

The Role of Artificial Intelligence in Information Systems

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Abstract: This article identifies digitalization programs that are being implemented in different countries, lists the advantages and disadvantages that digital transformation gives to the economy. The impact of digitalization on the labor market is described: on the one hand, it leads to an increase in unemployment, and on the other, it implies an increase in employment due to the emergence of new professions. Statistics on unemployment in some countries are provided. Professions that may disappear due to the digitalization of the economy and that may become in demand are indicated.

Keywords: digitalization, pandemic, unemployment, labor market

In recent decades, artificial intelligence (AI) has evolved to become an integral component of numerous information systems, driving substantial changes and improvements across various sectors. This thesis delves into the current trends in the development and application of artificial intelligence within information systems, providing a comprehensive analysis of how these trends are shaping the landscape. Furthermore, it explores the future prospects for the utilization of AI in these systems, highlighting potential advancements and innovations that may arise.

The thesis systematically examines the main challenges associated with the integration of AI into information systems, addressing issues such as data privacy, ethical considerations, and the need for advanced infrastructure. It also discusses the significant advantages that AI integration brings, including enhanced efficiency, improved decision-making, and the ability to handle complex tasks with greater precision. Moreover, the opportunities presented by AI integration are explored, particularly in terms of creating new business models, optimizing operations, and unlocking new capabilities that were previously unattainable.

Additionally, the impact of AI on society and the business environment is thoroughly analyzed. This includes an assessment of how AI-driven information systems are transforming industries, influencing employment patterns, and altering consumer behavior. The thesis also considers the broader societal implications, such as changes in education, healthcare, and public services, as AI continues to permeate various aspects of daily life.

By providing a detailed exploration of these topics, this thesis aims to offer valuable insights into the ongoing evolution of AI in information systems. It seeks to inform stakeholders about the

potential benefits and pitfalls of AI integration, and to provide a roadmap for navigating the complex landscape of AI-driven technological advancements.

The current state of development of artificial intelligence in information systems:

- Review of modern technologies and artificial intelligence methods used in information systems.

- Examples of successful applications of AI in various fields such as healthcare, finance, manufacturing, etc.

Nº	Sphere	Application	Examples
1	Healthcare	Diagnosis of diseases, treatment, monitoring of patient condition	- Medical image analysis - Forecasting epidemiological situations
2	Finance	Market analysis, investment recommendations	- Forecasting prices in financial markets - Automation of stock portfolio management
3	Production	Optimization of production processes, product quality control	- Analysis of production operations data to optimize processes - Application of robots in production
4	Transport	Autonomous vehicle control	- Autopilots in cars - Routing and management of transport networks

- Analysis of current areas of development of artificial intelligence and its application in information systems.

Recommendation systems: AI is used to analyze user behavior and offer personalized recommendations for products, movies, music and other content in online stores, streaming services and social networks. As an example, I can give top social networks that use AI:

- Facebook. Facebook uses AI to recognize faces in photos, filter content, recommend friends and content, and crack down on inappropriate content.

- Instagram. Instagram is owned by Facebook and the founder of these top apps is Mark Zuckerberg. It actively uses AI in the Instagram app to analyze images, recommend content, filter comments, and identify trends

- YouTube. YouTube uses AI to recommend video content, analyze comments, and determine thematic categories for videos. That is, every video we watch leads to the fact that the next video will be similar to the previous one. This means AI helps us identify our interests and match us with videos.

- Twitter. Twitter uses AI to analyze tweets, identify trends, filter spam, and suggest content for users.

- TikTok: TikTok uses AI to personalize content, recommend videos, and filter inappropriate content. I think the best AI is using TikTok

Natural language processing: AI enables information systems to understand and process natural language, which is used in chatbots, voice assistants, automatic text translation and sentiment analysis in social media. One simple example is automated translators in websites, applications, and so on. It is now difficult to imagine a world without voice assistants. That's why there are

different voice assistants, for example GoogleNow and GoogleAssistant, Siri, Yandex Alice and others. In the following table, we will look at the positive and negative aspects of these voice assistants:

№	Voice assistant	Positive sides	Negative sides
1	GoogleNow GoogleAssistant	<ul style="list-style-type: none"> - High speed and accuracy of speech - Integration with other Google services for easy access to information and device management 	<ul style="list-style-type: none"> - Limited functionality compared to competitors - Insufficient depth of understanding of the user's context and intentions
2	Siri	<ul style="list-style-type: none"> - Wide functionality of integration with Apple devices and services - Ability to perform various tasks, including sending messages and searching for information 	<ul style="list-style-type: none"> - Less accuracy in speech recognition compared to competitors - Limited integration capabilities with third-party services
3	Yandex Alisa	<ul style="list-style-type: none"> - Wide functionality of integration with Apple devices and services - Ability to perform various tasks, including sending messages and searching for information 	<ul style="list-style-type: none"> - Limited distribution - Some limitations in the quality of the speech interface in comparison with Western analogues

The information in the table can be used for analysis and further development of voice assistants

Conclusion:

Artificial intelligence continues to change information systems, opening up new opportunities and causing new challenges. Understanding the current state and prospects for the development of AI in information systems allows organizations to effectively use this technology, cope with challenges and implement new ideas.

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