, which is already happening judging by the existing data in Section 5 about vendor's product growth.

Conclusion and Future Research Directions

AI is now an important part of marketing strategy as it influences the processes of personalization, predicting future behavior, conversing with the customers, creating content, and buying media. From the literature review of this paper, one can note that there is a consensus among both researchers and practitioners that AI improves marketing efficiency and experience of the customer, as long as it is applied properly, following models like Huang and Rust (2021) mechanical-thinking-feeling approach. However, issues with data privacy, algorithmic biases, changes in the workforce and questions about accountability show that the responsible implementation of AI in marketing is still a work in progress, rather than a solved issue.

For the future research, it would be beneficial to conduct empirical studies focused on the longitudinal impact of the usage of different AI applications on the effectiveness of marketing processes and measuring ROI. Bibliometric analysis will not be enough, as the research should be empirical in nature and based on longitudinal data, as it is important to see how AI works overtime. Moreover, comparative research about the perception of AI-based personalization by consumers in different regulatory and cultural settings would help better understand the "personalization paradox" described by De Bruyn et al. (2020). Finally, with the rapid development of generative AI, research about the implication of these technologies on the marketing process and creativity in particular is highly needed.

References

1. Davenport, T., Guha, A., Grewal, D., & Bressgott, T. (2020). How artificial intelligence will change the future of marketing. *Journal of the Academy of Marketing Science*, 48(1), 24–42. <https://doi.org/10.1007/s11747-019-00696-0>
2. De Bruyn, A., Viswanathan, V., Beh, Y. S., Brock, J. K. U., & von Wangenheim, F. (2020). Artificial intelligence and marketing: Pitfalls and opportunities. *Journal of Interactive Marketing*, 51, 91–105. <https://doi.org/10.1016/j.intmar.2020.04.007>
3. Deng, S., Tan, C. W., Wang, W., & Pan, Y. (2019). Smart generation system of personalized advertising copy and its application to advertising practice and research. *Journal of Advertising*, 48(4), 356–365. <https://doi.org/10.1080/00913367.2019.1652121>
4. Grand View Research. (2025). Artificial intelligence in marketing market report, 2025–2030. <https://www.grandviewresearch.com/industry-analysis/artificial-intelligence-marketing-market-report>

5. Huang, M.-H., & Rust, R. T. (2021). A strategic framework for artificial intelligence in marketing. *Journal of the Academy of Marketing Science*, 49, 30–50. <https://doi.org/10.1007/s11747-020-00749-9>
6. Huang, M.-H., & Rust, R. T. (2022). A framework for collaborative artificial intelligence in marketing. *Journal of Retailing*, 98(2), 209–223.
7. Jain, R., & Kumar, A. (2024). Artificial intelligence in marketing: Two decades review. *NMIMS Management Review*, 32(2), 75–83. <https://doi.org/10.1177/09711023241272308>
8. Kietzmann, J., Paschen, J., & Treen, E. (2018). Artificial intelligence in advertising: How marketers can leverage artificial intelligence along the consumer journey. *Journal of Advertising Research*, 58(3), 263–267.
9. ResearchAndMarkets. (2024). Artificial intelligence (AI) in marketing – Global strategic business report 2024–2030. Global Industry Analysts.
<https://www.businesswire.com/news/home/20241125073034/en/>
10. Verma, S., Sharma, R., Deb, S., & Maitra, D. (2021). Artificial intelligence in marketing: Systematic review and future research direction. *International Journal of Information Management Data Insights*, 1(1), 100002. <https://doi.org/10.1016/j.jjime.2020.100002>
11. Vlačić, B., Corbo, L., Costa e Silva, S., & Dabić, M. (2021). The evolving role of artificial intelligence in marketing: A review and research agenda. *Journal of Business Research*, 128, 187–203. <https://doi.org/10.1016/j.jbusres.2021.01.055>.

