

# Assessing the Use of Artificial Intelligence in Digital Marketing. Evidence from Romanian Companies

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**Abstract.** *In recent years, artificial intelligence has started to play an important role in digital marketing. Companies are increasingly using this technology to personalize content, improve the performance of marketing campaigns and user experience. According to a Google report published in 2021, Romania is one of the leading countries in Central and Eastern Europe in terms of significant growth in digital advertising expenditure. As a result, the current research aims to assess the importance and impact of AI usage in Romanian companies that activate in digital marketing. To conduct this study, an online survey was developed consisting of 11 questions to establish the utilization of AI in digital marketing and the perception of employees in companies towards this technology. The sample group was selected from a contact list of digital marketing firms, social media, and professional groups. Out of the total of 30 responses collected, valid data was analyzed to identify emerging trends and patterns in the use of AI in digital marketing. The survey findings indicate that AI is perceived as a valuable tool for enhancing user experience and increasing the effectiveness of digital marketing campaigns. It is important to consider the ethical and confidentiality implications when utilizing customer data, and to refrain from employing AI in a harmful or intrusive manner.*

**Keywords:** artificial intelligence technologies, digital marketing, user experience, customer trust, Romanian companies

## Introduction

Artificial intelligence (AI) is a set of technologies that enable computer systems to learn and make decisions based on data without direct human intervention. In digital marketing, AI can be used to collect and analyze data about consumers and their online behavior, identify patterns and trends, create user profiles, and deliver personalized and relevant content.

Among the most used applications of artificial intelligence in digital marketing are content personalization, improving the performance of marketing campaigns and improving user experience. AI can be used to create personalized marketing messages tailored to user preferences, needs and behavior. Thus, the relevance of content can be improved, and the effectiveness of marketing campaigns can be increased. The use of AI can help to identify the target audience, anticipate their needs, and tailor the marketing message accordingly.

Despite these benefits, the use of artificial intelligence in digital marketing can also raise some issues and concerns. These include data privacy and security concerns, the risk of generating invasive or unwanted marketing messages, the impact on the relationship between companies and consumers, the impact on jobs. In terms of data privacy and security concerns, the use of artificial intelligence in digital marketing involves the collection and analysis of large amounts of personal user data. This data should be protected and used responsibly to avoid potential breaches of data

privacy and security. The risk of generating invasive or unwanted marketing messages through excessive personalization may be perceived as disturbing or unwanted by users. The use of artificial intelligence in digital marketing can lead to tasks automation which may have an impact on jobs in the industry and may lead to the need for retraining of employees.

In Romania, artificial intelligence in digital marketing is at an early phase of development, with significant opportunities for growth and innovation, but also with important challenges that must be approached responsibly. Evaluating the degree of use of artificial intelligence in digital marketing in Romania can be useful to understand how companies approach this technology and to identify best practices.

A global study conducted by Salesforce in 2021 shows that 57% of marketers worldwide are already using artificial intelligence in their marketing, and 25% of them plan to do so in the near future (Salesforce, 2021). Also, a report by Google in 2021 shows that Romania is among the first countries in Central and Eastern Europe with the largest increases in digital advertising budgets, with an 18% increase compared to the previous year (Digital, 2021). These data suggest that the use of artificial intelligence in digital marketing in Romania is constantly growing, and companies are focusing their efforts on using the technology to optimize their strategies and achieve better results in their marketing campaigns.

In this context, assessing the degree of use of artificial intelligence in digital marketing can be useful to understand how companies handle this technology, to identify the benefits and risks involved, and to guide the development of more responsible and effective practices in digital marketing.

Thus, by doing research based on a questionnaire about the use of artificial intelligence in digital marketing, it is possible to evaluate the usage of this technology by companies, as well as the perception regarding it. Depending on the results obtained, a series of research objectives and hypotheses can be identified, which can be useful for the development of better and more responsible practices in digital marketing.

## Literature review

In recent years, Romania has experienced a significant growth in the digital marketing sector, along with the increase in the number of internet users and the penetration of mobile phones among the population. The use of artificial intelligence in digital marketing has started to be more frequent in Romania as well, with the increasing interest of companies to improve their marketing strategies and optimize their costs.

Currently, companies in Romania are using artificial intelligence in various areas of digital marketing, including SEO optimization, social media advertising, email marketing, content personalization and data analysis. There is also a growing number of startups and companies specializing in developing AI-based solutions for the marketing industry.

However, there are still certain challenges and risks associated with the use of artificial intelligence in digital marketing in Romania. These include security and data protection issues, as well as the risk of developing ineffective or invasive marketing campaigns that can damage companies' reputations.

Kim et al. (2019) examines different AI technologies, such as machine learning, neural networks, and natural language processing. He presents concrete examples in marketing, such as sentiment analysis, product recommendation, and personalization of marketing campaigns.

In Akter et al. research (2019), the authors present the existing literature and how artificial intelligence can be used in marketing. There are discussed the advantages and disadvantages of using AI in marketing, as well as trends and future research directions.

The aim of the study conducted by Nair and Gupta (2021) is to investigate how artificial intelligence (AI) can be applied to social media and digital advertising to help professionals and agencies enhance their specialization and collaboration, leading to increased return on investment. Despite its potential, many digital marketers are not yet fully aware of the importance of AI, and some are unsure how to implement it effectively. Drawing on a comprehensive literature review, the paper of Nair and Gupta identifies various AI applications that can be utilized to improve digital media marketing. As a result, it serves as a useful guide for social media marketers seeking to integrate AI into their digital marketing strategies and achieve better results.

Shahriar et al. (2020) focuses on the use of machine learning in social media marketing and how machine learning can be used to analyze consumer behavior and predict their preferences, as well as social media advertising campaigns optimization.

The research of Saha and Srivastava (2021) examines the use of artificial intelligence in advertising such as personalizing ads and optimizing advertising campaigns. Also, an overview of current trends and opportunities is illustrated.

The impact that artificial intelligence can have on the marketing workforce is studied by Oancea (2019). There are presented concrete examples of artificial intelligence usage in various aspects of marketing, such as personalization and optimization of advertising campaigns.

Huang et al. (2020) examines how artificial intelligence can be integrated into marketing strategies, including using technologies such as natural language processing (NLP) and machine learning (ML).

An overview of how artificial intelligence is used in marketing is made by Azab and Nguyen (2021) along with current trends and opportunities, including the use of chatbots and virtual assistants.

The article by Zilic and Jandric (2021) focuses on the impact of artificial intelligence (AI) in digital marketing. The authors discuss the potential benefits and challenges of AI adoption in digital marketing, and the ways in which AI can help improve marketing strategies and customer experience. The article also covers the ethical concerns associated with AI in digital marketing, such as privacy and data security. Overall, the authors argue that AI has significant potential to transform the digital marketing landscape, and that companies need to carefully consider the ethical implications of its use.

The article by Xu et al. (2020) provides an integrative review of the literature on personalization in digital marketing and outlines future research directions. The authors explore the concept of personalization, its effectiveness, and the factors that affect its success. They also review various techniques and technologies used for personalization in digital marketing and discuss their advantages and limitations. The article concludes with suggestions for future research directions, including the need for more empirical research, the exploration of ethical considerations in personalization, and the investigation of personalization in emerging digital media platforms.

A comprehensive review of AI in digital marketing and future directions is made by Li et al. (2021). The authors examine various applications of AI in digital marketing, such as personalized recommendations, chatbots, and sentiment analysis. They also discuss the benefits and challenges of using AI in digital marketing and identify several research gaps, such as the need for more studies on the ethical implications of AI and the impact of cultural differences on AI

effectiveness in digital marketing. The authors propose a research agenda for future studies in digital marketing.

The article of Darwish and Bontis (2021) addresses the ethical concerns related to the use of AI-based technologies in digital marketing, particularly regarding data privacy and security. The authors argue that while AI has the potential to enhance the customer experience and increase efficiency, it also raises significant ethical challenges related to the collection, storage, and use of personal data. The paper provides a comprehensive analysis of the ethical issues related to the use of AI in digital marketing and suggests strategies for organizations to address these concerns and ensure responsible use of AI. The authors also propose a framework for assessing the ethical implications of AI in digital marketing, which includes the principles of transparency, accountability, fairness, and respect for privacy.

A bibliometric analysis of 291 articles published between 2008 and 2019 is made to identify the main research topics, authors, and journals (Leão et al., 2021). The results of the analysis revealed that the most common topics related to AI in marketing research were customer segmentation, sentiment analysis, and predictive modeling. The authors also found that most studies in this area were conducted in the United States and China, and that the field is still relatively new and rapidly evolving. The article provides valuable insights for researchers and practitioners who are interested in the application of AI in marketing research.

## Methodology

The methodology of this study consisted in an online questionnaire with 11 questions which aimed to determine the use of artificial intelligence in digital marketing, as well as the perception of companies regarding this technology. The questionnaire included single choice, multiple choice, and Likert scale questions. The questionnaire was distributed to companies from Romania, Bucharest, with activity in digital marketing, between November 2022 and January 2023. This timeframe was selected to obtain a representative sample as possible and to ensure that the companies had enough time to improve or modify their AI practices.

The sample was selected through a contact list of companies specialized in digital marketing, as well as through social networks and specialized groups. There were collected 30 valid responses, which were later processed and analyzed to identify trends and patterns in the use of artificial intelligence in digital marketing.

The findings of this research may help companies in the digital marketing sector, along with scientific researchers and policymakers, in enhancing their utilization of artificial intelligence and handling the related challenges and risks responsibly.

General objective: To assess the importance and impact of AI usage in digital marketing companies.

Secondary Objectives:

- O1. Identifying the most used types of AI technologies in digital marketing
- O2. Identifying digital marketing activities that could be improved through the use of artificial intelligence.
- O3. Assessing companies' perception towards the benefits of using artificial intelligence.

Hypotheses:

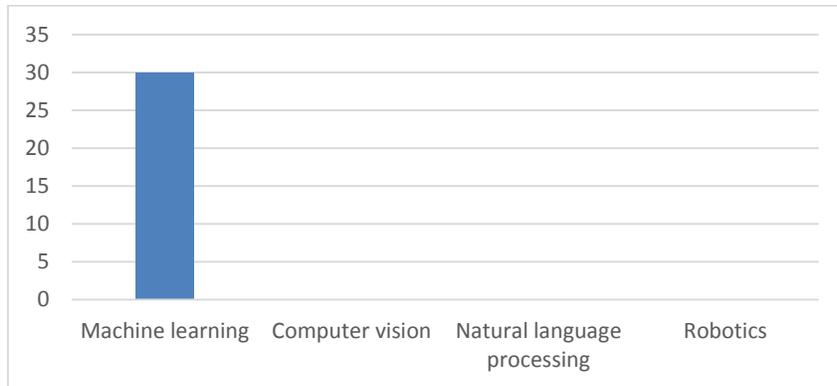
H1. Most employees in companies do not know much about the use of artificial intelligence in digital marketing.

H2. Personalizing content, improving the performance of marketing campaigns, and improving user experience are the most beneficial digital marketing activities that could be improved by using artificial intelligence.

H3. Employees in companies believe that artificial intelligence can help improve the performance of digital marketing campaigns and personalize content but are less convinced about the benefits of ad relevance.

### Results and discussions

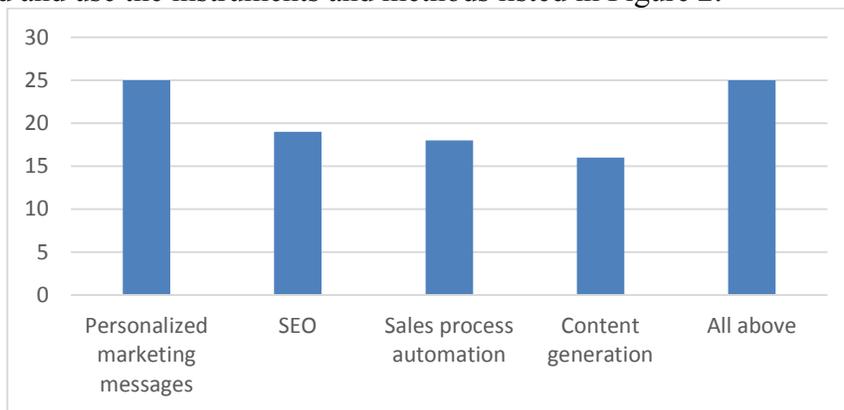
Machine Learning is the most used AI technology in digital marketing as it sheds light on the current trends and practices in the industry (Figure 1). By knowing the most widely used AI technology, businesses can make informed decisions about which technologies to invest in to improve their marketing strategies. Furthermore, understanding the prevalent use of machine learning can help businesses identify the specific areas where this technology can be most beneficial, such as personalized marketing and optimization of advertising campaigns.



**Figure 1. Most used AI technology in digital marketing**

Source: Authors' own research results

Respondents are aware of the various applications of AI in digital marketing since they are part of this field and use the instruments and methods listed in Figure 2.

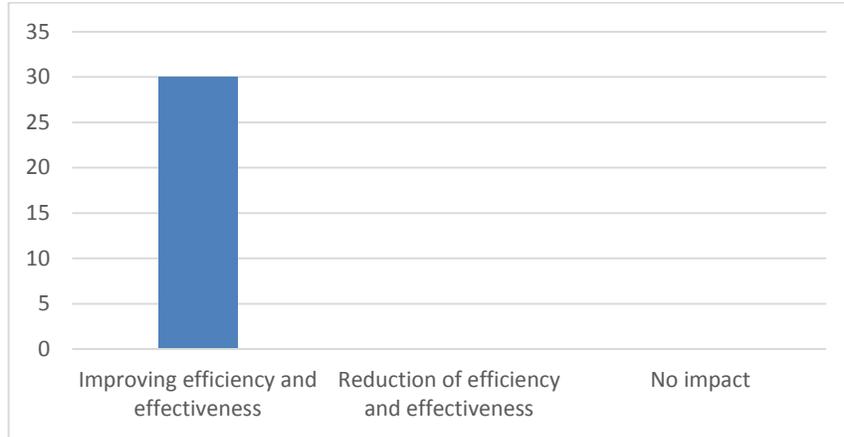


**Figure 2. Examples of AI applications in digital marketing**

Source: Authors' own research results

Respondents believe that using AI in digital marketing brings competitive advantage and improves campaign effectiveness. This is significant because it highlights the perceived value and potential impact of AI in the industry (Figure 3). Businesses that adopt AI technology in their

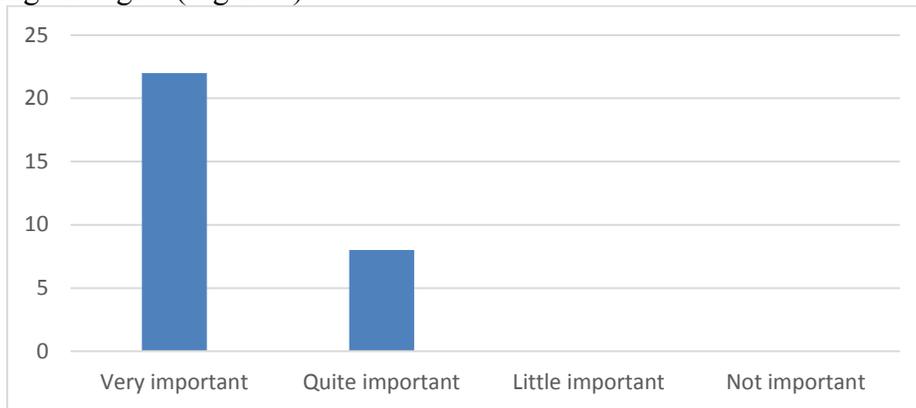
marketing strategies may have a better chance of succeeding and outperforming their competitors. Furthermore, the perception that AI can improve the effectiveness of marketing campaigns indicates that businesses can potentially increase their ROI and achieve better results with the help of AI technology.



**Figure 3. AI impact on the efficiency and effectiveness of marketing campaigns**

Source: Authors' own research results

Overall, these findings underscore the importance of AI in digital marketing and emphasize the need for businesses to stay informed about AI developments and to consider integrating AI into their marketing strategies (Figure 4).



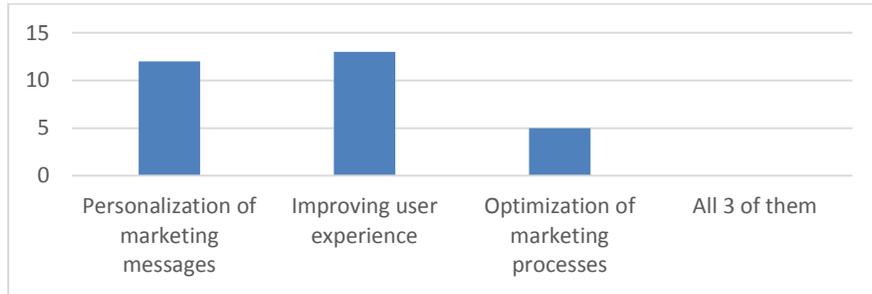
**Figure 4. Importance of using AI in digital marketing**

Source: Authors' own research results

According to the responses, the main benefits of using AI in digital marketing are improving user experience and customized messages (Figure 5). By utilizing AI-powered tools, companies can personalize their marketing messages to the needs and preferences of each individual customer, leading to a higher level of engagement and conversion rates. Additionally, AI can improve the overall user experience by providing personalized recommendations and real-time support, creating a seamless and convenient interaction between the customer and the brand.

These benefits can have a significant impact on a company's bottom line by increasing customer satisfaction and loyalty, as well as driving sales and revenue growth. Therefore, the use of AI in digital marketing has become increasingly important in today's highly competitive

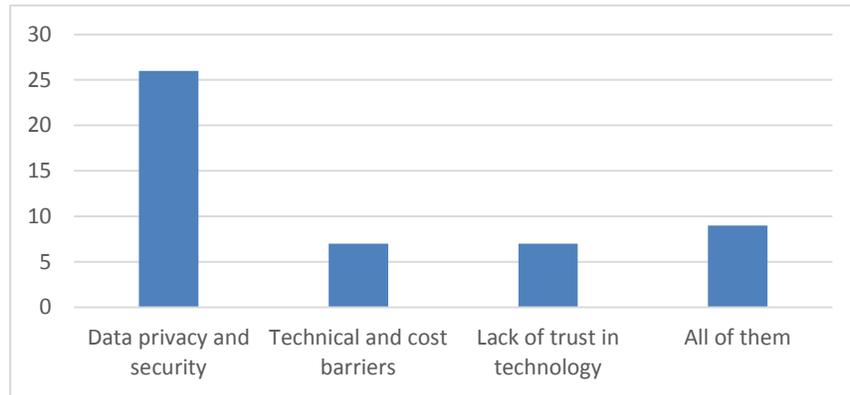
landscape, allowing companies to stay ahead of the curve and meet the evolving needs of their customers.



**Figure 5. Benefits of using AI in digital marketing**

Source: Authors' own research results

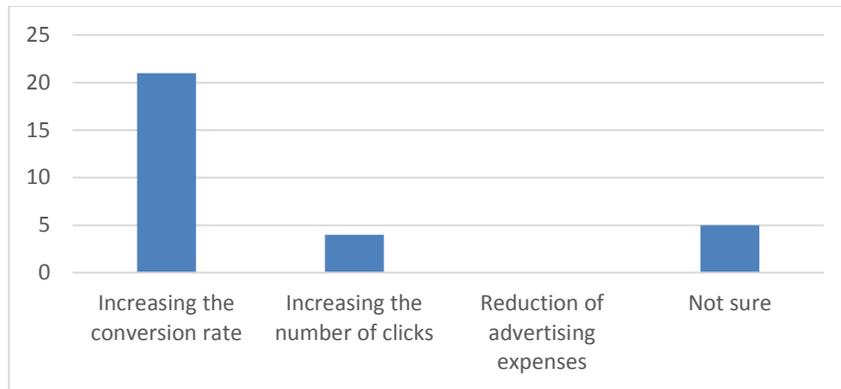
The main concern when it comes to using AI in digital marketing is related to data privacy and security (Figure 6). However, respondents do not consider technical and cost barriers or lack of trust in technology to be high risks. This suggests that companies should prioritize addressing privacy and security concerns in their AI implementation strategies, to gain consumer trust and avoid potential legal and reputational issues. Additionally, companies could consider investing in education and transparency initiatives to help alleviate concerns related to the technical and cost aspects of using AI in digital marketing.



**Figure 6. Main concerns of using AI in digital marketing**

Source: Authors' own research results

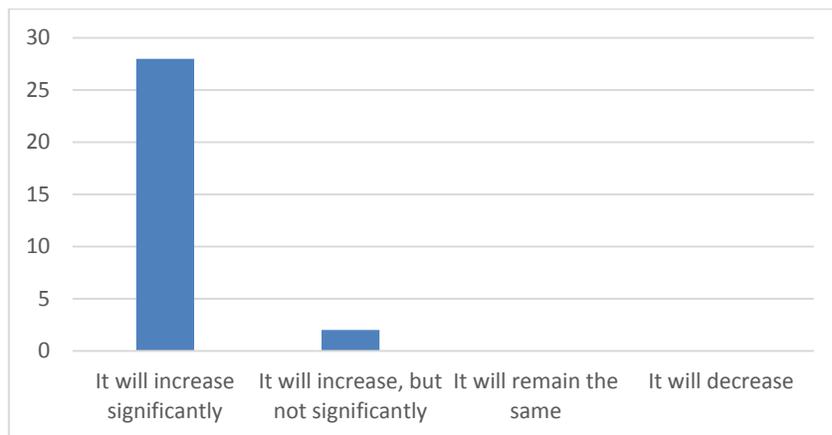
Personalizing messages using AI is seen as an important benefit by most of the respondents, with the main advantage being an increase in the conversion rate (Figure 7). This suggests that using AI to create more personalized and targeted messages can lead to higher engagement and more effective marketing campaigns. As such, businesses may want to consider investing in AI technology to better understand and target their audiences to achieve higher conversion rates and overall success in digital marketing.



**Figure 7. Greatest benefit of personalizing messages through AI**

Source: Authors' own research results

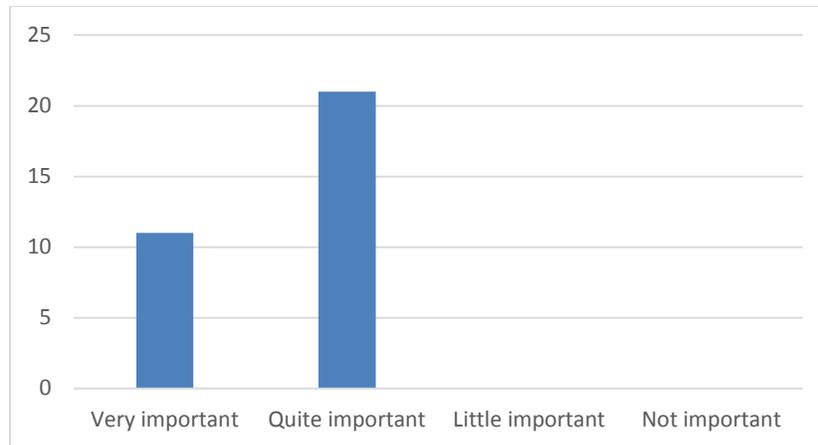
The perception of respondents presented in Figure 8 may indicate that respondents expect to see more advanced AI algorithms and tools developed specifically for the marketing industry, as well as increased adoption of AI technologies by companies. The result may also indicate a belief that AI will become more effective at understanding consumer behavior and preferences, and that it will continue to drive improvements in the targeting and personalization of marketing campaigns. Overall, this suggests that respondents are optimistic about the future potential of AI in digital marketing.



**Figure 8. Perspective of how will evolve the usage of AI in digital marketing**

Source: Authors' own research results

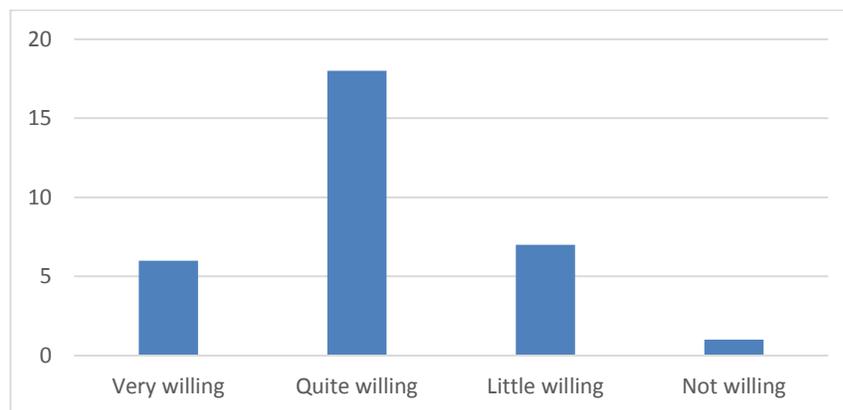
All respondents in the survey agree that transparency in the use of AI in digital marketing by companies is important (Figure 9). This suggests that companies should prioritize communicating their use of AI and being open about their practices to build trust with customers. This aligns with current trends towards increased transparency and accountability in the use of AI across various industries.



**Figure 9. Transparency concerning the use of AI in digital marketing in companies**

Source: Authors' own research results

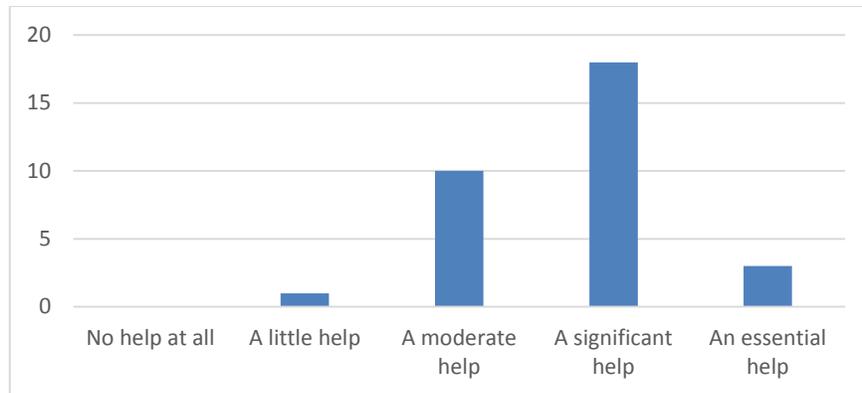
From the perspective of employees in companies, current customers are generally willing to share their personal information (Figure 10). However, the degree of willingness may vary depending on the context and the perceived benefits of sharing personal information. It is important for companies to be transparent and provide clear information on how they will use personal data to build trust with consumers and ensure ethical practices in the use of AI.



**Figure 10. The degree of willing to share personal information with companies that use AI in digital marketing**

Source: Authors' own research results

The degree of AI's help in improving user experience in digital marketing is considered significant by most respondents, while others see it as moderate (Figure 11). The importance of AI in enhancing user experience highlights its potential in delivering personalized and relevant content, which can lead to higher engagement and conversion rates. However, it also shows that there is still room for improvement in terms of AI capabilities to further enhance user experience in digital marketing.



**Figure 11. The degree of AI help to improve user experience in digital marketing**

Source: Authors' own research results

## Conclusion

Artificial intelligence in digital marketing is still in its infancy stage in Romania, presenting vast potential for progress and creativity, along with significant obstacles that necessitate a cautious approach. Assessing the extent to which artificial intelligence is utilized in digital marketing in Romania can aid in comprehending how businesses adopt this technology and in identifying optimal procedures.

Various authors have studied AI in digital marketing, and their research has revealed that AI technologies such as machine learning, natural language processing, and neural networks can be used for a variety of purposes in marketing, including sentiment analysis, product recommendation, personalization of marketing campaigns, and optimization of advertising campaigns. The adoption of AI in digital marketing presents significant opportunities for growth and innovation, but also poses important ethical and privacy concerns. However, researchers have proposed various frameworks for assessing the ethical implications of AI in digital marketing, and many have identified a need for further research in this area. Overall, the literature suggests that the use of AI in digital marketing is still relatively new and rapidly evolving, and more research is needed to fully understand its potential impact on the marketing industry.

Machine learning is the AI technology extensively employed in various applications such as personalization of content and user experience, as well as data analysis and forecasting. At the same time, it is observed that some AI technologies, such as computer vision and natural language processing, are used less in digital marketing, which may suggest that there is a growth opportunity for these technologies.

Based on the conclusions drawn from the responses of the survey, it can be inferred that the use of AI in digital marketing is seen as a significant advantage to improve user experience and increase the effectiveness of marketing campaigns. Machine learning is the most used AI technology, and personalization of messages through AI is seen as a major benefit for increasing the conversion rate. While data privacy and security concerns remain a major issue, respondents generally trust AI and believe it will continue to evolve significantly in the future. Transparency in the use of AI in digital marketing is considered important, and companies' current customers are generally willing to share their personal information to improve their experience. Overall, the findings suggest that AI has the potential to significantly enhance the effectiveness of digital

marketing, but companies must be transparent and address concerns about data privacy and security.

These findings can be used to better understand how digital marketing professionals see the role of AI technology in the industry and to identify areas where there are opportunities to improve the knowledge and skills of professionals.

By implementing AI in digital marketing, companies can gain a better understanding of their customers and offer personalized experiences that lead to customer loyalty and increased sales. However, it is important to consider the ethical and confidentiality aspects in the use of customer data and to avoid using AI in an abusive or invasive way.

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