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INNOVATIVE DIRECTIONS FOR THE DEVELOPMENT OF E-COMMERCE SYSTEMS IN THE DIGITAL ECONOMY

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Abstract. This article analyzes innovative directions for the development of e-commerce systems in the digital economy. The acceleration of digitalization processes in the global economy, the widespread introduction of artificial intelligence, big data (Big Data), cloud technologies, blockchain, mobile applications and electronic payment systems are contributing to the rise of e-commerce to a new level. The study examines the modern development trends of e-commerce, the impact of innovative technologies on trade processes, and the role of digital platforms in increasing economic efficiency. It also analyzes the reforms being implemented in Uzbekistan to develop e-commerce, in particular, the new procedures and mechanisms introduced on the basis of the Resolution of the Cabinet of Ministers No. 885 dated December 26, 2024. In accordance with this resolution, from July 1, 2025, a procedure for notifying e-commerce operators, maintaining a register of e-commerce entities, and improving the e-commerce infrastructure are established. The results of the study show that the use of innovative technologies in e-commerce systems is of great importance in optimizing business processes, improving the quality of customer service, reducing costs, and strengthening the competitiveness of the national economy.

Keywords: digital economy, e-commerce, innovative technologies, artificial intelligence, Big Data, blockchain, mobile commerce, electronic payment systems, digital platforms, logistics, digital transformation, e-business.

Annotatsiya. Ushbu maqolada raqamli iqtisodiyotda elektron tijorat tizimlarini rivojlantirishning innovatsion yo'nalishlari tahlil qilinadi. Global iqtisodiyotda raqamlashtirish jarayonlarining tezlashishi, sun'iy intellekt, katta ma'lumotlar (Big Data), bulutli texnologiyalar, blokcheyn, mobil ilovalar va elektron to'lov tizimlarining keng joriy etilishi elektron tijoratning yangi bosqichga ko'tarilishiga hissa qo'shmoqda. Tadqiqotda elektron tijoratning zamonaviy rivojlanish tendentsiyalari, innovatsion texnologiyalarning savdo jarayonlariga ta'siri va raqamli platformalarning iqtisodiy samaradorlikni oshirishdagi roli o'rganiladi. Shuningdek, unda O'zbekistonda elektron tijoratni rivojlantirish bo'yicha amalga oshirilayotgan islohotlar, xususan, Vazirlar Mahkamasining 2024-yil 26-dekabrdagi 885-sonli qarori asosida joriy etilgan yangi tartib va mexanizmlar tahlil qilinadi. Ushbu qarorga muvofiq, 2025-yil 1-iyuldan boshlab elektron tijorat operatorlarini xabardor qilish, elektron tijorat sub'ektlari reestrini yuritish va elektron tijorat infratuzilmasini takomillashtirish tartibi belgilandi. Tadqiqot natijalari shuni ko'rsatadiki, elektron tijorat tizimlarida innovatsion texnologiyalardan foydalanish biznes jarayonlarini optimallashtirish, mijozlarga xizmat ko'rsatish sifatini oshirish, xarajatlarni kamaytirish va milliy iqtisodiyotning raqobatbardoshligini mustahkamlashda katta ahamiyatga ega.

Kalit so'zlar: raqamli iqtisodiyot, elektron tijorat, innovatsion texnologiyalar, sun'iy intellekt, katta ma'lumotlar, blokcheyn, mobil tijorat, elektron to'lov tizimlari, raqamli platformalar, logistika, raqamli transformatsiya, elektron biznes.

Аннотация. В данной статье анализируются инновационные направления развития систем электронной коммерции в цифровой экономике. Ускорение процессов цифровизации в глобальной экономике, широкое внедрение искусственного интеллекта, больших данных (Big Data), облачных технологий, блокчейна, мобильных приложений и электронных платежных систем способствуют выходу электронной коммерции на новый уровень. В исследовании рассматриваются современные тенденции развития электронной коммерции, влияние инновационных технологий на торговые процессы и роль цифровых платформ в повышении экономической эффективности. Также анализируются реформы, проводимые в Узбекистане для развития электронной коммерции, в частности, новые процедуры и механизмы, введенные на основании Постановления Кабинета Министров № 885 от 26 декабря 2024 года. В соответствии с этим постановлением с 1 июля 2025 года устанавливается порядок уведомления операторов электронной коммерции, ведения реестра субъектов электронной коммерции и совершенствования инфраструктуры электронной коммерции. Результаты исследования показывают, что использование инновационных технологий в системах электронной коммерции имеет большое значение для оптимизации бизнес-процессов, повышения качества обслуживания клиентов, снижения затрат и повышения конкурентоспособности национальной экономики.

Ключевые слова: цифровая экономика, электронная коммерция, инновационные технологии, искусственный интеллект, большие данные, блокчейн, мобильная коммерция, электронные платежные системы, цифровые платформы, логистика, цифровая трансформация, электронный бизнес.

Introduction. In recent years, the digital transformation processes taking place in the world economy have had a significant impact on all sectors of economic activity, including trade and services. As a result of the development of information and communication technologies, the increase in the number of Internet users, and the improvement of electronic payment instruments, e-commerce has become one of the fastest growing areas of the global economy. Today, e-commerce is not only a means of conducting trade transactions, but also an important factor in introducing innovations, forming new business models, and ensuring economic growth.

World practice shows that artificial intelligence, big data analysis, cloud technologies, blockchain, the Internet of Things (IoT), and digital marketing tools play an important role in increasing the efficiency of e-commerce systems. These technologies allow enterprises to accurately forecast consumer needs, reduce logistics costs, create secure payment systems, and provide an individual approach to customers. As a result, the economic importance of e-commerce is increasing every year.

In Uzbekistan, the development of the digital economy has also been identified as one of the priorities of state policy. Within the framework of the “Digital Uzbekistan - 2030” strategy, approved by the Decree of the President No. PF-6079, large-scale reforms are being implemented to digitize economic sectors, expand the scope of electronic services, and develop e-commerce infrastructure. At the same time, Resolution No. 885 of the Cabinet of Ministers of the Republic of Uzbekistan dated December 26, 2024 is an important document aimed at further developing the e-

commerce sector, creating a modern logistics infrastructure, protecting consumer rights, and improving the activities of e-commerce platforms[9,10].

The relevance of the topic is that in the conditions of a digital economy, the innovative development of e-commerce systems is of great importance not only for increasing economic efficiency, but also for strengthening the competitiveness of the national economy in international markets. Therefore, scientific research into the directions of innovative development of e-commerce systems, identifying existing opportunities and problems, and developing promising proposals is one of the current scientific and practical issues.

Literature Review. The issues of the digital economy and innovative development of e-commerce systems have been widely studied by international and domestic researchers in recent years. The scientific literature has separately studied the economic efficiency of e-commerce, the impact of digital technologies on business processes, and the role of innovative platforms in increasing competitiveness.

In the world scientific literature, the factors of innovative development of e-commerce are primarily associated with artificial intelligence, cloud technologies, and data analysis systems. Chaffey and Ellis-Chadwick emphasize that the new generation of e-commerce is moving to a data-driven management model[1]. According to the authors, more than 70 percent of modern companies use artificial intelligence tools to analyze customer behavior. This allows them to predict customer needs and increase sales.

The Marketing 5.0 concept, put forward by Kotler, Kartajaya and Setiawan, highlights the integration of digital technologies and the human factor as the main direction of e-commerce development[2]. According to their research, sales transactions carried out through digital platforms provide 25–30 percent higher efficiency compared to traditional sales methods.

The World Bank's 2024 reports note that every 10 percent increase in the number of Internet users contributes to an average growth of e-commerce by 2–3 percent. At the same time, the expansion of electronic payment systems in developing countries is significantly increasing the market access opportunities of small businesses[4].

UNCTAD studies have shown that the innovative development of e-commerce is closely related to logistics systems. According to the organization, delivery costs in enterprises that have implemented modern logistics technologies are reduced by 15–20 percent, and the speed of order fulfillment increases by up to 30 percent. Therefore, innovative logistics systems are an important element of the e-commerce infrastructure[3].

Uzbek scientists are also studying the theoretical and practical aspects of the development of the digital economy and e-commerce. S.S. Gulyamov emphasizes that the introduction of digital technologies into the economy serves the innovative development of the national economy. According to the scientist, the development of e-commerce allows for the creation of new forms of entrepreneurial activity and the effective use of economic resources[5].

A.V. Vakhobov's research studies the impact of digital platforms on the development of small businesses and private entrepreneurship. The author substantiates that through e-commerce, enterprises have the opportunity to offer their products not only in the domestic market, but also in international markets. This serves to increase export potential and create new jobs[6].

B.Y. Khodiev, analyzing the economic efficiency of e-business and e-commerce, notes that transaction costs are significantly reduced as a result of the use of digital technologies. At the same time, it is noted that the quality of service and the level of consumer satisfaction increase through electronic platforms[7].

Regulatory and legal documents adopted in Uzbekistan on the development of e-commerce are also important as a scientific source. In particular, the Strategy "Digital Uzbekistan – 2030" No. PF–6079 provides for the widespread introduction of digital technologies in all sectors of the economy[8]. This strategy identifies increasing the share of electronic government services, developing digital infrastructure, and expanding the volume of e-commerce as priority tasks.

Methodology. This study used a comprehensive scientific approach to study innovative directions of e-commerce systems development in the digital economy. The methodological basis of the study was economic analysis, comparative analysis, statistical observation, systematic approach, content analysis and generalization methods. These methods made it possible to comprehensively assess the current changes in the field of e-commerce and determine the impact of innovative technologies on economic efficiency.

Primary and secondary data sources were used in the research process. In particular, statistical data from the United Nations Conference on Trade and Development (UNCTAD), the World Bank, OECD, the International Telecommunication Union (ITU), Statista, as well as the National Statistics Committee of the Republic of Uzbekistan, the Ministry of Digital Technologies and other official organizations were analyzed. In addition, scientific articles, monographs, international reports and regulatory legal acts on e-commerce and the digital economy were studied.

The study compared the development trends of e-commerce systems in developed and developing countries using the comparative analysis method. In particular, international experience was analyzed based on indicators such as the volume of e-commerce, the number of Internet users, the share of mobile commerce, the scale of electronic payments, and the role of digital platforms in the economy. The results obtained were compared with the current situation in Uzbekistan and the possibilities for improving the national e-commerce system were assessed.

Also, the changes and development dynamics observed in the e-commerce market during 2020–2025 were studied using the statistical analysis method. Based on statistical data, the growth rates of e-commerce volumes, the level of use of electronic payment systems, Internet coverage, and trends in the expansion of digital services were determined. The obtained data were summarized using tables and analytical indicators.

The content of regulatory legal acts adopted in the field of e-commerce and the digital economy was studied using the content analysis method. In particular, the Strategy of the President of the Republic of Uzbekistan "Digital Uzbekistan - 2030" No. PF-6079, Presidential Decrees aimed at the development of e-commerce, Resolution of the Cabinet of Ministers No. 885 dated December 26, 2024, and other regulatory documents related to the sector were analyzed and their significance in the development of e-commerce infrastructure was assessed.

One of the important aspects of the study was the use of a systematic approach. This approach made it possible to consider the e-commerce system as a single economic ecosystem and analyze the interdependence between its components - digital platforms, electronic payment systems, logistics services, artificial intelligence technologies and consumers. On this basis, the impact of innovative technologies on the development of e-commerce was comprehensively assessed.

During the study, scientific abstraction and generalization methods were also used. Through these methods, priority innovative directions for the development of e-commerce systems were identified based on international and local experience, and scientific and practical conclusions were developed on their effective implementation in the national economy.

As a result, the methodological approaches used made it possible to conduct an in-depth analysis of modern development trends in e-commerce systems, assess the economic efficiency of

innovative technologies, and develop substantiated proposals and recommendations for the development of this industry in the digital economy.

Results and Discussion. The results of the study showed that the rapid development of the digital economy has a significant impact on the structural and functional improvement of e-commerce systems. In recent years, the expansion of Internet infrastructure, the improvement of the quality of mobile communication services, the development of electronic payment systems, and the favorable legal environment created by the state have contributed to the growth of the e-commerce market.

Analysis of world experience shows that e-commerce is one of the fastest growing segments of the global economy. According to UNCTAD, in 2024, the volume of e-commerce sales worldwide exceeded 6 trillion US dollars, which is about 20 percent of total retail sales. The annual growth rate of the e-commerce market remains at an average of 8–10 percent. In particular, the share of the mobile commerce (m-commerce) segment is increasing, and in some countries more than 70 percent of online purchases are made via mobile devices.

Positive changes are also being observed in the field of e-commerce in Uzbekistan. According to the National Statistics Committee and the Ministry of Digital Technologies, the number of Internet users as of 2025 exceeded 32 million. Mobile Internet coverage accounts for more than 98 percent of the republic's territories. This significantly expands the possibilities of using e-commerce services.

As a result of the analysis, artificial intelligence technologies, Big Data analysis, blockchain systems, electronic payment platforms and smart logistics systems were identified as the main innovative directions of e-commerce development. In particular, it was observed that the activity of buyers in choosing products increased by 20–30 percent in enterprises using artificial intelligence-based recommendation systems. Big Data technologies, in turn, allow optimizing marketing costs by analyzing consumer behavior.

During the study, it was found that the development of electronic payment systems is one of the most important factors in e-commerce. Today, millions of transactions are being made through Uzcard, Humo, Click, Payme, Apelsin and other payment systems. The increase in cashless payments ensures the security and speed of electronic commerce operations. At the same time, QR-code payments and mobile banking services increase consumer confidence in digital services.

Within the framework of the Strategy of the President of the Republic of Uzbekistan “Digital Uzbekistan - 2030” No. PF-6079, large-scale work is being carried out to digitize all sectors of the economy. This strategy identifies the development of e-commerce, increasing the share of e-services, and improving digital infrastructure as priority tasks. The results of the study showed that the practical effects of this strategy are also clearly visible in the e-commerce market.

In addition, the Resolution of the Cabinet of Ministers No. 885 of December 26, 2024 serves as an important legal basis for the modernization of e-commerce systems. In accordance with the Resolution, new mechanisms have been introduced to regulate the activities of e-commerce operators, maintain a register of electronic platforms, protect consumer rights, and improve logistics services. These measures serve to increase the transparency of the e-commerce market and create a favorable environment for investors.

The results of the discussion show that logistics infrastructure is of particular importance in the innovative development of e-commerce systems. With the increase in the volume of e-commerce, the demand for delivery services is also increasing sharply. Therefore, the use of automated warehouses, digital logistics platforms and GPS monitoring systems is one of the important conditions for increasing the efficiency of e-commerce.

The study also identified some problems. In particular, cybersecurity threats, insufficient digital literacy in some regions, high logistics costs and limited integration into international e-commerce systems negatively affect the development of e-commerce. Therefore, in order to eliminate these problems, it is necessary to strengthen information security, improve the digital skills of the population and expand cooperation with international e-platforms.

In general, the results of the study confirmed that the innovative development of e-commerce systems in the digital economy is an important factor in increasing the competitiveness of the country's economy, supporting entrepreneurial activity, creating new jobs and expanding international trade relations. The sustainable development of e-commerce will serve to accelerate the transition of Uzbekistan to a digital economy and strengthen its position in the global economic space.

Conclusions and recommendations. The results of the study show that in the digital economy, e-commerce systems are developing rapidly and are becoming an important segment of the economy. Artificial intelligence, Big Data, blockchain, mobile technologies and electronic payment systems are increasing the efficiency of e-commerce and accelerating business processes. In Uzbekistan, reforms within the framework of the “Digital Uzbekistan - 2030” strategy and Resolution No. 885 of 2024 are creating a favorable legal and institutional environment for the development of e-commerce.

At the same time, some problems related to cybersecurity, logistics infrastructure and digital literacy remain. These factors to some extent hinder the realization of the full potential of e-commerce.

The following recommendations are proposed: first, strengthening cybersecurity systems in e-commerce and improving mechanisms for protecting user data; second, modernization of logistics and delivery infrastructure; third, expanding special programs to improve the digital literacy of the population; fourth, encouraging the integration of small and medium-sized businesses into electronic platforms; fifth, expanding cooperation with international e-commerce platforms.

In general, the development of e-commerce on an innovative basis is of great importance in increasing the competitiveness of the national economy and accelerating the transition to a digital economy.

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