**INFORMATION SYSTEMS: PROSPECTS AND OPPORTUNITIES OF THE PROFESSION**

**Abstract**: Modern society cannot be imagined without information technology, and the profession of an information systems specialist is becoming one of the most sought-after in the world. The development of digital technologies, artificial intelligence and automated processes leads to the fact that information systems penetrate into all spheres of life: from business and medicine to public administration and scientific research. The article examines the main aspects of the profession of an information systems specialist, the prospects for its development, the key competencies necessary for successful career growth, as well as the impact of modern technologies on the transformation of this specialty. In addition, the challenges and trends faced by professionals in this field are analyzed, including cybersecurity, data analysis, and integration of innovative solutions.

**Keywords**: information systems, digital technologies, programming, cybersecurity, data analysis, artificial intelligence, automation, software development, system architecture, IT industry.

The modern world is rapidly digitizing, and information technology plays a key role in all spheres of life. The development of the Internet, mobile applications, cloud computing, and artificial intelligence requires specialists capable of developing, maintaining, and improving complex digital systems. That is why the profession of an information systems specialist is becoming one of the most sought-after and promising. Information systems cover a wide range of areas, from databases and data analysis to the creation of complex software systems and artificial intelligence systems. In today's world, enterprises, government agencies, and even small businesses need specialists who can effectively manage information, ensure data security, and automate workflows.

Information systems have long gone beyond purely technical solutions and have become an integral part of business, science, education, and even everyday life. Thanks to the development of information technology, phenomena such as e-government, Internet banking, data mining systems, and automated production lines have emerged. Information systems allow companies and organizations to effectively manage their resources, analyze large amounts of data, predict consumer behavior, and automate routine processes. In healthcare, information systems help diagnose diseases, in economics they help manage financial flows, and in public administration they help increase transparency and efficiency of various departments. In addition, information technology has dramatically changed the way people communicate. Social networks, instant messengers, email, and video conferencing allow people to communicate and work from anywhere in the world. This, in turn, requires new approaches to the protection of personal data and information, which makes an information systems specialist an indispensable professional. [1,75]

The profession of an information systems specialist includes many areas, each of which plays an important role in the digital ecosystem. One of the key areas is software development. Specialists working in this field are engaged in the creation of web applications, mobile programs, corporate information systems and cloud services. Another important area is cybersecurity. With the increasing number of cyber attacks and data leaks, the need for specialists capable of protecting information systems from unauthorized access is increasing. Cybersecurity experts develop antivirus programs, encrypt data, test vulnerabilities, and monitor network activity. Data analysis and working with large amounts of information is another promising area. Companies use machine learning and artificial intelligence technologies to process information, predict market trends, and automate decision-making. Data analysis specialists develop algorithms, analyze data structures, and find patterns that help businesses optimize their operations. In addition, the field of information systems includes such areas as cloud computing, database management, system administration and integration of digital solutions. These areas require high qualifications and in-depth knowledge in programming, mathematics, and computer system architecture.

To work successfully in the field of information systems, a specialist needs to have a wide range of competencies. Programming is one of the most important skills, as most information systems are developed using languages such as Python, Java, C++, JavaScript, and SQL. Understanding the architecture of computer systems and networks is also a key factor. An information systems specialist should understand the principles of operating systems, servers, databases, and network technologies. Analytical thinking and the ability to work with large amounts of data play an important role. Specialists in this field should be able to analyze information, find patterns, and make decisions based on data. In addition to technical skills, the so—called soft skills are also important - the ability to work in a team, communication skills, and the ability to adapt quickly to changes. Working in the field of information systems often requires interaction with various specialists, from developers and analysts to managers and customers. [2,98]

The field of information systems is developing rapidly, and the demand for qualified specialists continues to grow. According to forecasts, in the coming years, digital transformation will cover almost all sectors of the economy, which will lead to an increased need for professionals capable of developing, maintaining and protecting information systems. Technology giants such as Google, Microsoft, Apple, and Amazon are actively investing in the development of innovative solutions, which creates new opportunities for IT professionals. In addition, small and medium-sized businesses are increasingly using digital technologies to increase their competitiveness, which means that the need for information systems specialists is only increasing. In addition, thanks to the development of remote work technologies, information systems specialists can work in international markets, cooperating with companies from all over the world. This makes the profession not only promising, but also globally in demand.

Kazakhstan, like many other countries, is actively developing the digital economy and introducing information technologies in all spheres of life. In recent years, the government has been paying special attention to digital transformation, creating conditions for the development of the IT industry. In this regard, the profession of an information systems specialist is becoming not only in demand, but also strategically important for the country. [3,46]

One of the most striking examples of digital transformation in Kazakhstan is the state program "Digital Kazakhstan". It is aimed at increasing the competitiveness of the economy and improving the quality of life of the population through the development of digital technologies. Within the framework of this program, electronic government (eGov), digital medicine, smart cities and data analysis systems are being actively implemented. E-government (eGov) has become one of the key achievements of Kazakhstan in the field of digitalization. Thanks to this system, citizens can receive more than 80% of government services online, ranging from business registration and obtaining certificates to receiving social benefits. The introduction of eGov has significantly reduced bureaucratic procedures, reduced corruption risks and increased convenience for citizens. Information systems specialists are involved in the development and support of this platform, ensuring its reliability and security. Digital medicine is another important project where information systems play a key role. Electronic medical records, remote patient monitoring systems, telemedicine – all this has become possible thanks to the development of IT technologies. A unified medical information system is being implemented in Kazakhstan, allowing doctors and patients to quickly exchange data. Information systems specialists develop and maintain such platforms, ensuring their effectiveness and personal data protection. The development of Smart Cities is also linked to the work of information systems specialists. Cities such as Astana and Almaty are actively implementing intelligent transport management systems, video surveillance using artificial intelligence, smart lighting and automated housing and communal services. For example, the intelligent video surveillance system in Almaty helps to reduce crime and increase the safety of citizens. [4,87]

The field of information systems has a significant impact on the country's economy. In recent years, Kazakhstan has been focusing on the development of the IT industry, startup ecosystem and digital solutions for business. One of the successful examples is the Astana Hub, the largest IT technology park in Central Asia, created to support startups and innovative projects. Here, young developers, programmers, and information systems specialists can develop their ideas, attract investments, and enter the international market. In addition, digitalization contributes to the growth of business competitiveness. Kazakhstani companies are actively using Big Data, automated control systems and artificial intelligence to improve the efficiency of their activities. For example, in the banking sector, information systems help analyze customer behavior, reduce financial risks, and increase cybersecurity. It is also worth noting the development of e-commerce in Kazakhstan. Online stores, marketplaces, and digital payment systems are actively implementing modern technologies to improve the user experience. Companies such as Kaspi.kz , actively uses machine learning and data analysis technologies to offer personalized financial solutions to customers.

Information systems specialists in Kazakhstan have extensive career opportunities. They can work in government agencies, private companies, IT startups and international corporations. One of the most popular areas is software development. The market for mobile applications, web development and corporate IT solutions is actively developing in the country. Large companies such as Beeline, Kcell, and Halyk Bank need qualified IT specialists to develop and support digital services. Another promising area is cybersecurity. Due to the increase in cyber attacks and data leaks, companies are investing in the protection of their information systems. Information security specialists develop data protection algorithms, conduct security audits, and test vulnerabilities in corporate systems. Specialists in the field of data analysis and artificial intelligence are also in demand. Kazakhstani companies are increasingly using machine learning algorithms to predict demand, analyze customer behavior, and optimize business processes. [5,123]

To summarize, information systems are the foundation of the modern digital economy. The profession of a specialist in this field requires high qualifications, technical skills, analytical thinking and the ability to adapt to rapid changes. In modern conditions, information systems specialists are becoming key players in the development of business, science, education and government structures. With the development of technology, new opportunities open up for specialists, and the need for their knowledge and skills continues to grow. Due to the high demand, broad career prospects and opportunities for international cooperation, the profession of an information systems specialist remains one of the most attractive in the modern world.

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