

# OPPORTUNITIES AND CHALLENGES OF USING ARTIFICIAL INTELLIGENCE IN LIBRARY AND INFORMATION ACTIVITIES

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## Abstract

This article analyzes the use of artificial intelligence technologies in information and library activities, their advantages and problems. The role of artificial intelligence in improving library services, its importance in providing users with fast and high-quality services is highlighted on a scientific basis. It is also recommended to improve the use of artificial intelligence in information and library institutions of the Republic of Uzbekistan, adapting it to our mentality.

**Keywords:** Artificial intelligence, ChatGPT, culture, digital technologies, DeepSeek, Gemini, information and library system, information policy, mentality, users.

## Introduction

Today, speed, accuracy and efficiency have become the most important requirements in all aspects of human life. It is becoming necessary to optimize work processes and increase efficiency in each area. The introduction of technological innovations plays an important role in this process. The use of modern technologies is especially important in the field of information and library systems. Because providing convenient, high-quality and fast service to users has become the main criterion of today's library activities. A number of laws and resolutions are being adopted in our republic regarding library activities. All of them serve to improve the library system in the modern information environment. These documents require the provision of high-level, fast and high-quality service to the population. Therefore, today's librarian should not be limited to being only knowledgeable. He should have a modern frame of mind. He should also act as a qualified specialist who is well versed in digital technologies.



## The concept of artificial intelligence and the history of its formation

On October 6, 2025, the President of the Republic of Uzbekistan Shavkat Mirziyoyev made important remarks at a presentation on the development of artificial intelligence. He stressed the need to constantly study advanced, proven foreign and domestic experiences in order to develop artificial intelligence more quickly. The President also noted the importance of establishing cooperation with our compatriots, foreign experts, and the private sector in this area.[1] This call is of urgent importance for the widespread implementation of artificial intelligence in every field, including the information and library system. Because digital technologies in library activities increase efficiency, save time, and create convenience for users. At the same time, in order to use artificial intelligence correctly, it is first necessary to have sufficient knowledge about it. Only then will library staff be able to correctly and effectively apply this technology in practice.

In the scientific literature, Artificial Intelligence (AI) is recognized as a set of systems capable of performing complex functions such as learning, analysis, decision-making, and communication in a manner similar to human thinking, and is defined as a software system that models the activity of human intelligence. [2] The introduction of this concept into science was also an interesting case. At a scientific conference held in the United States, computer scientist John McCarthy introduced it into science, and therefore experts call him the "father of artificial intelligence". [3] The first AI systems were developed based on logical thinking and mathematical algorithms. One of the most famous of them is the Logic Theorist program created by Herbert Simon and Allen Newell, which is recognized as the first model that imitates human thinking. [4] Later, artificial intelligence systems were improved year by year, developed with new additions and programs, and were applied in various fields. Today, it is widely used in many areas, including medicine, education, industry, culture, transportation, and information technology.

### Modern uses of artificial intelligence

Due to the rapid development of modern technologies, there are also alternative types, and today we can mention the most popular artificial intelligence systems such as ChatGPT (OpenAI), DeepSeek, Claude AI (Anthropic) and Gemini (Google DeepMind). Although they differ in terms of production time and usage, their tasks are almost the same:

ChatGPT (OpenAI) — It is widely used in the fields of text analysis, article writing, translation, programming, and creative work.

DeepSeek — Effective in working with large amounts of data, analyzing it, and drawing conclusions based on documents.

Claude AI — a system that is adapted to natural interaction with the user, emphasizing ethical safety.

Gemini (Google DeepMind) — It is a multimodal artificial intelligence system that can work with text, images, sound, and video simultaneously [5]

Opportunities and challenges of using artificial intelligence in library activities.

In the current era of rapid innovation, the time factor is becoming extremely important. Therefore, it is necessary to introduce new approaches to providing services to people.



Technological progress allows us to speed up work processes and increase efficiency in almost all areas of our lives. In particular, in recent years, the term "artificial intelligence" (AI) has been increasingly used. AI, when used in library work, can quickly help in the following positive tasks::

- Helps in organizing events: simplifies the process of script writing, document creation and editing.
- Automatically generates annual plans and reports.
- Can explain the essence of new laws or decisions in simple language.
- Helps in finding works of art. For example, if a reader knows the content of a work but cannot remember the author or title, artificial intelligence can find the right book based on the words.
- Recommends a list of suitable books based on the reader's age, interests, and reading level.
- Quickly and accurately sorts data during the cataloging process.
- Automatically annotates works or provides a brief summary of their contents.

However, just like the other side of the coin, there are also some disadvantages to using artificial intelligence: we can't help but dwell on them.

- It requires a constant computer and internet connection to function. If the internet quality is poor, the system will not function fully.
- The user should be careful about the spelling of the words they type, as some words have different meanings (for example, *she* and *she'r*).
- Artificial intelligence has not yet fully adapted to the capabilities of the Uzbek language. Therefore, in some cases it makes grammatical or logical errors.
- Sometimes he links information incorrectly. For example, he may attribute the work "Days Gone" to the pen of Cholpon.
- There is also a risk of presenting works or information that are not in line with our national mentality and culture.
- In addition, the usefulness of artificial intelligence directly depends on the user's Internet usage culture. If the user regularly uses scientific, reliable sites, the intelligence will also give correct answers. On the contrary, if the user uses false or inaccurate data sources, the system will make more errors.

So, this situation can be explained by the folk wisdom "Salomga yarasha alik". That is, the more accurate and high-quality information the user provides, the more effective artificial intelligence will help. However, artificial intelligence can be one of the important tools in improving the activities of a modern library. Because it not only saves time, but also directly contributes to the systematization of work. It is only necessary to direct it correctly, adapt it to the characteristics of our national values and the Uzbek language.

### Conclusion

In general, the widespread implementation of SI technology in information libraries, along with the formation of a convenient, fast and individual service system for users, allows for more effective organization of the processes of analyzing, sorting and disseminating information. However, a person using artificial intelligence must also have a healthy mindset, get used to using reliable sources and scientific and official sites. Because artificial intelligence, by its very



nature, acts as a “window” - it selects and analyzes information depending on which sources the user often uses. This, in turn, serves to improve national information policy, accelerate scientific and educational and spiritual development. It is no secret that information and library institutions now need specialists who can manage artificial intelligence, and there is a demand for such talented employees. Adapting SI technologies to local conditions and the capabilities of the Uzbek language is one of the most urgent tasks of today, and it is the duty of every specialist to use them rationally, responsibly and based on moral criteria. Consequently, this technology has become popular in recent years due to its convenience and capabilities in a short time.

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