ARTIFICIAL INTELLIGENCE IN BUSINESS: EFFECTIVE SOLUTIONS FOR MODERN COMPANIES

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Abstract:
The work is devoted to demonstrating the challenges of integrating artificial intelligence into business. There are both ready-made AI solutions on the market today, such as those from Yandex, and unique models developed from scratch by developers who implement their products in mobile applications, websites, bots, and other platforms. We will focus on small and medium-sized businesses, for which the task of making technology cheaper is relevant. Our goal is to make you able to answer two questions: whether your business is suitable for AI implementation and where exactly it can be applied.

Keywords: Sustainability, industry, development, digitalization, economy.

Introduction

Many entrepreneurs have heard of the "magic" of artificial intelligence (AI), which supposedly attracts customers and generates high revenue. However, this is a myth. We'll discuss what AI can actually offer businesses in today's environment. First, let's look at what's needed to integrate AI into your business. The key requirement, of course, is data. Solution developers develop their own models, train them, and integrate them into existing information systems, or we use models already trained for applied tasks and available in the public domain [1, 2]. And in any case, data is necessary, for example, for training. What kind of data might this be? Data on sales, customers, products, and other aspects of your business—these are the most common. Such data can be used to train models that can discover valuable customer insights, for example, for recommendation systems, loyalty systems, analytics, and other purposes. Product data can also be used for recommendations.

But what if such data doesn't exist? This is one of the first questions AI developers face when commissioned to implement neural network technologies into business models, as small and medium-sized businesses often lack such data. Does this mean AI is unavailable in this case? Fortunately, no. Modern trained models, which have emerged quite recently, have opened up a wealth of possibilities [3]. Unlike previous models, such models often don't require large structured databases, such as sales data

or customer records. However, even such models require business-specific information, such as manuals, case studies, documents, and other text data. This data doesn't necessarily have to be strictly structured, but it helps create useful applications.

Purpose of the Study

The aim of this paper is to analyze and identify ways to apply artificial intelligence technologies to improve business efficiency. Successful AI use cases in various economic sectors are examined, demonstrating how companies are adapting these technologies to improve business processes. The study's novelty lies in its proposal of relevant and practical solutions for implementing AI in business processes, as well as a deeper understanding of the challenges and prospects for its use in various industries and companies.

Material and research methods

The study utilized both theoretical and empirical research methods. These included analysis of information sources, including scientific publications and statistical data, as well as analysis of results obtained through empirical research, such as surveys, observations, and interviews. This combination of methods allowed for a deep understanding of the problem and the development of appropriate strategies to achieve the research goal.

Research results and their discussion

Developing AI business applications requires a specific information infrastructure. This includes a website, mobile app, CRM system, accounting system, portals, and so on—in other words, all the digital resources that digitize a business. After all, AI today is an IT solution, not a physical robot delivering goods or working in a factory. We need a structure into which AI can be embedded or from which data can be drawn. Another essential element is readiness for change. Even if everything is perfect, and we know where and how AI can be integrated to optimize processes, increase profits and speed, the readiness of management and the team to embrace change is important. Sometimes it is necessary to change employee roles, retrain them, and consider the human factor [4, 5]. Now let's take a closer look at what artificial intelligence is. Among developers, it is commonly divided into two main categories. In the scientific field, the concepts differ slightly, but for businesses, especially small and medium-sized ones, a distinction is made between machine learning and so-called "neural workers." Let's start with machine learning. This is the process of taking data,

training an algorithm on it, and ultimately producing a useful result. Machine learning is divided into tasks such as regression, classification, computer vision, text processing, and so on. In other words, these are the models we train for specific tasks. We distinguish several general areas: machine learning in production, decision-making algorithms, recommender systems, and computer vision.

The classification of artificial intelligence encompasses several levels, at which different approaches and tasks performed by AI systems can be considered. The main classification includes weak (narrow) AI and strong (general) AI. Weak AI is designed to perform highly specialized tasks, such as text processing, facial recognition, or chess playing. Such systems lack the ability to self-awareness and operate within the constraints of predefined algorithms and rules. Examples of weak AI include voice assistants (such as Siri or Alexa) and recommendation systems. Despite their high performance in narrow domains, such systems lack the general ability to learn or adapt to new tasks outside of predefined scenarios.

 Strong AI is a hypothetical level of AI at which a system is capable of understanding, learning, and adapting at the level of human intelligence. This is AI that can theoretically perform any intellectual task capable of humans, including creativity, emotional perception, and critical thinking. Strong AI is the goal of many researchers, but its implementation remains elusive due to limitations in hardware and software technologies. Concepts of strong AI are linked to machine self-awareness and its ability to autonomously learn, which raises many ethical questions about the rights and responsibilities of such a machine.

AI can also be classified based on the functional levels of the systems: reactive machines, limited memory, theory of mind, and self-awareness. Reactive machines operate using simple algorithms and lack memory, meaning they cannot use previous experience to improve future actions (e.g., a chess-playing program). AI with limited memory, on the other hand, retains information about previous actions and is capable of learning, such as autopilot systems. "Theory of mind" implies the ability to understand and predict the behavior of others. Self-aware AI, if ever created, will not simply imitate humans but also be self-aware, which could completely change the approach to human-machine interaction.

The range of problems solved with machine learning is much broader, but practice shows that business challenges most often boil down to these four areas. Today, businesses have access to case studies for each of these services. Let's discuss how this works in more detail: for example, in manufacturing, machine learning can be used to forecast product demand and calculate the required quantities of materials for procurement. Decision-making algorithms are used in financial markets, marketing,

bonus systems, risk management, and logistics optimization. Recommendation systems are also extremely useful; they can be used to suggest products to website users that are most likely to interest them. This increases loyalty, customer dwell time, and, ultimately, conversion and sales. Furthermore, computer vision allows for employee monitoring, in-store traffic analysis, facial recognition, and recording arrival times [6]. All of this can be achieved using machine learning.

Now about the integration of "neural workers." This option is available when there's insufficient data for full-fledged training, but you can use existing trained models and further train them to automate office tasks. For example, you can implement AI to transcribe calls, automatically populate customer cards, and analyze data in spreadsheets. The well-known Bitrix system already offers a tool that transcribes calls, automatically populates cards, and other fields. A similar solution can be developed for 1C, Microsoft Office, and Google Sheets for analytics. Now there's no need to hire specialists skilled in spreadsheets—these tasks can be performed by neural networks, known as "neural workers." They can be used to analyze text, video, and audio recordings and obtain relevant analytics from spreadsheets.

Another example is personalized chatbots – perhaps one of the most sought-after solutions for small businesses at the moment. These include chatbots integrated into Telegram, WhatsApp, and mobile apps for consulting and sales functions. They replace human consultants: instead of a real person, an AI model trained on company materials and customized to its topic operates. LLM models such as ChatGPT, Yandex GPT-9, and others are used. Content generation, including video content, is another promising area [7]. There are cases where developers have implemented an AI designer, which partially replaced a human designer on the company's website into which this solution was integrated. These solutions are already available for trial: they will increase customer loyalty, conversion, and the time users spend on the site. The system acts as a lead magnet. Let's briefly discuss the key business goals we strive to achieve using AI: reducing costs and increasing margins, speeding up processes and increasing throughput, and increasing customer flow through marketing or sales.

Conclusions

In conclusion, let's consider several use cases for AI in business. Case Study One: Advertising Optimization with AI. Consider a company that distinguishes between two types of clients: first, websites that want to monetize their traffic and are willing to place ads; second, advertisers—from large companies to traffic arbitrageurs—who are looking for advertising platforms. A widget was developed that integrates into the website and selects the most appropriate ad for each user. The main objective is to

select ads that are highly likely to engage the user while also ensuring the highest profit margin. Different advertisers pay differently, and the cost per click also varies. It is important to find a balance between ads that are most likely to be clicked and those that will generate the greatest profit. Using an extensive database, the solution's developers trained a model based on two parameters: click probability and profit margin. Testing resulted in a 12% increase in the company's profitability. Since their primary income comes from ad clicks, this increase in margins was significant.

Case Study Two: An Intelligent Chatbot for a Marketplace. This marketplace specializes in gardening products. Customers come in for items such as seeds and want advice. Like many other sites, they have a chat box in the lower right corner, where consultants and sales representatives previously answered questions. Before implementing the chatbot, the team consisted of seven employees. The AI developers' goal was to reduce response time (previously, it was two minutes) and reduce the workload on staff, as hiring more people was not an option; instead, the team needed to be optimized. The developers selected the most advanced chat system based on ChatGPT-4 and further trained it using a product database containing all specifications, prices, and full product descriptions. They also developed a special manual defining the behavior of the virtual consultant. Also, given the narrow nature of the subject area, we added additional training in jargon and gardening terms to ensure the system understood specific vocabulary. A parser was also developed that regularly updates the database to keep the chat data current. The integration resulted in impressive results: the number of employees was reduced to two, and the remaining staff were transferred to other departments. Service quality remained unchanged. One of the project's goals was to reduce response times, and this was achieved – the chatbot is always available and ready to respond instantly, whereas a live consultant may experience delays. The average response time was reduced to 15 seconds, significantly reducing personnel costs. The system currently processes 15,000 to 20,000 requests per month, an excellent indicator of its stable and efficient operation.

Another interesting project is interior design generation using artificial intelligence. Many companies are turning to AI to increase customer traffic and improve marketing. One striking example is a company that manufactures and resells furniture. They have two websites, a chatbot, and a steady flow of customers. The sales department hypothesized that the longer a customer spends on the site, the higher the likelihood they will become a buyer. To address this, they proposed creating a lead magnet—a tool that would encourage customers to stay on the site longer. This product was an automated AI-powered interior designer. This system allows users to upload a photo of their room (empty or with minimal furniture) and select a style,

design, and room type (e.g., bathroom, bedroom, kitchen, living room, or hallway). The neural network then generates four design options, taking into account the customer's preferences and the company's furniture selection. This is important for the company, as after viewing the proposed designs, customers are immediately offered the option to purchase the furniture featured in the visualization at a significant discount. Thus, a loyalty program was also developed based on this lead magnet. How was this implemented? First, the developers turned to an existing model that is excellent at generating design images. They feed this model images of various styles, formulated queries, and a catalog of furniture the company produces. The result is a desired design with appropriate tags selected by the user on the website. As a result, user retention on the website increased by 40%. The conversion rate from site visits to sales also increased by 4%.

Another example: Artificial Intelligence in Logistics. A real-life case study of a company transporting containers of cargo from China to Russia. The system utilizes several modes of transport: sea, rail, and road. To deliver cargo from a specific city in China to a final destination in Russia, the company receives offers from various carriers across all three categories, specifying cost, delivery time, starting and ending points, and other parameters. The company's clients are individuals and businesses looking to ship one or more containers from China to Russia and obtain the most favorable rates for price and delivery time. Typically, the company's managers spend a significant amount of time sorting through numerous files—Excel, PDF, and Word documents—in various formats, sent by various service providers. In this case, the system was configured to automatically select the best routes based on key parameters. Two mechanisms were proposed: the first standardizes all information received from different carriers, converting it from various formats into a single two-dimensional table; The second mechanism selects the most profitable route based on key criteria: price, delivery speed, cargo size, and route. This is a telling example, as many companies do the same.

References:

1. Denisov D. Yu. Development of decision support systems based on artificial intelligence in the management of Russian companies // Economic systems. 2021. Vol. 14, No. 4. Pp. 29-36.

2. Dzedik V. A. An important vector of development of management systems is the use of information technology and artificial intelligence // Quality management methods. 2022. No. 3. P. 14-19.

3.Artificial Intelligence (AI) in Business – A Complete Guide. URL https://www.businessworldit.com/ ai/artificial-intelligence-in-business / (date of access: 06/28/2024).

4. McKinsey: 10 main technological trends until 2030 for companies and markets. URL https://cdo2day.ru/ cifrovoj-analiz/mckinsey-10-glavnyh-tehnologicheskihtrendov-do-2030-goda-dlja-kompanij-i-rynkov/?ysclid=lto 9yvss6692407273 (accessed: 06/28/2024).

5. https://productlab.ru/blog/iskusstvennyi-intellekt-v-biznese

6. Andryashina N.S., Polyanskaya V.A., Polyansky S.A. Key vectors of economic development of industrial enterprises at the present stage // Actual problems of economics and accounting: Collection of scientific articles based on the materials of the VI All-Russian scientific and practical conference: in 2 volumes, Nizhny Novgorod, November 23, 2023. Nizhny Novgorod: National Research Nizhny Novgorod State University named after N.I. Lobachevsky, 2024. Pp. 173-177

7.Ivanov N.V., Markov S.N. Artificial intelligence in business: realities and possibilities // Bulletin of the Altai Academy of Economics and Law. 2025. No. 1. P. 52-60.