ARTIFICIAL INTELLIGENCE IN DIGITAL MARKETING OF HIGHER EDUCATION INSTITUTIONS IN UZBEKISTAN

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Abstract

This article examines the current state and prospects of applying artificial intelligence (AI) technologies in digital marketing processes of higher education institutions in Uzbekistan. In October 2024, Uzbekistan approved the Strategy for the Development of AI Technologies until 2030, and announced a project to train 5 million AI leaders by 2030. The number of internet users in the country has reached 29.5 million, and higher education coverage has increased to 43%. The study analyzes the opportunities and challenges of implementing AI technologies in Uzbekistan's higher education institutions and develops practical recommendations.

Keywords: artificial intelligence, digital marketing, higher education, Uzbekistan, digital transformation, chatbot, CRM, marketing automation.

Annotatsiya

Ushbu maqolada O‘zbekiston oliy ta’lim muassasalarida raqamli marketing jarayonlariga sun’iy intellekt (SI) texnologiyalarini qo‘llashning joriy holati va istiqbollari o‘rganilgan. 2024-yil oktabr oyida O‘zbekistonda 2030-yilgacha sun’iy intellekt texnologiyalarini rivojlantirish strategiyasi tasdiqlandi va 2030-yilgacha 5 million nafar SI yetakchisini tayyorlash loyihasi e’lon qilindi. Mamlakatda internet foydalanuvchilari soni 29,5 millionga yetdi, oliy ta’lim qamrovi esa 43 foizga oshdi. Tadqiqotda O‘zbekiston oliy ta’lim muassasalarida SI texnologiyalarini joriy etish imkoniyatlari va muammolari tahlil qilinib, amaliy tavsiyalar ishlab chiqilgan.

Kalit so‘zlar: sun’iy intellekt, raqamli marketing, oliy ta’lim, O‘zbekiston, raqamli transformatsiya, chatbot, CRM, marketing avtomatizatsiyasi.

Аннотация

В статье исследуется состояние и перспективы применения технологий искусственного интеллекта (ИИ) в процессах цифрового маркетинга высших учебных заведений Узбекистана. В октябре 2024 года в Узбекистане была утверждена Стратегия развития технологий ИИ до 2030 года, объявлен проект подготовки 5 миллионов лидеров в области ИИ к 2030 году. Число интернет-пользователей в стране достигло 29,5 миллиона, охват высшего образования вырос до 43%. В исследовании проанализированы возможности и проблемы внедрения технологий ИИ в высших учебных заведениях Узбекистана, разработаны практические рекомендации.

Ключевые слова: искусственный интеллект, цифровой маркетинг, высшее образование, Узбекистан, цифровая трансформация, чатбот, CRM, автоматизация маркетинга.

INTRODUCTION

Uzbekistan has been actively pursuing policies on digital transformation and the development of artificial intelligence technologies in recent years. The "Digital Uzbekistan-2030" strategy, the Presidential Decree on "Measures to Create Conditions for the Accelerated Implementation of Artificial Intelligence Technologies" adopted in 2021, and the "Strategy for the Development of Artificial Intelligence Technologies-2030" approved in October 2024 demonstrate the country's firm commitment in this direction.

On November 28, 2024, Uzbekistan, in cooperation with the United Arab Emirates, launched the "5 Million AI Leaders" project. Under this project, it is planned to train 4.75 million students and pupils, 150 thousand teachers, and 100 thousand civil servants in AI by 2030. AI will be integrated into school, vocational, and higher education.

The higher education sector in Uzbekistan is also developing rapidly. The number of students has grown from 280 thousand in 2017 to 1.43 million in 2024 — more than a 5-fold increase. The number of universities has reached 162. Under such conditions, the application of AI technologies in the marketing activities of higher education institutions is becoming an urgent issue.

LITERATURE REVIEW

Research on digital transformation and the application of AI technologies in Uzbekistan has been conducted by Usmonov, Askarov, Makhmudov, and Allah Rakha. Usmonov analyzed the experience of Uzbekistan's universities in transitioning to digital education during the COVID-19 pandemic.

A study conducted at Tashkent State Technical University (De Gruyter) found that 83% of respondents noted the positive impact of digital technologies on the quality of education, 72% indicated the availability of useful digital resources, and 68% perceive the university as an innovative institution.

In June 2024, a high-level regional policy dialogue on "Generative AI in Higher Education in Central Asia" was held in cooperation between UNESCO IITE and Tashkent University of Information Technologies. Additionally, at the ACM conference, the use of AI tools by students at Uzbekistan's higher education institutions was studied — 88.4% of respondents reported regular use of AI tools.

METHODOLOGY

The study employed a combination of inductive and deductive approaches. Data sources included government documents (Presidential decrees, strategies), reports from international organizations (UNESCO, OECD, DataReportal), scientific articles, and analysis of marketing activities of Uzbekistan's higher education institutions.

The main methods applied were: document analysis — studying the regulatory and legal framework; comparative analysis — comparing Uzbekistan's experience with international practice; statistical analysis — studying digital indicators; case study — examining the experience of individual universities.

ANALYSIS AND RESULTS

1. State of Digital Infrastructure in Uzbekistan

Digital infrastructure in Uzbekistan is developing rapidly. By early 2024, the number of internet users reached 29.5 million, representing 83.3% of the total population. Mobile internet speed increased by 53% compared to the previous year. 61% of users access the internet via mobile devices. The number of users over 18 on TikTok reached 3.12 million, and Facebook's advertising audience reached 2.15 million.

Table 1. Digital and Education Indicators of Uzbekistan (2024)[1]

Indicator	Value
Internet users	29.5 million (83.3%)
Mobile internet speed growth	+53%
Number of students	1.43 million
Higher education coverage	43%
Number of universities	162

2. Government Policy on AI Technology Development

The Government of Uzbekistan pays strategic attention to the development of AI technologies. Presidential Decree PP-4996 of 2021 established measures to create conditions for the accelerated implementation of AI technologies. As a result, from the 2021/2022 academic year, courses dedicated to the practical application of AI were introduced in 15 higher education institutions. From the 2023/2024 academic year, 572 students (510 bachelor's, 62 master's) were enrolled in the "Artificial Intelligence" program at 12 universities.

Table 2. Main Strategic Goals for AI Development in Uzbekistan (2030)[2]

Goal	Target
Training AI leaders	5 million
Students and pupils	4.75 million
Teachers	150 thousand
Civil servants	100 thousand

3. Opportunities for AI Application in Higher Education Institutions

Higher education institutions in Uzbekistan can apply AI technologies in digital marketing processes in several directions:

Chatbots and virtual assistants. Providing 24/7 assistance to applicants through Telegram (over 15 million users in Uzbekistan) and websites. The experience of California State University, Northridge shows that AI chatbots (CSUNny) ensure continuous communication with students and simplify the admission process.

Personalized content. Using AI algorithms to offer content matching each applicant's interests and behavior. This has been proven to increase conversion rates by 25-30%.

[1] Source: DataReportal (2024), Statistics Committee of Uzbekistan (2024), kun.uz (2024)
[2] Source: Presidential Decree RP-358 (2024), gazeta.uz (2024), Oxford Insights (2025)

Predictive analytics. Using ML algorithms to identify which applicants have a higher probability of submitting documents and effectively allocating marketing resources.

Advertising optimization. AI tools automatically optimize advertising on Google Ads, Facebook/Instagram, and TikTok, more accurately define target audiences, and effectively allocate budgets.

4. Existing Problems and Challenges

There are several problems in implementing AI technologies in Uzbekistan's higher education institutions. First, the shortage of qualified personnel — there are still few specialists in AI, and their training is ongoing. Second, financial constraints — most universities do not have sufficient budgets to purchase and implement AI tools. Third, technical infrastructure — not all universities have the server and network infrastructure to support modern AI systems.

Table 3. SWOT Analysis of AI Implementation in Uzbekistan's HEIs[1]

Strengths (S)	**Weaknesses (W)**
• Government support • High internet penetration • Young population	• Shortage of specialists • Financial constraints • Lack of infrastructure
Opportunities (O)	**Threats (T)**
• International cooperation • "5 Million AI Leaders" project • Growing education market	• Rapid technology obsolescence • Competition from foreign universities • Information security risks

5. Practical Recommendations

The following steps are recommended for implementing AI technologies in digital marketing at Uzbekistan's higher education institutions: 1) Development and implementation of Telegram bots — this is the least costly AI tool suitable for Uzbekistan's conditions; 2) Implementation of CRM systems and marketing automation — HubSpot, Bitrix24, or local solutions; 3) Training staff to use AI tools — within the framework of the "5 Million AI Leaders" project; 4) Creating data collection and analysis systems — for predictive marketing; 5) Studying and adapting international experience — within the framework of cooperation with UNESCO, MIT.

CONCLUSION AND SUGGESTIONS

The research results showed the following main conclusions:

A strong government policy for the development of AI technologies has been established in Uzbekistan. The goal is to train 5 million AI leaders by 2030.

Digital infrastructure in the country is developing rapidly — internet penetration has reached 83%, and mobile internet speed has increased by 53%.

The higher education sector also demonstrates high growth rates — the number of students has increased 5-fold, and the number of universities has reached 162.

[1] Source: compiled by the author

However, there are problems of shortage of qualified personnel, financial constraints, and technical infrastructure in implementing AI technologies in marketing processes.

Through Telegram bots, CRM systems, and staff training, Uzbekistan's HEIs can effectively use AI capabilities in digital marketing.

Uzbekistan's higher education institutions can increase their competitiveness and student recruitment effectiveness by integrating AI technologies into digital marketing. Government support and international cooperation are important factors on this path.

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