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LEGAL REGULATION OF ARTIFICIAL INTELLIGENCE: INTERNATIONAL EXPERIENCE AND CHALLENGES FOR KAZAKHSTAN

Abstract

The article addresses current issues of legal regulation of artificial intelligence (AI) in Kazakhstan in the context of international experience. It emphasizes the absence of a comprehensive legal framework governing the use of AI, despite the active implementation of digital technologies across various sectors of public life. The study analyzes key gaps in the legal system, including the lack of a conceptual framework, ethical standards, liability mechanisms, and national technical regulations. Special attention is given to the regulatory approaches adopted by the European Union, the United States, and China, particularly in relation to risk classification, algorithmic transparency, personal data protection, and human rights. The article also explores challenges related to discrimination, privacy threats, de-anonymization, manipulation of public opinion, and digital inequality. In conclusion, the article offers recommendations for the development of national AI legislation, the establishment of ethical standards, the creation of an independent expert review body, and the training of a new generation of specialists at the intersection of law and technology. The study may serve as a foundation for shaping Kazakhstan's legal policy in the field of digital transformation and artificial intelligence.

Keywords: artificial intelligence, legal regulation, digitalization, personal data, international experience, AI ethics.

Introduction

The development of artificial intelligence (AI) is one of the key components of global digital transformation. Modern AI systems are increasingly used in such areas as healthcare, education, justice, public administration, and business. However, the rapid deployment of these emerging technologies generates legal uncertainty and necessitates timely regulatory responses. Despite the existence of certain strategic documents, such as Digital Kazakhstan and the Artificial Intelligence Development Concept for 2024–2029, the legal framework governing AI in Kazakhstan remains fragmented and does not comprehensively cover the full spectrum of emerging social relations.

In the context of globalization and the cross-border application of AI, international regulatory experience in this domain becomes particularly relevant. The European Union, the United States, and China present different models of AI regulation based on risk classification, ethical principles, algorithmic transparency, and the protection of human rights. It is crucial that Kazakhstan, while

adopting advanced international practices, takes into account the specific features of its legal system, cultural context, and level of digital development.

The purpose of this article is to analyze the current state of AI legal regulation in Kazakhstan, to examine international approaches, and to formulate practical recommendations for the development of a national regulatory framework in the context of digital transformation.

At the international level, there is no universally accepted legal definition of artificial intelligence. In U.S. legislation, AI is defined as a machine-based system that can, for a given set of human-defined objectives, make predictions, recommendations, or decisions that influence real or virtual environments [1].

A similar definition is proposed by the European Union in its draft Artificial Intelligence Act, where AI is described as software that can generate outputs (such as recommendations, content, or decisions) that influence physical or virtual environments, depending on the objectives set by humans [2].

Kazakhstan's legislation currently lacks a clear and unified definition of AI. However, the Law On Informatization introduces the terms "intelligent robot" and "system with AI elements," though these concepts only partially reflect the essence of the technology [3].

Materials and methods

This study employs a comprehensive set of research methods aimed at thoroughly exploring the subject matter. The primary approach is the formal legal method, which was used to analyze the current legislation of the Republic of Kazakhstan related to the regulation of artificial intelligence. Additionally, the comparative legal method was applied to examine differences and similarities between domestic and international regulatory frameworks in the field of AI. The empirical basis of the research includes legal acts, law enforcement materials, statistical data, and academic publications. The methodological foundation rests on the principles of objectivity, complexity, and systematic analysis, which facilitated a deeper understanding of the legal nature of AI-related relations and helped identify pressing challenges in this domain.

Results and discussion

The first stage of legal regulation in Kazakhstan began with the adoption of the Law of the Republic of Kazakhstan On Informatization in 2007 (now repealed). The current "Government for Citizens" system, also known as the "e-Government" (e-Gov), was a groundbreaking initiative in the provision of public services to the population. The second phase of digitalization commenced with the adoption of the State Program Digital Kazakhstan, which envisioned the integration of the Smart Bridge information system. This system is designed to facilitate accelerated data exchange among the information systems of Kazakhstani organizations, thereby improving the performance of banking applications. Currently, a significant number of public services are provided through the e-Gov mobile platform, which is integrated into banking applications for citizen convenience.

Among the key challenges Kazakhstan faces in building an effective legal policy in the field of AI is the shortage of specialized professionals with interdisciplinary expertise in both technology and law. This deficiency hinders the quality development and implementation of normative legal acts and limits the capacity for comprehensive legal assessments of new digital initiatives. In this regard, the development of educational programs at the intersection of law and information technology becomes particularly relevant, alongside the training of a new generation of legal professionals capable of working in the context of digital transformation.

Equally important is the issue of legal liability for actions taken by AI systems. On the international level, the problem of the so-called "black box" is actively discussed – a situation where it is impossible to determine how exactly an AI system arrived at a particular decision. This presents serious obstacles to holding specific actors – a developers, operators, or users – accountable. In Kazakhstani legal practice, there have not yet been precedents involving AI systems; however, as their adoption increases, the likelihood of legal conflicts also rises. Therefore, a legal model is required that allows for differentiated liability depending on the role of the actor in the AI system's lifecycle.

Special attention should be given to the protection of personal data when using machine learning algorithms. Despite the existence of the Law of the Republic of Kazakhstan On Personal Data and Their Protection, its practical application in the context of AI remains limited. Many algorithms operate with large volumes of data, including sensitive personal information, necessitating additional safeguards to ensure the protection of data subjects' rights. At the international level, the concept of privacy by design is gaining traction, whereby AI systems are designed from the outset with privacy and data protection principles in mind. Kazakhstan could adopt this approach by introducing corresponding requirements through standards and technical regulations.

Another important aspect of legal regulation is the implementation of ethical standards in the design and use of AI. At present, many countries are developing ethical codes focused on upholding the principles of fairness, non-discrimination, transparency, human dignity, and social responsibility. Although these documents are advisory in nature, they contribute to the formation of a culture of responsible technological development. Kazakhstan could draw on the experience of UNESCO, which adopted the Recommendation on the Ethics of Artificial Intelligence in 2021, by developing national guidelines adapted to its specific context.

It is important to emphasize that effective legal regulation is impossible without continuous monitoring and updating of the regulatory framework in response to technological changes. Artificial intelligence is evolving at a rapid pace, and legislation adopted today may become obsolete within a few years. Therefore, a flexible regulatory system is required–one that can promptly respond to challenges and threats arising during the digital transformation. In this context, the mechanism of regulatory sandboxes, successfully applied in other countries, may be considered. This model allows innovative solutions to be tested under controlled conditions, with the involvement of regulatory authorities, before they are widely deployed.

It is also essential to ensure international cooperation and Kazakhstan's participation in global initiatives aimed at harmonizing approaches to the legal regulation of AI. Organizations such as the OECD, the World Economic Forum, the Council of Europe, and specialized UN bodies are developing principles and recommendations that can serve as a benchmark for national legal policy. Active engagement in international dialogue will allow Kazakhstan not only to adapt best practices but also to represent its interests on the global stage.

It is critically important for the state to ensure access to public services through systems that are already familiar and convenient for users. The third stage involves the development of a legislative act or code aimed at regulating public relations associated with the use of artificial intelligence. At the same time, in June 2024, the Government of Kazakhstan approved the Concept for the Development of Artificial Intelligence for 2024–2029 [14]. Over the past three years, all three branches of government in Kazakhstan have been actively discussing the transition to AI-based systems. In the context of the legislative branch, it should be noted that between 2023 and 2024, discussions were held on the initiative to draft a legislative act governing the use of AI. Simultaneously, there is an ongoing consideration of the possibility of creating a Digital Code, which would include a section dedicated to AI-related issues. However, at present, no specific decisions have been made in this regard, implying that the implementation of AI in parliamentary activities will occur only after the adoption of relevant legislation. Nevertheless, active discussions are already taking place among lawmakers about how AI will be integrated into parliamentary work over the next four years.

In this context, it is worth noting the ongoing governmental discussions regarding the development of the Draft Digital Code of the Republic of Kazakhstan, which is expected to consolidate all digital transformation regulations, including those related to artificial intelligence, cybersecurity, and digital data governance [15]. The preliminary version of the Digital Code, published on the official website of the Ministry of Digital Development, Innovations and Aerospace Industry, introduces several key innovations. Among them are legal definitions for "autonomous decision-making systems," "algorithmic accountability," and "ethical AI," which together aim to establish a unified conceptual framework for AI governance.

Furthermore, the draft outlines a set of core legal principles, including algorithmic transparency, proportionality of state supervision, developer liability, and the prioritization of human rights in AI applications. It also proposes a mechanism for public oversight and certification of AI systems before their deployment in critical sectors such as justice, healthcare, and public administration. The inclusion

of these provisions reflects Kazakhstan's intention to move toward a comprehensive and codified approach to AI regulation, aligning national practice with global trends observed in the European Union and OECD member states These discussions have highlighted the intention of Members of Parliament to use AI for: (1) conducting legal analysis; (2) developing forecasts based on data analytics for legal purposes; and (3) automating the drafting of legislative texts [13].

An analysis of existing legal definitions and scholarly approaches makes it possible to identify three key features of AI:

◆ Use of data – AI systems collect, process, and analyze large volumes of information.

◆ Imitation of human cognition – AI is capable of learning, making inferences, and adapting.

◆ Autonomous decision-making – based on models and algorithms, the system generates actions or recommendations previously performed only by humans [4].

Thus, legislative initiatives related to the regulation of artificial intelligence are becoming increasingly systematic, reflecting a desire to institutionalize this rapidly evolving field. It should be noted that in the process of preparing the Concept for the Development of Artificial Intelligence for 2024–2029, comprehensive consultations were held with representatives from academia, the private sector, and government bodies. This demonstrates an attempt to develop a balanced approach that integrates the interests of all stakeholders.

Particular emphasis in strategic documents is placed on the need to establish regulatory requirements for the transparency and explainability of algorithms. This is driven not only by technical and legal concerns but also by the critical importance of public trust in AI-based systems. For example, in contexts such as judicial proceedings, allocation of social benefits, or university admissions, algorithmic decision-making must be accompanied by mechanisms for external oversight and the ability to challenge outcomes.

Moreover, there is an urgent need to develop clear standards and requirements for the quality of data used to train AI systems. Poor-quality, incomplete, or biased data can lead to discriminatory or erroneous outcomes, especially in areas involving personal and socially significant decisions. In this regard, discussions are underway about the need to create a national infrastructure of trusted datasets, which would be accessible for the training and testing of AI models. Such an infrastructure would not only improve the reliability of domestic AI solutions but also foster accelerated innovation within the country.

Active discussions are also being held on the creation of a unified regulatory body or an interdepartmental coordination council to oversee the development, implementation, and enforcement of AI legislation. This could take the form of a new government agency or a specialized unit within the existing Ministry of Digital Development, Innovation, and Aerospace Industry of the Republic of Kazakhstan. It is envisioned that such a body would carry out both supervisory and standard-setting functions, including certification and accreditation of AI systems.

Issues of international cooperation have also not been overlooked. As a member of the Eurasian Economic Union (EAEU), Kazakhstan is exploring the possibility of harmonizing AI regulatory approaches within the EAEU framework. In this context, discussions are underway concerning the development of an intergovernmental legal framework aimed at ensuring compatibility and mutual recognition of technologies, standards, and ethical guidelines for AI applications. Collaboration in this area would enhance the competitiveness of domestic innovations and facilitate their entry into international markets.

Finally, at the level of civil society, the ethical dimensions of AI development are increasingly being raised. Key issues on the agenda include the protection of vulnerable groups, the fight against digital inequality, and citizen participation in shaping AI policy. It has been proposed to expand the involvement of NGOs, the academic community, and experts in the development of legal acts and strategies, as well as in the work of consultative bodies under the Parliament and the Government.

All these areas underscore the complexity and multilayered nature of AI regulation, which requires not only legal and technical expertise but also broad societal engagement. As Kazakhstan enters the stage of forming its legislative and institutional framework, it has a unique opportunity to build a flexible and adaptive regulatory model capable of responding to both current and future challenges of the digital age.

The European Union has developed a draft Artificial Intelligence Act, which introduces a risk-based classification of AI systems – ranging from minimal to unacceptable risk. High-risk systems (for example, those used in healthcare or the judiciary) are subject to strict oversight, including mandatory certification, transparency requirements, record-keeping, and the protection of users' rights [2].

In addition, EU legislation is actively evolving to promote the ethical use of AI, data protection, and the regulation of intellectual property rights related to AI-generated outputs [8]. Based on the EU's experience, a groundbreaking law regulating artificial intelligence was adopted in May 2023. This document categorizes AI systems into four levels of risk: unacceptable, high, limited, and minimal. It also prohibits the use of biometric AI technologies to classify individuals based on gender, race, ethnicity, citizenship, religion, or political beliefs.

Furthermore, European lawmakers require that high-risk systems – such as those used for facial recognition, behavior prediction, or credit scoring – must be transparent, reliable, and subject to independent auditing. Limited-risk systems, such as chatbots, must be clearly labeled and allow for human intervention. A separate category, which includes systems like ChatGPT, is general-purpose AI (GPAI). These systems are also subject to transparency obligations, and high-performing GPAI models must undergo a special and rigorous assessment procedure [12].

It is important to emphasize that the AI Act represents the first large-scale legislative initiative of its kind in the world. It establishes a comprehensive and systematized regulatory framework for artificial intelligence, encompassing not only technical dimensions but also social, legal, and ethical considerations. The document is grounded in a risk-based approach, allowing legal requirements to be differentiated depending on the potential threat posed by an AI system to society, individuals, or the rule of law.

The regulation imposes strict prohibitions on the use of AI in cases where it could endanger fundamental human rights. In particular, it bans systems that manipulate human behavior using subliminal techniques, as well as AI applications intended for social scoring, as seen in some countries. This approach aims to safeguard fundamental freedoms and prevent technological abuse.

Special attention in the AI Act is devoted to algorithmic transparency, the explainability of AI decisions, and users' rights to know whether they are interacting with a machine. The law mandates that all AI systems capable of influencing human lives must be appropriately labeled and provide means for interpreting their operations. This, in turn, poses a challenge for developers and software providers to ensure model interpretability – especially in cases involving deep learning technologies.

Moreover, the European Union envisions the establishment of European Digital Innovation Hubs, which are intended to provide methodological and expert support to both public and private stakeholders in the deployment and regulation of AI. These hubs will play a crucial role in ensuring that newly developed technologies comply with emerging legal standards and in cultivating a culture of responsible AI use.

The United States employs a decentralized approach to AI governance, emphasizing the development of standards and principles across various federal agencies. The primary focus is on fostering innovation while maintaining minimal regulatory intervention. The U.S. has also signed the Atlantic Declaration for Economic Partnership with the United Kingdom, outlining cooperation in the field of artificial intelligence [1].

The American approach to AI regulation significantly differs from the European model. It is grounded in principles of flexibility, market self-regulation, and technological neutrality. There is no single federal legal framework regulating AI across all sectors. Instead, disparate rules and guidelines have been issued by individual federal agencies – such as the National Institute of Standards and Technology (NIST), the Federal Trade Commission (FTC), the Food and Drug Administration (FDA), and others.

In 2023, NIST published the AI Risk Management Framework, a guidance document aimed at helping organizations identify, assess, and minimize AI-related risks. This framework is advisory in nature, reflecting the broader U.S. philosophy of supporting innovation without imposing excessive administrative burdens. However, due to growing concerns about potential AI misuse – particularly in areas such as personal data and algorithmic bias – discussions have intensified regarding the need for unified federal standards.

Notably, the establishment of the White House AI Council and the signing of the Atlantic Declaration in 2023 signal an intent to develop joint standards, build public trust in AI systems, and promote principles of openness, transparency, and safety. At the state level, jurisdictions such as California and Illinois have already enacted legislation concerning data protection and algorithmic transparency. This trend may eventually lead to legal fragmentation within the country.

China's approach is characterized by strong state involvement in AI development. The draft law of the People's Republic of China includes provisions on government support for computing infrastructure, developer responsibility, and the safety of AI systems [4].

The PRC follows a state-centric model of AI regulation. The Chinese government actively integrates AI into its national "Smart Society" strategy, pursuing a centralized policy for both the control and promotion of the technology. Since 2022, China has enacted regulations governing algorithmic recommendations and content generated by AI systems.

The draft Chinese AI law mandates state certification of AI systems, requires developers to ensure ethical algorithmic behavior, and imposes liability for harm caused by AI. It also places strong emphasis on safeguarding national security and ideological stability, which is reflected in the strict filtering of content and state oversight of AI use in the information environment.

China is also expanding its state-run platforms for AI testing and standardization. One example is the initiative to create a "national standard" for foundational models, including large language models. These standards allow the government to define the permissible boundaries of technological development and guide corporate innovation accordingly.

Furthermore, China is actively engaged in international AI cooperation, especially through frameworks such as the Shanghai Cooperation Organisation (SCO), BRICS, and bilateral agreements with developing countries. This contributes to the formation of an alternative model of digital development – one that emphasizes state sovereignty in cyberspace and tighter control over innovation.

In Kazakhstan, there is a lack of systematic legislation in the field of AI. Although the country's digitalization strategy envisages the introduction of AI in various sectors, in practice, there is an absence of: a clear definition of the conceptual apparatus; ethical standards for AI application; mechanisms for delimiting responsibility between participants (developers, users, the state); and national technical regulations and standards. The new version of the law on digitalization indicates the need to develop by-laws that should regulate AI safety, intellectual property rights to its products, labeling, and also prevent the use of AI for criminal purposes [3]. Professor Ashley Deeks of the University of Virginia (USA) describes in her book "High-Tech International Law" how legislation can undergo significant changes, entering a new era with the integration of AI technologies. The author emphasizes the inevitability that, at the initial stage, states will independently initiate changes in the field of AI use, without the assistance of other countries. This is due to the fact that AI application models will vary depending on national regulation [1, pp. 584–600].

The author cites the Chinese legislative system as an example, noting that China will likely be at the forefront of applying machine learning methods and text processing tools. For example, in the judicial branch of power in China, Chinese judges are already testing an AI-supported system that allows analyzing deviations and comparing how draft court decisions differ from previous precedents. Consequently, this experience of the judicial system is also planned to be used in lawmaking. China's ambition to integrate AI and its access to large volumes of data suggest that the country will actively develop and use machine learning tools to achieve more effective regulation of the legal, economic, and social spheres of citizens' lives, as well as to improve relations with the international community [13].

Thus, the existing challenges of international legal regulation of AI include the following points. For example, different countries have different legal acts for AI, which can create difficulties in developing international standards and rules. The lack of consensus regarding ethical principles governing the use of AI can hinder the development of universally recognized international standards and rules. Many legislators and lawyers may have a limited technical understanding of AI, which can complicate the development of effective rules and standards. Even with an agreement on international standards and rules, their implementation and enforcement in different countries can be problematic. International cooperation on AI regulation is limited by geopolitical, economic, and other reasons, which can slow down the development of effective international standards and rules. States may be hesitant to adopt international AI rules that, in their opinion, contradict their own national interests. AI

technologies are rapidly developing, which can make it difficult to develop rules and standards that will remain relevant and effective over time. Solving these tasks and problems will require cooperation and collaboration between politicians, lawyers, and technical experts from different countries. The prospects for international legal regulation of AI depend on various factors, such as the potential risks and benefits of AI, as well as the existing legal and regulatory frameworks in different countries.

However, as shown above, the need for some form of regulation is recognized at the international level to ensure that AI is developed and used in a safe, ethical, and human rights-compliant manner. As AI continues to develop rapidly, there is a growing need for international cooperation and interaction between states and international organizations to address the legal and ethical issues associated with its development and implementation [11, pp. 67–75].

Conclusion

The legal regulation of artificial intelligence in Kazakhstan is at the stage of formation and is being shaped in conditions of rapid technological progress, which requires flexibility, systematicity, and orientation towards international experience from the state. Despite the presence of strategic documents such as the "Digital Kazakhstan" program and the Concept for the Development of AI for 2024–2029, the current legislation does not yet cover key aspects of AI functioning – from the conceptual apparatus to norms of responsibility, ethics, and human rights protection [14]. The analysis shows that Kazakhstan, like many other countries, faces a number of challenges: the absence of specialized legislation, a shortage of personnel, risks to confidentiality and personal data, as well as threats of discrimination and manipulation. In this context, it is important not only to borrow advanced international experience (EU, USA, China) but also to adapt it to national characteristics – political, legal, cultural. To ensure the sustainable and safe implementation of AI, it is necessary to form a comprehensive regulatory ecosystem, including: clear definitions and legal status of AI; mechanisms for distributing responsibility; standards for transparency and explainability of algorithms; measures for protecting personal data; rules for using AI in the sphere of public services, justice, economics, and media; as well as national ethical guidelines. The implementation of these measures is impossible without active dialogue between the state, the academic community, business, and civil society. Only such an interdisciplinary approach will allow Kazakhstan to create a safe, inclusive, and fair digital environment capable of not only responding to the challenges of the present but also shaping a sustainable digital policy for the future.

Rapid technological advancement outpacing legislation: Artificial intelligence (AI) technologies are developing at a faster pace than legislative frameworks can adapt. In Kazakhstan, there is currently no systemic and comprehensive legal mechanism for regulating AI, which creates risks of legal uncertainty and complicates the integration of AI into key economic and social sectors.

Fragmentation of national regulation: Although Kazakhstan's legislation references concepts related to AI (such as "intelligent robot" and "digitalization"), these do not comprehensively cover the technological and legal characteristics of AI. There is no unified approach to classification, risk assessment, liability issues, or authorship rights.

Lack of ethical and legal infrastructure: Ethical standards and regulatory mechanisms aimed at protecting human rights, personal data, and preventing discrimination remain underdeveloped. Particular concern arises from "black box" AI systems – opaque decision-making processes that are difficult to explain or legally challenge.

Need for skilled workforce and digital inclusion: The insufficient number of specialists at the intersection of law and technology significantly limits the quality of legal regulation. Furthermore, the level of digital inequality remains high, potentially exacerbating social polarization.

International experience as a source and guide: Experience from the European Union, the United States, China, and UNESCO demonstrates that effective AI regulation requires adaptation to the national context without losing alignment with global norms, ethics, and standards.

Based on the examination of current and draft legal acts, including the Concept for the Development of Artificial Intelligence for 2024–2029 and the Draft Digital Code, it becomes evident that Kazakhstan needs to transition from a declarative to a systematic and enforceable model of AI governance.

To that end, several targeted reforms are proposed:

◆ To introduce a clear and unified legal definition of artificial intelligence applicable across all branches of law.

◆ To establish a comprehensive liability framework, differentiating between developers, users, and state entities involved in AI system operation.

◆ To create a national registry and certification procedure for high-risk AI systems, ensuring compliance with ethical and safety requirements.

◆ To mandate algorithmic impact assessments and ethics review procedures prior to the use of AI in sensitive domains such as justice, healthcare, and public policy.

◆ To integrate privacy-by-design principles and data protection-by-default mechanisms into software development standards.

◆ To develop educational and professional training programs in AI law and ethics to address the shortage of interdisciplinary specialists.

These measures would enable Kazakhstan to build a resilient regulatory framework capable of ensuring technological progress while protecting human rights and public interests.

Practical recommendations. Development of a foundational AI law or inclusion of an AI chapter in Kazakhstan's Digital Code: The law should define AI, classify associated risks, establish principles of application, allocate liability, and provide for certification and auditing procedures of AI systems.

Establishment of a national AI ethical code: This document could be based on the UNESCO Recommendation on the Ethics of Artificial Intelligence and should reflect Kazakhstan's cultural and legal particularities. It will serve as guidance for developers, users, and government authorities.

Implementation of the privacy by design principle and data protection in AI environments: Legislation on personal data needs modernization considering AI specifics, mandating embedded privacy features in software solutions.

Creation of a regulatory sandbox for AI projects: This mechanism would allow innovative solutions to be tested in a controlled environment with regulatory oversight, reducing risks and accelerating normative adaptation to technological changes.

Advancement of education and training in digital law: Interdisciplinary educational programs should be introduced in universities alongside professional development courses for public officials and legal professionals working in digital technology fields.

Participation of Kazakhstan in international AI initiatives and standardization: It is recommended that Kazakhstan join global alliances and forums on AI (such as GPAI, OECD, Council of Europe), which would enable the country to incorporate best practices and promote its interests on the international stage.

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ЖАСАНДЫ ИНТЕЛЛЕКТТІ ҚҰҚЫҚТЫҚ РЕТТЕУ: ХАЛЫҚАРАЛЫҚ ТӘЖІРИБЕ ЖӘНЕ ҚАЗАҚСТАН ҮШІН СЫН-ҚАТЕРЛЕР

Аңдатпа

Бұл мақалада Қазақстандағы жасанды интеллектті (ЖИ) құқықтық реттеу мәселелері халықаралық тәжірибе аясында қарастырылады. Цифрлық технологиялардың қоғамдық өмірдің әртүрлі салаларында белсенді енгізілуіне қарамастан, ЖИ қолдануды реттейтін жүйелі заңнаманың болмауы атап көрсетіледі. Құқық жүйесіндегі негізгі мәселелер, оның ішінде ұғымдық аппараттың, этикалық стандарттардың, жауапкершілік механизмдерінің және ұлттық техникалық регламенттердің жоқтығы талданады. Ерекше назар Еуропалық Одақ, АҚШ және Қытайдың ЖИ-ды реттеу тәсілдеріне аударылады, оның ішінде тәуекелдерді классификациялау, алгоритмдердің айқындығы, жеке деректер мен адам құқықтарын қорғау мәселелері қарастырылады. Сонымен қатар, кемсітушілік, жеке өмірге қауіптер, деанонимизация, қоғамдық пікірді манипуляциялау және цифрлық теңсіздік сияқты қиындықтар бөлек қарастырылады. Қорытынды бөлімде Қазақстанда ЖИ саласындағы ұлттық заңнаманы әзірлеу, этикалық стандарттарды құру, тәуелсіз сараптамалар институтын енгізу және құқық пен технологияның тоғысындағы жаңа буын мамандарын дайындау қажеттілігі бойынша ұсыныстар беріледі. Бұл жұмыс Қазақстанның цифрлық трансформация және жасанды интеллект саласындағы құқықтық саясатты қалыптастыруға негіз бола алады.

Тірек сөздер: жасанды интеллект, құқықтық реттеу, цифрландыру, жеке деректер, халықаралық тәжірибе, ЖИ этикасы.

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ПРАВОВОЕ РЕГУЛИРОВАНИЕ ИСКУССТВЕННОГО ИНТЕЛЛЕКТА: МЕЖДУНАРОДНЫЙ ОПЫТ И ВЫЗОВЫ ДЛЯ КАЗАХСТАНА

Аннотация

В статье рассматриваются актуальные вопросы правового регулирования искусственного интеллекта (ИИ) в Казахстане в контексте международного опыта. Подчеркивается отсутствие системного законодатель-

ства, регулирующего применение ИИ, несмотря на активное внедрение цифровых технологий в различные сферы общественной жизни. Проанализированы основные пробелы в правовой системе, включая отсутствие понятийного аппарата, стандартов этики, механизмов ответственности, а также национальных технических регламентов. Особое внимание уделено анализу подходов Европейского союза, США и Китая к регулированию ИИ, в том числе вопросам классификации рисков, прозрачности алгоритмов, защиты персональных данных и прав человека. Отдельно рассматриваются вызовы, связанные с дискриминацией, угрозами приватности, деанонимизацией, манипуляцией общественным мнением и цифровым неравенством. В заключение представлены рекомендации по разработке национального законодательства в области ИИ, необходимости создания этических стандартов, института независимой экспертизы, а также подготовки специалистов нового поколения на стыке права и технологий. Работа может служить основой для формирования правовой политики Казахстана в сфере цифровой трансформации и искусственного интеллекта.

Ключевые слова: искусственный интеллект, правовое регулирование, цифровизация, персональные данные, международный опыт, этика ИИ.