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Article

Digital Literacy of Civil Servants of Uzbekistan in the Era of Artificial Intelligence

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Abstract: In the era of globalization, artificial intelligence (AI) has emerged as a transformative force, driving not only scientific and technological progress but also socio-economic development. Countries risk isolation and economic stagnation if they fall behind in AI adoption. In response, Uzbekistan has launched the "Digital Uzbekistan - 2030" strategy, emphasizing comprehensive digitalization across all economic sectors and regions. Despite global advancements, research on the impact and efficacy of AI policies in Uzbekistan remains limited. This study aims to evaluate the strategy's implementation, using a mixed-method approach that includes policy analysis and sectoral case studies. Results indicate notable progress in digital infrastructure, though regional disparities and sector-specific challenges persist. The findings have important implications for policymakers aiming to enhance digital inclusivity and optimize AI-driven growth across Uzbekistan.

Keywords: Artificial intelligence, Ethics, Code, Transparency, Explainability, Technology, Personnel, Fairness, Controllability, Civil servant

1. Introduction

Today, the country's achievements are assessed critically in light of international criteria. There is a growing understanding in the republic that it is impossible to avoid the introduction of AI into the economy, society and culture, no matter how difficult it may be. The heads of Uzbek banks "Asakabank", "Tenge Bank", "Uzum Bank" are unanimous in their opinion that “We will inevitably (emphasis added) evolutionarily come to AI” [1]. In our opinion, the evolutionary approach should be replaced by the accelerated advancement of AI in various sectors of the economy and culture in order to avoid lagging behind in the country’s economic and technological development.

According to Uzbek researchers, the main problem in promoting modern IT technologies is the lack of personnel, specialists in AI technologies (otherwise known as AI technology): “The lack of technical knowledge hinders the implementation of this area in most enterprises.” Qualified specialists "are expensive and rare in the current market." The republic is experiencing a shortage of personnel with high-quality professional education in the field of AI-technogy.

It should be noted that when there is talk about the introduction of AI into everyday practice, it is most often about the so-called "weak" (otherwise "narrow", "applied") artificial intelligence. By weak AI, experts mean an AI system that is created to solve one goal or several tasks (for example, scoring bank clients). "Strong" or "universal" AI

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(otherwise the so-called "generative model of intelligence", "superintelligence" - SI) is a semblance of human consciousness. Strong AI (SAI) can make decisions in conditions of uncertainty, plan, and even empathize [2]. The SAI has an element of self-government. In this interpretation, the SAI is a complete analogue of natural human consciousness, and not just a set of its intellectual abilities [3].

2. Materials and Methods

There is also a broader interpretation of artificial intelligence, which implies all digital systems that purposefully and logically process information and undertake primary analysis. These abilities are initially embedded in computer technology. At the present stage, digital technologies have the ability not only to analyze, but also to generalize data, and this qualitatively new level is designated as artificial intelligence [4].

The issue of creating a complete semblance of natural intelligence is questioned by some experts. Some experts consider its creation to be quite feasible. In this paper, we are talking about the introduction of AI in the narrow sense into the wide practice of Uzbek enterprises and institutions, and not SII, and when presenting the research, we prefer to use a narrow understanding of artificial intelligence. AI in the narrow sense is far from weak in the scale and speed of the tasks it is capable of solving, especially if it is a generative model that is aimed at solving several tasks simultaneously and generalizing the conclusions [5].

There are international indicators of a country's readiness to implement AI. Uzbek researcher A.A. Bakhromov, relying on the international Index of Government Readiness for Artificial Intelligence [6], provides data on Uzbekistan. The index is calculated based on a set of 10 indicators, although each criterion is given a separate rating. These are indicators such as:

1. Vision;
2. Governance and ethics;
3. Digital capacity;
4. Adaptability;
5. Size and innovation potential;
6. Human capital;
7. Infrastructure;
8. Data availability, data quality.

The Republic of Uzbekistan ranks 95th among [7] 173 countries in this Index in the aggregate of these indicators. The United States is ranked 1st, Korea 7th, the Russian Federation 33rd, and Kazakhstan 64th. Improving the AI readiness index is only possible by increasing domestic spending on research and development (R&D) to obtain personnel with the necessary knowledge and implement AI in all sectors and regions of the country. The task requires colossal financial investments [8].

Investments in R&D are formed from three sources: investments of the state, domestic business and foreign investments. Thus, in the US, R&D expenses are borne by business approximately two thirds, by the state one third, and 4.5% are foreign investments [9]. In the Russian Federation, on the contrary, one third of R&D investments are made by businesses, two thirds by the state, and 3% are foreign investments. In the Republic of Uzbekistan, 78% of R&D expenses are made by the state, 12% by businesses, and there is no foreign investment at all. (Data for 2010-2018) [10]. The state budget is not able to finance R&D sufficiently. The share of investments from Uzbek businesses is extremely limited [11].

3. Results

The concept of "AI recruiting" has entered scientific circulation. Derived from the English word "recruiting" - "to recruit, hire, staff". AI recruiting is the staffing of government agencies with personnel using AI technologies in the selection and hiring [12]. Not only in recruitment matters but also in various fields, many countries widely use the capabilities of artificial intelligence. To improve this activity, the Advisory Council on Artificial Intelligence was established in the Republic of Uzbekistan in October 2022 under the Ministry of Innovative Development of the Republic of Uzbekistan. The Advisory Council and the specially appointed Ethics Commissioner are responsible for the implementation of its Code of Ethics in the field of AI [13].

The objectives of the AI Advisory Council are "to form a community of experts and develop public dialogue on this topic… support areas of activity related to AI in the Republic of Uzbekistan, develop individual projects, develop promising initiatives and establish international contacts for integration into the global community that is working on the conscious and ethical use of artificial intelligence" [14]. Experts have developed a model code of ethics for the use of AI, which has been adopted by the Advisory Council. The code is advisory in nature, since ethical issues cannot have the full binding force of legal acts. However, joining it means that countries will adhere to the principles stated in the Code of Ethics in the Sphere of Artificial Intelligence [7]. The Republic of Uzbekistan is also a signatory to this Code [15].

4. Discussion

The Code has not yet been developed sufficiently. Many principles are declarative in nature [16]. Nevertheless, the main ethical priorities in the development of AI technologies have been declared, the main one being the priority of protecting the interests and rights of people and individuals;

1. Awareness of responsibility in the creation and use of AI products;
2. Respect for human autonomy;
3. Non-discriminatory approach;
4. No harm;
5. Control of recursive self-improvement of AI
6. No harm;
7. Awareness of responsibility in the creation of AI products;
8. Supervision;
9. Maximum transparency;
10. Use of AI in accordance with its intended purpose, etc.

From the incomplete list provided here, it is clear that the ethical principles for handling AI and SAI are not sufficiently classified into groups. Provide a system of ethical principles for working with AI and SAI, their coordination and subordination. The principles for working with AI and SAI are provided simultaneously [17].

In the US, the leader in AI, a number of government agencies, including the Office of Science and Technology Policy (OSTP) have also developed 10 principles for making decisions on artificial intelligence [18, 19]. OSTP formulates the principles of safety in the development and implementation of AI as follows:

1. Public trust in AI (positive image);
2. Public participation (feedback);
3. Scientific integrity and quality of information;
4. Risk assessment and management;
5. Benefits and costs (weighing the benefits);
6. Flexibility (ability to adapt);

7. Fairness and non-discrimination;
8. Disclosure and transparency (how AI is used);
9. Safety and security (of personal data);
10. Interagency coordination [20].

5. Conclusion

Based on the above, the following conclusions can be made:

The norms and values of AI ethics, for all their validity, are not absolutes; they are manifested through personal moral choice. The goal of ethics is to turn the desire for virtue into a conscious routine habit, and not into an unexpectedly random impulse or feat: "choice (an unpredetermined choice made in a situation of ambiguity) is the birthplace of a moral personality and the birthplace of morality". To successfully promote the Digital Uzbekistan 2030 Strategy, it is necessary to increase the volume of investment in R&D and in training both AI-technology specialists and in training civil servants in AI-technology skills. The content of various AI codes of ethics coincides, since they are universal values and norms, and their oblivion means the self-destruction of natural intelligence, its morality and the death of the human community as a whole.

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