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INTEGRATION OF ARTIFICIAL INTELLIGENCE INTO MARKETING STRATEGIES: A CASE STUDY OF THE STARTUP "COSMIC ELABORATION"

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Abstract: The report deals with the impact of artificial intelligence (AI) on the marketing sector, using the startup "Cosmic elaboration" as a case study. The company specializes in providing commercial services in the aerospace industry. It presents the results of using AI to create advertising materials for the company, assessed through surveys of marketers on the relevance of the proposed solutions. The process of using AI for data processing to conduct marketing research, which is used to make effective business decisions, is analyzed. The aspects that companies should pay special attention to when implementing AI in their activities are also considered. The study concludes with observations on the positive and negative sides of using AI in the company's marketing strategy.

Keywords: artificial intelligence, marketing, technology integration, data analysis, predictive analytics technologies.

ИНТЕГРАЦИЯ ИСКУССТВЕННОГО ИНТЕЛЛЕКТА В МАРКЕТИНГОВЫЕ СТРАТЕГИИ НА ПРИМЕРЕ СТАРТАПА «COSMIC ELABORATION»

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Аннотация: В докладе рассматривается влияние искусственного интеллекта (ИИ) на сферу маркетинга на примере стартапа «Cosmic elaboration», деятельность которого направлена на оказание коммерческих услуг в сфере ракетно-космической промышленности. Представлены результаты работы ИИ при создании рекламных материалов для компании, оценка которых проводилась путём опроса маркетологов о релевантности предложенных решений. Анализируется процесс применения ИИ для работы с данными для осуществления маркетинговых исследований, использующихся для принятия эффективных бизнес-решений, а также рассматриваются аспекты, на которые компании должны обращать особое внимание при внедрении ИИ в свою деятельность. Результатом исследования является вывод о положительных и отрицательных сторонах применения ИИ в маркетинговой стратегии компании.

Ключевые слова: искусственный интеллект, маркетинг, интеграция технологий, анализ данных, технологии предсказательной аналитики.

Introduction

In recent years, significant changes have been observed in the marketing and sales sphere, prompted by technological innovations that impact the financial standing of companies. Economic downturns, saturated markets, and digital transformation have become key aspects of the current business environment. Attracting customers has become a complex and resource-intensive process requiring a creative and innovative approach. Organizations are compelled to

follow trends by integrating new tools and technologies into their production and marketing processes.

One effective solution adopted by leaders is the use of artificial intelligence (AI). AI enables the prediction of a company's sales volumes, accelerates the development of new products, and increases brand recognition. Furthermore, AI can reduce financial expenses on production due to the availability of big data for analyzing consumer behavior and making effective business decisions, and the automation of routine tasks reduces the risk of human error.

Statista, a company specializing in market and consumer data, published statistics in 2023 on the level of AI implementation in US companies across industries. 37% of respondents stated they actively use AI tools in their company's marketing and advertising (Fig. 1).
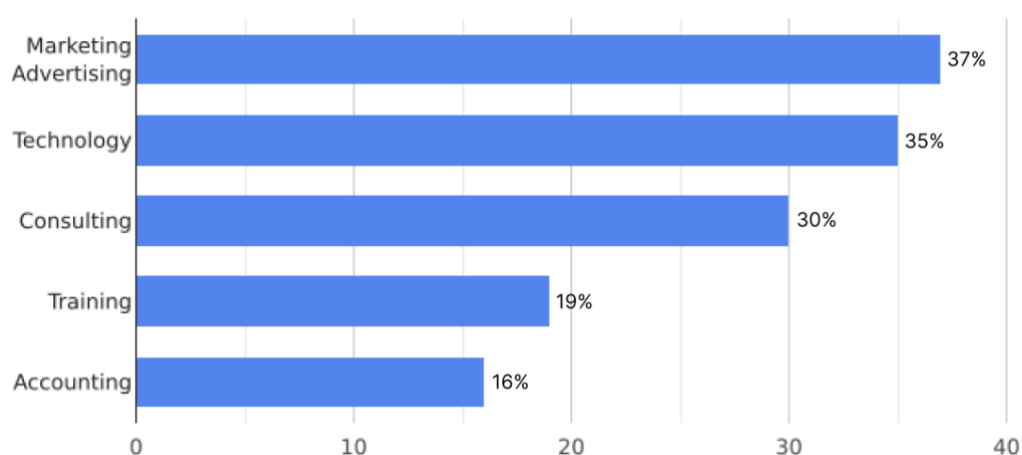

Fig. 1 – Statistics on the level of AI implementation in the activities of US companies by industry in 2023

In Russia, the process of implementing AI in business is just gaining momentum. A survey conducted by "Avito Work" among representatives of 300 businesses showed that 32% of companies plan to implement AI solutions in the near future, with 55% of them focusing on marketing and sales.

The process of integrating AI technologies into the structure of Russian business is characterized by gradual implementation, which provides flexibility in adapting to the effects that arise during their operation. This strategy allows for increased efficiency of AI application, minimizing potential risks and accelerating the process of evaluating the effectiveness of the technological solutions implemented. However, the question of modern technology's ability to replace the marketer's role in creating a product shell and attracting investments remains open.

Research Results

Scientists Ming-Huei Huang and Ronald Rust define AI as systems that replicate human intelligence in digital form. These systems are designed to imitate or surpass human capabilities in performing mechanical or cognitive tasks. The goal of AI is learning, reasoning, and task execution. However, AI is capable not only of processing data for human use but also of learning from provided information, automatically updating results without the need for additional programming or human intervention.

The primary function of marketing is to analyze customer needs, match them with offered products and services, and stimulate people to make purchases. The application of artificial intelligence offers significant opportunities for improving these processes. Thus,

marketing using AI is the strategic use of automated systems and machine learning algorithms to optimize and enhance processes in this area.

Marketing AI is divided according to its intellectual capabilities into two categories: task automation and solving complex problems using machine learning results.

Automated tasks involve performing repetitive, structured actions that require a relatively low level of intellectual abilities. An example of software in this category could be a system that automatically sends welcome emails to each new client. During basic interactions, it can provide certain assistance to clients but is incapable of analyzing their intentions, providing personalized responses, or improving its performance over time based on experience.

Machine learning methods find ways to use vast amounts of data to form complex predictions and make decisions. Such models can recognize and creating images, analyzing and generating advertising text, segmenting customers, and predicting customer reactions to various initiatives. Machine learning is already actively being implemented in online advertising and recommendation systems in e-commerce. Along with its more complex variant, deep learning, machine learning is a key technology in the field of AI and is rapidly becoming a powerful tool in marketing.

In the innovative era of a rapidly changing digital landscape, the use of AI in marketing represents a significant factor that impacts not only corporate giants but also startups.

Startup owners face the inevitable lack of resources, scaling problems, and regulatory complexities. Bearing these challenges in mind, the application of AI promises to be a catalyst for optimizing and streamlining the operational activities of emerging enterprises.

The capabilities of automation, predictive analytics, and other aspects of AI offer solutions for efficient resource allocation in various sectors of the startup sphere. Thus, AI serves to bridge gaps in business knowledge encountered by inexperienced entrepreneurs, aiding in the successful market launch of their products.

Startup "Cosmic Elaboration"

The aerospace industry in Russia is currently experiencing a revival. This sector has traditionally been considered a domain of strategic national interest. Thus, in April 2022, the Aerospace Innovation Valley was established. However, a distinctive feature of the current attempt to boost activity in the development of space technologies is the involvement of Russian private business in their research and commercialization.

The startup "Cosmic Elaboration" aims to create a reusable aerospace plane with horizontal takeoff to provide commercial services for launching payloads into Earth's orbit and returning them from orbit to Earth. The startup is based on specific know-how in the field of high-thrust engines with a working process based on plasma physics.

This project is associated with high risks: technical, organizational, market, as well as risks related to supplies. This could lead to delays in development and production, as well as limitations in funding.

Creating Advertising Materials with AI

Currently, generative AI is widely used in the content creation process, especially in graphic design, representing an innovative approach that facilitates the development of unique and unexpected visual concepts.

In the context of considering the startup Cosmic Elaboration, the visual component plays a significant role in attracting investors. Effective design can be a key factor in whether a buyer or investor becomes interested in the project or not: the decision about this is made by most of them based on the first visual impression, as quality branding creates a sense of professionalism and reliability. Moreover, a well-thought-out design helps to convey the essence of the product or service clearly and vividly.

To create the logo for the startup Cosmic Elaboration, the work presents results from the application of some of the best generative AIs, "Logo Creator GPT" and "LOGO GPT", which combine the analytical capabilities of the generative model ChatGPT and the ability to create visual concepts of DALL-E. These tools are actively used in the activities of such giant companies as Cosmopolitan and Coca-Cola.

For interaction with the models, they were given a request with the name of the startup and a brief description of its activities. Logo Creator GPT asks additional questions before generating an image, which allows the future logo to match the user's expectations more closely, while LOGO GPT creates the image without further clarifications.

The results of the work with "Logo Creator GPT" (Fig. 2) and "LOGO GPT" (Fig. 3) were obtained after many attempts to create relevant images. During the process, many errors occurred, in most cases related to the incorrect display of the name: one of the letters was missing, or the words did not make sense.

Fig. 2 – The outcome of "Logo Creator GPT" in logo creation

Fig. 3 – The outcome of "LOGO GPT" in logo creation

Creating a slogan, mission statement, vision, and company values requires deep analysis and understanding of its key advantages and objectives in the market. Such descriptions should be concise and memorable. The right slogan can help shape the perception of a startup and create a specific emotional connection, whether it's trust or safety, allowing the startup to be clearly identified among competitors, increase loyalty, and attract new customers and interested investors.

AI also offers innovative tools for generating such content, automating and optimizing the process. In the context of working with text, neural networks can condense and summarize large volumes of information, check the created material for errors, perform translations into other languages, and develop content marketing plans, articles, and slogans from scratch. With AI, marketers conduct A/B testing of different versions of textual materials to determine which ones most effectively interact with the audience.

As an example of using AI for creating a slogan and a brief description of the startup Cosmic Elaboration, a specialized version of ChatGPT, "Write For Me", was used, designed to support writing texts in various formats and styles. The request for interaction with the neural network also included the name and a brief description of the startup's activities.

As a result of several attempts, the most suitable and structured responses from "Write For Me" (Fig. 4) were chosen, from which it can be concluded that AI coped well with the task at hand.

Slogan: Your bridge between Earth and space: fast, safe, diverse

About us: We are dedicated to the revolution in the space industry. Our mission is to provide economical and reliable access to the orbit of Earth.

Fig. 4 – The result of the "Write For Me" work for creating a slogan and a brief company description.

In addition to the already considered methods of using AI in marketing strategies, specialists also have the opportunity to use algorithms for automating the creation of advertising banners, designing presentations, and designing websites to broadcast the key ideas of the project.

To determine the effectiveness of using AI tools for the startup "Cosmic Elaboration," a survey was conducted among ten marketing specialists. Each respondent was asked to choose between the attractiveness and relevance of two versions of the logo, slogan, and a brief presentation of the startup, one created with AI tools and the other by the company's marketer.

The survey results (Fig. 5) suggest that AI coped quite well with the tasks set; however, it is important to remember that it is not a universal solution and does not replace the creative approach of marketers: only under proper human management can such neural networks create attractive graphic, textual, and other types of materials. The effective use of ready-made AI tools requires a combination of technical knowledge with professional skills and an understanding of the organization's needs.
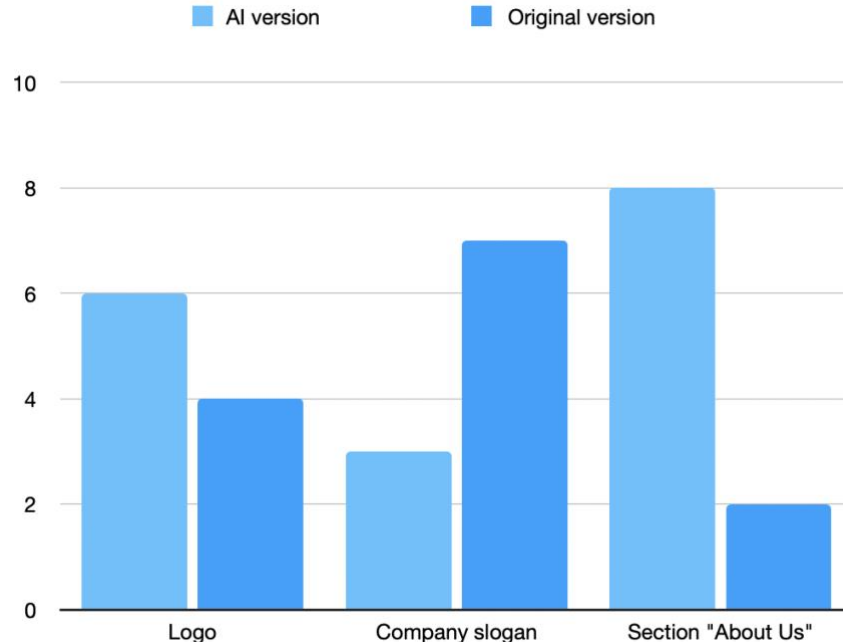

Fig. 5 – Survey results of marketers for comparing original solutions and solutions obtained with AI

Market Analysis and Forecasting

Marketing forecasting is a critically important tool that determines the financial profitability of a product and comprises strategic planning for making informed decisions. For these purposes, AI-based models can consider many available factors and providing quite

accurate forecasts, identifying trends, patterns, and correlations with minimal user involvement, filling the knowledge gap often faced by inexperienced entrepreneurs and marketers.

By analyzing extensive data sets on market dynamics using natural language processing methods, AI can confirm its viability and identify potential gaps in the planned product.

As an experiment in the application of AI for analysis and forecasting in marketing, the following questions about the startup Cosmic Elaboration were considered using the generative pre-trained neural network ChatGPT-4:

1. Identifying key advantages.
2. Identifying central sources of investment for product development financing.
3. Analyzing the project's target audience to optimize marketing strategies.
4. Forecasting main risks.

A set of relevant questions with a preliminary description of the startup's activities was developed for interaction with the ChatGPT-4 model. It is important to note that all questions were presented within a single session exchange with the neural network, as it can maintain and use the context of previous requests to generate more informative answers.

As a result, the model provided a detailed overview of competitive advantages, sources of financing, and consumer audience. The responses reflect the real trends and opportunities in the space technology industry.

Negative Aspects of Using AI in Marketing

Although the use of AI can offer startups a multitude of advantages, there are also several problems associated with their implementation into marketing strategies, for example:

1. *Dependence on automation* – There's a certain risk related to the possibility of suppressing truly innovative ideas through excessive use of AI for company branding implementation.

2. *Unpredictable results* – AI algorithms can generate outcomes that may not align with initial intentions, leading to dysfunctional consequences for the adoption of key marketing strategies, especially when the AI toolkit is exploited by employees lacking sufficient competence.

3. *Insufficient differentiation of the offering* – As AI tools evolve and become more accessible, there's a trend towards the standardization of marketing strategies, leading to the threat of reduced effectiveness in differentiating startup products in saturated markets, thereby intensifying competition based on price rather than innovation or quality.

4. *Security risks* – AI systems are vulnerable to cyber threats. Startups integrating AI functionalities into their marketing strategy must implement comprehensive information security measures to prevent data breaches, the consequences of which can be devastating for a budding business both financially and in terms of maintaining customer trust.

These are just some of the potential problems that companies need to consider minimizing unwanted consequences, carefully approaching the implementation of AI into their marketing strategies.

Conclusion

While AI-based marketing provides many prospects and advantages, such as overcoming resource limitations, high differentiation in competitive environments, scalability, and providing necessary information for making informed decisions, entrepreneurs should realistically assess its current capabilities. It is important to understand that neural networks can effectively solve tasks only under the guidance of qualified professionals, serving as a tool to facilitate and accelerate workflows.

When integrating AI, companies need to clearly define business tasks, form a suitable team, prepare quality data for training, as well as test and verify the effectiveness of the solutions obtained. The success of AI implementation is often determined by the specific context and specifics of the business, while flexibility and the ability to adapt remain key qualities in an ever-changing world.