ECONOSCITECH INTEGRATION

ISSUE 11

INTERNATIONAL SCIENTIFIC ELECTRONIC JOURNAL

TASHKENT STATE UNIVERSITY OF ECONOMICS

American University of Technology
Powered by Arizona State University®

ISSN: 3060-5075



Acceptance of articles
PUBLISHED MONTHLY

ARTICLE CONTRIBUTORS
PROFESSORS, SCHOLARS, SPECIALISTS, AND RESEARCHERS



Google scholar

OpenAIRE

ISSN INTERNATIONAL STANDARD SERIAL NUMBER DENMARK

CONTACT: +998 94 3540880 https://econoscitech-integration-journal.uz 2026



EDITOR-IN-CHIEF:
Zufarova Nozima Gulamiddinovna
DSc., Dean of Tourism Faculty, TSUE

DEPUTY EDITOR-IN-CHIEF:
Makhmudov Nosir Makhmudovich
DSc., Prof., Academican

DEPUTY EDITOR-IN-CHIEF:
Suyunov Dilmurod Xolmurodovich
Doctor of Economics (DSc), Professor,

DEPUTY EDITOR-IN-CHIEF:
Allayarov Shamsiddin Amanullayevich
doctor of economics (DSC), professor

RESPONSIBLE SECRETARY:
Otaboyev Axmed Maxsudbek o'g'li
TSUE independent researcher

THE SCIENTIFIC-POPULAR ELECTRONIC JOURNAL **"ECONOSCITECH-INTEGRATION"** HAS BEEN REGISTERED UNDER THE NUMBER C-5669651 BY THE AGENCY FOR INFORMATION AND MASS COMMUNICATIONS (AOKA) OF THE REPUBLIC OF UZBEKISTAN, EFFECTIVE FROM OCTOBER 9, 2024.

In accordance with Resolution No. 384/6 dated April 10, 2026, issued by the Presidium of the Supreme Attestation Commission under the Ministry of Higher Education, Science and Innovation of the Republic of Uzbekistan, this journal is included in the list of recommended international scientific publications for publishing the primary research findings of doctoral dissertations in the field of Economic Sciences.

Partners: Tashkent State University of Economics / American University of Technology in Tashkent (AUT)

Electronic publication. Issue 11.
Approved for publication in Novermber 2026.

Editorial Board Members:



Sharipov Kongratbay Avezimbetovich,
Doctor of Technical Sciences (DSc), Professor



Said Irandoust,
Doctor of Chemical Engineering Sciences, Professor



Abdurakhmanova Gulnora Kalandarovna,
Doctor of Economic Sciences (DSc), Professor



Tokunaga Masahiro,
professor, PhD of Economics of the Faculty of Business and Commerce



Debasis Das,
professor Department of Computer Science



Nitin Goje,
professor and Program Lead - Computer Science



Sajid Mohy Ul Din,
International Lecturer Universiti Pendidikan Sultan Idris, Tanjung Malim, Malaysia



Kamaruzzaman Muhammad,
Associate Professor UiTM, (PhD), CA (M), CPA (M), ASA



Артамонов Антон Анатольевич,
(M.D.) ООО «Международный Нейроуниверситет им. Д.Р. Ягудина»

CONTENTS

ECONOMIC SIGNIFICANCE OF REGIONAL POSTAL SERVICE INFRASTRUCTURE IN THE DEVELOPMENT OF E-COMMERCE 24
Palvanbayev Umidbek Uktam ugli

SCIENTIFIC AND METHODOLOGICAL FOUNDATIONS FOR INTEGRATING EXPERT ASSESSMENT AND ENTROPY METHODS IN EVALUATING THE EFFICIENCY OF ELECTRONIC DOCUMENT MANAGEMENT 29
Gaibnazarova Zilola Maxsudovna

ECONOMIC MECHANISMS FOR THE SUSTAINABLE DEVELOPMENT OF THE AGROCLUSTER COMPLEX 36
Berdimurodov U.S.

TECHNICAL EFFICIENCY AND DETERMINANTS OF CREATIVE EXPORTS: A STOCHASTIC FRONTIER ASSESSMENT WITH SCENARIO EVIDENCE FOR UZBEKISTAN 42
Daminova Madinakhon Bahromjon qizi

DEVELOPING BUSINESS CULTURE AMONG UNIVERSITY STUDENTS IN THE DIGITAL ECONOMY 47
Yusupova Dilnoza Maxmudovna

МЕХАНИЗМ УПРАВЛЕНИЯ ОБЕСПЕЧЕНИЕМ ЭКОНОМИЧЕСКОЙ БЕЗОПАСНОСТИ РЕСПУБЛИКИ УЗБЕКИСТАН В УСЛОВИЯХ ЭНЕРГЕТИЧЕСКОГО ПЕРЕХОДА 52
Якубов Дилшод Камилджанович

MPROVING INTEGRATED ORGANIZATIONAL-ECONOMIC MECHANISMS FOR POVERTY REDUCTION THROUGH DIGITAL SERVICES 57
Samiyev M. A.

SPECIFIC ASPECTS OF ORGANIZATIONAL MECHANISMS FOR THE DEVELOPMENT OF HIGHER EDUCATION SERVICES 64
Butayev Dilshod Eshbekovich

A REGIONAL CONDITIONS INDEX FOR FAMILY ENTREPRENEURSHIP AND FAMILY ENTERPRISE DENSITY: EVIDENCE FROM UZBEKISTAN'S REGIONS, INCLUDING SAMARKAND REGION 70
Iskandarov Sunnatillo Baxriddin ugli

SCIENTIFIC AND THEORETICAL APPROACHES TO STUDYING SOCIAL MARKETING IN HIGHER EDUCATION 77
Shoev Alim Khalmuratovich

IMPROVING THE MANAGEMENT AND FINANCING MECHANISMS OF INVESTMENT ACTIVITIES IN RADIO COMMUNICATION AND TELEVISION CENTRES IN THE DIGITAL ECONOMY 82
Khusanov Ulugbek Nishonovich

DEVELOPMENT OF AN ECONOMIC-MATHEMATICAL MODEL FOR THE APPLICATION OF KPI SYSTEMS IN INDUSTRIAL ENTERPRISES 88
Tursunov Orifali Samandarovich

INTERNATIONAL EXPERIENCE IN USING DIGITAL PLATFORMS FOR SMALL BUSINESS DEVELOPMENT 93
Rizayeva Nilufar Oblakulovna

ОБСЛУЖИВАНИЕ И ХРАНЕНИЕ ЭЛЕМЕНТОВ ЭКОНОМИЧНОЙ ИРРИГАЦИОННОЙ СИСТЕМЫ 101
Хакимов Баходир Бозорович

TAX BURDEN OPTIMIZATION AND INSTITUTIONAL TAX REFORMS IN UZBEKISTAN: EVIDENCE FROM INCOME TAXATION AND VAT EFFICIENCY 107
Azizjon Sadullayevich Rakhmonov

MODELS OF INTERORGANIZATIONAL INTEGRATION IN LARGE CONSTRUCTION ENTERPRISES 114
Toshimov Azizbek Khakimovich

EKONOMETRIK MODEL ASOSIDA NEFT VA GAZ SANOATI KORXONALARINING INVESTITSION FAOLIYATI IQTISODIY SAMARADORLIGINI PROGNOZLAŞ 121
Valikulov Şerzod Zaynitdinoviç

THE IMPORTANCE AND RISKS OF ARTIFICIAL INTELLIGENCE IN UZBEKISTAN: A SYNTHESIS OF OPEN SOURCES AND A SWOT ASSESSMENT IN LIGHT OF INTERNATIONAL EVIDENCE 131
Qodirova Laylo Otabekovna

CONTENTS

THE IMPORTANCE AND RISKS OF ARTIFICIAL INTELLIGENCE IN UZBEKISTAN: A SYNTHESIS OF OPEN SOURCES AND A SWOT ASSESSMENT IN LIGHT OF INTERNATIONAL EVIDENCE

Qodirova Laylo Otabekovna
Lecturer, Department of Business and Management
Asia International University
ORCID: https://orcid.org/0009-0002-7354-241X
E-mail: layloqodirova717@gmail.com

Abstract: Artificial intelligence (AI) has become a priority in Uzbekistan's digital development policy, while evidence concerning its benefits and associated risks remains dispersed across local-language academic studies, official reports, and media publications. This article synthesizes 30 open sources, including 19 Uzbekistan-focused and 11 international sources, through qualitative content analysis and a SWOT assessment. The Uzbekistan-focused evidence indicates that AI adoption is concentrated in the financial sector, accounting for a 30% adoption share. Student use of AI increased from 31% to 57% during 2024-2025, whereas only 10% of public universities reported having fully integrated AI strategies. Furthermore, officially reported cases involving unlawful AI-generated content increased from 1,129 in 2023 to 3,553 in 2024. A comparison with international research reveals that substantial task-level productivity gains documented in experimental studies (Brynjolfsson et al., 2025; Noy & Zhang, 2023) contrast with more modest macroeconomic projections (Acemoglu, 2025). The analysis identifies deepfake-enabled social engineering, rather than technical intrusion, as the predominant AI-related threat in Uzbekistan, consistent with the findings of Chesney and Citron (2019) and Brundage et al. (2018). The study argues that the central policy challenge lies in the gap between AI adoption and the development of effective governance mechanisms, a pattern also suggested by regional survey evidence. The main limitations of the study include its reliance on secondary statistical data, some of which have not been independently verified.

Key words: artificial intelligence; Uzbekistan; SWOT analysis; deepfake; cybersecurity; digital economy; AI governance.

Аннотация: Искусственный интеллект (ИИ) стал одним из приоритетных направлений политики цифрового развития Узбекистана, при этом сведения о его преимуществах и сопутствующих рисках остаются рассредоточенными в научных исследованиях на местных языках, официальных отчётах и публикациях средств массовой информации. В статье обобщены 30 открытых источников, включая 19 источников, посвящённых Узбекистану, и 11 международных исследований, с применением качественного контент-анализа и SWOT-анализа. Результаты изучения источников, посвящённых Узбекистану, свидетельствуют о том, что внедрение ИИ преимущественно сосредоточено в финансовом секторе, доля которого составляет 30%. В течение 2024-2025 годов доля студентов, использующих ИИ, увеличилась с 31% до 57%, тогда как лишь 10% государственных университетов сообщили о наличии полностью интегрированных стратегий применения ИИ. Кроме того, количество официально зарегистрированных случаев, связанных с противоправным контентом, созданным с использованием ИИ, увеличилось с 1 129 в 2023 году до 3 553 в 2024 году. Сопоставление с международными исследованиями показывает, что значительный рост производительности при выполнении отдельных задач, выявленный в экспериментальных исследованиях (Brynjolfsson et al., 2025; Noy & Zhang, 2023), контрастирует с более умеренными макроэкономическими прогнозами (Acemoglu, 2025). Проведённый анализ позволяет выделить социальную инженерию с использованием дипфейков в качестве преобладающей угрозы, связанной с применением ИИ в Узбекистане, в отличие от непосредственного технического проникновения в информационные системы. Данный вывод согласуется с результатами исследований Chesney и Citron (2019), а также Brundage и соавторов (2018). В статье обосновывается, что ключевая задача государственной политики заключается в сокращении разрыва между темпами внедрения ИИ и развитием эффективных механизмов управления его использованием. Наличие подобной тенденции также подтверждается результатами региональных опросов. Основные ограничения исследования связаны с использованием вторичных статистических данных, часть которых не прошла независимую проверку.

Ключевые слова: искусственный интеллект; Узбекистан; SWOT-анализ; дипфейк; кибербезопасность; цифровая экономика; управление искусственным интеллектом.

INTERNATIONAL SCIENTIFIC ELECTRONIC JOURNAL

INTERNATIONAL SCIENTIFIC ELECTRONIC JOURNAL

INTRODUCTION

Artificial intelligence (AI) is increasingly recognized as a general-purpose technology with significant implications for economic growth, labor markets, education, and security. Uzbekistan has made substantial progress in developing its policy framework for AI, beginning with a presidential resolution on AI in 2021 and the "Digital Uzbekistan-2030" strategy (Mukhitdinova, 2024; Nasrulloev, 2025), followed by the adoption of a strategy for AI development through 2030 in October 2024[1] . In the Global Index on Responsible AI, Uzbekistan ranked 70th among 138 countries and first in Central Asia, while its share of global AI investment accounted for only 0.09% in 2022 (Khaitbaeva et al., 2026).

Research focusing on Uzbekistan highlights opportunities for AI applications in economic management, education, and Uzbek-language technologies (Kendjaeva et al., 2025; Khaitbaeva et al., 2026; Kuriyozov et al., 2023). Meanwhile, official and legal reports examine emerging challenges associated with AI-enabled fraud and deepfake technologies (CERT-CBU, 2025; Xolliyeva, n.d.). Within the reviewed sources, no study was identified that integrates these two research directions into a unified analytical framework or systematically compares them with international evidence. This article seeks to address this research gap. Its objectives are (1) to synthesize findings from open sources concerning the importance of AI in Uzbekistan; (2) to examine the reported risks and institutional responses; (3) to compare these findings with international evidence; and (4) to organize the results within a SWOT matrix and formulate relevant policy implications.

Productivity. Empirical evidence at the task level indicates substantial productivity improvements associated with AI adoption. A generative AI assistant increased customer-support productivity by an average of 14%, with gains reaching 34% among novice workers (Brynjolfsson et al., 2025). Similarly, access to ChatGPT reduced the time required to complete professional writing tasks by 40% while improving output quality by 18% (Noy & Zhang, 2023). Macroeconomic estimates, however, suggest more moderate effects. Acemoglu (2025) projects total factor productivity gains of less than 0.53% over a ten-year period, finds no evidence that AI will reduce labor-income inequality, and anticipates a widening gap between capital and labor income.

Labor markets and education. Cazzaniga et al. (2024) estimate that approximately 40% of global employment is exposed to AI, with exposure levels reaching about 40% in emerging markets, 60% in advanced economies, and 26% in low-income countries. In the context of higher education, Zawacki-Richter et al. (2019) reviewed 146 studies and identified four principal areas of AI application: profiling and prediction, assessment and evaluation, adaptive systems and personalization, and intelligent tutoring. Their review also highlighted opportunities for more comprehensive consideration of potential risks and stronger integration of AI applications with established pedagogical theories.

Security, language, and regulation. Brundage et al. (2018) argue that AI reduces the costs and technical expertise required to conduct attacks, potentially expanding the range of actors capable of engaging in malicious activities. They also identify speech synthesis as an emerging instrument that may facilitate fraudulent practices. Chesney and Citron (2019) demonstrate that deepfake technologies present challenges to privacy, democratic processes, and national security. They further explain how such technologies may enable individuals to dismiss authentic recordings as fabricated, a phenomenon described as the "liar's dividend." Joshi et al. (2020) demonstrate that only a limited proportion of the world's more than 7,000 languages are adequately represented in language technologies, highlighting the importance of developing linguistic datasets for languages such as Uzbek to promote digital inclusion. Regarding regulation, the EU AI Act (European Parliament & Council, 2024) requires deployers of AI systems that generate deepfake content to disclose its artificial origin under Article 50(4)[2].

RESEARCH METHODOLOGY

The study employs a qualitative research design based on content analysis of open sources and a SWOT matrix. Sources were collected between October and November 2026 through web searches conducted in Uzbek and English, using keywords such as "artificial intelligence", "Uzbekistan", "cybersecurity", "deepfake", and "Uzbek NLP", along with targeted searches for the international studies discussed above. The inclusion criteria were relevance to Uzbekistan (or, in the case of international sources, relevance to issues identified in the Uzbekistan-focused evidence), open accessibility, publication after 2017, and classification as a research article, an official document or report, or a publication from a credible news outlet. A total of 30 sources were retained: 19 Uzbekistan-focused sources (9 research publications, 2 official documents or reports, and 8 media

1 Nasrulloev (2025) refers to the presidential resolution dated 14 October 2024 (No. PQ-358); however, the original resolution text was not consulted. Titles of Uzbek-language sources were translated by the author, and their original languages are indicated in the reference list.

2 According to the Portuguese public administration portal (digital.gov.pt, updated on 1 September 2026), the transparency obligations established under Article 50 have applied since 2 August 2026.

publications) and 11 international sources (7 peer-reviewed publications, 1 working-paper report, 1 IMF staff note, 1 legal act, and 1 news report covering a survey). Six Uzbekistan-focused sources were reviewed in full (Khaitbaeva et al., 2026; Mukhitdinova, 2024; Nasrulloev, 2025; Shoaxmedova & Yusupova, 2023; Xolliyeva, n.d.; CERT-CBU, 2025). The remaining sources, including all international publications, were assessed using their abstracts, bibliographic records, and official summaries.

For each source, indicators of AI-related importance and risks were extracted, the primary or secondary nature of the reported figures was recorded, and the findings were organized into a SWOT matrix. SWOT analysis is widely applied in various contexts, including assessments of countries and industries, although it has been criticized for its limited capacity to generate quantifiable findings (Helms & Nixon, 2010). Accordingly, SWOT analysis is employed in this study as a framework for structuring the evidence rather than as a predictive model, with each element linked to cited sources. The principal methodological limitation is the absence of primary data, as several reported figures are derived from secondary sources or have not been independently verified[3].

Artificial intelligence tools were used as auxiliary support in approximately 10% of the research process, primarily to organize open-source materials related to AI development, opportunities, and risks in Uzbekistan and to assist with the technical editing of the manuscript.

ANALYSIS AND RESULTS

Uzbekistan-focused studies report that artificial intelligence (AI) contributes to improved forecasting accuracy, the automation of tax and financial control processes, and increased production efficiency (Nasrulloev, 2025). Nasrulloev identifies four key challenges affecting AI adoption: fragmented data systems, limited availability of qualified data scientists and computing resources, lengthy financial and legal procedures for piloting AI projects, and the need for an officially established methodology to evaluate AI effectiveness. To address these challenges, the author proposes the development of unified data standards, the establishment of a national AI resource center, the introduction of regulatory sandboxes, and the implementation of KPI-based evaluation mechanisms across sectors. Mukhitdinova (2024) examines AI applications in smart-city management in Tashkent, solar energy output forecasting, and precision agriculture. Khaitbaeva et al. (2026) report that approximately 23% of enterprises have either adopted AI or plan to adopt it, with the highest adoption share observed in the financial sector (30%), followed by trade and services (20%), agriculture (15%), healthcare (10%), and education (8%). Between 2020 and 2022, Uzbekistan's share of global AI investment increased from 0.03% to 0.09%, compared with an increase from 0.03% to 0.06% in Kazakhstan (figure 1).

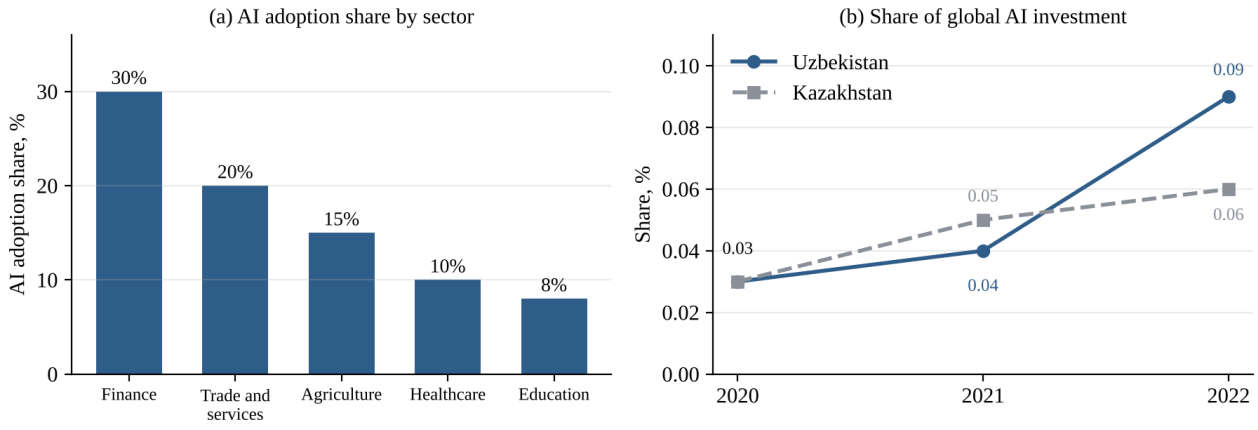


Figure 1. (a) AI adoption share by sector; (b) Uzbekistan's and Kazakhstan's share of global AI investment, %[4].

Shoaxmedova and Yusupova (2023) identify personalized learning, intelligent tutoring, automated assessment, and early identification of at-risk students as the main educational applications of AI. They also highlight data privacy, digital inequality, the role of teachers, and ethical considerations as potential risks. Kendjaeva et al. (2025), combining a review of 312 articles, a Delphi study involving 22 experts, and a survey of 420 respondents across 15 universities, report that student use of AI increased from 31% in 2024 to 57% in 2025, while only 10% of public universities have fully implemented AI strategies (Figure 2a). The reported

3 For example, Khaitbaeva et al. (2026) attribute sectoral AI adoption shares to Deloitte (2022) and a GDP projection to the IMF (2023); neither primary source was consulted. Kendjaeva et al. (2025) combine a systematic review, a Delphi study, and an institutional survey; however, only the abstract and publication record were consulted.

4 Source: Khaitbaeva et al. (2026), who attribute sector shares to Deloitte (2022).

barriers include network speeds below 100 Mbit/s on 40% of campuses, an average of 0.8 AI-literate specialists per 1,000 students, and limited regulatory guidance. The authors propose a roadmap for 2025-2030.

Language resources represent an area of tangible progress. Kuriyozov et al. (2023) developed a 15-category text classification dataset using data from ten websites and found that a BERT model trained on Uzbek-language text (BERTbek) achieved the best performance. Mengliev et al. (2024) released a named-entity recognition dataset comprising 1,160 sentences, while Bobojonova and coauthors (2025) report an average accuracy of approximately 91% for fine-tuned part-of-speech taggers and introduce the first openly available UPOS-annotated benchmark for Uzbek.

The reported risks primarily involve fabricated content and social engineering rather than direct technical intrusion. The Central Bank's CERT-CBU identifies four methods of payment card fraud: fraudulent phone calls, suspicious links, malicious applications, and deepfake videos. It also reports 43 variants of malicious remote-access Trojan (RAT) applications (CERT-CBU, 2025). Cases involving manipulated videos of the President and the Prime Minister (Zamin.uz, n.d.-a) and fabricated audio and video messages attributed to a businessman (Spot.uz, 2024) have been documented. Fraudulent "voting" schemes have also been used to gain unauthorized access to Telegram accounts (Zamin.uz, n.d.-b). Parliamentary figures cited in media reports indicate that reported cases involving illegal AI-generated content increased from 1,129 in 2023 to 3,553 in 2024 (approximately 3.1 times, +214%), while the number of fake AI-generated images and videos of public figures increased fiftyfold (Jalolova, 2025; Tashkent Times, 2025). A conference paper reports that deepfake-related financial losses exceeded 2.6 trillion soums in the first half of 2025 and that 71.4% of such cases were closed due to the absence of *corpus delicti*. However, these figures are based on non-public materials and could not be independently verified (Xolliyeva, n.d.) (figure 2)[5].

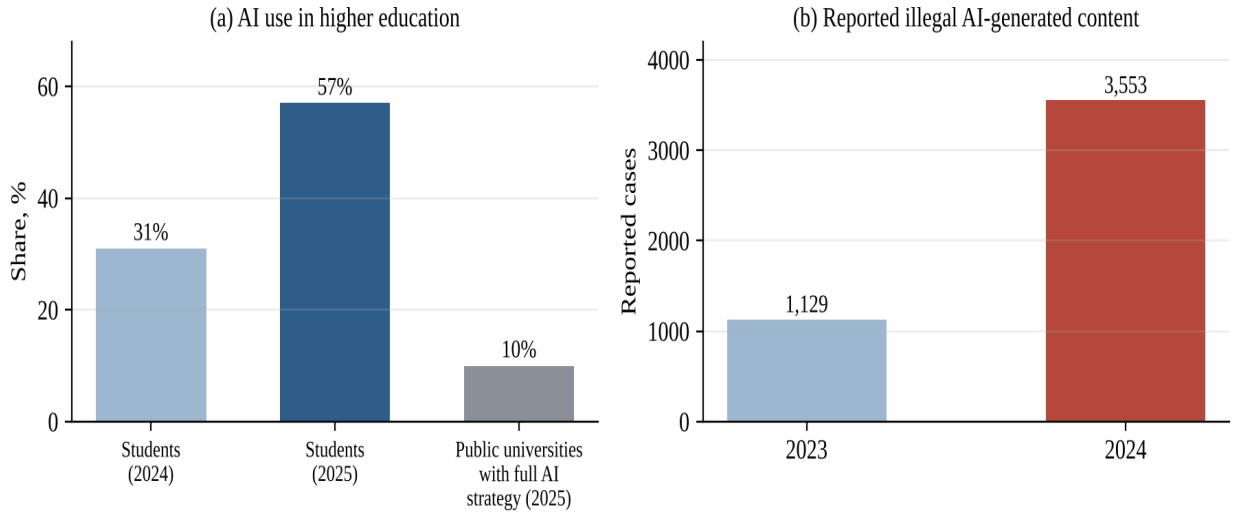


Figure 2. (a) AI use in higher education, %; (b) reported cases of illegal AI-generated content[6].

Uzbekistan has updated its legal framework for artificial intelligence through Law No. O'RQ-1115 of 21 January 2026, which establishes general rules for AI use and introduces administrative liability for certain unlawful uses of personal data involving AI, restrictions on AI applications that violate human dignity and rights, and penalties for unlawful use, including confiscation of relevant tools, The enacted legislation provides for confiscation of the instruments used in the administrative offence and a fine ranging from 50 to 100 times the base calculation amount for specified unlawful processing or dissemination of personal data using AI (Jalolova, 2025; Tashkent Times, 2025)[7]. AI ethics rules were approved in March 2026 (Spot.uz, 2026); a Cybersecurity Strategy for 2026–2030 was adopted (Ministry of Internal Affairs, 2026); the CSS 2026 summit in Tashkent featured exercises addressing AI-related threats (UzA, 2026); and six laboratories specializing in cybersecurity and AI are being established under the Future Technologies Center (Kun.uz, 2026). The main AI-related risks and corresponding institutional responses are summarized (table 1).

5 The author of the conference paper states that the figures were derived from classified materials. They are presented here solely as reported claims rather than independently verified findings.

6 Sources: (a) Kendjaeva et al. (2025); (b) Jalolova (2025).

7 The bill was reported to have been approved in its first reading on 15 April 2025 (Jalolova, 2025); its subsequent adoption status has not been verified.

Table 1. Main AI-Related Risk Types in Uzbekistan and Reported Responses[8]

Risk type	Reported cases	Reported or proposed response
Deepfake impersonation	Altered videos of the President and Prime Minister (Zamin.uz, n.d.-a); fabricated audio-video attributed to a businessman ((Spot.uz, 2024	Draft law: mandatory labeling of AI content, ban on rights-violating uses (Jalolo-(va, 2025; Tashkent Times, 2025
Phishing and malicious applications	Phishing links, 43 variants of RAT-class applications, deepfake videos in card fraud ((CERT-CBU, 2025	Cybersecurity Strategy 2026–2030 (Ministry of Internal Affairs, 2026); central-bank CERT monitoring
Account takeover	Fake "voting" schemes targeting Telegram (users (Zamin.uz, n.d.-b	No specific response reported in the source
Enforcement gap	Claim that most deepfake-related cases are closed for lack of corpus delicti (Xolliyeva, (n.d.; unverified	Proposed: dedicated offence and digi-(.tal-evidence procedure (Xolliyeva, n.d

The evidence is organized into a SWOT matrix (Table 2).

Table 2. SWOT matrix of AI in Uzbekistan[9]

S – Strengths - Strategic and legal framework: 2021 AI resolution, AI strategy to 2030, Cybersecurity Strategy 2026–2030 (Nasrulloev, 2025; Ministry of Internal Affairs, 2026) - First in Central Asia in the Global Index on Responsible AI (Khaitbaeva et al., 2026) - Rapid student uptake: 31% to 57% (Kendjaeva et al., 2025) - Open datasets and models for Uzbek (Kuriyozov et al., 2023; Bobojonova et al., 2025)	W – Weaknesses - Infrastructure limits: below 100 Mbit/s on 40% of campuses (Kendjaeva et al., 2025) - Skills gap: 0.8 AI-literate specialists per 1,000 students (Kendjaeva et al., 2025) - Fragmented data and no official method for measuring AI effectiveness (Nasrulloev, 2025) - Only 0.09% of global AI investment (Khaitbaeva et al., 2026)
O - Opportunities - Productivity in finance, agriculture and energy (Mukhitdinova, 2024; Khaitbaeva et al., 2026) - Green digital economy and smart-city projects (Mukhitdinova, 2024) - Personalized education and a 2025-2030 roadmap (Kendjaeva et al., 2025) - New technology center and Uzbek-language AI (Kun.uz, 2026; Joshi et al., 2020)	T – Threats - Deepfake impersonation: 1,129 to 3,553 reported cases (Jalolova, 2025) - Phishing, RAT applications and account takeover (CERT-CBU, 2025) - Privacy, bias and labor-market effects (Shoaxmedova & Yusupova, 2023; Cazzaniga et al., 2024) - Enforcement gaps and digital inequality (Xolliyeva, n.d.; Khaitbaeva et al., 2026)

Two key findings emerge from the comparison of Uzbekistan-focused evidence with international research. First, Uzbekistan-focused sources report AI adoption shares and projections but do not provide worker-level or firm-level productivity evidence. Therefore, the productivity gains documented by Brynjolfsson et al. (2025) and Noy and Zhang (2023) cannot yet be assumed to be directly transferable to the Uzbek context. Second, the substantial GDP projection attributed to the IMF in a secondary source (Khaitbaeva et al., 2026) is not directly comparable with Acemoglu's (2025) task-based estimate because the underlying metrics and time horizons differ. Accordingly, this projection should be interpreted with caution until the original source has been independently verified. The comparison of Uzbekistan-focused findings with international studies is presented (Table 3).

8 Author's development.
9 Author's development.

INTERNATIONAL SCIENTIFIC ELECTRONIC JOURNAL

INTERNATIONAL SCIENTIFIC ELECTRONIC JOURNAL

Table 3. Uzbekistan-focused findings compared with international evidence[10]

Theme	International evidence	Uzbekistan-focused evidence	Reading
Task-level productivity	*+14% (+34% for novices) in customer support (Brynjolfsson et al., 2025); -40% time in writing tasks (Noy & Zhang, 2023)*	*No worker- or firm-level study found; only sector adoption shares (Khaitbaeva et al., 2026)*	*Evidence gap; transferability untested*
Macro growth	*TFP gain below 0.53% over ten years (Acemoglu, 2025)*	*Secondary GDP projection attributed to the IMF, unverified (Khaitbaeva et al., 2026)*	*Treat large projections cautiously*
Labor exposure	*About 40% of jobs in emerging markets exposed (Cazzaniga et al., 2024)*	*Job displacement noted only briefly (Khaitbaeva et al., 2026)*	*Under-researched locally*
Education	*Four application areas; weak critical reflection (Zawacki-Richter et al., 2019)*	*Use 31% to 57%; 10% of universities with full strategy (Kendjaeva et al., 2025)*	*Use outpaces institutional framework*
Malicious use	*Lower attack barriers; deepfakes; liar's dividend (Brundage et al., 2018; Chesney & Citron, 2019)*	*Deepfake impersonation, card fraud; 1,129 to 3,553 cases (CERT-CBU, 2025; Jalolova, 2025)*	*Pattern consistent with international analyses*
Regulation	*Disclosure of deepfakes, EU AI Act Art. 50(4) (European Parliament & Council, 2024)*	*Draft law with mandatory labeling (Jalolova, 2025)*	*Convergence on labeling; enforcement untested*
Language resources	*Few of 7,000+ languages well represented (Joshi et al., 2020)*	*New Uzbek datasets and models (Kuriyozov et al., 2023; Mengliev et al., 2024)*	*Gap addressed bottom-up*

The findings from Uzbekistan reveal a recurring pattern: AI adoption is expanding more rapidly than the development of corresponding governance frameworks. Student use of AI reached 57%, while only 10% of public universities had fully implemented AI strategies (Kendjaeva et al., 2025). During the same period, reported cases of AI-related misuse also increased (Jalolova, 2025). Although these trends do not establish a causal relationship, they collectively suggest a need to strengthen governance capacity in line with the growing adoption of AI. Regional survey evidence indicates a similar pattern: companies in Central Asia and the Caucasus reported industrial-scale AI implementation at more than twice the global rate, while a considerably smaller proportion had established clear AI strategies or formal governance structures (Khassenkhanova, 2026)[11]. This comparison is illustrated in (figure 3).

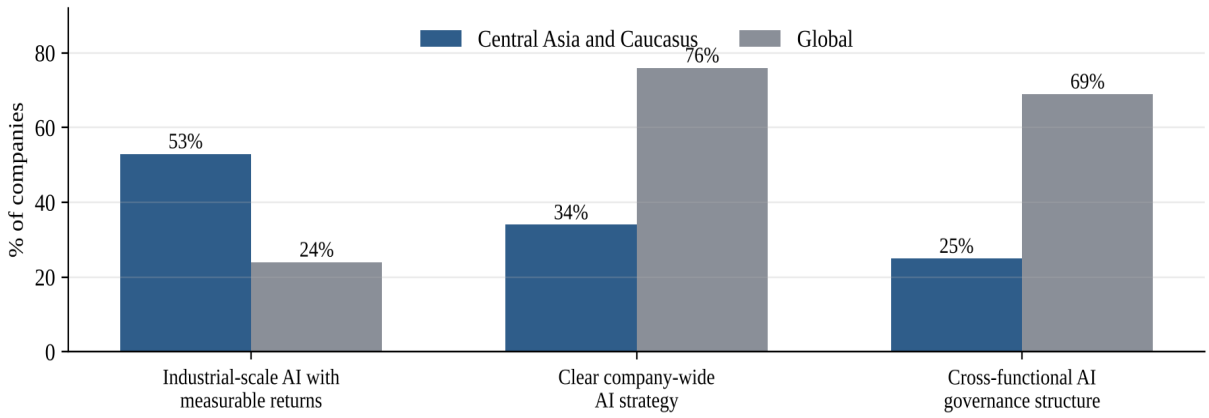


Figure 3. AI implementation and governance: Central Asia and the Caucasus vs. global companies, % of companies[12].

The reported cases in Uzbekistan primarily involve impersonation and fraud that exploit public trust, consistent with the mechanisms described by Brundage et al. (2018) and Chesney and Citron (2019). Such activities do not necessarily require unauthorized access to information systems, and Xolliyeva (n.d.) argues that this complicates their classification under existing legal provisions. One source reports that circulated deepfakes were in Russian because convincing Uzbek-language deepfakes had not yet emerged (Zamin.

10 Author's development.
11 The KPMG survey included 32 respondents from Central Asia and 40 from the Caucasus. A KPMG partner noted that some respondents may have interpreted the term "production" broadly (Khassenkhanova, 2026).
12 Source: KPMG survey as reported by Khassenkhanova (2026).

uz, n.d.-a). As Uzbek-language models improve (Section 3.3), this limitation may diminish; however, this is the author's inference and is not directly demonstrated by the cited sources. The convergence between the Uzbek draft law and Article 50(4) of the EU AI Act regarding the labeling of AI-generated content is a positive development, although labeling requirements alone may be insufficient to prevent fraudulent activities by individuals who disregard them.

Five policy implications follow. (1) **Evaluate the effects:** adopt the KPI-based evaluation of AI projects proposed by Nasrulloev (2025) and commission worker- and firm-level studies based on experimental designs used in international research. (2) **Strengthen data infrastructure:** establish a unified data standard and a national AI resource center. (3) **Integrate AI literacy and pedagogical approaches into higher education strategies**, addressing the need for stronger connections between AI applications and educational theory identified by Zawacki-Richter et al. (2019). (4) **Strengthen the legal and enforcement framework:** clarify legal provisions concerning offences involving synthetic media and establish appropriate procedures for handling digital evidence. (5) **Improve statistical reporting:** regularly publish incident-level statistics to enable evidence-based risk assessment rather than relying primarily on media reports.

The analysis relies on open sources, some of which contain secondary information. Statistics reported by the media may be incomplete, international sources were assessed at the abstract level, and SWOT analysis does not provide a basis for ranking the factors it identifies. Future research should incorporate primary incident data, firm- and worker-level surveys, and systematic full-text coding of the relevant literature.

CONCLUSION AND RECOMMENDATIONS

Artificial intelligence (AI) is becoming increasingly important in Uzbekistan's economy, education, and language technologies, although the country's share of global AI investment remains relatively small. The reported risks are primarily associated with deepfakes, phishing, and social engineering, while reported cases involving illegal AI-generated content increased approximately 3.1-fold between 2023 and 2024. In comparison with international evidence, Uzbekistan's key strengths lie in its developing strategic and legal frameworks, while infrastructure, professional skills, and data resources represent important areas for further development. The central policy priority is to ensure that AI governance, enforcement mechanisms, and impact assessment systems advance in line with the growing adoption of artificial intelligence.

REFERENCES

1. Acemoglu D. The Simple Macroeconomics of AI / D. Acemoglu // Economic Policy. - 2025. - Vol. 40, № 121. - P. 13-58. - DOI: 10.1093/epolic/eiae042.
2. Bobojonova L., Akhundjanova A., Ostheimer P.S., Fellenz S. BBPOS: BERT-based Part-of-Speech Tagging for Uzbek / L. Bobojonova, A. Akhundjanova, P.S. Ostheimer, S. Fellenz // Proceedings of the First Workshop on Language Models for Low-Resource Languages (LoResLM 2025). - Abu Dhabi: Association for Computational Linguistics, 2025. - P. 287-293.
3. Brundage M., Avin S., Clark J. et al. The Malicious Use of Artificial Intelligence: Forecasting, Prevention, and Mitigation [Elektron resurs] / M. Brundage, S. Avin, J. Clark et al. - 2018. - arXiv:1802.07228. - DOI: 10.48550/arXiv.1802.07228.
4. Brynjolfsson E., Li D., Raymond L.R. Generative AI at Work / E. Brynjolfsson, D. Li, L.R. Raymond // The Quarterly Journal of Economics. - 2025. - Vol. 140, № 2. - P. 889-942. - DOI: 10.1093/qje/qjae044.
5. Cazzaniga M., Jaumotte F., Li L. et al. Gen-AI: Artificial Intelligence and the Future of Work / M. Cazzaniga, F. Jaumotte, L. Li et al. - Washington, DC: International Monetary Fund, 2024. - (IMF Staff Discussion Note; SDN/2024/001). - DOI: 10.5089/9798400262548.006.
6. CERT-CBU. Bank va tölov tizimlarida axborot xavfsizligi va kiberxavfsizlikni ta'minlaş hamda şubhali (frod) operatsiyalarning oldini oliş böyiça Markaziy bank "CERT-CBU" kiberxavfsizlik markazi tomonidan 2024-yilda amalga oşirilgan işler [Elektron resurs]. – Toşkent: Özbekiston Respublikasi Markaziy banki, 2025.
7. Chesney R., Citron D.K. Deep Fakes: A Looming Challenge for Privacy, Democracy, and National Security / R. Chesney, D.K. Citron // California Law Review. - 2019. - Vol. 107, № 6. - P. 1753-1820. - DOI: 10.15779/Z38RV0D15J.
8. European Parliament and Council of the European Union. Regulation (EU) 2024/1689 Laying Down Harmonised Rules on Artificial Intelligence (Artificial Intelligence Act) // Official Journal of the European Union. - 2024. - L 2024/1689. - 12 July.
9. Helms M.M., Nixon J. Exploring SWOT Analysis - Where Are We Now? A Review of Academic Research from the Last Decade / M.M. Helms, J. Nixon // Journal of Strategy and Management. - 2010. - Vol. 3, № 3. - P. 215-251. - DOI: 10.1108/17554251011064837.

10. Jalolova S. Uzbekistan Moves to Regulate AI and Protect Personal Data [Elektron resurs] / S. Jalolova // The Times of Central Asia. - 2025. - 16 April.
11. Joshi P., Santy S., Budhiraja A., Bali K., Choudhury M. The State and Fate of Linguistic Diversity and Inclusion in the NLP World / P. Joshi, S. Santy, A. Budhiraja, K. Bali, M. Choudhury // Proceedings of the 58th Annual Meeting of the Association for Computational Linguistics. - 2020. - P. 6282-6293. - DOI: 10.18653/v1/2020.acl-main.560.
12. Kendjaeva D.Kh., Normo‘minov A.A., Abdiraimova Z.G., Muxtorova Z.Z., Pazilova D.X. Integration of Artificial Intelligence Technologies into Higher Education in Uzbekistan: Aspects, Challenges and Development Pathways / D.Kh. Kendjaeva, A.A. Normo‘minov, Z.G. Abdiraimova, Z.Z. Muxtorova, D.X. Pazilova // International Multidisciplinary Research in Academic Science (IMRAS). - 2025. - Vol. 8, № 5. – P. 51–55. – DOI: 10.5281/zenodo.15449459.
13. Khaitbaeva L., Sofia A., Bekimbetova G. The Impact of Artificial Intelligence on the Economy and Its Future Prospects: A Case Study of Uzbekistan / L. Khaitbaeva, A. Sofia, G. Bekimbetova // Proceedings of the 4th International Conference on Education, Economics, Business, Entrepreneurship, and Finance (ICEBEF 2025). - 2026. - Vol. 4, № 1. - P. 296-300.
14. Khassenkhanova G. Central Asia and Caucasus Companies Adopt AI at Twice the Global Rate [Elektron resurs] / G. Khassenkhanova // Euronews. - 2026. - 22 August.
15. Kun.uz. Prezident Kelajak texnologiyalari markazi qurilişiga start berdi [Elektron resurs]. - 2026. - 22-iyul.
16. Kuriyozov E., Salaev U., Matlatipov S., Matlatipov G. Text Classification Dataset and Analysis for Uzbek Language [Elektron resurs] / E. Kuriyozov, U. Salaev, S. Matlatipov, G. Matlatipov. - 2023. - arXiv:2302.14494. - URL: arXiv.
17. Mengliev D., Barakhnin V., Abdurakhmonova N., Eshkulov M. Developing Named Entity Recognition Algorithms for Uzbek: Dataset Insights and Implementation / D. Mengliev, V. Barakhnin, N. Abdurakhmonova, M. Eshkulov // Data in Brief. - 2024. - Vol. 54. - Article 110413. - DOI: 10.1016/j.dib.2024.110413.
18. Ministry of Internal Affairs of the Republic of Uzbekistan. Içki işlar vazirligi davlat taşkilotlari orasida birinçilardan bölib “Raqamli infratuzilma” axborot xavfsizligi va kiberxavfsizligini ta’minlaşga qöşgan muhim hissasi uçun taqdirlandi [Elektron resurs]. - 2026. - 7-oktabr.
19. Mukhitdinova M. Enhancing Efficiency with Artificial Intelligence in the Transition to a Green Digital Economy / M. Mukhitdinova // Economics and Innovative Technologies. - 2024. - Vol. 12, № 3. - P. 190-194. - DOI: 10.55439/EIT/vol12_iss3/i21.
20. Nasrulloev H. Özbekistonda barqaror iqtisodiy ösişga erişişda sun’iy intellekt tizimlarini qöllaş metodologiyasini takomillaştiriş / H. Nasrulloev // Iqtisodiy taraqqiyot va tahlil. - 2025. - № 10. - B. 161-169.
21. Noy S., Zhang W. Experimental Evidence on the Productivity Effects of Generative Artificial Intelligence / S. Noy, W. Zhang // Science. - 2023. - Vol. 381, № 6654. - P. 187-192. - DOI: 10.1126/science.adh2586.
22. Şoaxmedova N.X., Yusupova D.M. Ta’limda sun’iy intellekt texnologiyalarini qöllaş imkoniyatlari / N.X. Şoaxmedova, D.M. Yusupova // Raqamli iqtisodiyot va axborot texnologiyalari. - 2023. - № 4 (12). - B. 124-132.
23. Spot.uz. Internetda Alişer Usmonov nomidan yana soxta xabarlar tarqatildi [Elektron resurs]. - 2024. - 1-may.
24. Spot.uz. Özbekistonda sun’iy intellektdan foydalaniş böyiça etika qoidalari tasdiqlandi [Elektron resurs]. - 2026. - 16-mart.
25. Tashkent Times. MPs Back Bill Regulating AI Use [Elektron resurs]. - 2025. - 16 April.
26. UzA. CSS 2026: Toşkent kiberxavfsizlik böyiça navbatdagi xalqaro sammitga mezbonlik qildi [Elektron resurs]. - 2026. - 13-oktabr.
27. Xolliyeva N.O. Current Issues in Combating Crimes Committed through Deepfakes and AI Tools [Elektron resurs]: konferensiya materiali / N.O. Xolliyeva.
28. Zamin.uz. Ogoh böling: Firibgarlar rasmiy şaxslarning tasvirlari orqali dipfeyk tarqatmoqda [Elektron resurs]. - 2023. - 7-dekabr.
29. Zamin.uz. Telegram foydalanuvçilari duç kelayotgan yangi firibgarlik: soxta “ovoz beriş” sxemasi [Elektron resurs]. - 2026. - 30-oktabr.
30. Zawacki-Richter O., Marín V.I., Bond M., Gouverneur F. Systematic Review of Research on Artificial Intelligence Applications in Higher Education - Where Are the Educators? / O. Zawacki-Richter, V.I. Marín, M. Bond, F. Gouverneur // International Journal of Educational Technology in Higher Education. - 2019. - Vol. 16. - Article 39. - DOI: 10.1186/s41239-019-0171-0.

Proofreader: Xondamir Ismoilov

Layout and Designer: Oloviddin Sobir o‘g‘li

2026. № 11

© When materials are reproduced, the ECONOSCITECH-INTEGRATION journal must be cited as the source. Authors are responsible for the accuracy of the information in materials and advertisements published in the journal. Editorial opinions may not always align with those of the authors. Submitted materials will not be returned to the editorial office.

To publish articles in this journal, you may submit articles, advertisements, stories, and other creative materials through the following links. Materials and advertisements are published on a paid basis.

You may subscribe to the journal at any time using the following details. Once subscribed, please send a screenshot or photo of your payment confirmation to our Telegram page @iqtisodiyot_77. Based on this, we will send the latest issue of the journal to your address each month.

Our address: Tashkent city, Yunusobod district, 19th block, House 17.