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IMPROVING ORGANISATIONAL AND ECONOMIC MECHANISMS FOR ENSURING ECONOMIC GROWTH BASED ON DIGITAL TRANSFORMATION AND ARTIFICIAL INTELLIGENCE

Abdumalik Bektemirov
Doctor of Economic Sciences (DSc), Professor, Head of the Department of Investments and Innovations, Samarkand Institute of Economics and Service
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Abstract. The article analyses organisational and economic mechanisms for ensuring economic growth based on digital transformation and artificial intelligence (AI) in Uzbekistan, using data of the National Statistics Committee, Oxford Insights and WIPO. In 2020–2025 the volume of communication and information services rose from UZS 13.9 to 79.5 trillion, and its ratio to GDP from 1.96% to 4.30%, with the sector growing about three times faster than GDP. At the same time, 72.7% of digital services are concentrated in Tashkent city, and a substantial gap remains between current indicators and the 2030 AI strategy targets. Evidence-based recommendations on governance, financial, infrastructure, human capital and regional mechanisms are proposed.

Keywords: digital transformation, artificial intelligence, economic growth, ICT, digital services, Uzbekistan.

INTRODUCTION

Digital technologies and artificial intelligence are becoming a new source of economic growth in the twenty-first century [12; 14]. By raising labour productivity, reducing transaction costs and creating entirely new markets, they provide growth opportunities in addition to traditional factors of production. In Uzbekistan, these processes have been designated as a priority of state policy through the “Uzbekistan – 2030” [6] and “Digital Uzbekistan – 2030” [3] strategies, as well as the Strategy for the Development of Artificial Intelligence Technologies until 2030, approved by Presidential Resolution No. PQ-358 of 14 October 2024 [4]. The Strategy sets the targets of increasing the volume of AI-based software products and services to USD 1.5 billion by 2030 and of entering the world’s top 50 countries in the Government AI Readiness Index [4].

In 2025, the country’s GDP grew by 7.7%, with services and construction being the leading drivers [13]. However, the extent to which this growth is underpinned by digital technologies and AI, the effectiveness of existing organisational and economic mechanisms, and the directions for improving them have not yet been sufficiently substantiated.

The aim of the study is to develop scientific recommendations for improving organisational and economic mechanisms for ensuring economic growth, based on a statistical analysis of indicators of the digital economy and AI development in Uzbekistan.

LITERATURE REVIEW

Research on the role of information technology in economic growth began with R. Solow’s paradox that computers can be seen everywhere except in the productivity statistics [8]. D. Jorgenson and K. Stiroh later demonstrated that, from the late 1990s, a significant share of U.S. productivity growth was attributable to ICT investment and ICT-producing industries [7]. E. Brynjolfsson and L. Hitt showed that the effects of digital technologies materialise only in combination with organisational change and investment in intangible capital [5]. This finding

underpins the central idea of the present article: what matters for digital growth is not the technology itself but the organisational and economic mechanism through which it is deployed.

In assessing the economic impact of artificial intelligence, D. Acemoglu and P. Restrepo analysed AI through the balance between automating existing tasks and creating new ones, showing that automation reduces labour demand unless new tasks are created [1]. A. Agrawal, J. Gans and A. Goldfarb interpreted AI as a technology that drastically lowers the cost of prediction [2]. The World Bank has emphasised that reaping digital dividends requires "analogue complements" – competition, skilled human capital and accountable institutions [15]. Research on the digital economy in Uzbekistan has mainly focused on describing the current state of the sector, while quantitatively linking digital and AI factors to economic growth and systematically substantiating organisational and economic mechanisms have received insufficient attention.

METHODOLOGY

The information base of the study comprises data of the National Statistics Committee on communication and information services, GDP and foreign trade for 2020–2025 and the first half of 2026 [9; 10], the Oxford Insights Government AI Readiness Index [11] and the WIPO Global Innovation Index (GII) [16]. Dynamic and structural analysis, comparative analysis, the elasticity method and gap analysis against target indicators were applied. Digitalisation intensity was calculated as the ratio of the volume of communication and information services to nominal GDP. The elasticity of GDP with respect to the volume of digital services was estimated using the equation $\ln(GDP) = a + b \cdot \ln(ICT)$ for 2020–2023, a series compiled under a consistent methodology. Regional concentration was measured by the share of Tashkent city in the national total.

ANALYSIS AND RESULTS

Dynamics of digital services. Table 1 presents the main indicators of communication and information services.

Table 1

Dynamics of communication and information services in Uzbekistan

Indicator	2020	2021	2022	2023	2024*	2025*	H1 2026
Volume of services, UZS trillion	13.9	17.8	24.5	35.3	64.8	79.5	51.9
Growth rate, %	–	–	–	–	–	122.7	122.1
Ratio to GDP, %	1.96	2.06	2.35	2.79	4.22	4.30	–

Source: author's calculations based on data of the National Statistics Committee [9; 10]. * Figures for 2024–2025 follow the revised methodology, which also covers estimates of the informal economy; the 2024 volume is derived from the 2025 growth rate.

The data show rapid growth of the sector: under a consistent methodology, the volume of communication and information services grew by an average of 36.5% per year in 2020–2023, whereas nominal GDP grew by 21.4%. In 2025, the sector's real growth rate was 22.7%, nearly three times higher than GDP growth (7.7%); growth of 22.1% was maintained in the first half of 2026 [10]. The ratio of these services to GDP rose from 1.96% in 2020 to 4.30% in 2025. For 2020–2023, the elasticity of GDP with respect to the volume of digital services was 0.61, meaning

that a 1% increase in digital services is associated with a 0.61% increase in nominal GDP. Given the small number of observations (n = 4), this result should be regarded as an indicative estimate.

A positive structural shift is also observed: whereas telecommunication services accounted for 54.7% of the sector's volume in 2023 [9], in the first half of 2026 the share of computer programming services reached 48.4% (UZS 25.1 trillion), overtaking telecommunication services (27.0%) and information services (16.6%) [10]. This indicates that the digital economy is moving from the infrastructure stage to the stage of higher value-added software products. Exports of telecommunication, computer and information services amounted to USD 921.5 million in 2025 [9].

International rankings and target indicators. Table 2 presents international indicators characterising digital and AI capacity, together with gaps relative to the strategic targets.

Table 2

International indicators of digital and AI development and gaps relative to targets

Indicator	2023	2024	2025	2030 target / gap
Government AI Readiness Index, rank	87	70	62	Top 50 / 12 places
Global Innovation Index (GII), rank	82	83	79	–
ICT services exports, USD million	–	–	921.5	AI products 1,500 / ×1.6
AI research laboratories, units	–	–	–	10

Source: compiled by the author based on Oxford Insights [11], WIPO [16], National Statistics Committee [9] and Resolution PQ-358 [4].

Uzbekistan rose by 25 places in the Government AI Readiness Index in 2023–2025, reaching 62nd place [11]. If this pace is maintained, the top-50 target could be achieved in 2027–2028. The other target, however, is considerably more challenging: the USD 1.5 billion set for AI-based products and services is 1.6 times the total exports of telecommunication, computer and information services in 2025. Achieving this target will require mechanisms for mass AI adoption in the domestic market and targeted promotion of AI-based exports.

Regional disparities. In 2025, UZS 57.8 trillion, or 72.7%, of communication and information services was accounted for by Tashkent city. In Samarkand and Fergana regions, which rank second, this figure was only UZS 2.8 trillion each (3.5%) [10]. Such high concentration leads to an uneven distribution of the benefits of digital growth across regions and prevents regional economies from fully reaping digital dividends.

DISCUSSION

The findings confirm the conclusion of Brynjolfsson and Hitt [5] in the context of Uzbekistan: the rapid growth of the digital services market has not yet translated into uniform productivity growth across all sectors of the economy, since digital technologies remain concentrated in one region and in a few sectors (telecommunications, finance and public services). As Acemoglu and Restrepo point out [1], the economic outcome of AI adoption depends on whether it is directed not only at substituting labour but also at creating new tasks and occupations. This issue is particularly important in Uzbekistan, whose labour market has a high share of young people. Consequently, AI policy should encompass, alongside technological infrastructure, mechanisms for skills development and job creation.

The limitations of the study include the change in statistical methodology from 2024 and the absence of official statistical observation of the volume of AI-based products. This points to the need for a dedicated system of statistical indicators to monitor the AI strategy.

CONCLUSIONS AND RECOMMENDATIONS

The study leads to the following conclusions: digital services are among the fastest-growing sectors of Uzbekistan's economy, expanding nearly three times faster than GDP; the share of software products within the sector is increasing; significant progress has been achieved in AI readiness; however, high regional concentration (72.7%), a large gap relative to the AI products target and the absence of AI statistics constrain the full use of the potential of digital growth. On this basis, the following organisational and economic mechanisms are proposed (Table 3).

Table 3

Organisational and economic mechanisms for ensuring economic growth based on digital transformation and AI

Mechanism	Statistical basis	Proposed measures
Governance and monitoring mechanism	No official statistics on AI products; USD 1.5 billion target	Introduce dedicated statistical surveys on AI-based products and services, AI adoption by enterprises, and the value added of the digital economy in GDP; develop a digital transformation KPI system for ministries and regional administrations (khokimiyats).
Financial and incentive mechanism	ICT exports – USD 921.5 million; AI target 1.6 times higher	Introduce additional tax incentives for AI-based export revenues; co-finance AI start-ups through public–private venture funds; establish dedicated quotas and pilot procurement mechanisms for AI solutions in public procurement.
Infrastructure and data mechanism	Target of 10 AI laboratories and high-performance computing servers	Expand the national open data and data exchange platform; build Uzbek-language datasets; introduce preferential access to computing capacity for universities and enterprises.
Human capital mechanism	Share of programming services – 48.4%; sector growth – 22.7%	Launch industry-demand-based university programmes in AI and data analytics; introduce mandatory AI literacy training for civil servants; implement reskilling programmes for workers in occupations being automated.
Regional mechanism	Tashkent city – 72.7%; Samarkand and Fergana – 3.5% each	Establish regional digital hubs based on IT Park branches in regional centres; subsidise AI adoption by regional enterprises; expand digital public services and digital skills centres in mahallas.

Source: developed by the author.

The comprehensive implementation of the proposed mechanisms will help translate the growth of digital services into productivity growth across the whole economy, achieve the target

indicators of the AI strategy, and ensure sustainable economic growth through a more balanced regional distribution of digital dividends.

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