Use of Artificial Intelligence in Advertising Agencies: Opportunities and Challenges

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Abstract: This paper's overall objective is to identify the opportunities, challenges, and effects of artificial intelligence in advertising agencies. The theoretical approach of the key concept of artificial intelligence - its definition, typologies and effects, is followed by a particularization of the term in the advertising sector, based on a synthetic review, through a secondary analysis of statistical data, of the main trends in the AI use in current Romanian and international advertising. Subsequently, the paper focuses on the applied approach, based on qualitative research carried out through interviews with both employees from advertising agencies without management positions and managers of departments and advertising agencies where the former work, in order to identify the advantages and disadvantages of working with AI, but also positive and negative effects of using AI in advertising organizations, proposals for improving activities in which AI is used and, not least, ethical challenges related to working with AI. The integration of artificial intelligence in the advertising industry presents remarkable potential for innovation and efficiency, but also the need for a responsible approach to emerging challenges. The research provided a solid foundation for understanding the complexity and dynamism of the relationship between AI and advertising, highlighting that long-term success depends on the industry's ability to navigate this ever-evolving technology landscape with caution. By fostering a harmonious collaboration between technology and creativity, the advertising sector can maximize the benefits of AI while ethically addressing the associated challenges.

Keywords: advertising agency; artificial intelligence; ethical challenges; human creativity.

Introduction

In today's context, marked by rapid technological advances and an ongoing digital transformation, artificial intelligence (AI) has become a defining force in many sectors of the global economy, including the advertising industry. This offers significant opportunities for innovation and efficiency but also comes with a number of ethical and practical challenges. The issue of utilizing artificial intelligence (AI) in advertising agencies is gaining considerable attention, with the potential to reshape advertising strategies and the relationship between brands and consumers in a profound and lasting manner.

Artificial intelligence, from simple algorithms to machine learning systems and neural networks, is redefining the paradigms of creativity and strategies in advertising. In this ever-changing landscape, advertising agencies face the need to integrate advanced technologies to remain relevant and competitive. In this context, the paper aims to explore the evolution and typology of AI, its impact on creative processes and how these technologies are adopted within advertising agencies in order to navigate the challenges of new trends and maximize the opportunities offered to client companies and consumers.

More precisely, the general objective of the present research is to identify the opportunities, challenges, and effects of artificial intelligence in advertising agencies.

Given that advertising plays an essential role in the market economy, influencing consumer preferences and behaviours, it is important to analyse current trends in the use of AI, its benefits, and the ethical dilemmas that arise.

Literature review

Artificial intelligence – definition, typology, effects

Artificial Intelligence (AI) is a rapidly evolving field of computer science and cognitive science focused on the development of machines and systems capable of simulating and performing tasks that involve specific aspects of human intelligence. Over time, artificial intelligence has received several definitions: Minsky (1968, pp. 25-39) stated that "artificial intelligence is the science of making machines do things that require intelligence when we do them"; according to Winston (1992, pp. 20-45), it is the study of computational processes that facilitate perception, thought and action, and Russell and Norvig (2010, p. 242) define it as "the study of intelligent agents", emphasizing their ability to "perceive the environment and act to maximize one's chances of achieving one's goals". AI has seen a rapid and continuous evolution from the first expert systems and learning algorithms to the development of advanced techniques such as deep neural networks and machine learning (Russell & Norvig, 2010.).

Artificial Intelligence ranges in various forms and types, from systems specialized in solving specific tasks to more general and complex systems. Shoham and Leyton-Brown (2009) emphasize the concept of multiagent systems, a type of AI involving multiple entities interacting to solve problems. Among the types of AI, we can distinguish narrow artificial intelligence - this form of AI is focused on solving specific tasks and is represented by systems that are specialized in a narrow field, such as medical diagnostic systems or systems facial recognition; general artificial intelligence - general AI aspires to the level of human performance and can tackle a wider variety of tasks, it involves complex reasoning, learning and adaptive capabilities (Htssgroup, 2023).

Recent research conducted in March 2024 aiming at identifying the impact of artificial intelligence (AI) on the urban population in Romania highlights that "40% of Romanians use AI applications at least weekly, and 28% at the workplace, with ChatGPT being the most popular chatbot, followed by Google Gemini and Microsoft Copilot. ChatGPT is used especially by young people to find information, develop their skills, experiment or generate new ideas". The field in which users are most confident to collaborate with AI is education (35% vs. 28% medical field); more specifically, the preferred fields of interest for using AI include language learning, travel recommendations, scheduling assistance, meal planning, image generation, etc. Although Romanians are confident in the beneficial effects of AI (about two-thirds - 67% of respondents are enthusiastic about the evolution of AI, and 56% believe it will improve working conditions), nevertheless AI remains one of the most controversial topics in society at the moment, raising concerns about job losses, data security and unethical use of technology (2 out of 3 people are very concerned about data security when using AI applications, and 60% of respondents are concerned about how which AI tools will influence the work of artists and professionals in creative areas) (United Media Services, 2024).

The AI robotics market size in Europe is in continuous growth, from 1.32 billion USD in 2020 to 3.36 billion USD in 2023, and is expected to reach a market size of 16.84 billion USD in 2030 (Statista, 2024). According to research about AI adoption in the UE business environment (QERY, 2024), published in May 2024, in 2023, only 8% of the EU businesses used AI technologies. Denmark and Finland are the first two countries on top of AI-based businesses, with percentages over 15%. About one-third (30.4%) of large European businesses used AI technologies in 2023, compared to 13% of medium enterprises and only 6.4% of small enterprises (Eurostat, 2024). However, the initial excitement induced by the use of generative AI in companies slowly turned in 2024 into caution,

reconsideration and recalibration as organizations realized that capturing and capitalizing on the enormous potential of generative AI is more difficult to achieve than expected (Lamarre et al., 2024). More and more corporate leaders recognize that significant risks accompany AI opportunities. In a recent international survey of more than 100 organizations with more than $50 million in annual revenue, McKinsey (2024, p. 2) found that 63% of respondents characterize the implementation of gen AI as a "high" or "very high" priority; but 91% of these respondents don't feel "very prepared" to implement it responsibly.

An overview of AI trends in current international and national advertising. Benefits and ethical challenges of using AI in advertising

The increased valorisation of artificial intelligence started a few years ago (Badea, 2024); marketers started using intelligent algorithms 186% more often from 2018 to 2020, and AI has experienced exponential development. According to experts from IBM (2023), currently, 42% of companies with more than 1,000 employees have actively implemented AI in their business, and 59% of companies which were already exploring or implementing AI have accelerated their investments in this technology. Top barriers to AI implementation include limited AI skills and expertise (33%), too much data complexity (25%) and ethical concerns (23%). Unfortunately, the Deloitte study (2023) shows that most employees admit that the companies they work for do not have an evaluation committee and/or a process to review ethical standards for existing (56%) or new technologies (56%).

For brands, the AI approach opens wide horizons. Through AI-assisted creativity, a virtually unlimited number of images and text variants can be generated, thus enriching the possibilities of creative exploration to previously unattainable levels. The ability to generate AI influencers and avatars offers new perspectives, such as a personal shopping consultant tailored to each customer or even a personal avatar capable of trying on clothing items in a virtual environment, according to Abrardi et al. (2022). The detailed assessment of this development provides a solid foundation for understanding the implications and impact of AI in the contemporary advertising landscape, revealing opportunities and challenges in the adoption of artificial intelligence in the advertising industry. Trends in current advertising, both nationally and internationally, are constantly changing. For example, among the most appreciated at the moment are interactive-playable ads (Reels Playable Ads), which represent an innovative method of attracting the public's attention and increasing interest in brands. A mixture of interactivity and game elements (gamification) allows users to interact with the ad before seeing the entire spot (Initiative, 2023), managing to involve consumers in an engaging experience before making the decision to install an application. Both CTV (Connected TV) and OTT (Over-The-Top) are powerful means for audience targeting across platforms and devices: they offer a personalized experience to the user, and current trends show a significant increase in their adoption, especially among consumers who prefer streaming platforms to traditional television, according to Forbes Romania (2023).

An important benefit of using AI in advertising is *the personalization of advertising messages*, an innovative approach that has redefined how brands interact with consumers. This process of adapting advertising content to individual consumer preferences and needs is grounded in technologies such as machine learning and advanced data analysis. According to Wang (2020, pp. 1287-1322), "advertising personalization with the help of AI can optimize the relevance and effectiveness of advertising campaigns by delivering messages tailored to each consumer's profile and behaviour". By collecting and analysing behavioural and demographic data, AI algorithms identify individual consumer preferences, allowing brands to deliver relevant and engaging advertising content, thus strengthening the relationship with the target audience (Kietzmann et al., 2018). Thus, personalizing advertising messages through AI not only improves the consumer experience but can also help increase conversion rates and brand loyalty.

According to the paper of Duan, Xu, Tsang, and Luo (2019), AI uses collaborative filtering algorithms to analyse users' past behaviour as well as their previously expressed preferences in interactions with various online platforms. This detailed analysis enables the generation of personalized recommendations and tailoring of advertising content based on each user's individual history and preferences. Duan et al. (2019) investigated the concept of collaborative adversarial filtering, highlighting how it improves the personalization of advertising recommendations. Through AI, users' past behaviours can be analysed to predict their future preferences and interests, delivering individually tailored advertising content to increase the appeal and relevance of messages. Also, Adomavicius and Tuzhilin (2005) consider that AI plays an essential role in the evolution of recommender systems, enabling extensions and innovations in personalizing recommendations based on individual consumer preferences.

Wang and Kosinski (2018) stressed that facial recognition technologies and facial feature analysis can be integrated into the process of personalizing advertising messages. These technologies can identify users' emotions and facial reactions in real-time, thus enabling the immediate adaptation of advertising content to match individual needs and preferences better. AI uses advanced data analysis algorithms and techniques such as machine learning and facial recognition to interpret and process information from consumer behaviour and reactions, thereby generating individually personalized and tailored advertising messages.

Effective audience targeting is another important benefit of using AI in advertising. Adomavicius and Tuzhilin (2005) demonstrated the importance of recommender systems in tailoring advertising messages to specific audience preferences and behaviour. Through AI, advanced algorithms can be used to analyse behavioural and demographic data and identify precise consumer segments, increasing the effectiveness of advertising campaigns by delivering messages to relevant audiences.

Automation of advertising processes is another benefit of using AI in advertising. Kumar et al. (2024) highlighted the role of AI in automating marketing processes: "Given the real-time nature of digital and direct marketing, such automation significantly assists marketers in effectively managing labour-intensive, high-time-pressure processes (…) Key elements of AI marketing automation encompass programmatic advertising, chatbots, and virtual assistants". By using machine learning algorithms and predictive-analytical models, ad distribution and placement are optimized, increasing efficiency and saving time and resources. Kingma and Ba (2014) proposed the Adam method for stochastic optimization, which has extensive applications in optimizing machine learning processes used in advertising for personalization and adaptation.

A fourth advantage of using AI in the advertising industry is *increasing the effectiveness of advertising campaigns*. Goldfarb and Tucker (2011) and Brynjolfsson and McAfee (2014) highlighted that using AI in advertising contributes to better-measuring campaign effectiveness. The ability to analyze the performance of campaigns in real-time, adapt strategies and make decisions based on the results obtained leads to a significant increase in the efficiency and impact of advertising investments.

However, the use of AI in advertising also involves a number of challenges, especially those of an ethical nature. According to Jobin, Ienca and Vayena (2019, p.389-399), "One of the main challenges of using AI in advertising is the transparency of algorithms, which can be opaque and difficult for consumers to understand". Transparency issues are also emphasized by Diakopoulos (2016, pp. 56-62), who points out that "the opacity of AI algorithms can lead to mistrust and affect consumer trust in personalized advertising messages". In addition, according to Brynjolfsson and McAfee (2014, pp.108-131), "the use of AI in advertising raises questions about the protection of personal data and privacy, given the massive collection and analysis of information about consumer's online behaviour". The ethical aspects of using AI in advertising are also highlighted by Floridi and Taddeo (2016, p. 374), who state that "automated decision-making in AI-based

advertising campaigns raises concerns about the ethical and moral responsibility of decisions made by algorithms on behalf of consumers".

Data protection and privacy are considered to be among the main challenges of using AI in the advertising sector. Acquisti and Grossklags (2007) and Narayanan and Shmatikov (2010) highlighted data protection and privacy concerns in AI-based advertising: the use of sensitive data for personalization may raise concerns about the possible disclosure of personal information and risks of breaching confidentiality.

Fairness and bias in AI algorithms are another challenge: Selbst et al. (2019) and Diakopoulos (2016) emphasized the importance of ensuring fairness and removing bias in the AI algorithms used in advertising. Algorithms can be susceptible to perpetuating pre-existing biases in training data, leading to incorrect delivery of advertising messages. Errors or incorrect interpretations of data can have negative consequences, including discrimination and unfair outcomes. Bias can discriminate against or exclude certain minority groups, negatively impacting algorithmic results and decisions. Continuous auditing and analysis of algorithms is vital to counter bias and ensure the accuracy of algorithms. Floridi and Taddeo (2016) highlight that this constant process of checking and evaluating is essential for identifying and correcting bias, thus helping to maintain justice and fairness in automated processes. Reducing bias in AI algorithms can be approached through various practical methods. Narayanan and Shmatikov (2010) mention that enriching data sets, continuously evaluating performance, and constantly adjusting algorithms are essential approaches to minimizing bias and ensuring more equitable results.

The impact on human jobs is a major challenge of using AI in advertising: automating advertising processes can lead to significant changes in workforce requirements and influence the way people interact and are employed in this field. Arntz, Gregory and Zierahn (2016) highlighted that automation through AI has led to job losses while, in parallel, generating new employment opportunities in emerging fields. According to Brynjolfsson and McAfee (2014), AI has had a significant impact on the service sector, generating significant changes in skills requirements and the way activities are carried out; AI has stimulated and created new types of employment that require digital skills and adaptability in a technological environment. Floridi and Taddeo (2016) pointed out that to cope with these changes, adaptability, continuous learning and development of technological skills are essential for employees. At the same time, Arntz, Gregory and Zierahn (2016) indicated that public policies and professional retraining programs are necessary to facilitate the transition to the new demands of the labor market.

AI-based advertising raises many ethical issues that require special attention in current business practices. Jobin, Ienca and Vayena (2019) emphasize the importance of transparency in algorithmic decisions, highlighting the need to explain how data is used and the criteria for ad distribution. Data protection and privacy, according to Selbst et al. (2019), are crucial issues, and the use of personal information to personalize advertisements brings into question the respect for confidentiality and the protection of consumers' privacy. Floridi and Taddeo (2016) emphasize the need to ensure fairness and impartiality in advertising messages to avoid perpetuating stereotypes or discrimination in the selection and distribution of advertisements. In the same context, Diakopoulos (2016) emphasizes the responsibility and the need for human control over automatic decisions in AI-based advertising, stressing the importance of supervising and regulating algorithmic decisions to respect ethical and moral values.

Research methodology

The general objective of the present research is to identify the opportunities, challenges, and effects of artificial intelligence in advertising agencies. In conducting this research, we used the qualitative research method by using the interview technique based on the interview guide as a research tool. The interview guide is a qualitative research tool that helps to obtain more personal, diverse and complex responses from study participants, as it gives them the opportunity to express themselves in their own words and describe their own experience with the analyzed situation (Berg, 2007).

The groups of subjects to whom the interviews were addressed are represented by: 1. employees from advertising agencies without management positions; 2. managers/directors of departments and advertising agencies where employees from group 1 work. Each interview lasted 20 minutes on average. The answers obtained after conducting the interviews were collected between 01.02.2024 and 30.03.2024. For group 1 of subjects (employees from advertising agencies, without management positions), an interview guide was formulated consisting of 12 questions, through which the following specific objectives are to be achieved: identifying the activities of advertising agencies in which AI is involved; identifying advantages and disadvantages/barriers in working with AI. For group 2 of subjects (managers/directors of departments and advertising agencies, where employees from group 1 work), an interview guide was developed consisting of 13 questions in order to extract the information necessary to achieve the following specific objectives: identifying the positive and negative effects of using AI in advertising organizations; outlining solutions/proposals for improving activities in which AI is used; identifying ethical challenges related to working with AI.

Group 1 consisted of ten non-managerial employees working in different advertising agencies: Art director, PCC Specialist, Public Relations Specialist, Account executive, and Copywriter in the creative and media departments. For group 2, three people who hold management positions in the departments where the subjects from group 1 work were interviewed: the interviewees hold the positions of CEO and managers of the creative and media departments.

Analysis and interpretation of data obtained from interviews with non-management employees in advertising agencies.

Identifying activities in advertising agencies in which AI is involved

The purpose of the question *"Are you familiar with the term artificial intelligence? Please be detailed"* was to assess respondents' level of familiarity with the concept of artificial intelligence (AI) and their previous experience in using these technologies. Analysing the responses received, one can see various levels of knowledge and experience in relation to AI, indicating a familiarity with the term and an increased curiosity to explore and use available AI technologies: "*Yes, I learned about it when it became a topic viral on the internet, then I started exploring out of curiosity various tools that use artificial intelligence*" (Mihaela, PCC Specialist); "*I am really familiar with this term and it is one of the most advanced technologies that we have and that the public has access to*" (Cosmin, Art director). Some respondents demonstrate a solid familiarity with AI and recognize the importance and accessibility of this technology to the general public, confirming the usefulness of artificial intelligence in providing information on topics of interest: "*Yes, I have used myself programs that use artificial intelligence, ChatGPT or Adobe Firefly*" (Maria, Public Relations Specialist); *"Yes, it provides useful and accurate information for topics of interest"* (Alexandru S., Account executive); *"We have been integrating AI for about a year now because we wanted to improve our operational efficiency, creativity and success. AI also saves us time and resources"* (Cristina, Account executive).

The aim of the question *"Do you think it is necessary to implement artificial intelligence in an advertising agency?" Explain, please"* was to explore respondents' perception of the need to implement AI within an advertising agency and provide arguments for or against this idea. The implementation of AI in an advertising agency is considered beneficial for efficiency, innovation and trend identification in content creation, in automating processes and generating ideas in moments of creative deadlock, providing clients with increased impact and visibility: *"We rely on content creation, namely of videos with VFX, CGI and 3D Animation for local/international companies and brands..."* (Cristina, Account executive); *"Yes, because it makes research easier"* (Alexandru S., Account executive*); "It is necessary to implement artificial intelligence to the extent that it can be considered a plus, help in the creative side. I think it's a useful tool that you can use especially in moments when you can't find your inspiration"* (Maria, Public Relations Specialist); *"...it is essential for the optimization and personalization of advertising campaigns"* (Mircea, Copywriter).

To the question *"How could AI be useful in an advertising agency?",* the detailed answers given by the respondents brought into focus the various ways in which AI can contribute to efficiency and innovation in the field of advertising. It is essential to set up precise target audience segmentation, real-time optimization of budget and advertising channels, and data analysis to adapt marketing strategies. AI can also serve as a source of inspiration in the creation of texts and posts on social media, but it is essential to monitor and constantly improve the quality and relevance of the content generated: *"An advertising agency can benefit from artificial intelligence (AI) in a variety of ways: configuration and segmentation, this can reduce the time and energy needed to create good content"* (Alexandru, Copywriter); *"Thanks to AI we can analyze and extract valuable insights to make better decisions..."* (Cristina, Account executive); *"Through artificial intelligence you can save time when you inform yourself about certain fields/subjects"* (Alexandru S., Account executive); *"You can use artificial intelligence as a source of inspiration in writing texts..."* (Maria, Public Relations Specialist); *"Ideas for texts, translations, answers for some emails, to be honest, sometimes it's really hard for us to find an answer to anything..."* (Diana, PCC Specialist); *"For creative texts and automatic mail replies."* (Mihaela, PCC Specialist); "*AI can analyze consumer data in real time, optimize advertising budgets..."* (Mircea, Copywriter); *"AI helps us generate content ideas, test different approaches before launching campaigns"* (Cătălin, Copywriter).

Identifying the advantages and disadvantages of working with AI

To the question *"Can advertising agency employees lose their sense of imagination and creativity because of artificial intelligence?"*, responses indicated that AI is even amplifying creativity by taking over repetitive tasks and data analysis and thus leaving employees to focus on the more creative part of their work; rather than stifling creativity, AI can amplify it by providing more time and resources to explore new and innovative ideas: *"Not necessarily. AI can take over repetitive tasks and data analysis, leaving employees to focus on the more creative side of their work..."* (Alexandru, Copywriter); *"No, because artificial intelligence is not yet developed enough to put emotions in the text, thus the employees only take the raw information, but filter it and add their own opinions"* (Alexandru S., Account executive); *"I don't see artificial intelligence as a threat to creativity/imagination. On the contrary, it is a tool that helps creativity, a supplement that stimulates the imagination, of course, if it is used as such"* (Maria, Public Relations Specialist); *"Technology can actually stimulate creativity by freeing us from monotonous tasks"* (Cătălin, Copywriter). However, there are also arguments against it, which claim that there is a risk of becoming dependent on AI and reaching a creative ceiling: *"Certainly, if they use it continuously without intervening, they will lose their creativity exercise"* (Laura, Art director); *"And yes, and no, I think it depends from person to person how dependent they become on artificial intelligence and decide to use it, and thus they can reach a ceiling"* (Diana, PCC Specialist). It is important for agencies to find a balance between using AI effectively and maintaining and promoting human creativity and innovation in the ad creative process.

When asked, *"Can you give me some examples of the benefits of using AI in the advertising agency you work for?"*, advertisers' responses included listing of benefits associated with integrating AI into the agency's activities such as personalization and precise ad targeting, optimization of marketing strategy in real time, production of innovative content, reduction of human errors and increase of accuracy, support of creativity, efficiency of time and access to unlimited resources, all of which contribute to increase efficiency in the advertising industry: *"Personalization and precise segmentation of advertising: AI can analyze demographic, behavioral data [...], increasing conversion rates and campaign effectiveness..."* (Alexandru, Copywriter); *"I believe that one of the biggest advantages in using AI is the reduction of human errors, namely the increase in precision"* (Cristina, Account executive); *"Information about companies, products, formulations"* (Alexandru S., Account executive); *"The advantages are varied depending on the task. You can use AI to create a campaign presentation, a visual or create a program to organize yourself more efficiently within the agency"* (Maria, Public Relations Specialist); *"It can help us with ideas for certain campaigns, keywords and images"* (Laura, Art director); *"Time efficiency, response to anything and unlimited resources"* (Diana, PCC Specialist); *"Benefits include advanced data analysis, content customization and cost optimization"* (Mircea, Copywriter).

Analysis of the responses to the question *"What would be the disadvantages of using artificial intelligence in advertising agencies?"* shows that AI can make it difficult to appreciate essential emotional or cultural nuances in advertising, which can affect the quality of the message conveyed: *"Using artificial intelligence also comes with certain challenges. It is important to balance innovation with responsibility, to maximize the benefits of AI without neglecting the human aspects"* (Alexandru, Copywriter); *"The implementation of AI involves high costs for the purchase of specialized equipment, software. AI algorithms deserve human supervision anyway..."* (Cristina, Account executive); *"It is possible that people become increasingly lazy and appeal to helpful methods to cheat in solving a brief"* (Cosmin, Art director); *"Lack of personality"* (Laura, Art Director); *"It can become repetitive at some point"* (Mihaela, PCC Specialist); *"The feeling of convenience"* (Diana, PCC Specialist); *"The risk of dependence on technology, the potential erosion of human creative abilities"* (Mircea, Copywriter); *"Initial implementation costs and the potential to rely too much on technology..."* (Cătălin, Copywriter). Implementing AI technology can involve significant initial costs for the purchase of specialized equipment and software, as well as staff training. In addition, the use of personal data in the context of advertising raises privacy and ethical concerns that must be carefully managed to avoid infringing users' rights.

When asked, *"What experience do you have with using AI in advertising campaigns?"*, some advertisers provide examples to illustrate how AI has been used in a previous advertising campaign, helping to generate ideas and select a suitable slogan for the campaign: *"For example, in the last campaign for ROM chocolate, we used AI as an idea generator for the script of the video with special effects and the slogan..."* (Cristina, Account executive); others give examples of programs used - *"I used programs like ChatGPT and Adobe Firefly"* (Maria, Public Relations Specialist); *"Not big, I just used Adobe FireFly"* (Laura, Art director); or information acquired with the help of AI - *"Product or brand information"* (Alexandru S., Account executive); *"We used AI to identify consumption trends"* (Cătălin, Copywriter); *"I used ChatGPT for some descriptions, but I adapted them because they were too formal"* (Mihaela, PCC Specialist).

When asked, *"What are the most common types of AI algorithms used in advertising, and how do they work?"*, the subjects' responses revealed that AI works based on algorithms, analyzes data and identifies patterns or trends to personalize ads and provide relevant recommendations: *"There are several types of AI algorithms used in advertising, such as machine learning algorithms and neural networks"* (Alexandru, Copywriter); *"We use algorithms that analyze demographic data. Also, the algorithms that analyze the texts, comments, feedbacks to determine the opinions towards a product"* (Cristina, Account executive); *"Chat Gpt, Bart, and they work on the question-answer model"* (Diana, PCC

Specialist); *"Machine learning and natural language processing algorithms are the most frequently used in advertising"* (Mircea, Copywriter).

The answers to the question *"What impact do you think the use of AI has in the creation of advertising content?"* shows that the use of AI in advertising enables the creation of relevant and engaging content that directly addresses the needs and preferences of customers, more precisely the adaptation of content to specific formats and platforms, thus optimizing the impact of advertising campaigns and enabling the rapid and efficient generation of content: *"Using AI in advertising has a major impact! It helps to create super relevant and engaging content, and makes campaigns more effective"* (Alexandru, Copywriter); *"The impact is positive, it increases user engagement, which helps in deeper interaction"* (Cristina, Account executive); *"Most likely more specific formatting modes"* (Alexandru S., Account executive); *"AI had and has a significant impact in the area of advertising, especially due to the accelerated rate of content generation"* (Maria, Public Relations Specialist); *"It can lead to greater relevance, positively influencing conversion rate and customer satisfaction"* (Mircea, Copywriter). But there are also contrary opinions; some advertisers are sceptical about its real impact in the long term because the use of AI can lead to the recognition of a certain writing style, which can affect the originality and authenticity of the content: *"From my point of view, has a certain type of writing that is very easy to identify, and when no further interventions are made on the text, it is very easy to recognize"* (Diana, PCC Specialist).

The responses to the question *"Do you think AI will become central to the advertising industry in the coming years?" Please, explain"* shows that AI will not become a central element, due to the fact that the content generated is not original and the advertising industry relies on originality and creativity; it is suggested that AI has become a popular trend, but at some point it will be replaced by other technologies or more effective methods: *"I don't think it will become the central element because the generated content is not an original one…"* (Maria, Public Relations Specialist); *"It seems that AI has become a trend and that it will last for a few years, especially because it has only just started to develop, but at some point it will be replaced by something else"* (Cosmin, Art director). On the other hand, other advertisers are more optimistic about the evolution of AI, anticipating that as the technology advances, AI will have an increasingly significant impact on the advertising industry: *"Definitely! AI is already changing the game in advertising. It can analyze huge data quickly, optimizing the targeting and personalization of ads"* (Alexandru, Copywriter); *"100% AI becomes a central element, given the fact that it is easy to implement and helps to optimize the creative processes"* (Cristina, Account executive); *"I really think so, especially because now more and more tools are being developed to make work in any field easier"* (Diana, PCC Specialist); *"Yes, I believe that AI will play a central role in the evolution of the advertising industry in the near future"* (Mihaela, PCC Specialist).

Analysis and interpretation of data obtained from interviews with managers in advertising agencies

Identifying the positive and negative effects of using AI

The responses received from the three managers to the question *"Is it used in your agency? If so, in what areas of the agency are you using artificial intelligence?"* shows that artificial intelligence is used in the creative department to generate creative texts and ideas, but also in other several departments of the agency, including marketing, strategy and research: *"Yes, we use artificial intelligence in the company and especially in the creative department"* (Mădălina - Manager); *"We use AI in the marketing department, the strategy and planning department and the creative and design department. Also, for research and analysis"* (Ștefania - Agency Founder and CEO).

Perceived benefits of working with AI, according to the three management respondents, include providing personalized marketing strategies, automating processes and driving

creativity in VFX and CGI content creation: *"The benefits of AI are highly visible, managing to give us exactly what I was looking for"* (Mădălina - Manager); *"We automate certain processes and tasks through AI, stimulate creativity and innovation in the VFX, CGI content creation process"* (Ştefania - Agency Founder and CEO). *"AI helps us find what we need quickly"* (Karina - CEO).

The obstacles encountered in the implementation and use of AI, according to the three interviewed managers, are the possible disappearance of the creativity of the employees, who could rely exclusively on AI, and the need for significant amounts of data to train the algorithms, but also other ethical and legal aspects: *"I could mention the disappearance of employees' creativity"* (Mădălina - Manager). *"Unfortunately, employees of the creative department are starting to rely only on AI and stop coming up with their own ideas"* (Karina – CEO); *"To train AI algorithms in VFX and CGI production, a significant amount of high-quality training data is required"* (Ştefania - Agency Founder and CEO).

When asked, *"Why do you think artificial intelligence could be more effective in personalizing and segmenting advertising messages for specific audiences?"*, the three interviewees believed that AI is effective in personalizing and segmenting advertising messages for specific audiences because *"It can quickly analyze and precisely the behavioral and demographic data of the audience, allowing more precise configuration and segmentation of advertising messages for specific audiences "* (Karina – CEO).

Data security is managed both through internal networks and through encryption and security programs: *"In our agency, we have an internal network through which we try to protect our clients' data and the content of advertising campaigns"* (Mădălina - Manager); *"All data and information, as well as project files, are encrypted"* (Ştefania - Agency Founder and CEO); *"Data is protected by encryption and specialized tools"* (Karina - CEO).

Proposals for improving activities where AI is used

The proposals of the three managers for improving activities in which AI is used include integrating AI into creative processes and stimulating human creativity but also involving employees in maintaining the balance between AI and human creativity: *"I think that artificial intelligence must merge with ideas from each member of the creative department"* (Mădălina - Manager). *"I think they should turn to AI after a brainstorming session"* (Karina – CEO).

The role of the question *"What is your agency's vision of the evolution of the use of artificial intelligence in advertising in the coming years?"* was to identify the vision of the evolution of the use of AI in advertising, to anticipate future directions and trends in the use of the technology. It finds that the trend is to continue using AI but not abuse it: *"We want to deepen the use of artificial intelligence in the future but not abuse it"* (Mădălina - Manager). *"I don't think we manage to adapt our people as quickly as the AI data is updated..."* (Ştefania - Agency Founder and CEO).

After evaluating the answers to the question *"How do you think the relationship between human creativity and AI will evolve in this field?"*, the respondents anticipate a negative evolution of the relationship between human creativity and AI if employees rely exclusively on AI: *"Unfortunately, I don't foresee a very good evolution of the relationship between AI and human creativity, the former managing to make employees a little more careless..."* (Mădălina - Manager). *"I believe that human creativity should be supported with the help of AI, and not the other way around"* (Ştefania - Agency Founder and CEO); *"If man will only rely on AI, it will not be beneficial"* (Karina - CEO). The interviewees believe that the relationship must be one in which AI supports human creativity, not replaces it.

From the answers to the question *"What are the next steps your agency plans to take in using artificial intelligence in advertising strategies and campaigns?",* it turned out that AI is to be used only in certain specific activities of the departments, such as the creation of

promotional texts and video content: *"We would like to use artificial intelligence as little as possible, but as useful as possible"* (Mădălina - Manager). "We plan to invest in AI systems that we can implement to make video creation easier" (Ştefania - Agency Founder and CEO).

Identifying ethical challenges related to working with AI

To the question, *"Given that the use of Artificial Intelligence in advertising can bring significant benefits, how do you approach and manage the ethical challenges associated with the use of AI in decision-making processes and in the creation of advertising content? For example, how do you ensure that AI algorithms do not perpetuate stereotypes or discrimination, and how do you protect the privacy of customer and consumer data in this context?"* the answers of the three managers showed that managing the ethics and challenges associated with the use of AI focuses on explaining and justifying decisions, choosing responsible partners and maintaining human control and ensuring compliance with ethical and legal standards: *"We make consistent decisions, and we do not allow some processes to get out of our control because they may negatively impact us"* (Ştefania - Agency Founder and CEO); *"We implement policies and procedures to ensure that AI algorithms do not perpetuate stereotypes or discrimination"* (Karina – CEO).

The three interviews provide a complex picture of the use of AI in the advertising industry, highlighting the benefits, obstacles and perspectives on its evolution. It emphasizes the need for a balanced approach between the use of AI and the stimulation of human creativity, as well as careful management of the ethical challenges associated with the use of AI in advertising creation and decision-making processes.

Discussion and conclusions

Analysis of the group 1 responses demonstrated a varied knowledge and application of AI in different advertising activities, from audience segmentation and real-time campaign optimization to creative content generation and strategic data analysis. This aspect indicates the achievement of the specific research objective of identifying the activities in which AI is involved in advertising agencies, providing a clear picture of the role of AI in streamlining and innovating advertising processes. The responses of the subjects in the first group also highlighted the advantages of using AI, including increasing efficiency, personalizing content, and supporting creativity, as well as challenges such as dependence on technology, ethical and privacy risks, and the potential inhibition of human creativity. This information shows the achievement of the specific research objective of identifying the advantages and disadvantages of working with AI.

Regarding group 2, the responses highlighted both the benefits of AI in terms of operational efficiency, personalization and strategic decision support, as well as the potential negative effects, including concerns about the loss of human creativity and ethical challenges. These findings show the achievement of the research objective of identifying the positive and negative effects of the use of AI, providing valuable insights for understanding the impact of the technology on organizations in the advertising sector. The proposals for improving AI activities and the identification of ethical challenges, drawn from the responses of Group 2, demonstrate a mature and balanced approach to managing and optimizing the use of AI in advertising. Discussions included strategies for balancing human creativity with AI efficiency, the need for professional training and the adoption of security measures for data protection, confirming the achievement of specific research objectives related to improving the use of AI and addressing ethical challenges.

By achieving these goals, the research provided a detailed and nuanced analysis of the current state and potential of AI in the advertising industry, providing a solid foundation for future developments and strategies for integrating AI technology in a responsible and innovative way. The investigation revealed various forms of familiarity and use of

Artificial Intelligence (AI) within advertising agencies, ranging from basic and personal uses to sophisticated and professional integrations. AI has been identified as an essential tool for improving efficiency and innovation in the advertising industry, with applicability in audience configuration and segmentation, real-time campaign optimization, creative content generation and data analysis for strategic decisions, emphasizing AI's potential to support advertising agencies in adapting to the ever-changing needs of the market and maximizing the impact of their campaigns.

The research indicated the need for solutions to improve advertising activities through AI, including adopting a balanced approach between technology and human creativity, investing in professional training for the effective use of AI, and implementing security measures to protect data. The importance of maintaining human control over decision-making processes and ethically managing the challenges associated with AI was highlighted, emphasizing the need for proper regulation and transparency in data use. The limits of the present research are the small group of subjects from advertising agencies; however, the current research is qualitative, which did not aim to measure social phenomena but only to explore and describe them. We must also mention that the results may vary in other cultural and organizational contexts, in advertising agencies from other countries, and, of course, in organizations from another field of activity in our country.

Analysis of the interviewees' responses suggests an optimistic outlook on the role of AI in the future of the advertising industry, anticipating that the technology will continue to evolve and bring significant innovation. However, there is recognition of the potential limitations of AI, including concerns about authenticity and originality. A balance between technological innovation and human creativity is anticipated to be critical to long-term success in the advertising sector.

The overall objective of the research was to identify the opportunities, challenges, and effects of artificial intelligence in advertising agencies. Achieving this goal was possible with the help of interviewees from Group 1 and Group 2, who highlighted numerous advantages of using AI, including enhancing creativity, reducing time spent on some routine activities, personalizing advertising content and improving campaign accuracy. At the same time, challenges and disadvantages were recognized, such as the potential dependence on AI, the risk of losing human originality and creativity, high initial costs and the complexity of technological integration. In addition, the use of personal data in advertising has raised significant ethical and privacy concerns.

When comparing the results of our research with those of other authors presented in the theoretical sections of this paper, it is found that these insights align with international trends in the field and broader industry trends. Sections 1 and 2 provide a theoretical perspective on AI, highlighting its evolution and impact on the entire economy, in general, and in advertising, in particular. They highlight the importance of AI in personalizing advertising messages and improving the effectiveness of campaigns. On the other hand, the research carried out in section 3 of this paper explores the practical application of AI in Romanian advertising agencies, highlighting the opportunities and challenges encountered. The advantages of using AI are noted, such as enhancing creativity and streamlining processes, as well as the ethical and practical aspects, such as technology dependency and data privacy concerns. Both the studies presented in the theoretical part and the research results in the third section underline the importance of a balanced and ethical approach to the use of AI, highlighting the need to promote a dynamic and innovative advertising environment that values both technological potential and human creativity.

It is vital for advertising agencies to adopt strategies that balance human ingenuity with the technological power of AI, thereby supporting a dynamic and innovative advertising environment without sacrificing the human element. Investments in employee professional development and the implementation of rigorous data security measures are critical to the effective and ethical use of AI in advertising. In addition, proper regulation

and the promotion of transparency in the use of AI data and algorithms will help build public trust and ensure responsible use of the technology. In the future, the current study can continue with comparative research of the use of AI in Romanian advertising compared to other intensive-cognitive sectors in our country, such as finance-banking, telecommunications, higher education, etc., but also to the advertising sector in other Central and Eastern European countries.

In conclusion, AI is a transformative force in the advertising industry, bringing both significant opportunities and ethical and practical challenges. The rapid evolution of AI has facilitated the development of new creative approaches and marketing techniques, enabling customization at scale and optimizing the effectiveness of campaigns. At the same time, the complexity and variety of AI underscores the need for deep understanding and an ethical and responsible approach to its use. The evolution of AI, from initial concepts to today's advanced applications, reflects the immense potential for innovation and transformation in the advertising industry. However, the success of AI implementation depends on the balance between exploiting the technological benefits and managing the ethical and practical challenges.

References

Abrardi, L., Cambini, C., & Rondi, L. (2022). Artificial intelligence, firms and consumer behavior: A survey. *Journal of Economic Surveys*, *36*(4), 969–991, https://doi.org/10.1111/joes.12455

Acquisti, A., & Grossklags, J. (2007). *What Can Behavioural Economics Teach Us about Privacy?* Auerbach Publication. https://www.heinz.cmu.edu/~acquisti/papers/

Adomavicius, G., & Tuzhilin, A. (2005). Toward the Next Generation of Recommender Systems: A Survey of the State-of-the-Art and Possible Extension. *IEEE Transactions on Knowledge and Data Engineering*, *17*(6), 734-749. https://doi.org/10.1109/TKDE.2005.99

Arntz, M., Gregory, T., & Zierahn, U. (2016, May). *The risk of automation for jobs in OECD countries: A comparative analysis* (OECD Social, Employment and Migration Working Papers No. 189). https://doi.org/10.1787/5jlz9h56dvq7-en

Badea, M. D. (2024, February 24). Cum devine inteligența artificială omniprezentă [How artificial intelligence is becoming ubiquitous]. *Republica*. https://republica.ro/cum-devine-inteligenta-artificiala-omniprezenta

Berg, B. L. (2007). *Qualitative Research Methods for the Social Sciences*. Pearson.

Brynjolfsson, E., & McAfee, A. (2014). *The second machine age: Work, progress, and prosperity in a time of brilliant technologies*. W. W. Norton & Company.

Deloitte. (2023). *State of ethics and trust in technology. Annual report*. Deloitte. https://www2.deloitte.com/content/dam/Deloitte/us/Documents/us-tte-annual-report-2023-12-8.pdf.

Diakopoulos, N. (2016). Accountability in algorithmic decision making. *Commun. ACM, 59*, 56–62. https://doi.org/10.1145/2844110

Duan, L., Xu, Y., Tsang, I. W., & Luo, J. (2019). Collaborative generated hashing for market analysis and fast cold-start recommendation. *Intelligent Systems, 35*(5), 84-95. https://doi.org/10.1109/MIS.2020.3025197.

Eurostat. (2024). *Use of artificial intelligence in enterprises*. Eurostat. https://ec.europa.eu/eurostat/statistics-explained/UseOfAI

Floridi, L., & Taddeo, M. (2016). What Is Data Ethics? *Philosophical Transactions of the Royal Society, 374*(2083). https://doi.org/10.1098/rsta.2016.0360

Forbes România. (2023, February). Tendințe care vor modela și vor perturba industria comunicării [Trends that will shape and disrupt the communications industry]. *Forbes*. https://www.forbes.ro/tendinte-care-vor-modela-si-vor-perturba

Goldfarb, A., & Tucker, C. (2011). Privacy regulation and online advertising. *Management Science*, *57*(1), 57-71. https://doi.org/10.1287/mnsc.1100.1246

Htssgroup. (2023, October). 7 Tipuri de inteligență artificială [7 Types of artificial intelligence]. *Htssgoup*. https://htssgroup.eu/ro/7-types-of-artificial-intelligence/

IBM. (2023). *IBM Global AI Adoption Index*. IBM. https://www2.multivu.com

Initiative. (2023). *MediaFact Book 2023*. IQ ADS. https://www.iqads.ro/articol/64347/media-fact-book-2023-initiative

Jobin, A., Ienca, M., & Vayena, E. (2019). The global landscape of ai ethics guidelines. *Nat. Mach Intell, 1*(2), 389–399. https://doi.org/10.1038/s42256-019-0088-2

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. https://doi.org/10.2501/jar-2018-035

Kingma, D. P., & Ba, J. (2014, December 22). Adam: A method for stochastic optimization [Paper presentation]. 3rd International Conference for Learning Representations, San Diego, United States.

Kumar, V., Ashraf, A. R., & Nadeem, W. (2024). AI-powered marketing: What, where, and how? *International Journal of Information Management*, *77*. https://doi.org/10.1016/j.ijinfomgt.2024.102783

Lamarre, E., Singla, A., Sukharevsky, A., & Zemmel R. (2024, March). *A generative AI reset: Rewiring to turn potential into value in 2024.* McKinsey Quarterly.

McKinsey & Company. (2024, March). *Implementing generative AI with speed and safety*. McKinsey & Company. https://www.mckinsey.com/~/media/mckinsey/

Minsky, M. (1968). *Semantic Information Processing*. The MIT Press.

Narayanan, A., & Shmatikov, V. (2010). Myths and fallacies of "personally identifiable information", *Commun. ACM, 53*(6), 24–26. /10.1145/1743546.1743558

QERY. (2024, May). *AI adoption in European businesses: 2023 snapshot.* QERY. https://qery.no/ai-adoption-in-european-businesses-2023-snapshot/

Russell, S., & Norvig, P. (2010). *Artificial intelligence: A modern approach*. Pearson Italia.

Selbst, A.D., Boyd, D., Friedler, S. A., Venkatasubramanian, S., & Vertesi, J. (2019). Fairness and abstraction in sociotechnical systems. In *Proceedings of the Conference on Fairness, Accountability, and Transparency* (pp. 59-68). https://doi.org/10.1145/3287560.3287598

Shoham, Y., & Leyton-Brown, K. (2009). *Multiagent systems: algorithmic, game-theoretic and logical foundations*. University Press.

Statista. (2024). *Artificial Intelligence – Europe*. Statista. https://www.statista.com/outlook/tmo/artificial-intelligence/europe

United Media Services. (2024, April). 40% dintre români folosesc aplicații de AI cel puțin săptămânal [40% of Romanians use AI applications at least weekly]. *IQ ADS*. https://www.iqads.ro/articol/67785/studiu-united-media-services-40

Wang, H., & Kosinski, M. (2018). Deep Neural networks are more accurate than humans at detecting sexual orientation from facial images. *Journal of Personality and Social Psychology, 114*(2), 246-257. https://doi.org/10.1037/pspa0000098

Wang, X. (2020). Screening soft information: Evidence from loan officers. *RAND Journal of Economics*, *51*(4), 1287-1322. https://doi.org/10.1111/1756-2171.12357

Winston, P. H. (1992). *Artificial intelligence*. Addison-Wesley Publishing Company.