

Integration of Artificial Intelligence into Digital Marketing with Examples from Romania

The fast spread of artificial intelligence is transforming numerous fields, changing workflows and processes. Its role in digital marketing is becoming increasingly important, supporting more accurate assessments of consumer needs, delivering personalized recommendations, and enabling automated decision-making.

This study aims to define the two main components (AI and digital marketing) while reviewing the advantages and challenges of integrating AI into marketing strategies, as identified in recent research. To illustrate practical applications, five Romanian case studies are examined, highlighting the positive impact of AI implementation on marketing effectiveness and consumer engagement.

Finally, further insights and potential directions for future research are discussed, including cross-country comparisons and the evaluation of AI's social and ethical outcomes in marketing practice.

Keywords: artificial intelligence (O33), digital marketing (M31), consumer behavior (M31), ethical impacts (L38)

Name: Dr. Gyula-László Flórián

Professional Title: Assistant Professor

Institution: Partium Christian University, Romania

Address of Institution: Primărier Street. 27, Oradea, Romania

Email: gyulaflorian@yahoo.com

Name: Gabriel-Dumitru Maghiar

Professional Title: Economist Engineer

Email: maghiar.gabriel@outlook.com

I. Introduction

According to the latest Eurostat surveys, Romania ranked last among EU member states in corporate adoption of artificial intelligence in both 2023 and 2024. This pronounced lag highlights the relevance of examining, first, the broader relationship between artificial intelligence and digital marketing, and second, the specific initiatives undertaken by Romanian companies to integrate AI into their marketing practices. The study employs a multiple case study approach, drawing on several Romanian examples to illustrate how AI is currently applied in domestic digital marketing contexts. Prior to the analysis, the key concepts of artificial intelligence and digital marketing will be defined.

Artificial intelligence

One of the most significant technological innovations of recent years has been the emergence and development of artificial intelligence. According to Jean Paul Simon, artificial intelligence is the science of making machines intelligent. The generally accepted view is that it is a system based on four fundamental principles, functioning in a way similar to the human brain and human intelligence: learning, thinking, problem-solving, and perception. (Simon, 2019) At the same time, machine learning supports the learning and development of knowledge and capabilities through the systematic use of experience, data, and illustrative examples. (Jumani et al., 2021) Another definition is that it means systems that show intelligent behavior by looking at their surroundings and taking actions to reach specific goals with some level of independence. (Sheikh et al., 2023)

Digital marketing

The term “digital marketing” denotes the practice of promoting products and services through digital channels, including websites, mobile apps, social media platforms, search engines, and various other online marketing tools. (Dašić et al., 2023) According to another definition, digital marketing involves promoting products or services using digital technologies, including the Internet, mobile devices, display advertising, and other digital platforms. As technology evolves, practices such as SEO, content creation, influencer marketing, and automated content generation are becoming increasingly popular. (Painoli et al., 2021)

II. Literature review

The Use of Artificial Intelligence in Digital Marketing

Building on these foundational studies, recent literature has explored how AI can be systematically applied in various digital marketing contexts. In this way, I aim to highlight the advantages and disadvantages that have emerged during implementation by illustrating the following studies, as my primary research question is to identify which factors are considered most relevant in the literature regarding the use of artificial intelligence.

AI-powered digital marketing is transforming the way organizations develop campaign content, generate leads, reduce customer acquisition costs, improve customer experiences, attract talent, and engage target audiences on social media. (Van Esch & Stewart Black, 2021) Artificial intelligence is revolutionizing data analysis in digital marketing, enabling marketers to leverage algorithm-driven machine learning to process large datasets with unprecedented speed and accuracy. (Lee & Shin, 2020) Collectively, these studies suggest that AI not only improves operational efficiency but also enhances consumer engagement and strategic decision-making.

Artificial intelligence enhances consumer engagement by enabling brands to build stronger relationships with their customers. This is achieved by tailoring content to individual preferences and behaviors, thereby improving the quality of interactions and supporting the long-term sustainability of these relationships. (Tamilmani et al., 2025) Extending these insights, a systematic review categorized AI applications into seven clusters, illustrating the diverse ways in which machine learning supports marketing strategies.

In a 2023 study, in which the authors conducted a systematic review of the literature using the PRISMA method, 211 articles were analyzed and the use of artificial intelligence in digital marketing was grouped into seven clusters: AI/ML (Machine Learning) Algorithms, Social Media, Consumer Behavior, E-Commerce, Digital Advertising, Budget Optimization, and Competitive Strategies. According to their main findings, machine learning supports predictive analytics and enables the personalization of marketing strategies. In social media, it facilitates the monitoring of engagement and

helps campaigns better align with community needs. Regarding consumer behavior, AI assists in understanding preferences, loyalty, and purchasing processes more accurately. In e-commerce, recommender systems and chatbots have successfully integrated AI into digital marketing processes. Online advertising incorporates multi-sensory interactions, while budget optimization reduces waste. Finally, strategic decision-making benefits from deeper market analyses, providing a competitive advantage. (Ziakis & Vlachopoulou, 2023)

Another study examined how artificial intelligence can be utilized in digital marketing. The authors concluded that AI is particularly effective for data collection, aggregating consumer preferences, predicting customers' next actions, and supporting automated marketing decision-making. Artificial intelligence facilitates the processing of large volumes of data, enabling more accurate market segmentation, the delivery of personalized messages, and the optimization of marketing campaigns, thereby increasing the effectiveness of marketing initiatives. (Haleem et al., 2022) These findings underscore that AI's capabilities extend from data collection and predictive analytics to influencing real-time consumer behavior, including impulsive purchasing decisions. Since artificial intelligence can evaluate consumer preferences in real time, it can contribute to impulsive purchasing decisions by enhancing personalized experiences and interactions. (Mustikasari et al., 2025)

Researchers examined the impact of artificial intelligence on social media platforms. In advertising platforms such as Google Ads, Facebook, LinkedIn, and YouTube, AI assisted in personalizing user interactions and maximizing campaign performance. Through predictive analytics, real-time segmentation and dynamic content development led to increased audience engagement and improved conversion rates. On social media platforms such as Facebook, Instagram, TikTok, and LinkedIn, the introduction of AI enabled the delivery of personalized content, which enhanced user satisfaction and prolonged user engagement. (Mastilović et al., 2024)

Beyond social media engagement, AI also supports service personalization in sectors such as hospitality and aviation, demonstrating its cross-industry applicability. Another study examines the application of artificial intelligence (AI) in marketing across five clusters: the relationship between trust and organizational performance, the link between market orientation and business outcomes, customer value co-creation, the role of data science in finance, marketing and management, as well as emerging technologies and consumer sentiment analysis. The research points out that AI-based systems appear in the hotel industry and among airlines through self-service check-in systems, baggage drop-off, and boarding pass processing, which improve the speed and quality of services without requiring human supervision. These systems also help companies understand their customers' needs and profiles, thereby enabling the development of personalized products and services. (Masnita et al., 2023)

A study examined the benefits of integrating artificial intelligence into digital marketing. In addition to the previously mentioned aspects of accuracy and efficiency, as well as personalization and engagement, the author highlighted the importance of integrating sustainability. Through artificial intelligence, brands can effectively communicate their eco-friendly practices and corporate social responsibility initiatives to society, thereby facilitating the decision-making of consumers who consider sustainability an important factor. (Gündüzyeli, 2024) In addition to operational benefits, AI can reinforce sustainability efforts, allowing brands to communicate eco-friendly initiatives and align with socially conscious consumer values.

The transformative role of artificial intelligence in digital marketing on social and mobile platforms is evident, particularly in shaping consumer attitudes, trust, and acceptance of AI tools, which are influenced by perceived benefits, transparency, risks, social norms, and satisfaction. Additionally, AI can support sustainability: by analyzing behavioral data, brands can align their campaigns with eco-conscious values while reducing digital clutter. (Acatrinei et al., 2025)

However, alongside the advantages, there are also disadvantages associated with the use of artificial intelligence in marketing. While the benefits of AI in marketing are significant, it is equally important to consider the ethical and social risks associated with its deployment. A study primarily highlighted ethical concerns as the main issues, specifically data privacy, algorithmic bias, and consumer manipulation. (Zhao, 2025) Algorithmic bias in digital marketing occurs when machine learning models systematically produce unfair outcomes, often reflecting existing social or cultural

inequalities. In practice, this may lead to discriminatory audience segmentation or manipulative targeting, where certain groups are unfairly excluded from opportunities or subjected to biased advertising. (Jonker & Rogers, 2024)

A meta-analytic study analyzed the results of 45 previous studies to explore the dark side of artificial intelligence in marketing. The research identified data privacy concerns, perceived risks, customer alienation, and the neglect of uniqueness as the main disadvantages, all of which affect customers' evaluative, emotional, and behavioral responses. (Barari et al., 2024)

Data privacy concerns include the falsification of information, data manipulation, or misleading campaigns, all of which can negatively influence consumer behavior and purchasing decisions. False advertising claims or fabricated consumer recommendations can undermine trust in promoted products or services, potentially discouraging investment in artificial intelligence. Consequently, the absence of ethical standards in AI-driven marketing may hinder innovation, reduce market efficiency, and hinder sustainable economic growth. (Alhitmi et al., 2024)

I would like to summarize the previously mentioned factors in the table below.

Table 1: Advantages and disadvantages of integrating artificial intelligence into digital marketing

Category	Advantages	Disadvantages
Operational Efficiency & Marketing Optimization	AI improves campaign development, lead generation, and reduces customer acquisition costs. (Van Esch & Stewart Black, 2021) Optimizes ad spend, improves segmentation, and increases campaign effectiveness. (Ziakis & Vlachopoulou, 2023)	Data privacy concerns, misleading campaigns, or false recommendations can reduce trust. (Alhitmi et al., 2024)
Data Analysis & Insights	AI enables fast, accurate processing of large datasets, supporting predictive analytics and strategic decision-making. (Lee & Shin, 2020; Haleem et al., 2022)	Algorithmic bias can produce unfair or discriminatory outcomes. (Jonker & Rogers, 2024)
Personalization & Consumer Engagement	Tailors content to individual preferences, enhancing interactions, loyalty, and user satisfaction on social media and e-commerce platforms. (Tamilmani et al., 2025; Mastilović et al., 2024)	Can manipulate consumer behavior and impulsive purchasing; may neglect customer uniqueness. (Barari et al., 2024; Mustikasari et al., 2025)
Sustainability & CSR	Supports eco-friendly messaging, aligns marketing with socially conscious consumer values. (Gündüzyeli, 2024; Acatrinei et al., 2025)	Lack of transparency or ethical oversight may hinder trust and adoption. (Zhao, 2025)
Strategic Advantage	Supports deeper market analysis, competitive strategies, and long-term business	

	planning. (Ziakis & Vlachopoulou, 2023)	
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Source: own editing

III. Methodology

The methodology of this study combines a literature review with the analysis of five Romanian case studies. The literature review aims to examine recent research on the application of artificial intelligence in digital marketing, highlighting key advantages and disadvantages. The selected cases were chosen to illustrate practical, successful implementations of AI in digital marketing, all carried out after 2021, during the period of increased AI adoption. Selection criteria included sectoral diversity, ensuring that different forms of AI applications and various digital marketing functions were represented. Furthermore, the cases cover a range of organizational types, including startups, a large company, a bank, and a marketing agency, providing a comprehensive overview of AI-driven marketing practices in Romania.

IV. Results

To illustrate these applications in practice, the following section examines recent AI-driven digital marketing initiatives in Romania. In order to demonstrate the diversity of applications, this chapter presents examples of how artificial intelligence is utilized by companies operating in different sectors. The selected cases include a retail chain, digital marketing agencies, and one of Romania's largest commercial banks.

Founded in 2017, the Romanian company ProductLead operates across both online and offline platforms, automating marketing content with the help of artificial intelligence. It takes into account the client's existing brand assets to create high-quality creative content for their campaigns. These "infinite content ideas" can include creative automation, the use of user-generated content, shoppable e-commerce assets, and custom creative formats for online and offline publications. (Tupikov, 2021)

Founded in 2021, Creatopy is an AI-powered creative automation platform that helps brands and agencies quickly and efficiently create high-quality, personalized ads across various formats and channels, allowing clients to focus on strategic planning and creativity. (Spătaru, 2025)

A good example of the effective use of artificial intelligence in both digital marketing and retail is the collaboration between Profi and Footprints AI. Profi, one of the country's largest food retail chains, used Footprints AI's solution to create Romania's largest Retail Media Network, which integrates advertising spaces across both in-store and digital channels. The system leverages anonymized customer data and behavioral patterns, analyzed with AI models, to generate accurate predictions, allowing ads to target shoppers far more effectively, taking into account factors such as purchase frequency, time-of-day shopping habits, or preference for online ordering. Based on results, brands advertising through Profi's retail media network achieve 3–5 times higher revenue efficiency compared to other advertising networks, including major digital platforms (Google, Meta) as well as traditional media (radio, television). (Footprints AI, 2023)

Limitless Agency, a leading digital marketing agency in Romania, has introduced the "ChatGPT Traffic Map in Romania" report, marking a first for the local digital landscape. The report analyzes ChatGPT-generated traffic for more than 100 brands across 20 industries, offering insights into how local brands are represented in AI responses on platforms like ChatGPT. (Dragan, 2025)

Transilvania Bank became the first financial institution in Romania to integrate artificial intelligence into customer communication and services. The first step was taken in 2017 with the launch of its first customer communication chatbot. As the latest development, earlier this year, the virtual assistant Chat BT became available through the application, allowing customers to obtain information about the app's features and, if needed, continue communication with the bank's staff. (Banca Transilvania, 2025)

In a survey involving 30 Romanian companies, the researchers concluded that artificial intelligence is considered a valuable tool for enhancing user experience and increasing the effectiveness of digital marketing campaigns. At the same time, sufficient attention must be paid to ethical and confidentiality considerations. (Simion & Popescu, 2023)

V. Discussion

In recent years, it has become increasingly evident that the application of artificial intelligence is expanding across numerous fields, and its role in digital marketing is becoming increasingly significant. Although the use of this technology is accompanied by certain disadvantages and ethical risks, such as data privacy concerns, algorithmic bias, and consumer manipulation, its widespread adoption should not be restricted; however, responsible and measured implementation is essential. Over the past decade, the value of data and its proper analysis has become particularly important. According to the studies presented in this paper, AI enables more accurate assessment of consumer needs, better understanding of their preferences, and the personalization of marketing strategies, while also providing effective support for automated decision-making.

The collaboration between Profi, one of Romania's largest food retail chains, and Footprints AI exemplifies AI's potential in enhancing operational efficiency and marketing optimization. By leveraging anonymized customer data and behavioral patterns, the Retail Media Network achieved 3–5 times higher revenue efficiency compared to other advertising networks, including Google and Meta. These results align with findings by Ziakis and Vlachopoulou (2023), who emphasize that AI supports predictive analytics and more effective campaign targeting.

This AI-powered creative automation platform enables rapid and personalized ad creation across multiple formats and channels. The case illustrates the role of AI in improving content generation, reducing manual effort, and supporting strategic planning. These outcomes mirror the findings of Van Esch and Stewart Black (2021) and Lee and Shin (2020), who highlight that AI improved operational efficiency and data-driven decision-making in marketing processes.

ProductLead's use of AI to automate marketing content and generate "infinite content ideas" demonstrates how AI can support personalization and consumer engagement. By customizing content based on client assets and user-generated input, ProductLead strengthened customer experience, harmonizing with Tamilmani et al. (2025), who stress that AI enables stronger customer relationships through tailored interactions.

The "ChatGPT Traffic Map in Romania" report showcases AI's potential for market research and analytics, providing actionable insights for more than 100 brands. This aligns with the literature emphasizing AI's role in understanding consumer behavior and optimizing marketing strategies (Haleem et al., 2022; Mustikasari et al., 2025). The case also highlights the growing relevance of AI in social media monitoring as noted by Mastilović et al. (2024).

The integration of AI through customer chatbots and virtual assistants highlights AI's cross-industry applicability and its contribution to service personalization. This case supports findings by Masnita et al. (2023), demonstrating that AI can improve operational speed, service quality, and support customer relationship management without direct human supervision.

At the same time, the consideration and integration of ethical issues still show significant gaps, partly due to the immature and sometimes unsafe integration of the technology. Alongside a lack of technological expertise, ethical aspects are often neglected, even though they are essential for creating socially acceptable and sustainable solutions in the long term. The ethical challenges of artificial intelligence are likely to come to the forefront once the technology becomes a stable and well-integrated part of business processes; at that point, ethical compliance will no longer be an optional supplement but a natural component of system optimization. Therefore, it will be necessary to develop frameworks that ensure artificial intelligence can be used responsibly, in a way that protects consumer rights.

As a possible direction for future research, it would be an important avenue for further research would be to examine how consumers' or companies' attitudes toward artificial intelligence in marketing differ across countries. In this paper, examples from Romania were presented, as this is the market to which I have the most direct insight, but it would be worthwhile to conduct a comparative study with neighboring countries in Central and Eastern Europe. Although Romania may not yet be the most typical or prominent example of AI integration into business processes, recent years have demonstrated increasing efforts by companies to optimize and automate certain activities in order to deliver greater value to their customers.

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