

SECTION 8. INNOVATIVE ECONOMY

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8.1 Artificial intelligence as a catalyst of intellectual capital in digital economy

In the modern world, intellectual capital and artificial intelligence are key concepts that determine technological and economic development. Combining these two areas opens new perspectives and opportunities for business, science and society. Further research into their relationship can reveal the deep mechanisms underlying innovative progress and competitiveness. In particular, studying the influence of intellectual capital on the development and implementation of artificial intelligence can help understand and optimise knowledge management strategies and innovative activities.

This study aims to provide a systematic analysis of the relationship between intellectual capital and the development of artificial intelligence, as well as to identify key factors influencing this process. The research aims to reveal the complex interactions between human intelligence, accumulated knowledge, technological achievements and innovation processes that form the modern technological paradigm.

The object of research is the processes of formation, accumulation, use and commercialization of intellectual capital in the context of the development and introduction of artificial intelligence. The study of these processes will allow a better understanding of the functioning mechanisms of innovation systems and provide a basis for further improvement of knowledge and innovation management strategies in the conditions of rapid digitalization of the technological environment.

Intellectual capital is a set of invisible assets that form the company's competitive advantage and society as a whole. It includes knowledge, skills, ideas, patents, technologies, experiences, databases, and relationships that are of great importance to the development and effectiveness of business and society. Intellectual capital is becoming more and more important in the modern economy, where changes occur at an incredible speed [333]. Digital transformation is a key catalyst for using and

developing intellectual capital. The introduction of digital technologies, such as accounting systems, cloud solutions, Big Data, IoT, artificial intelligence and technologies derived from it, increase the amount of knowledge and facilitate access to it [334]. This enables faster dissemination of information and promotes the development of new ideas and innovations. Table 1 provides a comparative analysis of the concept of intellectual capital and its role in the traditional approach to business before and after innovation and examines the advantages and challenges associated with these approaches.

Table 1.

Analysis of approaches to understanding intellectual capital: comparative analysis of traditional and innovative approaches

The concept of intellectual capital	Traditional approach (before the advent of AI)	Innovations in the world (after the introduction of AI)	Advantages	Challenges
Evaluation of intellectual capital [335]	Focused on intellectual property and patents	Capturing knowledge, learning and innovation through increased data processing and analytics	Increasing accuracy in estimating the value of intellectual capital	Overestimation/underestimation
Knowledge Management [336]	An organic process of accumulating knowledge and experience	Automated processing, storage and retrieval of knowledge through AI and analytics	Increasing the efficiency and speed of searching for the necessary information	Loss of context or data corruption
Creativity and innovation [338]	Focused on intuition and experience, a more manual process	Generating new ideas and innovations through big data analysis and AI insights	Strengthening of innovative activity and speed of development of new products	Loss of originality or data overload
Impact on business processes [337]	Gradual business development and optimization of processes based on experience	Automation and optimization of business processes through the introduction of intelligent systems	Increasing business productivity and efficiency	Dependence on technology and loss of flexibility
Personnel development	Traditional methods of learning and knowledge development	Personalized learning and development using AI and analytics	Increasing the level of staff competence	Increased training costs and loss of employees

Compiled by the authors based on sources [335-338].

Artificial intelligence opens up new opportunities for the development of intellectual capital, using advanced technologies to improve productivity, innovation and strategic planning. AI can automate routine tasks, allowing workers to focus on more complex and creative tasks, increasing their value as intellectual capital.

By analyzing large amounts of user data, artificial intelligence systems can create unique recommendations and offers that meet each customer's individual needs. This contributes to the increase of consumer loyalty and the competitiveness of companies [339].

In addition, AI can be used to improve the effectiveness of training and development, which is an important aspect of intellectual capital development. AI can provide personalized learning programs that help employees develop the skills they need to succeed in today's business environment. This not only increases the value of employees as intellectual capital, but also helps organizations remain competitive in a dynamic business environment.

Another example is the improvement of production and management processes. Artificial intelligence systems can analyze production data to identify effective optimization methods, avoid malfunctions, and improve product quality. This allows businesses to reduce costs and increase productivity.

Intellectual capital and artificial intelligence are two important components that interact to create innovation and move society forward. Balanced use of these resources allows for the achievement of not only economic success but also promotes the development of innovative ideas that have the potential to change the world for the better.

All this will affect the development of new sectors of the economy and contribute to changes in people's lifestyles. Some companies already have results from the implementation of AI in their business, and they also talk about forecasts for the future, taking into account the implementation of this innovation (Fig. 1).

The most high-quality and vivid example of introducing artificial intelligence into various spheres of social life is the use of chatbots. These interactive software solutions, capable of interacting with users in the form of text messages, are becoming increasingly common in various fields of activity, from customer service to education and health.

They can perform a variety of tasks, from answering questions to solving complex problems. The use of chatbots in business ensures the maximum speed of answers to customer questions and improves the level of service, thus ensuring increased sales.

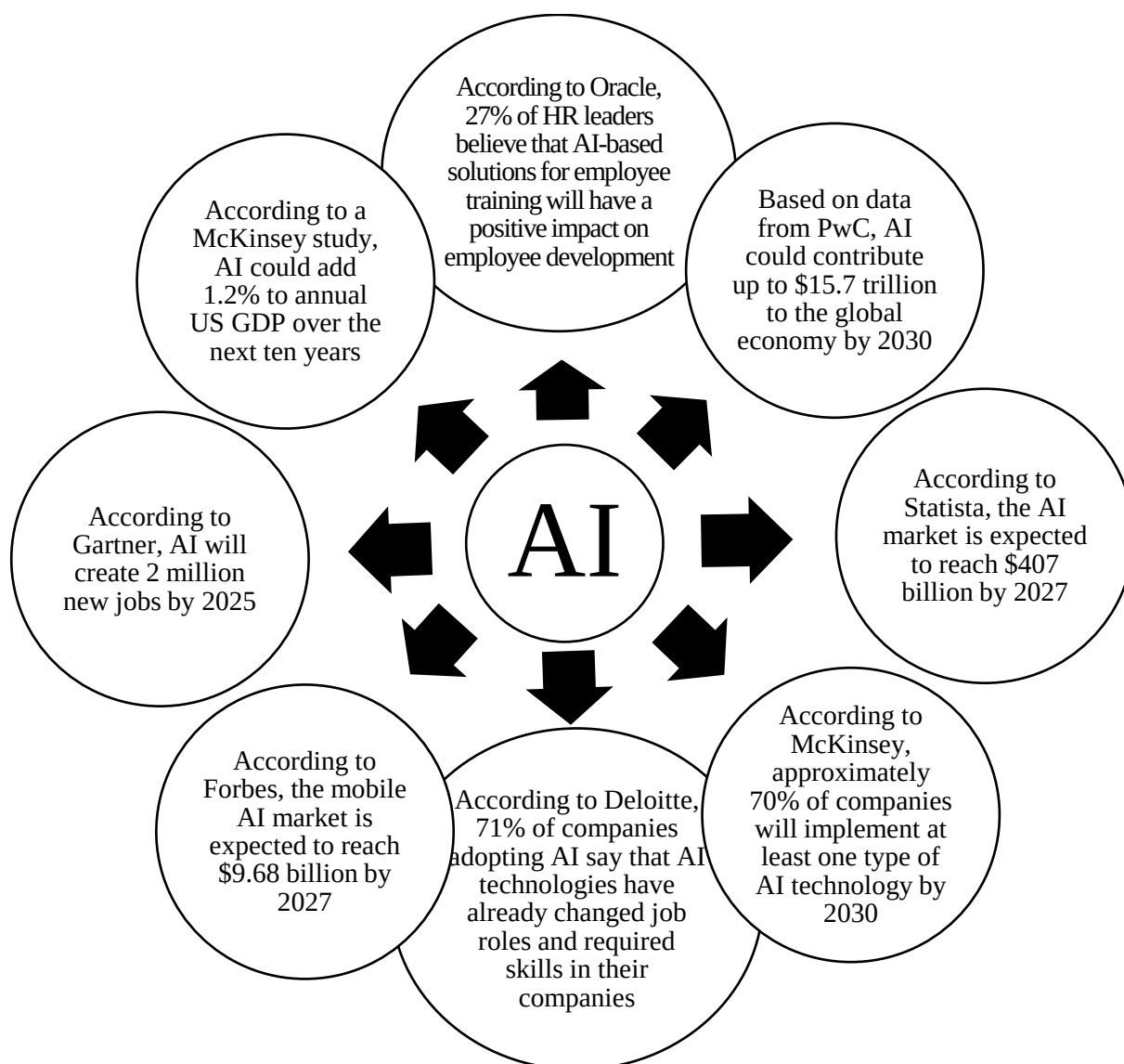


Figure 1. The effect of introducing artificial intelligence into business

(compiled by authors based on sources [340-343])

Artificial intelligence, in turn, allows chatbots to analyze data, make predictions, and even learn based on user interaction. This allows enterprises to maintain a personalized approach to each client, which in turn contributes to increasing the level of customer satisfaction and increasing brand loyalty. The use of chatbots and artificial intelligence also helps businesses collect large amounts of data about their customers, their preferences and behavior. This information becomes valuable intellectual capital

that can be used to improve marketing strategies, develop new products and services, and improve the efficiency of interaction with customers.

The growing competition in business and the rapid pace of technological development force enterprises to actively use chatbots and artificial intelligence to maintain their competitiveness. Using these innovative tools helps automate processes and reduce costs and allows you to create new opportunities for business development and increased profits. Companies can combine different technologies to achieve their business goals depending on the specific business scenario, requirements, and strategic goals. Based on this, the authors created a classification of chatbots by application areas, shown in Table 2, to facilitate the choice for companies.

Table 2.
Classification of chatbots by scope of application

Scope of application	Examples of chatbots	Features
Customer service	1. MyKAI; 2. Eno; 3. GYANT.	Typically used to handle simple customer inquiries such as checking balances or tracking orders
IT	1. GitHub bot; 2. Stack Overflow bot; 3. Jenkins bot.	Can help with automating the writing of chat code, tracking errors in it, answering technical questions or even managing development processes
Education	1. Smodin; 2. Juli; 3. Duolingo.	It can help with studying, doing homework or even writing or translating texts
Health	1. Ada; 2. OneRemission; 3. Babylon Health.	May provide medical advice based on symptoms reported by the user
Electronic commerce	1. eBay ShopBot; 2. SnapTravel; 3. Sephora.	It can help users find products, compare prices and even make purchases
Tourism	1. Zendesk; 2. Botsonic; 3. Yellow.ai.	Can help with booking hotels, flights and other services
Banking	1. Erica; 2. Cleo; 3. Plum.	Can help with money transfers and other banking transactions, as well as 24/7 banking support and help to save money
Marketing	1. Drift; 2. ManyChat; 3. MobileMonkey.	Can help with lead generation, marketing campaign automation, advertising mailings, logo creation, and other tasks
HR and Recruitment	1. Mya; 2. Job Pal; 3. Wade and Wendy.	Can help with the hiring process by answering candidate questions and automating resume reception
Entertainment	1. And Chill; 2. Mitsuku; 3. Trivia Blast.	Entertainment chatbots can help with movie selection (And Chill), chat and play games (Mitsuku), and conduct quizzes (Trivia Blast)

Compiled by the authors based on sources [344-369].

With this in mind, it can be argued that the chatbot market is already quite diverse and able to adapt to companies' needs. With the rapid development of technology and the constant improvement of software, chatbots are becoming more adaptive and effective. This process leads to companies' intellectual capital growth, as they gain access to new opportunities to interact with customers. The development of the chatbot market takes place at different levels, from the improvement of artificial intelligence algorithms to the creation of innovative user interfaces. Thus, the development of chatbots reflects the dynamic nature of modern business, where innovation and technology play a key role in achieving success.

Summary and conclusions.

Hence, chatbots play an important role in all industries, helping to solve various tasks, from customer service to personnel management. The artificial intelligence built into these systems makes them effective tools for automating routine tasks, increasing productivity, and improving customer satisfaction. Such solutions are a component of the enterprise's intellectual capital, which is a key resource for ensuring stability in the market.

The correct use of chatbots in the relevant fields of activity can significantly increase the company's potential for innovation and development, strengthening its position as a modern and technology-oriented business. The introduction of chatbots in various fields of application is not only a strategic step in improving business processes, but also an investment in increasing intellectual capital, which contributes to the stability and success of the enterprise. This approach contributes to the development of competitive advantages and allows the company to adapt to changes in market requirements and consumer needs.

Considering the impact of chatbots and artificial intelligence on business and intellectual capital, we can conclude that they have an impressive role in accelerating the economy's digitalisation process. The implementation of such innovative technologies contributes to the faster development and modernization of various sectors of the economy, stimulating the digital transformation of business. This trend is driven not only by the desire for efficiency and automation, but also by the ever-

growing importance of artificial intelligence technologies as a strategic resource for business development in the world of innovation.

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