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Generative Artificial Intelligence and Advertising

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Abstract

Generative artificial intelligence, the new buzzword in technology, is the next step in the evolution of traditional artificial intelligence. Unlike traditional AI that excels in data analyzing and automating processes, generative AI (GenAI) is a pioneer in creating new and original content. GenAI is very close to human intelligence, capable of logical thinking, imitating human behavior and armed with decision making capabilities. Generative AI creates new texts, images, music, 3D designs and codes, thus strongly influencing the activities, strategies, and consumer interactions of various industries. Key industries most affected by GenAI are banking and finance, retail and consumer goods, medicine and pharmaceuticals, education, media and marketing. In marketing, generative AI is significant in the process of personalization, content creation, audience engagement and interactions, performing the STP strategy (segmentation, targeting, positioning), market research, etc.

Although it has great advantages, GenAI also has significant limitations, such as unresolved ethical issues, the spread of outdated or imprecise data, lack of legal regulation and control, etc. This paper, with the aid of secondary research, is aimed at exploring the possibilities of GenAI and its impact on marketing, especially advertising.

Keywords: AI, generative AI, creative content, marketing, advertising

Introduction

Artificial intelligence (AI) is a branch of computer science that creates machines, which are able to imitate and perform human behavior. According to Miquido (2024), AI is a science that designs smart systems and algorithms that can perform intelligent tasks, such as problem solving, speech recognition, translating languages, decision making. The simplest definition of AI is that it is a "science of making machines smart." (Kaput, 2024). Traditional AI, often called "weak" or "narrow" intelligence, can analyze data, automate processes, make decisions based on specific inputs. It responds to a particular set of inputs on the basis of which it makes smart decisions within certain rules. (Marr, 2024) This kind of intelligence is used by voice assistants such as Siri, Alexa, recommendation engines of Netflix, Amazon, Google search. Traditional AI has evolved with the emergence of Generative AI (GenAI), which is considered a "strong" intelligence that focuses on creating new and unique content. This intelligence uses advanced deep learning techniques, neural networks to create something new, similar to what human intelligence creates. GenAI tools such as conversational agent Chat GPT, text generator GPT-4, image generator DALL-E can create new, high-quality and contextually relevant texts, images, music, video, 3D designs, codes. (Routray, 2024). The transition from AI to GenAI is a significant milestone in the history of technology. The path that AI has historically traveled from emergence to content creation is shown in the following Table.

The history of AI is a testament to human curiosity, innovation and the relentless pursuit of knowledge. (Haddad, 2023). AI is constantly pushing the boundaries of what is possible and what machines can do for humans. Today, it transforms the way of living, learning, working, and communicating between people. AI touches various aspects of human life, from virtual assistants to recommendation systems, to autonomous vehicles and healthcare diagnostics. It constantly penetrates into all the pores of society, offering its existing opportunities in personalized medicine, smart cities, marketing, communication, construction and architecture, as well as in the fine arts such as painting, sculpture, literature, music, film. AI, with its gradual integration into society, is attracting the attention of people and businesses. In doing so, it tries to address societal, ethical, legal and privacy constraints.

Table 1: The history of AI

|	HISTORY OF AI: A Timeline from 1950 to 2023	
	I Period: The birth of AI and Symbolic reasoning and logic	
1950	Turing Test	Alan Turing proposed a concept of a thinking machine
1956	"AI" term coined	John McCarthy introduced the term AI for the first time
1960	Eliza	First chatbot that simulated a human conversation
	II Period: Expert systems and Knowledge-based AI	
1970-1980	AI Winter	No new AI programs
1980	RNNs & LSTM	Machines learn from data, not programming, introduction of neural netwroks
	III Period: Machine Learning Revolution	
1990	IBM Deep Blue	IBM's Deep Blue defeated chess champion Garry Kasparov
	IV Period: Big Data and Deep Learning	
2006-2008	Cloud, Big Data, GPUs	
2011	Siri	Apple gave its iPhone 4s an intelligent language-based assistant: Siri. The software recognizes and processes natural language and can thus act as a personal assistant
2011	Watson	Supercomputer Watson, named after IBM founder Thomas J. Watson, won the US-American quiz show Jeopardy against two human competitors.
2014	Alexa	Amazon's Alexa digital assistance introduced
2014	GANs	Creation of Generative Adversarial Networks (GANs) in 2014 was a fundamental breakthrough in generative AI. A GAN is an unsupervised machine learning (ML)
	V Period: The Birth of GenAI	
2015	Foundation of OpenAI	
2018	GPT1	Creation of LLMs such as GPT (Generative Pre-trained Transformer), first built by OpenAI in 2018. GPTs are neural networks using a deep learning architecture to generate text, engage in conversations with users and complete numerous language tasks.
2020	GPT-3, DALL-E	
2022	Chat GPT, DALL-E2, Midjourney, Stable Diffusion	ChatGPT, launched by OpenAI in November of 2022, enables machines to engage in coherent and context-aware conversations. Users can also ask ChatGPT to generate text and other content of a desired style, length, format and level of detail. DALL-E, Midjourney and Stable Diffusion are advanced generative AI models that create and manipulate visual content based on textual input.
2023	GPT4, Google's Bard, Microsoft Bing AI	

Source: Own research

Artificial Intelligence's Impact on Various Industries

If companies want to survive, develop and successfully fight the fierce competition, they will have to use the latest technology. This is especially important for companies in developed economies. (Roytray, 2024). New technology, and especially AI, provides a competitive advantage for companies in the market by offering them greater efficiency, effectiveness, productivity and creativity. Unlike humans, AI can, in a very short time, process and analyse large databases, automate specific and routine tasks, optimize operations, improve business processes, reduce labour costs, make significant market researches. In this way, AI helps management structures in companies to use the remaining time, energy, and resources for more strategic goals. (Lawlor & Chang, 2024). GenAI can fundamentally change strategies, operations and interactions with consumers across various industries. According to Bill Gates, "2024 is the year of GenAI". (Howarth, 2024).

Statistical data published by reputable houses confirm the tendency for a significant grow of the AI market worldwide. According to Statista (Thormundsson, 2024), the market for AI technologies is expected to grow beyond 1.8 trillion US dollars by 2030. For comparison, the UK GDP in 2021 was 3.1 trillion US dollars. This trend is also confirmed by Bloomberg Intelligence (2023), according to which Generative AI is to become a 1.3 trillion US dollars' market by 2032. The distribution of AI investments by individual industries is shown in the following Figure:

Figure 1: Worldwide spending on AI, by industries
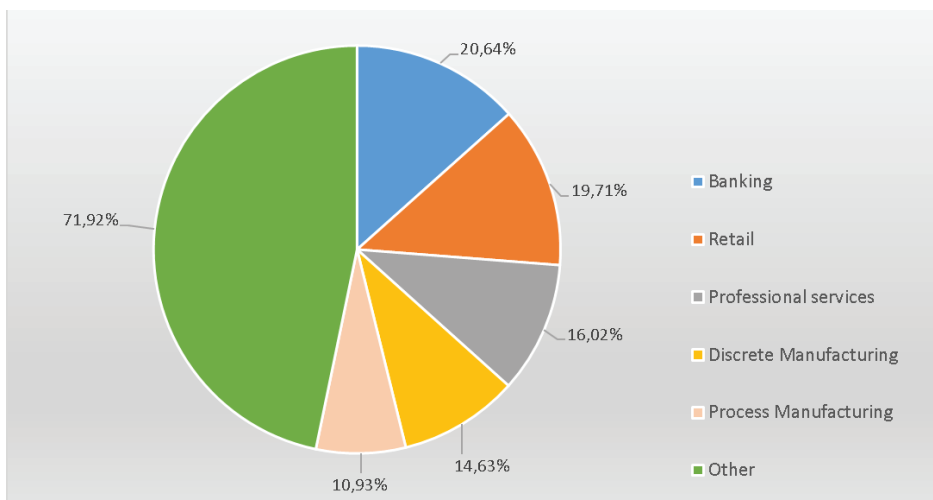
Source: Statista, 2024

AI has the greatest impact on banking (20,64%) and retail industries (19,71%) measured by investments in billions of US dollars. According to the Deloitte Report (2023), 42% of companies are experimenting with GenAI, and 15% have actively included AI in their strategies. The same Report confirms that the most significant industries affected by AI are: a) Banking and finance, b) Retail and consumer goods, c) Media, technology and entertainment, d) Pharmacy and life sciences, e) Education, etc. According to Bretzfield (2023), in the field of finance and banking, AI helps in automating financial processes, improving risk management, increasing consumer experience and fraud detection. Just like banking, the retail industry reaps the benefits of AI in activities such as inventory management, personalized shopping experiences, recommendation systems and enhancing process automation. The following figure presents the answers of the companies about their expected benefits from the use of AI:

Figure 2: Expected benefits from the AI usage
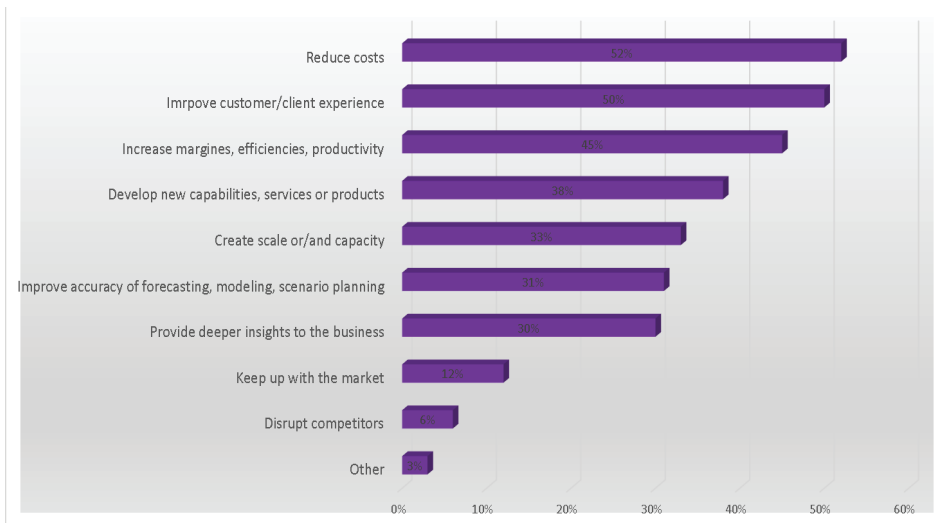
Source: Deloitte, 2023

Industries expect AI to reduce costs (52%) mostly, then to improve the consumer experience (50%), and increase margins, efficiency and productivity (45%). In the future, AI is expected to increase its impact on other industries, such as construction, real estate, sports, aerospace, non-profit activities, government activities, etc.

Artificial Intelligence and Advertising

Advertising as part of a company's promotional mix is very important for attracting consumer attention. Advertising is the "magic" used by companies to inform, persuade and remind consumers to buy their products and services. Today, this task can be completed more easily with the help of generative AI, that adds value with its uniqueness, creativity, personalization, involvement of consumers in the purchase process. AI in advertising has a number of benefits, but the most significant are:

A) Content creation and personalization

AI helps companies generate new text, images, video and audio data, and even entire marketing campaigns. Unlike humans, it can complete the process of segmenting, targeting and personalizing consumers based on their data more efficiently and for less time. AI analyses a large set of consumer data and based on them, can predict consumer behaviour and create and deliver customized content that is relevant to a specific audience. Personalization means that AI targets the content towards specific interests, needs, wants, preferences and behaviours of individual consumers. By using multimodal inputs such as text, images, speech, technology, it creates what consumers want and demand. Relevant content attracts more customers, creates greater customer loyalty, and increases conversion and retention rates over traditional techniques. In this way, AI increases the productivity of companies by 5-15% of the total marketing spending (McKinsey Report, 2023). AI is used in personalizing content creation through chatbots, predictive analytics, natural language generation, recommendation algorithms that create personalized responses to specific consumer needs and wants. (AI Contentfy, 2023). Success stories of AI-powered personalized content are the examples of:

- Netflix, based on analysis of user data, recommends movie content that will best suit the tastes of individual viewers;

- Amazon, based on browsing and purchasing history, recommends which products and services are of interest to individual customers;

- The New York Times, based on previous experiences with readers, offers each individual reader a homepage and highlighted stories that are of interest to them;

- Sephora, based on previous experiences with consumers, recommends specialized offers of perfumes and cosmetics to individual consumers.

B) Operational efficiency and optimization of advertising budget and performances

According to Mint's research (2024), 92% of companies believe that the AI's biggest opportunity lies in improving the efficiency of existing processes. Greater operational efficiency is achieved with master automation and robotization of processes in the company, which will free up more time for managers to devote to other strategic tasks. Real-time automation can meet the demands of increasingly sophisticated consumers. AI can, on the one hand, perform repetitive and routine tasks, and on the other, generate smart solutions based on which managers can make informed decisions. In the field of budgeting, AI can better and faster analyze financial data, identify patterns and trends, and provide recommendations related to spending habits, ways to increase incomes, suggestions about how to save money, etc. According to Kaput (2024), machine's algorithms can analyze how ads perform across specific platforms, and then offer recommendations on how to improve performance. Unlike humans, artificial intelligence can change data in real time according to changes in the market or consumer behavior, optimize responses and make dynamic adjustment of advertising and personalization of customer interactions. In the function of optimizing the advertising budget, AI helps companies with predictive analytics, which can forecast the future behavior of consumers, new customer trends, purchasing behavior for priority segments, respondent-level purchasing behavior, make customer segmentation, model uncover insights. (Pecan blog, 2023).

C) Audience engagement and interaction

The greatest challenge for the companies is the audience engagement and interaction having in mind the facts that 70% of GenZ have tried generative AI tools, that nearly 9 of 10 of jobs worldwide would be impacted by GenAI, 95% of customer interactions will involve AI by 2025 and 73% of marketing departments nowadays use GenAI. (Howarth, 2024). Companies must be present where consumers are! (Dimitrieska et al., 2018). According to Ginzburg (2024), AI can create a more dynamic, responsive, engagement environment and involve customers more in the purchasing process. It

can offer customers content that closely matches their individual interests. AI can do this by examining a large set of data collected from browsing history, purchase patterns and social media interactions, categorizing them by preferences, interests and behaviour of customers. This kind of personalization is not static, but it is optimized by AI regularly, in real-time. The main goal is delivering better experience to consumers. Emerging technologies, such as AR (augmented reality) and VR (virtual reality) allow businesses to create immerse and engaging experiences for their customers in an entire new way. (Dimitrieska et.al, 2023)

Other ways how AI can help the business are: (Kaput, 2024)

- Media buying,
- Building richer audience profiles,
- Getting insight into competitors' ad spend, creatives and strategies,
- Hyper-personalization of customer segmentation and targeting,
- Market research and data analytics,
- Creating ad copy, visual ad creative,
- Prediction of the effectiveness of ads in advance, etc.

Limitations of the Artificial Intelligence

Even though there are endless possibilities of the GenAI, there are some limitations and concerns that companies must consider when using it. According to Routray (2024), the most meaningful concerns are related to the quality of data, data privacy and security issues, biased and inaccurate content, ethical issues, high costs, possible IP and copyright violations and its emotionless nature. The usage of AI requires supervision because some data and predictions can really be wrong. The following figure presents the limitations of AI seen by companies:

Figure 3 Companies' concerns about GenAI
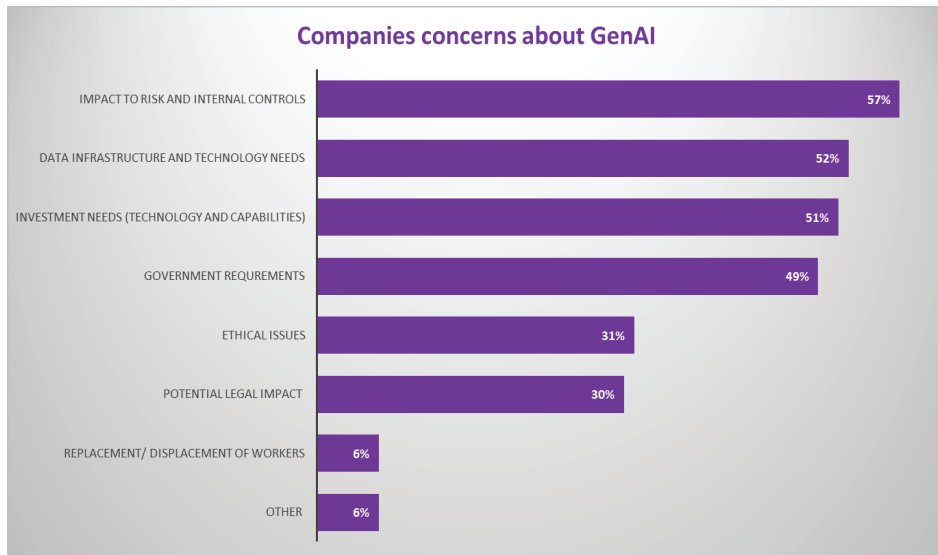
Source: Deloitte, 2023

It seems that ethical issues, legal impact and displacement of human workers do not pose a great challenge to the companies. They are far more concerned about the impact that AI has on risks and internal controls, investments in data infrastructure and technology needs as well as government requirements.

However, a lot of experts agree that the most powerful AI limitations are related to: (Routray, 2024):

- Lack of intentionality: AI cannot truly understand its output and cannot give a rationale and explanations about its outputs. It lacks critical thinking and judgment of what it creates. In this sense, it is still far from the human intelligence,

- Lack of consistency and coherence: Sometimes, AI can deliver unpredictable and nonsensical results. This warns people not to completely and solely rely on AI analytics,

- Biases on race, gender, ethnicity embedded in data that AI uses.

These limitations together with the lack of legal coverage and ethical issues make AI vulnerable and untrustworthy. However, the era of this new technology has just begun and its influence on the transformation of the advertising landscape looks promising.

Conclusion

GenAI, as the newest technology, has already begun to revolutionize various industries, from banking and finance, marketing and communications, to healthcare and aerospace. In the field of marketing, and especially advertising, AI improves efficiency, reduces costs, and enhances customer experiences. AI can analyse consumer data in no time. Based on that data, the technology can make predictions and recommendations that bring companies closer to consumers. Thus, company managers have more time, energy and capital to devote to other important business activities and strategies. AI makes people's jobs easier. (Dimitrieska et.al, 2018). And, the slogan of artificial intelligence's goal is really meaningful: "Empowering businesses to create smarter, not harder".

However, as with any new technology, some concerns and challenges must be addressed. In advertising, there are concerns about bias in decision-making, data privacy and security, ethical issues, regulation, outdated information, wrong AI analytics, emotionlessness. Computer companies are working to overcome these limitations of artificial intelligence. They are trying to establish best practices for responsible use of AI. To the question of what is the future of AI, she herself already answers that the "future is now".

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