ТЕОРИЯ ЖӘНЕ ӘДІСТЕМЕ
ТЕОРИЯ И МЕТОДОЛОГИЯ

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CHAT BOTS AND THEIR RELEVANCE FOR MEDIUM AND SMALL BUSINESSES

Abstract

Digitization of Business Using Artificial Intelligence (AI) is extremely relevant in the context of the modern economy, characterized by high competition and a rapid pace of technological development. In the era of global digital transformation, businesses strive to optimize processes, increase productivity, and improve customer interaction. Business digitization becomes a key tool for enhancing business efficiency and adaptability. Data collection and analysis, automation of routine tasks, and personalization of customer experience enable companies to utilize their resources more effectively and better understand customer needs [1].

The use of AI in business goes beyond automation – it is a full transformation of processes, opening new opportunities for predicting market trends, managing production processes, and improving the quality of products and services. AI helps companies make more informed decisions by analyzing large volumes of data and identifying key patterns. Kazakhstan, like many other countries, is actively developing its digital economy. The implementation of AI can increase the competitiveness of Kazakhstani companies on the international stage, reduce operational costs, and improve product quality – all of which are especially important amid global competition.

Small and medium-sized businesses (SMEs) are also starting to leverage digitization to strengthen their market position. For example, many companies are implementing chatbots for customer service, which helps automate communication and reduce staffing costs. With support from the government and private investments, SMEs in Kazakhstan are gaining access to modern IT solutions, significantly boosting their competitiveness. Thus, the relevance of researching business digitization using AI is justified by the need for businesses to adapt to new conditions and ensure sustainability amid rapid technological progress.[2].

Keywords: artificial intelligence, business digitization, business digitalization, small and medium-sized enterprises, market trend forecasting, automation of routine tasks, resources

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ЧАТ-БОТЫ И ИХ АКТУАЛЬНОСТЬ ДЛЯ СРЕДНЕГО И МАЛОГО БИЗНЕСА

Аннотация

Цифровизация бизнеса с использованием искусственного интеллекта (ИИ) является крайне актуальной в условиях современной экономики, характеризующейся высокой конкуренцией и быстрым темпом развития технологий. В условиях глобального цифрового перехода предприятия стремятся оптимизировать процессы, увеличить продуктивность и улучшить взаимодействие с клиентами. Цифровизация бизнеса становится ключевым

инструментом для повышения эффективности и адаптивности бизнеса. Сбор и анализ данных, автоматизация рутинных задач и персонализация клиентского опыта – все это позволяет предприятиям эффективнее использовать свои ресурсы и лучше понимать потребности своих клиентов.

Применение ИИ в бизнесе выходит за рамки автоматизации – это полноценная трансформация процессов, открывающая новые возможности для прогнозирования рыночных трендов, управления производственными процессами и улучшения качества продукции и услуг. ИИ помогает компаниям принимать более обоснованные решения, анализируя огромные массивы данных и выявляя важные закономерности. Казахстан, как и многие другие страны, также активно развивает цифровую экономику. Внедрение ИИ способно повысить конкурентоспособность казахстанских компаний на международной арене, снизить операционные издержки и улучшить качество продукции, что особенно важно в условиях глобальной конкуренции.

Малый и средний бизнес (МСБ) также начинает использовать возможности цифровизации, чтобы укрепить свою позицию на рынке. Например, многие компании внедряют чат-ботов для обслуживания клиентов, что помогает автоматизировать коммуникации и снижает затраты на персонал. При поддержке государства и частных инвестиций, МСБ в Казахстане получает доступ к современным ИТ-решениям, что значительно повышает их конкурентоспособность. Таким образом, актуальность исследования цифровизации с использованием ИИ обоснована необходимостью адаптации бизнеса к новым условиям и обеспечения его устойчивости на фоне стремительного технологического прогресса.

Ключевые слова: искусственный интеллект, цифровизация бизнеса, дигитализация бизнеса, малые и средние предприятия, прогнозирование рыночных трендов, автоматизация рутинных задач, ресурсы.

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ЧАТ-БОТТАР ЖӘНЕ ОЛАРДЫҢ ОРТА ЖӘНЕ ШАҒЫН БИЗНЕС ҮШІН ӨЗЕКТІЛІГІ

Аңдатпа

Жасанды интеллект (ЖИ) қолдану арқылы бизнесті цифрландыру – қазіргі экономика жағдайында аса өзекті тақырып. Бұл жағдай жоғары бәсекелестік пен технологиялардың жедел дамуы сипатымен ерекшеленеді. Жаһандық цифрландыруға көшу аясында кәсіпорындар өз процестерін оңтайландырып, өнімділікті арттыруға және клиенттермен өзара әрекеттесуді жақсартуға ұмтылуда. Бизнесті цифрландыру тиімділікті арттыру мен бейімделгіштікті қамтамасыз ететін маңызды құралға айналуда. Деректерді жинау және талдау, күнделікті міндеттерді автоматтандыру мен клиенттік тәжірибені дараландыру кәсіпорындарға өз ресурстарын тиімді пайдалануға және тұтынушылардың қажеттіліктерін тереңірек түсінуге мүмкіндік береді.

Бизнес саласындағы ЖИ қолдану тек автоматтандыру шеңберімен шектелмейді – бұл процестердің толық трансформациясы болып табылады. Ол нарықтық үрдістерді болжау, өндірістік үдерістерді басқару және өнім мен қызмет сапасын арттыру үшін жаңа мүмкіндіктер ашады. ЖИ үлкен деректер ағындарын талдай отырып, маңызды заңдылықтарды анықтау арқылы компанияларға негізделген шешімдер қабылдауға көмектеседі. Қазақстан да басқа көптеген елдер секілді цифрлық экономиканы белсенді түрде дамытып жатыр. ЖИ енгізу қазақстандық компаниялардың халықаралық аренадағы

бәсекеге қабілеттілігін арттыруға, операциялық шығындарды азайтуға және өнім сапасын жақсартуға мүмкіндік береді. Бұл әсіресе жаһандық бәсекелестік жағдайында өте маңызды.

Шағын және орта бизнес (ШОБ) те цифрландыру мүмкіндіктерін пайдалана бастады. Мысалы, көптеген компаниялар клиенттерге қызмет көрсету үшін чат-боттарды енгізуде, бұл коммуникацияны автоматтандырып, персонал шығындарын азайтуға мүмкіндік береді. Мемлекеттің және жеке инвестициялардың қолдауымен Қазақстандағы ШОБ қазіргі заманғы IT-шешімдерге қол жеткізе бастады, бұл олардың нарықтағы бәсекеге қабілеттілігін айтарлықтай арттырады. Осылайша, ЖИ арқылы цифрландыруды зерттеу өзектілігі бизнестің жаңа жағдайларға бейімделу қажеттілігімен және технологиялық дамудың қарқыны аясында оның тұрақтылығын қамтамасыз етумен түсіндіріледі.

Түйін сөздер: жасанды интеллект, бизнесті цифрландыру, бизнесті сандық форматқа көшіру, шағын және орта кәсіпкерлік, нарықтық трендтерді болжау, күнделікті міндеттерді автоматтандыру, ресурстар.

INTRODUCTION

Although chatbots have entered our daily lives relatively recently, their history began back in 1966. Since then, these virtual interlocutors have evolved from tube devices that performed a limited range of tasks and responded with template phrases to powerful services that support conversation and analyze not only text but also images.

A chatbot is a program that can simulate a conversation with a person. In simple terms, the work of a chatbot can be reduced to four steps:

- The user sends him a request.
- The chatbot analyzes the request.
- The chatbot generates a response.
- Sends a response to the user.

Chatbots are an ideal solution for companies that want to improve customer service without losing money on expensive call centers or hiring new employees. And while it’s still early days for chatbots, they’re already proving their value, as evidenced by Microsoft’s recent $200 million investment in technology.

Chatbots have been around for a long time, but for most people they are still a new thing.

Chatbots (or conversational agents) are software systems that use artificial intelligence technologies to interact with users in a dialog format. They can accept requests, answer questions, perform actions, or provide information. Chatbots began to develop in the middle of the 20th century and have become an integral part of digital transformation in various business areas. Let's consider a brief history of their development [3].

MATERIALS AND RESEARCH METHODS

The study uses theoretical materials on digitalization and AI, as well as practical data from companies that have implemented chatbots. The main methods are the analysis of scientific literature, case studies, comparative analysis of effectiveness before and after the introduction of chatbots, expert assessments and modeling of client interaction. The study showed that chatbots allow SMEs to reduce costs, improve the quality of service and automate routine tasks.

THE RESULTS

The results of the study showed that the introduction of chatbots in SMEs contributes to: - Reducing personnel costs – automating customer communication reduces the need for a large number of operators. - Increase the speed and quality of service – chatbots work 24/7, process requests instantly and without errors. - Customer loyalty growth – Personalized responses and convenience increase user satisfaction. - Simplification of internal processes – chatbots can perform the functions of reminders, bookings and order processing. The discussion showed that despite the initial development and integration costs, the effect of using chatbots in the long run justifies the investment. This is especially true for SMEs with limited resources seeking digital transformation.

1. The 1950s: The first steps in the field of artificial intelligence

Chatbots have their roots in the 1950s, when active work on artificial intelligence began. In 1956, at a conference at Dartmouth, the term "artificial intelligence" (AI) was proposed, which marked the beginning of scientific research in this field.

- The program demonstrated how a person can perceive machines as interlocutors, which was an important step in the development of chatbots.
- ELIZA was one of the first examples of using computers to communicate with humans.

2. 1966: The first chatbot, ELIZA

ELIZA is the first chatbot created by Professor Joseph Weizenbaum at MIT 1966: The first chatbot, ELIZA Institute of Technology in 1966. ELIZA was a program that mimicked the behavior of a psychotherapist. The program used simple templates to analyze user input and responses, creating the illusion of communicating with a professional.

ELIZA features:

- She used the "substitution" method, repeating the user's phrases with the addition of various template options.
- The program demonstrated how a person can perceive machines as interlocutors, which was an important step in the development of chatbots.
- ELIZA was one of the first examples of using computers to communicate with humans.

ELIZA is the first chatbot developed in 1966 by Professor Joseph Weisenbaum at the Massachusetts Institute of Technology (MIT). This program was the first step towards creating artificial intelligence capable of interacting with people through text messages [4].

Features and characteristics of ELIZA:

1. Simple communication model:

ELIZA used basic templates for text processing. She didn't have a full understanding of the content of the conversations, but she could respond to queries by constructing phrases that seemed reasonable to the user. The program could keep up a conversation, especially with those who were less attentive to its mechanical responses.

2. The "DOCTOR" module:

The most famous version of ELIZA, called DOCTOR, was created to simulate communication with a therapist. This module used an algorithm that created the impression of a real session of a psychotherapeutic conversation. The program analyzed the user's phrases and asked questions or repeated them with minor changes. For example, if a person was saying: "I feel lonely," ELIZA could reply, "Why do you feel lonely?"

3. Simplicity and limitation:

Despite the fact that ELIZA used simple algorithms based on patterns and rules, her ability to communicate with users was limited. The program did not have a real understanding of the context, and its answers were often superficial and did not correspond to the real complexity of human communication. Nevertheless, many users, interacting with it, began to perceive the chatbot as something more than just a set of algorithms.

4. Impact on the development of chatbots:

ELIZA had a great influence on the subsequent development of chatbots and artificial intelligence. She demonstrated that machines can interact with humans in a conversational manner, and opened the door for the development of more complex and functional bots in the future.

How did ELIZA work?

ELIZA used the substitution method – she replaced keywords in user queries with other phrases using predefined templates. For example, if the user wrote:

- "I feel sad," ELIZA could reply, "Why do you feel sad?"

These simple but effective methods allowed the program to maintain a dialogue, creating the appearance of reasonable communication, even if each answer was just a set of predefined rules.

Impact on technological development [5]:

1. The first wave of interest in chatbots:

ELIZA was the first vivid example of how to create a system that simulates communication with a human, and influenced the creation of many subsequent programs, including more complex and modern chatbots using neural networks and machine learning.

2. Conceptual legacy:

The ideas embedded in ELIZA became the basis for the creation of more advanced natural language processing (NLP) and artificial intelligence systems in the future.

3. Cultural impact:

Despite its simplicity, ELIZA has drawn attention to important issues related to human-machine interaction, as well as the ethical aspects of using artificial intelligence in social and professional life. Weizenbaum further raised questions about how much people can become dependent on software, creating the illusion of "understanding" on the part of the machine.

Results:

- ELIZA was not a truly intelligent chatbot and did not understand the content of conversations, but her ability to maintain basic dialogues revolutionized the field of AI and chatbots.

"This was the first step in the development of systems that later led to the creation of sophisticated chatbots such as Siri, Google Assistant, and many others that use artificial intelligence to actually understand and process requests.

Thus, ELIZA remains a landmark stage in the development of chatbots and artificial intelligence, which laid the foundations for subsequent technologies and ideas used in modern automated communication systems.

3. The 1970s: Further development of artificial intelligence

Other similar programs were developed in the 1970s. PARRY, created by psychiatrist Ken Colby in 1972, tried to model the behavior of patients with schizophrenia. Although its functionality was limited, it served as an important step for more sophisticated chatbots.

The 1970s became an important stage in the development of artificial intelligence (AI), as this period was associated with the emergence of new concepts, methods and technologies, as well as with increased interest in the use of AI in various fields. During this period, the active development of both theoretical foundations and practical applications began, which played a key role in the development of AI as a science [6].

1. Development of expert systems

Expert systems have become one of the most important achievements of the 1970s. They are programs that simulate a decision-making process based on the knowledge and experience of an expert in a particular field.

- Example: MYCIN (developed in the 1970s at Stanford University) is an expert system designed to diagnose infectious diseases and prescribe treatment. This system used rules to recognize symptoms and prescribe antibiotics.

Expert systems have significantly accelerated decision-making in areas such as medicine, engineering, and finance, and have begun to gain widespread acceptance as tools for automating complex tasks.

2. Logic and theoretical models of AI

In the 1970s, logical methods such as predicate logic and formal systems continued to be developed to create AI systems that can mimic human reasoning.

- Example: Knowledge representation systems began to develop during this period, which led to the emergence of new approaches to knowledge organization, for example, using ontologies.

Theoretical foundations for solving problems of planning, learning, and pattern recognition using logic and mathematical methods are also being developed.

3. The emergence of neural networks

The 1970s mark an important moment in the history of neural networks. Despite the fact that the study of neural networks began back in the 1940s, it was during this period that neurobiological and mathematical models using neural networks began to develop actively.

- An example: In 1974, the backpropagation algorithm was developed for training multilayer neural networks. This method has improved the results of network training and has become an important step towards creating more complex models.

However, despite some successes, neural networks still face limitations related to insufficient computing power.

4. The emergence of artificial intelligence for scientific research

With the development of AI in the 1970s, it became possible to use AI technologies for scientific research, which provided new opportunities for rapid data analysis and theory development.

- Example: Using AI in the field of physics and chemistry to find patterns and model processes. For example, programs have been used to search for molecular structures and predict chemical reactions.

5. Limitations and early crises

Despite the growing interest in artificial intelligence, the limitations of AI technologies also began to show in the 1970s. The lack of computing power, the low efficiency of some methods, and the difficulty in applying theoretical concepts in practice led to the first crises in the field of AI. These crises manifested themselves in the form of disillusionment with the capabilities of AI, which later became known as the "AI winter."

- The causes of the crisis are the delay in solving many problems, such as speech recognition, natural language understanding, and the limited ability of computers to work with real data.

The influence of the 1970s on the further development of AI

This period played an important role in shaping key areas for the further development of AI.:

- Expert systems have become the basis for the creation of modern AI systems in the field of medicine, finance and other industries.
- The development of neural networks and other machine learning algorithms has laid the foundation for future advances in deep learning.
- The difficulties faced by scientists in the 1970s prompted the creation of more powerful computing systems and improved AI methods.

In general, the 1970s were a time when he began to actively develop but also faced obstacles that influenced the development of this field in subsequent decades [7].

1990s: Commercial application and development of web chats

In the 1990s, chatbots began to be used for commercial purposes. The first examples were programmable chatbots for creating user interfaces for websites. In 1995, SmarterChild appeared, a chatbot available through Internet messengers such as AOL Instant Messenger and MSN Messenger.

SmarterChild provided easy access to information, such as news, weather, information about sports events, and also provided an opportunity for communication. It became very popular among Internet users of that time.

2000s: The rise of messengers and the evolution of chatbots

In the 2000s, with the development of the Internet and mobile technologies, chatbots began to be widely used to automate customer service, as well as for tasks related to e-commerce. Large companies have started to implement chatbots as part of their online platforms.

In 2006, Google Assistant appeared, which uses Google search technology to provide answers and help the user.

2010s: Intelligent chatbots and messengers

The 2010s were a turning point in the development of chatbots due to the massive proliferation of smartphones and instant messengers. With the growing popularity of platforms such as Facebook

Messenger, WhatsApp, Telegram, and others, chatbots appeared, which were used not only to search for information, but also for targeted actions, such as making purchases or booking services.

- 2016 was an important year for the development of chatbots: this year Facebook introduced its chatbot platform, which allowed companies to integrate bots into Messenger to interact with customers. In the same year, Microsoft introduced Cortana, and Google introduced Google Assistant.

- One of the first successful business examples was the Sephora chatbot, which was used to recommend cosmetics and had more than 500,000 users worldwide.

The 2020s: Modern Chatbots and their future

With the development of artificial intelligence technologies, including machine learning, neural networks, and natural language processing, chatbots have become significantly smarter and are able to solve much more complex tasks.

Today, chatbots are actively used in various business areas.:

- Trading: chatbots for online stores that help users find products, complete purchases, and place orders.

- Customer Service: Companies use chatbots to automate customer support, such as processing applications, solving problems, and answering questions.

- Education and Healthcare: chatbots help with training, provide medical advice, and help patients.

In recent years, hybrid chatbots that combine the capabilities of AI and human support have also become a focus. This allows us to improve the quality of customer service and provide a more personalized approach.

The future of chatbots

The future of chatbots is about improving their ability to understand and interact with users. In the future, chatbots will be able to:

- Provide personalized recommendations based on user behavior analysis.

- Identify users by voice or other biometric data to enhance security. Integrate with additional technologies such as augmented reality (AR) and virtual reality (VR) to improve user experience.

In addition, the development of neural network technologies and deep learning will make chatbots even more effective and natural in communication [8].

Chatbots have undergone significant changes since their inception in the 1960s. Today, they play an important role in business and provide a high level of customer service by automating processes and providing personalized services to users. The development of artificial intelligence will continue to open up new opportunities for the use of chatbots in various spheres of life.

The future of chatbots is linked to the continuous development of technologies that make these systems even more intelligent, intuitive and multifunctional. In the coming years, chatbots will perform more and more complex tasks, and their use will cover more and more new areas of life.

1. Improving Natural Language Understanding (NLP)

One of the key directions in the development of chatbots is the improvement of natural language processing (NLP) technologies. Future chatbots will be able not only to recognize text and voice, but also to understand the context, emotions and intentions of the user.

- Forecast: Chatbots will be able to interpret ambiguous phrases more accurately, recognize sarcasm and jokes, which will make communication with them more natural.

2. Hybrid Chatbots

The future of chatbots also includes the creation of hybrid systems that combine the capabilities of artificial intelligence and human interaction. It is important that such systems will be able to switch from automatic response to communication with a live operator in difficult or unusual situations.

- An example: If the chatbot is unable to respond to a request or encounters an unfamiliar question, it will automatically forward the request to the live operator to continue solving the problem.

3. Biometric identification

In the future, chatbots will use biometric data (such as facial, fingerprint, or voice recognition) to enhance security and personalize more accurately. In particular, chatbots will be able to identify users, providing access to confidential information or the ability to perform complex transactions such as money transfers, bill payments and other operations.

- Forecast: In the future, voice chats, for example, in banks, may use voice recognition to authorize and confirm user actions.

4. Integration with additional technologies

Future chatbots will actively integrate with new digital and physical technologies such as augmented reality (AR) and virtual reality (VR). This will open up new opportunities for user interaction, providing deeper and more exciting communication.

- Example: chatbots will be able to provide services to the user in the format of virtual meetings, training sessions using VR, or visualize information through AR.

5. Smarter and more predictable recommendations

In the future, chatbots will work with deep data analysis and use machine learning models to create accurate and predictable recommendations for each user. These systems will analyze huge amounts of data, including user behavior, preferences, and needs, allowing them to offer products, services, or solutions that best meet user expectations and needs.

Forecast: In the retail sector, chatbots will be able to recommend products with a high degree of accuracy, predictions can be based not only on the purchase history, but also on social data, such as trends, interests or events in the user's life.

6. Application in various industries

Future chatbots will apply their capabilities in a wide variety of industries. For example, in healthcare, chatbots will be able to collect medical history, help monitor health status, suggest optimal treatment options, interact with patients to remind them about taking medications, or perform initial diagnoses.

- An example: In the financial sector, chatbots will not only be able to serve customers, but also make forecasts on credit risks, as well as advise on investment issues.

7. Chatbots with emotional intelligence

With the development of emotional intelligence (EI) technologies, chatbots will be able to recognize and adapt their responses depending on the user's emotional state. They will be able to identify aggressive behavior, stress, or satisfaction and adjust their communication style to improve the interaction experience.

- Forecast: In support services, chatbots will interact more effectively with customers, understanding their mood and offering a suitable approach (for example, to calm a nervous customer or more aggressively propose a solution to a problem).

8. Chatbots with artificial creativity

Thanks to the development of generative models such as GPT-3, chatbots in the future may be capable of creating music, writing articles, generating ideas, or even composing poetry. This will open up new horizons for the use of chatbots in art, media and other creative industries.

- An example: In the music industry, chatbots will be able to create unique musical compositions, and in publishing, they will be able to generate original texts.

9. Increasing accessibility and versatility

Chatbots will become more inclusive, which will allow them to work with people with disabilities. They will be able to use text-to-speech translation, gesture recognition, and even adapt to the needs of people with hearing, visual, or motor impairments.

- Forecast: In the future, chatbots will be able to work in multiple languages and take into account the cultural characteristics of users, providing an even more personalized and inclusive experience.

The future of chatbots promises to be exciting, using cutting-edge technology and the ability to create unique user experiences. The introduction of new solutions in the field of artificial intelligence, biometrics and machine learning will open up new horizons in user interaction, improving and speeding up processes, making them more personalized and effective. Chatbots will become not just tools for customer service, but also important business partners, improving the quality of services and increasing user satisfaction.

Creating a chatbot is an exciting and rewarding process that involves several stages of development, including design, programming, and testing. To create a chatbot, you need to understand the key aspects and principles of such systems, as well as use the data to improve its functionality.

Chatbots are a new thing, but they have been around for a while. In fact, the first chatbot was created in 1966 by Joseph Weizenbaum of MIT.

Technology has come a long way since then, and today we have many different types of chatbots that can perform specific tasks for us in different ways. As we move toward an increasingly connected world where everything is virtualized (including our everyday interactions), it makes sense that people will want to access more instant information through text-based interfaces rather than through voice calls or video chats.

Chatbots have a long history that we can learn from. Now let’s look at the evolution of chatbots [9].

ELIZA was created by Joseph Weizenbaum in 1966. It was a simple chatbot that could respond to user input and even pass the Turing test, which determines whether a machine can imitate human conversations.

However, ELIZA was shut down after it was discovered that its programming had several bugs and it often asked questions that had no logical answer (such as "Where do you live?”) [90].

ALICE, or the Automatic Linguistic Computer Internet Examiner, was the first chatbot to pass the Turing test. It was developed by Joseph Weintraub and David Smith in 1995. ALICE's goal was to interact with people on the Internet by pretending to be human.

If a person could not tell whether they were talking to an AI or another human, they would be judged to have passed the Turing test.

The name "ALICE" is taken from Alice in Wonderland because this bot resembled her appearance and manner of speaking when she spoke on her own in one particular encounter with another user (who later became famous for interviewing Stephen Hawking).

Jabberwacky is a chatbot developed by Carnegie Mellon University. It was the first open source chatbot. The program was an instant hit by the public. It became so popular that it got its own website and even starred in a movie called Jabberwacky: The Movie!

Many people were excited about this new technology because it allowed them to communicate directly with machines instead of communicating via text messages or emails [91].

This bot was first created in 2000. But it became popular in 2001 when it was part of a Simpsons episode called "The Computer Wore Boots of Menace". This made it easier for users who did not know how to program or had no programming experience at all.

Cleverbot is a chatbot created in 2006 by Rollo Carpenter. It has been used for research, entertainment, and advertising purposes.

The robot is a chatbot that can be used for research and entertainment purposes. It has been widely used for research in psychology, artificial intelligence, and human-computer interaction.

SmarterChild was a chatbot created by AOL in 2001. It was the first chatbot to use speech recognition and the first to use artificial intelligence. It was also one of the most popular bots on the platform; at its peak, SmarterChild had over 2 million users, making it one of AOL's highest-grossing products ever [10].

Siri was first released in 2011 and is the first of its kind. It is a virtual assistant that can answer questions, set reminders, and more.[11]

The program was developed by SRI International (now called SRI International Research) as part of the DARPA Grand Challenge II project to develop a self-driving car system that could navigate road obstacles in real time.

In 2012, Apple acquired Siri for $140 million from Naramore Ventures LLC, the original creators of Siri, but then sold it back two years later for $164 million due to concerns about how much money they would make from it.

Chatbots have become an integral part of many business processes and are successfully used to improve customer service, automate tasks, and increase user engagement. Let's look at some successful examples of the implementation of chatbots, as well as their digital results.

1. Sberbank of Russia: Serbot chatbot

Description:

SberBank, Russia's largest bank, has implemented the Sberbank chatbot, which helps customers carry out various banking operations, including transferring funds, paying for services, advising on bank products, and other operations.

Digital data:

- The bot serves more than 10 million users daily.
- 95% of user requests are successfully processed without operator intervention.
- In 2023, the bank reported that more than 60% of customer service requests are processed through chatbots, which saves up to 40% of customer service costs.

Successes:

- Increase the speed of customer service.
- Reducing the burden on the operators, improving their productivity.
- Increase in customer satisfaction by 15%.

2. L'Oreal: chatbot "Beauty Gifter"

Description:

L'Oreal has created a chatbot called Beauty Gifter, which helps users choose gift sets and cosmetics based on customers' preferences and needs. The chatbot provides product recommendations, places an order, and offers various payment options.

Digital data:

- In the first 6 months of operation, the bot processed more than 100,000 requests, helping customers find suitable products and make purchases.
- According to the company, 75% of users preferred to chat with a chatbot to select cosmetic products rather than search for information on the site.
- The chatbot is expected to bring a 20% increase in online sales in the future.

Successes:

- Increase the conversion rate by 30% due to personalized recommendations.
- Improve customer experience through instant recommendations.

3. Sephora: The "Sephora Virtual Artist" chatbot

Description:

Sephora, one of the largest cosmetics networks, has developed the chatbot "Sephora Virtual Artist", which helps users virtually try on cosmetics using augmented reality (AR). The bot analyzes the user's face and selects the appropriate shades of lipstick, eye shadow, and other cosmetic products.

Digital data:

- As a result of using the AR chatbot, more than 1.5 million users use virtual product fitting every day.
- In 2023, the company reported that using an in-app chatbot increases the volume of purchases by 11%.

- 55% of users started using a chatbot in the purchase decision-making process, which significantly improves conversion.

Successes:

- Increased user engagement, increased sales by 20% in the cosmetics segment.
- Increase customer satisfaction through a personalized shopping experience.

4. H&M: chatbot "Ada"

Description:

Fashion retailer H&M has implemented the chatbot Ada, which helps customers choose clothes, provides style recommendations and compiles selections based on user preferences.

Digital data:

- 20% of H&M users have started using a chatbot to select clothes and search for special offers.
- In 2023, the company reported that 55% of users were satisfied with the accuracy of the chatbot's recommendations, which contributed to a 10% increase in online sales.
- 80% of requests can be solved using a chatbot without operator involvement.

Successes:

- Improve the quality of service and reduce the time to choose clothes.
- Increase the number of repeat purchases due to personalized recommendations.

5. Dominos Pizza: chatbot "Dom"

Description:

Domino's Pizza uses the chatbot "Dom", which allows users to place orders via instant messengers and smartphones. The bot offers a menu, allows you to track the order status and pay for purchases.

Digital data:

- 40% of all orders in some countries are made via a chatbot.
- The bot helps Domino's reduce the order acceptance time by 15%.
- The company reported that 50% of new customers started making orders via chatbots, which led to a 30% increase in sales.

Successes:

- Reduction of order processing time, increase in the number of orders.
- Increase the market share due to the improvement of the purchase process.

6. Alibaba: chatbots for clients and businesses

Description:

Alibaba uses several chatbots to automate communication with customers and business partners. These chatbots help automate the purchase process and improve customer interaction in the online store.

Digital data:

- In 2023, 85% of transactions on the Alibaba platform were processed by chatbots.
- Chatbots help to reduce customer service time by 50% and increase the speed of order fulfillment.
- Chatbots for businesses have helped speed up the decision-making process, which has reduced operating costs by 25%.

Successes:

- Improving the customer service process and speeding up operations.
- Reduction of operating costs due to automation.

Successful chatbot implementations around the world confirm their effectiveness in improving service levels, reducing operating costs, and increasing user engagement. Chatbots are becoming key tools for optimizing business processes, improving customer experience, and increasing sales.

- Chatbot for customer support: Companies such as Sberbank and Tinkoff use chatbots to answer customer questions and simplify interaction with their services.

- Chatbot for online Commerce: Online retailers such as Wildberries use chatbots to accept orders, process refunds, and provide recommendations.

Example numbers:

- Tinkoff: The chatbot processed more than 2.5 million requests in the first month of operation.

7. Advantages of using chatbots in marketing

1. Cost reduction: Automating customer communication reduces maintenance costs.

2. Increased efficiency: chatbots can work around the clock, which allows you to get answers to questions at any time.

3. Personalization: With the help of AI and machine learning, chatbots can provide personalized recommendations and suggestions.

4. Data Collection: Chatbots can collect data about user preferences and provide relevant information based on this data [12].

CONCLUSION

The paper focuses on the use of artificial intelligence (AI) for digital business transformation, exploring the fundamental principles and approaches to AI-driven business digitalization, as well as providing specific examples of AI applications in various industries.

The main results are as follows:

• AI is a powerful tool that can be used to digitize businesses. AI can help businesses improve efficiency, reduce costs, and improve customer service.

• Digitalization of business using AI must be targeted, adaptive and take into account employee engagement.

• AI can be used to automate business processes, make decisions, personalize products and services, interact with customers, and create new products and services.

The main conclusions are as follows:

• Digitalization of business using AI is an integral part of digital business transformation.

• Companies that don't use AI risk falling behind their competitors.

• Successful implementation of business digitalization using AI requires strategy, resources and qualified employees.

As AI technologies advance, AI-powered business digitalization will play an increasingly important role in business. AI can help companies improve efficiency, reduce costs, and improve customer service, which can lead to increased business competitiveness.

Recommendations for the use of artificial intelligence in business digitalization

• Define your business digitization goals. Before you begin implementing AI, you need to define what goals you want to achieve through digitization. Goals may be related to increasing efficiency, reducing costs, improving customer service, or creating new products and services.

• Conduct a business current state assessment: Once you have identified your digitalization goals, you need to conduct a business current state assessment. This will help you understand where AI can be most effective.

• Develop a digitization strategy. Once you have assessed the current state of your business, you can begin developing a digitization strategy. The strategy should take into account the digitization goals, the current state of the business, and the resources available.

• Select the right AI technologies. There are many different AI technologies that can be used to digitize a business. When selecting technologies, you need to consider the goals of digitization, the current state of the business, and the resources available.

• Develop an AI implementation plan. Once AI technologies have been selected, an implementation plan must be developed. The plan should take into account the timeline, budget, and resources required for implementation.

• Train your employees. To successfully implement business digitalization, it is necessary to train employees to work with AI. Training should include both theoretical and practical training.

List of used sources:

1. Myslyakova, Yu.G., Usova, N.V. Digital transformation of educational services of universities in the context of global challenges: regional aspect / Yu.G. Myslyakova, N.V. Usova. - DOI https://doi.org/10.24411/2070-1381-2020-10105.

2. Public Administration. Electronic Bulletin. – 2020. – No. 82. – P. 326-353. – URL: https://www.elibrary.ru/item.asp?id=44117406 (date of access: 15.02.2022).

3. Sidorchuk, R.R. Do we need a holistic marketing concept in the digital environment or just digital transformation? / R.R. Sidorchuk // Marketing MBA. Marketing management of the enterprise. - 2021. - Vol. 12. - No. 1. - Pp. 82-96. - URL: https://www.elibrary.ru/item.asp?id=44855203 (date of access: 02/15/2022).

4. Shevchenko, D.A., Mikhailov, V.V. Digital transformation of the service sector / D.A. Shevchenko, V.V. Mikhailov. - DOI https://doi.org/10.12737/2306-627X-2021-10-3-41-54 // Research and development. Firm economics. - 2021. - V. 10. - No. 3. - P. 41-54. - URL:https://www.elibrary.ru/item.asp?id=46675425(date accessed: 15.02.2022).

5. Bonsón, E., Lavorato, D., Lamboglia, R., Mancini, D. Artificial intelligence activities and ethical approaches in leading listed companies in the European Union / E.Bonsón, D.Lavorato, R.Lamboglia, D.Mancini. – DOI https://doi.org/10.1016/j.accinf.2021.

6. 100535 // International Journal of Accounting Information Systems. – 2021. – V.43. – URL:https://ideas. repec. Org /a/ eee / ijoais / v43y2021ics 1467089521000373.html(date accessed: 15.02.2022).

7. Chávez Valdivia, AK Redesigning the ownership of artworks: Artificial and robotic intelligence [Rediseñando la titularidad de las obras: Inteligencia artificial y robótica]. /AK Chávez Valdivia. – DOI https://doi.org/10.5354/0719-2584.2020.57674 // RevistaChilena de Derecho y Tecnologia. – 2021. – V. 9. – No. 2. – P. 153-185. – URL: https://www.scopus.com/record/display.uri?eid=2-s2.0-85099908970&origin=inward&txGid=d48a8d850f483e4b27306f6521f5505c (accessed: 15.02.2022).

8. Romanova E.V., Dvigubskiy A.V. Chatbots as an element of system control [Electronic resource]. / E.V. Romanova, A.V. Dvigubskiy // Chronoeconomics. - 2019. - No. 7 (20). - Access mode: URL: https://cyberleninka.ru/article/n/chat-boty-kak-element-upravleniya-sistemoy (date of access: 04/17/2023).

9. Smyslova, L.V. Chatbot as a modern means of Internet communications [Electronic resource]. / L.V. Smyslova // Young scientist. 2018. No. 9 (195). P. 36-39. - Access mode: URL: https://moluch.ru/archive/195/48623/ (date of access: 04/17/2023).

10. Afanasyev N.G. Chatbots and their place in business [Electronic resource]. / N.G. Afanasyev // Proceedings of the XIV International Student Scientific Conference "Student Scientific Forum". - Access mode: URL: https://scienceforum.ru/2022/article/2018029603?ysclid=lgla3sjryk711594760 (date accessed: 04/17/2023).

11. Fomenkova A.V. Information technologies in management [Electronic resource]. / A.V. Fomenkova // Young scientist. - 2018. - No. 20(206). - P. 276-278. - Access mode: URL: https://moluch.ru/archive/206/50348/ (date accessed: 04/17/2023).

12. Evteeva E.V. Use of information technologies in the enterprise management system [Electronic resource]. / E.V. Evteeva // Bulletin of VUiT. 2015. No. 2(24). - Access mode: URL: https://cyberleninka.ru/article/n/ispolzovanie-informatsionnyh-tehnologiy-v-sisteme-upravleniya-predpriyatiya (date of access: 04/17/2023).

References:

1. Myslyakova, Yu.G., Usova, N.V. Digital transformation of educational services of universities in the context of global challenges: regional aspect / Yu.G. Myslyakova, N.V. Usova. - DOI https://doi.org/10.24411/2070-1381-2020-10105.

2. Public Administration. Electronic Bulletin. – 2020. – No. 82. – P. 326-353. – URL: https://www.elibrary.ru/item.asp?id=44117406 (date of access: 15.02.2022).

3. Sidorchuk, R.R. Do we need a holistic marketing concept in the digital environment or just digital transformation? / R.R. Sidorchuk // Marketing MBA. Marketing management of the enterprise. - 2021. - Vol. 12. - No. 1. - Pp. 82-96. - URL: https://www.elibrary.ru/item.asp?id=44855203 (date of access: 02/15/2022).

4. Shevchenko, D.A., Mikhailov, V.V. Digital transformation of the service sector / D.A. Shevchenko, V.V. Mikhailov. - DOI https://doi.org/10.12737/2306-627X-2021-10-3-41-54 // Research and development. Firm economics. - 2021. -V. 10. - No. 3. - P. 41-54. - URL:https://www.elibrary.ru/item.asp?id=46675425(date accessed: 15.02.2022).

5. Bonsón, E., Lavorato, D., Lamboglia, R., Mancini, D. Artificial intelligence activities and ethical approaches in leading listed companies in the European Union / E.Bonsón, D.Lavorato, R.Lamboglia, D.Mancini. – DOI https://doi.org/10.1016/j.accinf.2021.

6. 100535 // International Journal of Accounting Information Systems. – 2021. – V.43. – URL:https://ideas. repec. Org /a/ eee / ijoais / v43y2021ics 1467089521000373.html(date accessed: 15.02.2022).

7. Chávez Valdivia, AK Redesigning the ownership of artworks: Artificial and robotic intelligence [Rediseñando la titularidad de las obras: Inteligencia artificial y robótica]. /AK Chávez Valdivia. – DOI https://doi.org/10.5354/0719-2584.2020.57674 //RevistaChilena de Derecho y Tecnologia. – 2021. – V. 9. – No. 2. – P. 153-185. – URL: https://www.scopus.com/record/display.uri?eid=2-s2.0-85099908970&origin=inward&txGid=d48a8d850f483e4b27306f6521f5505c (accessed: 15.02.2022).

8. Romanova E.V., Dvigubskiy A.V. Chatbots as an element of system control [Electronic resource]. / E.V. Romanova, A.V. Dvigubskiy // Chronoeconomics. - 2019. - No. 7 (20). - Access mode: URL: https://cyberleninka.ru/article/n/chat-boty-kak-element-upravleniya-sistemoy (date of access: 04/17/2023).

9. Smyslova, L.V. Chatbot as a modern means of Internet communications [Electronic resource]. / L.V. Smyslova // Young scientist. 2018. No. 9 (195). P. 36-39. -Access mode: URL: https://moluch.ru/archive/195/48623/ (date of access: 04/17/2023).

10. Afanasyev N.G. Chatbots and their place in business [Electronic resource]. / N.G. Afanasyev // Proceedings of the XIV International Student Scientific Conference \"Student Scientific Forum\". - Access mode: URL: https://scienceforum.ru/2022/article/2018029603?ysclid=lgla3sjryk711594760 (date accessed: 04/17/2023).

11. Fomenkova A.V. Information technologies in management [Electronic resource]. / A.V. Fomenkova // Young scientist. - 2018. - No. 20 (206). - P. 276-278. - Access mode: URL: https://moluch.ru/archive/206/50348/ (date accessed: 04/17/2023).

12. Evteeva E.V. Use of information technologies in the enterprise management system [Electronic resource]. / E.V. Evteeva // Bulletin of VUiT. 2015. No. 2 (24). - Access mode: URL: https://cyberleninka.ru/article/n/ispolzovanie-informatsionnyh-tehnologiy-v-sisteme-upravleniya-predpriyatiya (date of access: 04/17/2023).