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THE IMPACT OF MODERN INNOVATIVE TECHNOLOGIES ON THE DEVELOPMENT OF DIGITAL MARKETING

ВПЛИВ СУЧАСНИХ ІННОВАЦІЙНИХ ТЕХНОЛОГІЙ НА РОЗВИТОК ДІДЖИТАЛ МАРКЕТИНГУ

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A general statement of the problem and its connection with important scientific or practical tasks. In today's digital world, innovative technologies are developing rapidly and have a significant impact on various business sectors. One of the most tangible areas where innovative technologies, including artificial intelligence, are changing paradigms and approaches is digital marketing. From traditional promotion methods to online strategies, digital innovations are opening up new opportunities for brands and consumers. The article explores the impact of modern innovative technologies on the development of digital marketing, and also raises the problem related to this topic and its connection with scientific and practical tasks.

The impact of modern innovative technologies on digital marketing is becoming an increasingly important task for researchers, marketers, and businesses in general. There are many questions that need to be answered: what new tools and technologies have emerged in recent years and how do they affect digital marketing strategies? How can artificial intelligence, augmented reality, blockchain, and other innovative technologies be used to improve the effectiveness of marketing campaigns? What are the challenges and obstacles to implementing these technologies? How do they affect consumers and their behaviour?

Ukraine, like many other countries, is facing the growth of modern innovative technologies and their impact on the development of digital marketing.

This development opens up great opportunities for Ukrainian companies in the marketing sector, but at the same time poses challenges that need to be understood and addressed.

One of the key issues is the need for training and education of personnel. The development of modern

Гавриш Ю.О., Щербатюк І.В. Вплив сучасних інноваційних технологій на розвиток діджитал маркетингу. Оглядова стаття.

Стаття присвячена аналізу впливу сучасних інноваційних технологій, зокрема штучного інтелекту, на розвиток діджитал маркетингу. Основний акцент зроблено на значенні штучного інтелекту, як ключового успіху маркетингових стратегій. Досліджено, що штучний інтелект дозволяє забезпечити більш точну аналітику, персоналізовані підходи та автоматизовані процеси. Розглянуто розмаїтість застосувань штучного інтелекту у діджитал маркетингу, що включає рекомендації для споживачів, чат-боти, автоматичне виявлення трендів та інші інструменти, що допомагають компаніям краще розуміти потреби своїх споживачів. У статті розглянуто правові аспекти, пов'язані з використанням штучного інтелекту в діджитал маркетингу. Зазначено важливість ретельного підходу до питань конфіденційності даних, авторських прав та етичної відповідальності.

Ключові слова: штучний інтелект, діджитал маркетинг, правові аспекти, інноваційні технології, етичні аспекти

Gavrysh I.O., Shcherbatiuk I.V. The Impact of Modern Innovative Technologies on the Development of Digital Marketing. Review article.

The article analyses the impact of modern innovative technologies, in particular artificial intelligence, on the development of digital marketing. The main emphasis is placed on the importance of artificial intelligence as a key success of marketing strategies. It is proved that artificial intelligence allows for more accurate analytics, personalized approaches and automated processes. The author examines the variety of applications of artificial intelligence in digital marketing, including consumer recommendations, chatbots, automatic trend detection, and other tools that help companies better understand the needs of their consumers. The article examines the legal aspects related to the use of artificial intelligence in digital marketing. The importance of a careful approach to data privacy, copyright, and ethical responsibility is emphasized.

Keywords: artificial intelligence, digital marketing, legal aspects, innovative technologies, ethical aspects

technologies requires specialists who understand their essence and have the necessary skills to use them in the context of digital marketing. Practical tasks include the creation of training programs and projects, as well as the development of research aimed at analyzing the impact of modern technologies on digital marketing and identifying optimal strategies for their use.

Adapting business processes to the requirements of the modern digital environment is another challenge. Ukrainian companies should be prepared to respond quickly and adequately to changes in market conditions and consumer preferences, actively implementing the latest innovative technologies to optimize their marketing strategies. Practical tasks include developing and implementing new digital strategies, as well as researching market trends and consumer habits to identify the connection between innovative technologies and market requirements.

Analysis of recent research and publications

In the study conducted by Korsunova O.Y. [1], the role of artificial intelligence in the development of digital marketing was determined. The author notes that artificial intelligence is a significant tool that facilitates people's work, helps to analyze data and develop marketing strategies. Artificial intelligence helps to create content and predict economic events and customer habits.

Marchuk V.V. and Shevchenko A.V. [2] in their work investigated that with the help of artificial intelligence, digital marketing allows integrating various technologies, such as social networks, mobile applications, websites, CRM systems, and others, with sales and customer service, ensuring constant communication between the advertiser and the end user.

Vdovychena A.O., Dyuhovanets O.M. and Chernova I.V. [3] concluded that digital marketing is based on the use of digital tools and channels that allow marketers to collect operational information about consumers, their preferences and behavior, as well as to transmit information to consumers about products or services that may be of interest to them. An important feature of digital marketing is two-way interaction and targeting, which contributes to the efficiency and competitiveness of enterprises.

The work of Steblyuk N.F. and Kopeykina E.V. [4] analyzes the impact of automation and artificial intelligence on jobs and society. It is shown that automation has contributed to the reduction of the number of jobs in manufacturing for many decades, and artificial intelligence accelerates this process and extends it to previously untouched areas. However, the development of artificial intelligence also creates new jobs in the fields of research, machine learning, and information technology. The article examines the problem of skills of people who lose their jobs due to automation. It is noted that many people do not have the necessary skills for newly emerging jobs.

Dr.N. Thilagavathy and E. Praveen Kumar in their work note that "The world of the future is in the application of Artificial Intelligence... AI is a technology that simply simplifies many time-

consuming and complicated processes, and save businesses a significant amount of money and, more importantly, time. AI-powered tools are quite dependable and accurate, and they can be relied on for a quick solution. It enables a company to create a plan rapidly and effortlessly. These days AI has a lot of potential in digital marketing. It connects businesses with potential customers. It greatly improves a company's understanding of its existing and potential customers" [5].

Dan Dumitriu and Mirona Ana-Maria Popescu show the shift from digital marketing to intelligent marketing through the use of. Artificial intelligence. They also proposed also proposed a four-step model with the aim to determine keywords and integrate them into the visibility of the website through SEO techniques [6].

Unsolved aspects of the problem

Given all the benefits of using artificial intelligence, there are challenges along with them. One of them is the need to comply with ethical and legal standards, which was not addressed in any of the analyzed scientific manuscripts. Companies must adhere to the principles of confidentiality and data protection, not use deceptive or misleading marketing tactics, and consider the social and cultural characteristics of their target audience. Taking these aspects into account, the article will try to highlight how companies can use innovative technologies to increase the effectiveness of their marketing efforts while complying with relevant ethical and legal standards.

The aim of the article is to study the impact of modern innovative technologies on the development of digital marketing and to identify new opportunities and challenges that they create for business. In addition, one of the main objectives of the article is to analyse the ethical and legal aspects of using modern innovative technologies in digital marketing and to provide recommendations on their use. In addition, the article aims to assess the current state of digital marketing and describe its main characteristics, consider the challenges and opportunities arising from the use of innovative technologies in digital marketing, and identify the ethical, legal and security aspects of their use.

The main part

Today's world strives for continuous growth and development, so innovative technologies are becoming a necessity for the successful functioning of various spheres of life, including marketing. Digital technologies are changing approaches to advertising, increasing the effectiveness of campaigns and providing an opportunity to receive feedback from customers. In this context, it is important to consider the impact of modern innovative technologies on the development of digital marketing to understand what trends dominate in this area and how they are used to achieve greater efficiency in advertising campaigns. This paper highlights the key technological innovations used in digital marketing and analyses their impact on it.

Artificial intelligence is one of the most promising areas of innovative technology that has found wide application in various fields, including digital marketing. It allows you to create more effective and personalised advertising campaigns that target a specific audience and increase its conversion. Artificial intelligence can analyse large amounts of data and recognise patterns, which allows you to understand how customers respond to ads and interact with a website.

One of the main applications of AI in digital marketing is the personalization of an advertising campaign. By analysing users' behaviour on websites, AI systems can understand their interests and deliver ads that best suit their needs. In addition, it can help to reduce advertising costs and increase its effectiveness. For example, AI systems can analyse the results of an advertising campaign and recommend which advertising channels are the most effective and create an optimal advertising spending plan.

Let's take a look at some of the most popular AI programs that are currently in use, which, through their user-friendly software, help improve the effectiveness of advertising campaigns and digital marketing in general:

1. IBM Watson is a software program used to analyse large amounts of data and train a pattern

recognition system. It can help you find popular keywords, identify trends, and study customer behaviour to improve the effectiveness of your marketing campaigns.

2. Chatbots are artificial intelligence programs used for automated communication with customers on websites, messengers, and social media. They can be configured to answer customer questions, providing 24/7 support and improving customer service.

3. Personalisation Engines are programs that use data analytics and machine learning to create personalised content and ads for each customer. They allow advertising campaigns to be tailored to the individual needs and interests of customers, resulting in greater efficiency and increased conversions.

All three programmes – IBM Watson, Chatbots and Personalisation Engines – are powerful digital marketing tools. They help to analyse and understand consumer behaviour, which allows for more effective and personalised marketing campaigns.

The use of such innovative tools by companies is reflected in the significant growth of the global AI market. For example, in 2022, the artificial intelligence market was estimated at USD 454.12 billion, and by 2033, the market is expected to grow to USD 2,575.16 billion with a CAGR of 19% over the period from 2022 to 2032 [5].

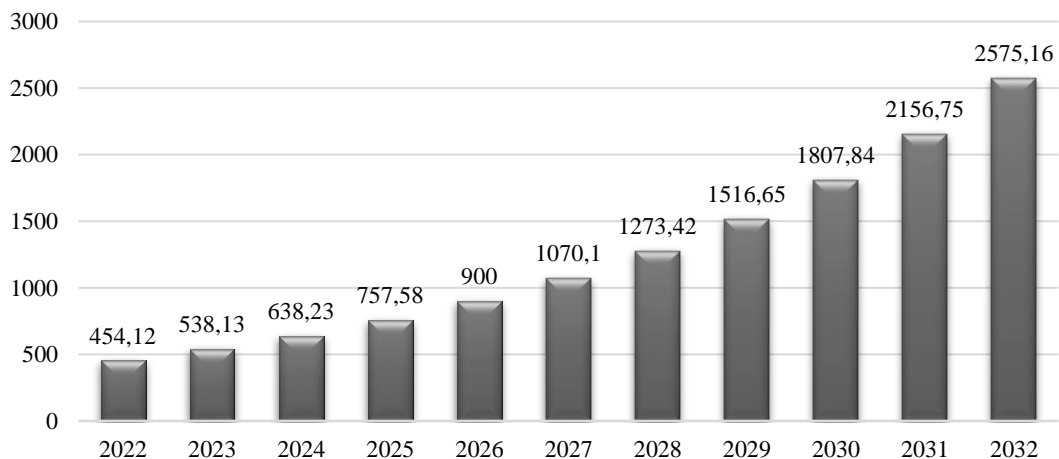


Figure 1. Size and growth forecast of the artificial intelligence market for 2022-2032

Source: compiled by authors on materials [7]

According to the data mentioned above, it can be argued that artificial intelligence has really changed the digital environment in recent years. Let's consider the methods by which artificial intelligence affects digital marketing. First of all, it is the improvement of personalization. AI allows you to analyse large amounts of data and understand the unique characteristics of each customer to create more personalized marketing strategies. At the same time, AI can analyse user behaviour on websites and social media to determine which content is most effective and optimise it. This allows you to increase the effectiveness of content marketing and ensure optimal impact on the audience. In addition, artificial intelligence can automate the process of creating,

setting up, and optimising advertising campaigns across various channels, such as Google Ads, Facebook, and Instagram. This helps to reduce costs and increase the effectiveness of advertising. In order to improve SEO, AI can analyse keywords and SEO metrics, providing businesses with insights into how websites can improve their search engine rankings. In turn, this can increase website traffic and drive higher conversions.

The use of artificial intelligence in marketing undoubtedly has its advantages, but it is also worth paying attention to some of the disadvantages associated with its use. Firstly, the disadvantage is the dependence on the quality of the source data. Artificial intelligence uses algorithms that are based on

processing large amounts of data. If the data is incorrectly collected or has errors, it can lead to inaccuracies and incorrect conclusions. It is important to have high-quality and reliable data for the effective use of artificial intelligence in marketing. The second drawback is the lack of emotional intelligence. Although artificial intelligence can analyse data and make calculations, it does not have the ability to understand and perceive emotions, which are an important factor in marketing relationships. Customer relationships, especially in the service sector, require emotional intelligence and the ability to interact effectively with people. The third disadvantage is the possibility of abuse. Artificial intelligence can be subject to misuse and manipulation, especially when it is used to create fake news or manipulate the opinions of the audience, which can negatively affect the company's reputation and affect consumer confidence. Another disadvantage is the lack of creative thinking. Artificial intelligence is based on algorithms and predefined rules, which can limit its ability to innovate and create. The human factor in marketing often

requires creativity and unpredictability, which artificial intelligence cannot always achieve. Innovations and pioneering ideas require intuition and creativity, which are still beyond the capabilities of artificial intelligence.

It's important to note that understanding cultural sensitivities and context can also be challenging for artificial intelligence. The cultural nuances and specifications of different regions can affect the effectiveness of marketing campaigns, and they often require the presence of a human with relevant knowledge and experience.

Ethical aspects of using artificial intelligence in marketing. The use of AI can raise questions about data privacy and control over the information that is collected and processed. It is important to have mechanisms and regulations in place to protect consumer rights and ensure compliance with ethical standards.

Let's look at the statistics on the use of artificial intelligence in business.

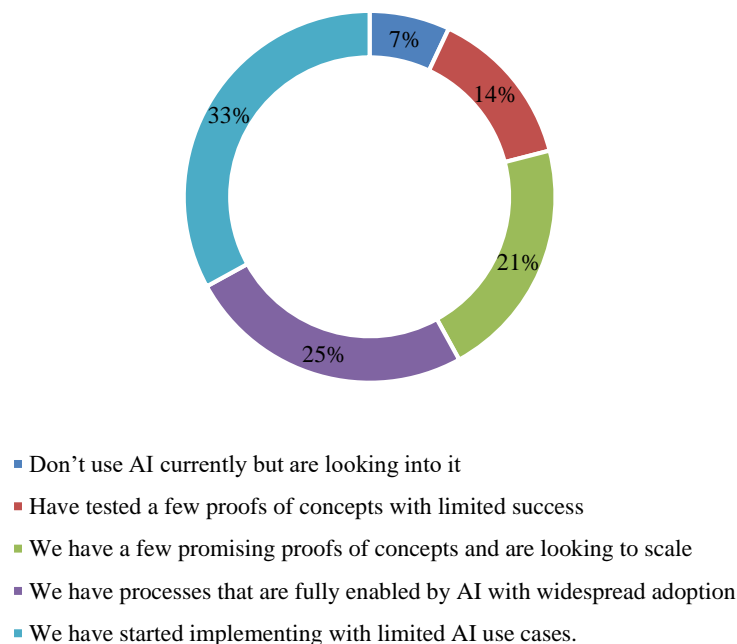


Figure 2. Statistics on the implementation of artificial intelligence in business processes

Source: compiled by authors on materials [8]

According to statistics, 33% of the surveyed companies have already started implementing artificial intelligence in some business processes, 25% have business processes that are fully supported by artificial intelligence, 21% have proven successful implementation concepts and plan to scale up. These results suggest that modern businesses are ready to develop towards the use of artificial intelligence, open up new opportunities, and adapt to the macro environment.

There's no doubt that artificial intelligence has a lot of potential in digital marketing, but it's important to be aware of its limitations and limitations. The best results

can be achieved when the human factor is combined with powerful analytical tools of artificial intelligence, thus creating a synergy between technology and creativity.

However, it is important for businesses not only to use artificial intelligence in their own interests, but also to think about how they can improve or solve global problems of humanity by using artificial intelligence in digital marketing.

Artificial intelligence and sustainable development are two aspects that can be integrated into digital marketing.

Sustainable development is the process of meeting the needs of the current generation without compromising the opportunities of future generations.

Sustainable development of an enterprise is the development that means adopting a strategy and activities that would fully meet the needs of society for certain types of products or services today and at the same time support and promote the formation of human capital and the rational use of natural resources that will be needed in the future [9].

Industry 4.0 is a new level of organisation and control over the product life cycle chain, focused on meeting the individual needs of consumers... This cycle begins with the idea of a product, covers the placement of an order, the development of a product and its commercial production, as well as the delivery of goods to end users, and ends with disposal [10].

Artificial intelligence is an innovative technology that gives computers and programs the ability to analyse data, make decisions and perform tasks that were previously performed exclusively by humans.

Artificial intelligence can enable effective digital marketing by helping businesses collect and analyse large amounts of customer and market data. Such analysis allows you to find out which products and services are of greater interest to a particular audience, which advertising campaigns are most effective, how customer tastes and requirements change over time, and other valuable information.

It can also help ensure sustainable development in digital marketing. For example, AI applications can help reduce waste by ensuring optimal production and logistics planning. AI can also help ensure more efficient use of resources by helping companies reduce the use of fuel and other materials in production and transportation, which will reduce environmental impact and support sustainable development.

In addition, artificial intelligence can help ensure more efficient use of a company's advertising budget. For this purpose, it is necessary to collect data about customers and their interests, as well as the effectiveness of advertising campaigns in the past. Thanks to this, artificial intelligence can develop an optimal advertising strategy that would be most effective for a particular audience.

Over the past 5 years, artificial intelligence has begun to develop rapidly in Ukraine. Currently, the most relevant industry where artificial intelligence is used is defence and security. For the country's defence needs, computer systems that can shoot down enemy unmanned aerial vehicles, helmets that can correct a person's psychophysiological state after a stressful situation, and more have been created.

Cyber defence and cybersecurity are also equally relevant areas of artificial intelligence. Thanks to the latest technologies, it is possible to process a large amount of information, detect anomalies and suspicious activities on the Internet, which helps to respond to the threat in time and eliminate it.

Artificial intelligence can analyse individual user characteristics and identify potential threats related to their specific activities and provide personalized protection recommendations.

One of the main areas of ensuring Ukraine's information security is countering disinformation and information operations, including those of the aggressor state. In this sector, artificial intelligence will help to create a system for early detection, prediction and prevention of hybrid threats, including disinformation and information operations. In addition, it can help create a system for countering disinformation and information operations, which is aimed at preventing, rapidly detecting and responding to information threats by the state and society.

Thanks to innovative technologies, companies have access to a large amount of personal data about their customers. However, this increases the importance of ethical collection and use of this data. Companies must ensure confidentiality, protection and transparency in the use of personal data, and obtain consent from users before collecting and processing it. Artificial intelligence and machine learning use complex algorithms that can make automatic decisions. It is important to ensure the transparency of these algorithms and decisions to avoid unjustified discrimination, hidden stereotypes or manipulation by the company. Companies should test and audit algorithms to ensure that they are fair and ethical.

Innovative technologies can have a significant impact on user privacy and security. For example, the use of facial recognition or behavioural tracking can violate personal privacy and cause resentment. Companies must ensure data protection and consider the rights and privacy of their customers. The use of innovative technologies in digital marketing may have an impact on jobs and society in general. For example, process automation may lead to the replacement of human jobs with machines. Companies should consider the social consequences of their actions and do their best to reduce the negative impact on society.

The use of innovative technologies in the development of digital marketing has significant legal aspects that must be considered to ensure legality, consumer protection and the effectiveness of marketing campaigns. The collection, storage and processing of personal data of users is an integral part of digital marketing. However, many countries have legislation regulating these processes. For example, the General Data Protection Regulation (GDPR) in the European Union sets strict requirements for the collection, processing, and storage of personal data. Companies must comply with these requirements, obtain consent from users to process their data, provide them with access to their personal data, and ensure its confidentiality and security.

The use of innovative technologies in marketing may include the creation, distribution or use of copyrighted works, including images, videos, textual content, etc. Companies must respect copyright and intellectual property, obtain the necessary licences to use content, consider restrictions and avoid infringing the rights of copyright owners. Innovative technologies in digital marketing must comply with consumer protection laws. Companies must consider rules regarding the accuracy and transparency of marketing communications, as well as the quality of goods and

services. Ensuring compliance with these regulations helps to maintain consumer confidence and creates a positive company image.

The development and application of artificial intelligence algorithms should be based on the principles of transparency and responsibility. Companies should ensure that decisions made by artificial intelligence can be explained to those affected by them, and that artificial intelligence is used responsibly to avoid negative consequences, such as discrimination or inaccurate decisions. The rapid development of artificial intelligence technologies poses new challenges to the legal system. Some countries are considering the introduction of new legal rules and regulations aimed at controlling the application and use of artificial intelligence, in the context of digital marketing. Companies should keep abreast of such legal developments and ensure compliance with the relevant requirements.

Considering these legal aspects, companies using innovative AI technologies in digital marketing should be aware of legal requirements and ensure that their actions are in line with the law. By using artificial intelligence legally and ethically, companies can improve the effectiveness of their marketing campaigns, ensure a high level of personal data protection, and foster consumer relationships, which leads to a positive impact on business development.

Conclusion

Modern innovative technologies have a major impact on the development of digital marketing. Due to the constant development of technology, digital marketing is experiencing a rapid growth, which opens up new opportunities and challenges for businesses.

One of the main influences is the growing availability and development of Internet technologies that allow businesses to effectively interact with their

audience in the online environment. Social media, content marketing, e-commerce and other digital tools provide an opportunity to expand the audience, interact with customers, increase sales and strengthen the brand.

Artificial intelligence, data analytics, machine learning, and process automation technologies are also influencing the development of digital marketing. They help in understanding user behaviour, personalising communication, automating advertising campaigns, and implementing marketing analysis strategies.

However, the introduction of innovative technologies also requires businesses to consider ethical, legal and security aspects, such as protecting user data and complying with privacy laws.

The ethical aspects of using innovative technologies require careful attention to protecting the privacy and confidentiality of users. Companies must ensure transparency, responsible data processing and compliance with personal data protection laws.

Artificial intelligence and other innovative technologies open up great opportunities to improve personalization, targeting and analytics in digital marketing. They allow companies to attract and retain customers, increase conversion rates and improve interaction with the audience.

The legal aspects of using innovative technologies in digital marketing require consideration of copyright, intellectual property and compliance with advertising, e-commerce and consumer protection laws.

Modern innovative technologies open up new opportunities for the development of digital marketing, allowing businesses to interact more effectively with their audience, increase sales and strengthen their brand. However, success in this area depends on considering the ethical, legal and security aspects of technology use.

Abstract

The article explores the impact of modern innovative technologies on the development of digital marketing, and also raises the problem related to this topic and its connection with scientific and practical tasks.

The impact of modern innovative technologies on digital marketing is becoming an increasingly important task for researchers, marketers, and businesses in general. Ukraine, like many other countries, is facing the growth of modern innovative technologies and their impact on the development of digital marketing.

This development opens up great opportunities for Ukrainian companies in the marketing sector, but at the same time poses challenges that need to be understood and addressed.

Adapting business processes to the requirements of the modern digital environment is another challenge. Ukrainian companies should be prepared to respond quickly and adequately to changes in market conditions and consumer preferences, actively implementing the latest innovative technologies to optimize their marketing strategies. Practical tasks include developing and implementing new digital strategies, as well as researching market trends and consumer habits to identify the connection between innovative technologies and market requirements.

Given all the benefits of using artificial intelligence, there are challenges along with them. One of them is the need to comply with ethical and legal standards, which was not addressed in any of the analyzed scientific manuscripts. Companies must adhere to the principles of confidentiality and data protection, not use deceptive or misleading marketing tactics, and consider the social and cultural characteristics of their target audience. Taking these aspects into account, the article will try to highlight how companies can use innovative technologies to increase the effectiveness of their marketing efforts while complying with relevant ethical and legal standards.

The purpose of the article is to study the impact of modern innovative technologies on the development of digital marketing and to identify new opportunities and challenges that they create for business. In addition, one of the main objectives of the article is to analyse the ethical and legal aspects of using modern innovative

technologies in digital marketing and to provide recommendations on their use. In addition, the article aims to assess the current state of digital marketing and describe its main characteristics, consider the challenges and opportunities arising from the use of innovative technologies in digital marketing, and identify the ethical, legal and security aspects of their use.

One of the main applications of AI in digital marketing is the personalization of an advertising campaign. By analysing users' behaviour on websites, AI systems can understand their interests and deliver ads that best suit their needs. In addition, it can help to reduce advertising costs and increase its effectiveness. For example, AI systems can analyse the results of an advertising campaign and recommend which advertising channels are the most effective and create an optimal advertising spending plan.

The use of artificial intelligence in marketing undoubtedly has its advantages, but it is also worth paying attention to some of the disadvantages associated with its use. Firstly, the disadvantage is the dependence on the quality of the source data. Artificial intelligence uses algorithms that are based on processing large amounts of data. If the data is incorrectly collected or has errors, it can lead to inaccuracies and incorrect conclusions. It is important to have high-quality and reliable data for the effective use of artificial intelligence in marketing.

There's no doubt that artificial intelligence has a lot of potential in digital marketing, but it's important to be aware of its limitations and limitations. The best results can be achieved when the human factor is combined with powerful analytical tools of artificial intelligence, thus creating a synergy between technology and creativity.

However, it is important for businesses not only to use artificial intelligence in their own interests, but also to think about how they can improve or solve global problems of humanity by using artificial intelligence in digital marketing.

The use of innovative technologies in the development of digital marketing has significant legal aspects that must be considered to ensure legality, consumer protection and the effectiveness of marketing campaigns. The collection, storage and processing of personal data of users is an integral part of digital marketing. However, many countries have legislation regulating these processes. By using artificial intelligence legally and ethically, companies can improve the effectiveness of their marketing campaigns, ensure a high level of personal data protection, and foster consumer relationships, which leads to a positive impact on business development.

Artificial intelligence, data analytics, machine learning, and process automation technologies are also influencing the development of digital marketing. They help in understanding user behaviour, personalising communication, automating advertising campaigns, and implementing marketing analysis strategies. Modern innovative technologies open up new opportunities for the development of digital marketing, allowing businesses to interact more effectively with their audience, increase sales and strengthen their brand. However, success in this area depends on considering the ethical, legal and security aspects of technology use.

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