



BDAIM-2025

PROCEEDINGS

of the International Scientific and Practical Conference

Big Data and Artificial Intelligence in Modeling
International Socio-Economic Processes

Tashkent, Uzbekistan

May 27, 2025

University of World Economy and Diplomacy
Moscow State Institute of International Relations
National University of Uzbekistan



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(Conference Proceedings)

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International Scientific and Practical Conference – BDAIM-2025

Big Data and Artificial Intelligence in Modeling International Socio-Economic Processes

The **University of World Economy and Diplomacy (UWED)**, in collaboration with **MGIMO University** and the **National University of Uzbekistan (NUUz)**, hosted the international scientific and practical conference **BDAIM-2025** on **May 27, 2025** in **Tashkent, Uzbekistan**.

The main **goal** of the conference was to unite researchers, policy makers, experts, and educators to explore cutting-edge applications of **big data** and **artificial intelligence (AI)** in modeling **international socio-economic processes**. Particular emphasis was placed on interdisciplinary approaches and digital transformation in economics, governance, and education.

Key Themes of the Conference:

- **Theoretical Foundations:** big data processing, machine learning algorithms, interpretability.
- **Socio-Economic Modeling:** global trade, finance, migration, and digital economies.
- **Global Challenges:** AI for climate change, pandemics, geopolitical risk management.
- **International Relations:** digital diplomacy, media analytics, conflict forecasting.
- **Ethics and Regulation:** AI governance, data protection, algorithmic responsibility.
- **Mathematical Models:** econometrics, game theory, uncertainty and risk analysis.

The event was conducted in a **hybrid format** with participation in **English, Russian, and Uzbek**. The conference provided a high-level platform for **scientific exchange, networking, and policy dialogue**.

The authors are solely responsible for the content and accuracy of their articles

Ethical frameworks for automating decision-making in public administration based on AI and big data

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Abstract. The article explores the ethical boundaries of automating decision-making in public administration using artificial intelligence (AI) and big data. The study is grounded in the Decree of the President of the Republic of Uzbekistan No. PP-358 dated October 14, 2024, which addresses the ethical and legal dimensions of AI implementation. A comprehensive review of recent scientific literature is conducted, highlighting the benefits and risks of automation, as well as its impact on citizens' rights and societal well-being. The research emphasizes the critical need to ensure transparency, accountability, and fairness in the deployment of AI technologies.

Keywords: artificial intelligence, big data, public administration, automation, ethical boundaries, transparency, accountability.

Introduction

Modern technologies of artificial intelligence (AI) and big data are being actively integrated into public administration processes, providing enhanced efficiency, accuracy, and speed in decision-making. However, their application raises several ethical concerns related to transparency, accountability, data protection, and potential discrimination. The Decree of the President of the Republic of Uzbekistan No. PP-358, dated October 14, 2024, underscores the need to develop ethical norms for AI technologies and to refine the regulatory framework to ensure data security. The document focuses on creating conditions for the adoption of AI in public administration, including the automation of planning, forecasting, and managerial decision-making processes.

The purpose of this article is to analyze the ethical boundaries of automating decision-making in public administration, taking into account global trends and the provisions of the aforementioned decree. The study examines key ethical challenges, such as the risk of losing human oversight, algorithmic bias, and breaches of confidentiality, while proposing recommendations to address these issues.

Over recent years, the scientific community has actively explored the ethical dimensions of applying AI and big data in public administration. Mittelstadt et al. (2016) note that the opacity of AI algorithms (the so-called "black box") poses challenges to public trust and accountability [1]. The study by Cath et al. (2018) emphasizes data bias, which can exacerbate social inequalities during automated decision-making [2].

In more recent works, such as Floridi et al. (2021), the principles of ethical AI—including fairness, transparency, and accountability—are discussed as essential for integration into public administration systems [3]. According to the OECD (2022) report, automation in the public sector demonstrates significant progress in process

optimization but requires strict regulation to prevent ethical violations [4]. In the Republic of Uzbekistan, Decree No. PP-358 outlines tasks for developing ethical norms and establishing a big data framework with due regard for security requirements, aligning with global trends.

Methodology:

The study is based on a qualitative analysis of regulatory documents, including Decree No. PP-358, and a review of scientific literature from 2016 to 2024. Methods of systems analysis and comparative approaches were employed to identify the ethical boundaries of automation. Particular attention was given to sections of the decree concerning the automation of public services, the enhancement of decision-making efficiency, and data protection.

Ethical Challenges of Automation

1. Transparency and the "Black Box"

One of the primary issues is the lack of transparency in AI algorithms. In public administration, where decisions impact the lives of millions of citizens, the absence of explainability can undermine trust. Decree No. PP-358 highlights the importance of improving the legal framework to ensure transparency, necessitating the development of standards for the interpretability of AI models.

2. Bias and Discrimination

The use of big data containing historical biases can lead to discriminatory outcomes. For instance, automated systems for distributing social benefits may disproportionately exclude vulnerable groups if the data reflect existing inequalities [2]. In Uzbekistan, where the focus is on improving the quality of public services, this calls for mechanisms to audit data for bias.

3. Confidentiality and Data Security

Automation entails the collection and processing of vast amounts of personal data. Decree No. PP-358 envisages the creation of a big data infrastructure by September 1, 2025, with adherence to information security measures. However, data breaches or misuse could violate citizens' rights, underscoring the need for stringent oversight.

4. Human Oversight and Accountability

Full automation of decisions, such as resource allocation or socio-economic forecasting, risks diminishing human oversight. Floridi et al. (2021) propose the "human-in-the-loop" concept, where AI serves as a supportive tool rather than a replacement [3]. This aligns with the decree's objectives of enhancing process efficiency without compromising manageability.

Analysis of Decree No. PP-358 Provisions

Decree No. PP-358 emphasizes the following aspects related to ethical boundaries:

- **Process Automation:** It states that AI should facilitate the complete automation of public services and enhance their quality. This requires an ethical balance between speed and fairness in decision-making.

- **Ethical Norms:** The decree provides for the development of norms regulating AI use, a step toward minimizing risks of bias and opacity.

- Data Security: Plans for creating a big data infrastructure highlight the importance of safeguarding confidentiality.

These provisions reflect a commitment to a balanced approach, though their implementation will demand detailed mechanisms for control and monitoring

Recommendations

1. **Ensuring Transparency:** Standards for AI explainability should be introduced, enabling citizens to understand the logic behind automated decisions. This could involve publishing simplified algorithm descriptions.

2. **Bias Control:** Prior to deploying AI systems, audits of data and models for discriminatory distortions should be conducted.

3. **Data Protection:** The use of modern encryption methods and the establishment of independent bodies to monitor confidentiality compliance are recommended.

4. **Preserving Human Oversight:** Automation should be limited to auxiliary functions, with final decisions retained by humans.

Conclusion

The automation of decision-making in public administration using AI and big data offers significant opportunities for improving efficiency but is fraught with ethical risks. Decree No. PP-358 demonstrates Uzbekistan's commitment to responsibly adopting these technologies; however, its success hinges on the development of specific mechanisms to ensure transparency, fairness, and security. Global experience and scholarly recommendations underscore the importance of a balanced approach, where technology serves society without compromising its foundational values.

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