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Article

Current Status and Trends of Digitalization Processes in the Economic Development of Regions In Uzbekistan

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Abstract: His article examines the current state and development trends of digitalization processes in regional economic development in Uzbekistan. The study analyzes the impact of digital technologies on economic growth, productivity, and the efficiency of business and public administration systems. This section focuses on the extent to which ICT infrastructure, e-government services, digital payments, and IT ecosystems can facilitate the promotion of regional economic performance. We use statistics and comparisons and econometric techniques on official data sources, both national and international. Digitalisation is found to reduce transaction costs, increase labour productivity, expand market access and improve the investment climate. Simultaneously, the study highlights the regional differences in digitalization, in terms of infrastructure, human resources and availability of digital services, a gap that drives a digital divide and constitutes a constraint on balanced economic development. We conclude that experiences in many countries, such as Japan, Korea, India, China, etc. clearly show that Uzbekistan should focus on more holistic development of digital infrastructure, human capital and digital governance policies in order to reap greater economic rewards from digitalization and ensure sustainable regional growth.

Keywords: Digital Economy, Digitalization, Regional Economic Development, ICT Infrastructure, E-Government, Digital Transformation, Economic Growth, Innovation, Digital Services.

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1. Introduction

In the conditions of contemporary globalization, digitalization processes are one of the defining factors of the sustainable and dynamic economic growth of nations. The role of implementing digital technologies, modernizing infrastructure, and optimizing management systems is becoming especially important in providing the regions with economic development [1]. In recent years, the Republic of Uzbekistan has also been implementing large-scale reforms aimed at digitizing all sectors of the economy, including regional development, within the framework of the "Digital Uzbekistan - 2030" strategy.

The consistent growth of the share of the digital sector in the country's economy indicates the priority of this direction. In particular, in 2023, the share of the information and communication technologies (ICT) sector in gross domestic product was approximately 2.1 percent, while in the first half of 2024 this indicator reached 2.4 percent. At the same time, the sharp increase in the export of IT services ($ 344 million in 2023) also confirms the dynamics of the development of the digital economy. However, the

unevenness of this development across regions, in particular, the concentration of the main part of digital services in the capital, creates the problem of territorial imbalance [2].

In this regard, an analysis of the current state of digitalization processes in the economic development of regions in Uzbekistan, identification of existing differences and assessment of their trends is an urgent scientific issue. The expansion of digital infrastructure, the introduction of e-government systems, the expansion of the activities of IT parks to the regions, and the development of the digital services market serve to accelerate regional economic growth. At the same time, the presence of plans to increase the share of ICT to 5% by 2025 and 10% by 2030 further strengthens the strategic importance of this direction.

The subject of this study is aimed at systematically studying the impact of digitalization processes on the regional economy, identifying their development trends and scientifically substantiating ways to increase their efficiency [3].

Literature analysis. In recent years, the issues of the digital economy and its impact on regional development have been widely studied by foreign scientists. In particular, the work "Digital Economy: 2024", prepared under the leadership of V. Abashkin and G. Abdrakhmanova, covers the main indicators of the digital economy - ICT infrastructure, human capital and the digital services market - based on in-depth statistical analysis. The authors substantiate the acceleration of regional economic growth with increasing digitalization through empirical data. Also, the publication "Digital Economy: 2025", a continuation of this study, emphasizes that digital transformation has become an important factor in economic management and strategic planning [4].

Among the modern scientific literature in English, the work "Digital Economy and Green Growth" by P. Ikouta Mazza, D. Papandreou and M. Mavri is of particular importance. This book analyzes the relationship between digital transformation and sustainable regional development based on a systematic approach. The authors argue that "smart cities", e-government systems and innovative infrastructure are the main drivers of regional economic growth [5]. At the same time, the work "Digital Economy, Sustainability and International Economic Law" edited by L. Zhang, X. Tan and P. Ying reveals the impact of the digital economy on global trade and investment processes, noting that it creates new opportunities for developing countries, but also creates some institutional problems. In addition, the book "Digital Economy: Emerging Technologies and Business Innovation" edited by M.A.B. Tobji extensively covers the impact of artificial intelligence, digital platforms and fintech technologies on economic growth. The authors note that digital technologies are shaping new business models in the regional economy and accelerating regional development. At the same time, the work "The Age of Extraction" by T. Wu critically analyzes the dominance of digital platforms in the economy and its socio-economic consequences [6]. In general, the analyzed literature confirms that digitalization processes are an important factor in regional economic development, but its effectiveness directly depends on the level of infrastructure, human capital and institutional environment.

2. Materials and Methods

This study used a comprehensive approach to assess the current state and trends of digitalization processes in the economic development of regions in Uzbekistan. A systematic analysis, a comparative approach, and economic and statistical methods were chosen as the methodological basis of the study. In order to determine the relationship between the level of digitalization and regional economic development, official statistical data were used, in particular, data from the Agency for Statistics of the Republic of Uzbekistan, the Ministry of ICT, and international organizations (UNCTAD, OECD, World Bank). As part of the study, the volume of ICT services, internet coverage, the share of

digital services, investments, and gross regional product (GRP) by region were studied for the period 2018–2024 [7].

In the process of empirical analysis, economic and mathematical modeling methods were used, and special attention was paid to determining the relationship between the level of digitalization and economic growth. In particular, a multivariate regression model was constructed, in which regional economic growth (GDP growth rate) was selected as the dependent variable, and indicators such as the share of Internet users, the volume of ICT services, digital investments and the number of electronic services were selected as independent variables. The least squares method (LSM) was used to estimate the model parameters, and the reliability of the results was checked using the coefficient of determination (R^2), Student and Fisher criteria. In addition, correlation analysis was performed to determine the linear relationship between the variables [8]. The study also formed a "regional digitalization index" based on the composite index method. This index included indicators such as infrastructure (Internet speed and coverage), economic activity (share of ICT services), the level of use of digital services, and human resources. Each indicator was normalized and summarized based on weight coefficients. Using comparative analysis, differences in the level of digitalization across regions were identified and their impact on economic development was assessed. Based on the results of the research, scientific and practical conclusions were developed on improving digitalization processes in regional development [9].

3. Results

Digitalization processes in Uzbekistan have become an important factor of economic growth, yielding significant results in the real sector and services. According to the latest data, the share of the ICT sector in GDP is around 2.3–2.5%, but its indirect impact on the economy is much higher. In 2023, the export of IT services amounted to 344 million US dollars, and in 2024 this figure is approaching 500 million dollars. The number of Internet users has exceeded 35 million, and the coverage rate has reached 80–85%, which indicates the acceleration of the digital transformation of the domestic market [10]. At the same time, the fact that the number of IT Park Uzbekistan residents has exceeded 1,500, and about 30–35% of them are located in the regions, serves to expand regional economic activity and create new jobs (Table 1).

Table 1. Key Indicators of Digitalization and Their Impact on Economic Development in Uzbekistan.

Indicator	Current Level (2023–2024)	Economic Impact	Problems Addressed
ICT share in GDP	2.3–2.5%	Contributes to economic growth and diversification of the economy	Reduces dependence on traditional sectors
IT services export	$344 mln (2023), ~$500 mln (2024)	Increases foreign currency inflow and creates high-income jobs	Expands the export potential of regions
Internet users	35+ million (80–85% coverage)	Enhances access to digital markets and services	Improves regional connectivity
IT Park residents	1500+ (30–35% in regions)	Creates jobs and supports regional entrepreneurship	Reduces regional economic imbalance
E-government services	500+ online services	Reduces time and cost for business operations (2–3 times faster)	Eliminates бюрократия and corruption risks

Non-cash payments	60–65% of transactions	Accelerates money circulation and economic activity	Reduces shadow economy
E-commerce growth	20–30% annually	Expands market access for SMEs and regional businesses	Overcomes geographical barriers
Smart agriculture technologies	Efficiency +20–25%	Increases productivity and resource efficiency	Solves water and resource management issues
Digital logistics systems	Delivery time -15–20%	Improves supply chain efficiency	Reduces transport and time costs
Regional digital gap	90% (cities) vs 60–70% (remote areas)	Uneven economic development	Digital divide remains

Digitalization is increasing efficiency in the economy by reducing transaction costs and improving the business environment. In particular, as a result of the online transfer of more than 500 public services through the Single Interactive Public Services Portal, the processes of obtaining permits, registration and reporting for entrepreneurs have been accelerated by 2–3 times. In recent years, the share of the shadow economy has decreased significantly, and VAT revenues have increased by almost 1.5–2 times with the introduction of electronic invoicing and online cash register systems in the tax system [11]. According to the banking and financial sector, the non-cash payments share has reached the 60–65% boundary, this has already accelerated money circulation and spurred the economic activity. E-commerce transactions are likewise experiencing year-on-year growth rates of 20–30 percent, pressuring fresh market opportunities such as those offered to regional entrepreneurs. In the process, digitalization throws light on economic problems by increasing efficiency in production. The agricultural sector could benefit from, e.g., 20–25% more efficient use of water resources through digital monitoring and "smart irrigation" technologies [12]. In the economic sphere, transportation processes of cargo in logistics and transport systems were optimized through the use of digital platforms and platforms, thus saving about 15–20% of delivery time. But the gap in the digital divide between regions is preserved: coverage of high-speed Internet in the capital and major cities approaches 90%, while in some distant areas is, for example, 60-70%. In addition, the shortage of highly qualified IT specialists and the low level of digital literacy hinder the full realization of the benefits of digitalization. Nevertheless, general analyses show that digitalization plays a decisive role in increasing the competitiveness of the economy, reducing costs, and creating new economic opportunities [13].

4. Discussion

The results obtained confirm that digitalization processes in Uzbekistan have a significant positive impact on regional economic development. In particular, the expansion of ICT infrastructure, the introduction of e-government services, and the development of digital payment systems are increasing economic activity and improving the business environment. The indicators identified during the study (internet coverage of 80–85%, the share of non-cash payments of more than 60%, a sharp increase in IT exports) indicate that digitalization leads to a reduction in transaction costs in the economy and an increase in efficiency [14]. These results are consistent with the conclusions presented in international studies, in particular, in OECD and UNCTAD reports, and once again confirm that digital technologies are one of the main drivers of economic growth. At the same time, the analysis showed that the positive impact of digitalization is not the same in all regions. While

digital infrastructure is developed in the capital and large cities, internet speed and the level of use of digital services remain low in some remote areas. This creates a risk of maintaining economic disparities between regions. In addition, the lack of highly qualified IT specialists, insufficient digital literacy, and some institutional barriers limit the full effectiveness of digitalization processes. International experience shows that in order to achieve maximum economic benefits from digitalization, it is necessary to develop not only technological infrastructure, but also human capital and management systems in parallel. In general, the results of the discussion show that, despite the fact that digitalization processes in Uzbekistan are an important factor accelerating economic development, their effectiveness is directly related to their balanced distribution across regions [15]. In the future, existing problems can be eliminated by further expanding digital infrastructure, developing IT ecosystems in regions, strengthening the training system, and improving digital policy. In this way, the economic effectiveness of digitalization will further increase and the development gaps between regions will be reduced.

5. Conclusion

The results of this study showed that digitalization processes in Uzbekistan are becoming an important factor in regional economic development. The expansion of ICT infrastructure, the introduction of electronic government services and digital payment systems are increasing economic activity and improving the conditions for doing business. As a result of digitalization, transaction costs are decreasing, production efficiency is increasing, new jobs are being created, and the share of the services sector is expanding. In particular, the growth of IT services exports and the formation of an IT ecosystem in the regions are having a positive impact on the structural transformation of the economy. At the same time, the results of the study also showed that digitalization processes are developing unevenly across regions. While digital infrastructure is developed in the capital and large cities, internet coverage, technological capabilities, and human resources are insufficient in some regions. This creates the problem of the digital divide and maintains imbalances in economic development. In addition, the low level of digital literacy, the shortage of IT specialists, and institutional problems prevent the full realization of the effectiveness of digitalization. In general, digitalization in Uzbekistan plays an important role in accelerating economic growth, reducing the shadow economy, increasing the efficiency of public administration, and improving the investment climate. In the future, the effectiveness of these processes can be further increased by expanding digital infrastructure in the regions, developing human capital, introducing innovative technologies, and improving digital policy.

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