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LEGAL REGULATION OF ARTIFICIAL INTELLIGENCE

Abstract

The article is devoted to the analysis of the legal nature and regulation of artificial intelligence in the context of rapid digital development. The paper compares approaches to legal regulation of AI in Kazakhstan, the USA, the European Union and China, identifies their fundamental differences and points of intersection. Special attention is paid to the draft Digital Code of the Republic of Kazakhstan and the Concept of Artificial Intelligence Development for 2024–2029, which reflect an attempt to build a holistic legal model combining ethical norms, technical standards and mechanisms of legal accountability. The article reveals differences in regulatory philosophy reflected in national strategies, regulations, and ethical declarations. The conclusion is drawn about the need for flexible, adaptive and multi-layered legal regulation that can take into account both the technical characteristics of AI systems and the risks associated with their autonomy and impact on fundamental rights. The results of the study indicate the importance of moving from declarative norms to operational mechanisms, including the legal status of AI, certification of algorithms, ethical audit, transparency of decisions and allocation of responsibility.

Keywords: artificial intelligence, legal regulation, legal personality, digital code, ethics, AI strategy, regulatory framework.

Introduction

The development of artificial intelligence (AI) technologies in recent decades has become one of the main catalysts for the transformation of modern society. Today, AI covers more and more areas, from healthcare and education to logistics, finance, defense, and public administration. They are able to learn, adapt, and make decisions based on the analysis of large amounts of data – faster, more accurately, and more efficiently than humans. This makes AI not just a technology, but a new

participant in social and economic life. However, such a rapid introduction of intelligent systems causes not only admiration, but also serious legal and ethical concerns.

The main challenge of our time is not so much technical as legal: what should be the legal status of artificial intelligence? Is the existing legal system able to adequately respond to the challenges that the new reality poses to it? Traditional ideas about the subject and object of law, about responsibility, will, legal capacity and legal capacity are insufficient to describe the phenomenon of AI. Legal science is faced with the need to revise the fundamental categories of law in order not only to respond to technological changes, but to direct them towards sustainable and equitable development.

The lack of a unified approach to defining the legal nature of AI generates a wide range of points of view. Some researchers insist on recognizing AI as a legal entity, believing that this will allow for clearer mechanisms of regulation and responsibility. Others believe that AI has only certain elements of legal personality, but cannot be a full-fledged participant in legal relations. Still others are convinced that artificial intelligence should be considered solely as an object of law, like other technologies or tools. Each of these positions has a logical and practical basis, but none has received universal recognition.

International practice is already demonstrating the first attempts at experimental legal recognition of AI. In Saudi Arabia, Sofia's robot was officially granted citizenship, an unprecedented step that caused a wide response [1]. In Japan, a virtual child bot named Shibuya Mirai was registered as a «digital resident» [2]. These examples, despite their symbolic nature, reflect a growing interest in the question: can AI be legally recognized?

The issue of the legal status of AI is not limited to abstract theory – it is directly related to practical tasks.: how to regulate the actions of intelligent systems? Who should be responsible in case of harm? How can human rights be protected in an environment where decisions are partially or completely made by machines? These and other issues are relevant not only for lawyers, but also for developers, policy makers, and the general public. The answers to these questions will define the boundaries of what is acceptable in the use of AI and form the basis for the future technological society.

At this stage of development, it is extremely important to find a balanced and forward-looking approach to legal regulation of AI. Legal models are needed that can take into account not only the technical features of algorithms, but also the social, ethical, and philosophical aspects of human-machine interaction. Countries have different approaches to these tasks, and their experience can be a valuable guide.

According to the Stanford University analytical report «AI and Life in 2030» (the Centennial Artificial Intelligence Research Project, 2016) [3], these areas will be the most affected by AI in the next decade. At the same time, the authors of the report emphasize that the existing legal framework lags behind the pace of technological development, hindering not only the introduction of AI, but also the adaptation of society to new conditions. Law is inherently inert, and this makes it an insufficiently flexible tool in the context of the technological revolution.

The issue of creating a separate branch of law – the so–called «law of robots» – is no longer being discussed as futurism, but as a practical necessity. Such an industry could cover the entire range of relations involving AI: from determining its legal status to liability for harm caused, from protecting intellectual property created by AI to its «right» to the integrity of the code and the physical shell.

It is no coincidence that back in 1942, Isaac Asimov proposed three laws of robotics, which, although they were a fantastic element, became unspoken ethical guidelines for developers [4]. Today, with the increasing power and autonomy of AI, these unspoken norms are no longer enough – a clear legal framework is needed.

American professor Jack Balkin, in his article published in the California Law Review in 2015, emphasizes that the development of technology will not stop, no matter how society or the legislator reacts to it [5]. In his opinion, the key challenges lie in two dimensions: responsibility for AI actions, especially when human rights are violated, and the «substitution effect» – a situation in which robots replace humans in social and professional roles. These challenges, in his opinion, will cause a profound legal transformation.

The discussion of the legal regulation of artificial intelligence is not limited to individual states. In the international arena, the topic is becoming particularly important in the field of global security,

respect for human rights and the formation of an ethical architecture for the digital future. The question is not only how to regulate AI, but also on what values and principles this regulation should be based.

One of the notable steps in this direction was The Asilomar Conference on Beneficial AI, held in January 2017 in California [6]. Organized by the Future of Life Institute, Boston, this event brought together more than 100 leading experts in the fields of law, philosophy, ethics, economics, and computer science. The participants, including influential figures such as Stephen Hawking, Elon Musk, as well as representatives of technology giants Google, IBM, Microsoft, Facebook and Apple, formulated a set of key principles for the safe and ethically sustainable development of AI (Asilomar AI Principles).

According to the preamble of the final document, AI is already bringing significant benefits to millions of people around the world today, but in the future – subject to compliance with ethical and legal frameworks – its potential can be realized on the scale of decades and even centuries. The conference participants focused on the key challenges that need to be addressed not only by engineers, but also by legal and social institutions. Among them:

- How to ensure the reliability and security of AI systems - to protect them from failures, manipulations and hacker attacks?
- How to achieve economic growth through automation without destroying the social role of labor?
- How to adapt the legal system to new realities without undermining its fairness and functionality?
- What value orientations should be embedded in the architecture of AI, and how to determine its legal and moral status?

UNESCO's initiative has become no less significant. In 2019, the conference «Principles of Artificial Intelligence: towards a Humanistic approach» was held, which became a platform for discussing the global consensus on the issues of «human-centered» AI management. UN Representative Fabrizio Drummond rightly noted that relying solely on voluntary international agreements is insufficient in the face of growing competition between states. Market freedom without ethical constraints can lead to technological progress – but at the cost of destroying privacy, increasing inequality, and social polarization.

The result was a decision on the need to develop an international document regulating the ethics of AI. UNESCO has committed itself to form basic ethical standards in this area. Independent experts were involved in the preparation of the document, and intergovernmental meetings were scheduled for 2021, the purpose of which was to finalize the text taking into account universal human rights.

The international community is gradually coming to realize that the development of AI is impossible without global legal and ethical coordination. Technology that knows no borders also requires supranational forms of regulation. At the same time, it is important not only to fix the general principles, but also to build effective mechanisms for their implementation in the legal systems of individual states.

To date, artificial intelligence is not recognized as a subject of civil law. Nevertheless, the issue of his legal personality is already being actively discussed both in academic circles and in government structures. So, in 2017, the European Parliament approved a resolution proposing to consider the possibility of recognizing an «electronic person» – a special legal status for complex robots with the ability to make decisions. However, the final recognition of AI as a legal entity has provoked strong objections from human rights defenders and philosophers concerned about the risk of equating machines and humans.

The main motive for raising the issue of the legal personality of AI is the legal uncertainty regarding the distribution of responsibility for the harm caused. Even today, there are cases when the actions of autonomous systems have led to injuries, accidents and other consequences. With the expansion of the use of AI, such cases will occur more often. This raises a classic legal question: who is responsible – the developer, the owner, the user, or perhaps the system itself?

To complicate the situation, even when AI is controlled by humans, its control is often limited. In the case of self-learning systems, it becomes almost impossible to predict their behavior. This requires rethinking the model of legal responsibility itself in an environment where the cause-and-effect relationships between human actions and the results of AI work can be blurred.

In this regard, different approaches to the civil law regulation of AI are being put forward in legal science:

1. AI as a special type of property.

This approach likens AI, by its legal nature, to animals – objects capable of autonomous behavior, but still things. With this approach, the responsibility falls on the owner. However, there is a problem here: AI is able to act more complexly than an animal, and cause damage not only through the negligence of the owner, but also within the framework of «normal» functioning.

2. AI as an electronic entity.

Proponents of this approach propose to create a new category of legal personality – the electronic personality. This would make it possible to assign independent legal responsibility to the AI. However, there are difficulties here too: unlike legal entities, AI actions cannot always be traced to a specific person or group. Nevertheless, in the future, such a status may become the basis for regulating issues of responsibility, obligations, and even property rights of AI systems.

Proponents of each approach point to the pros and risks. The main task is to find a balance between traditional legal structures and the new technological reality, without abandoning development, but maintaining manageability of processes.

The purpose of this study is to analyze modern concepts of legal regulation of AI, a comparative review of approaches in the USA, EU, China, Russia and Kazakhstan, as well as to develop proposals for adapting the Kazakh legal system to the conditions of the digital age. The focus is not just on formal regulation, but on understanding the profound changes taking place in law under the influence of intellectual technologies.

The issue of legal regulation of artificial intelligence is being actively researched by both domestic and foreign scientists, reflecting the growing importance of this topic in the context of digital transformation of society. Modern publications analyze both theoretical areas of the legal status of AI and practical approaches to the development of a regulatory framework.

In his article, S.V. Nikitenko examines the key issues of AI regulation in the field of digital economy development [7]. He emphasizes that AI is not only an engine of technological progress, but also a source of legal risks that require effective safeguards. Special attention is paid to such challenges as the lack of uniform standards, the risk of discrimination inherent in algorithms, and the need to protect human rights. Minbaleev emphasizes the importance of developing a global regulatory approach that can ensure the safety and sustainable development of technology.

O. Yara systematizes the main problems of legal regulation of AI and its impact on legal relations in the textbook [8]. The included materials cover recognized norms and controversial issues that are actively discussed in the scientific community. Filipova uses the research of both Russian and foreign experts, forming students' holistic understanding of the legal nature of AI and practical mechanisms for solving related problems.

G. Finocchiaro analyze the legal aspects of the use of AI in their joint work [9]. The authors point to the lack of a sufficient regulatory framework in Russia, which makes it difficult to effectively regulate AI technologies. Among the key issues they highlight is the definition of the legal nature of AI, the possibility of its legal personality, the distribution of responsibility and the impact of AI on the legal profession.

P.G.R. De Almeida draws on international experience and explores the role of Finland in the digitalization of legislation [10]. His work raises the issue of the need to create unified international standards for regulating AI in order to ensure its safe and legitimate use. A comparative analysis of the degree of regulatory maturity in different countries is of particular interest.

Hin-Yan Liu, in turn, proposes the concept of «legal disruption» to describe the challenges faced by law in the context of rapid technological development [11]. He criticizes traditional approaches such as cyber law and robo-law, pointing out their inability to embrace the new legal contradictions generated by AI.

Simon Chesterman explores the idea of recognizing AI as a legal entity [12]. He notes that although AI can theoretically perform functions similar to legal entities, its recognition as an independent legal entity remains the subject of intense debate. Chesterman is inclined to believe that AI should be considered as a tool for now, rather than as an independent legal entity.

Margarita Robles Carrillo raises an important question about the need to distinguish between legal and ethical aspects of AI regulation [13]. This is especially acute in areas where AI is involved in decision – making affecting human health and freedom, for example, in medicine or criminal justice. The researcher points out the lack of consensus on the legal status of AI and emphasizes the need to develop a flexible but clear regulatory system that takes into account both technological characteristics and possible social consequences. The presented research demonstrates a wide range of views and approaches to understanding the legal nature of artificial intelligence. Despite the lack of consensus, the accumulated theoretical and empirical material creates the basis for the formation of effective regulatory models that combine technological progress with legal certainty.

Materials and methods

Within the framework of this study, comprehensive methods of legal analysis were applied, including comparative law, content analysis, as well as a systemic and structural approach. The aim was to comprehensively study the legal models of artificial intelligence (AI) regulation in various legal systems – the USA, the European Union, China, Russia and Kazakhstan – with the subsequent identification of their features, advantages and disadvantages.

The comparative legal method made it possible to compare approaches to AI regulation in these countries in terms of such parameters as: the legal status of AI, the distribution of responsibility, the regulatory consolidation of ethical standards, as well as personal data protection mechanisms. The analysis was carried out according to strategic documents (for example, the American Executive Order 13859, the PRC's AI Plan, the EU White Paper), legislative acts, draft codes and programs regulating digital transformation.

The content analysis method has been applied when working with scientific publications, analytical reports of international organizations (in particular, UNESCO, OECD), as well as texts of regulatory documents. This made it possible to identify key concepts, recurring legal constructions, and prevailing discourses concerning the legal personality of AI, responsibility for the actions of autonomous systems, and the limits of permissible interference with individual rights.

The system-structural approach was used in the analysis of the Kazakh legal model: the relationship between the provisions of the draft Digital Code, the AI Development Concept for 2024–2029 and current legislation (including in the field of personal data, intellectual property and digitalization) was considered. Particular attention was paid to identifying legal gaps and potential growth points, taking into account international practice. In addition to foreign experience, the Russian scientific literature was analyzed, which examines both theoretical and applied aspects of legal regulation of AI.

Results and discussion

The relevance of the topic is due to the fact that the legal science of Kazakhstan is just beginning to form a single conceptual framework related to AI technologies, while international practice already offers various regulatory models.

According to article 1 of the draft Digital Code [14], artificial intelligence is understood as:

"a hardware and software system capable of generating output data, including forecasts, recommendations or other solutions, for a given set of human-defined purposes".

This definition highlights the functional aspect of AI – the ability to process information and make decisions based on set goals. However, it does not disclose issues of autonomy, self-learning, or legal responsibility, which remains a problem area in both Kazakh and foreign doctrine.

For comparison, the initiatives of the European Union, for example, the Artificial Intelligence Act, distinguish different categories of AI in terms of risk, while providing a more detailed classification and taking into account the areas of transparency, accountability and non-discrimination. This underlines that the European approach is more detailed and focused on the protection of human rights.

It is also important to note that the Digital Code defines a broader concept – artificial intelligence technologies (systems). These include:

"technologies based on the use of artificial intelligence, including speech and visual image recognition, analytical decision-making, complex logical operations, and intelligent decision support".

The draft Digital Code establishes a technological rather than a legal approach to the definition of AI, which indicates the initial stage of the formation of a legal theory in this area in Kazakhstan. The concept of "artificial intelligence" is not associated with subjectivity, legal capacity, or potential responsibility, which distinguishes the Kazakh model from a number of ongoing discussions. For example, a significant step towards institutionalizing legal regulation of artificial intelligence in Kazakhstan was the inclusion in the draft Digital Code of an entire chapter on guarantees for the safe use of AI technologies – Chapter 19. This section is not only It establishes the basic principles, but also forms the basis for a future ethical and legal model for regulating artificial intelligence in national jurisdiction.

An important feature of Kazakhstan's approach is the integration of ethical principles directly into the legislative text. Thus, article 121 enshrines the basic values: priority of human well-being, transparency, explainability, accountability, non-discrimination, security, legality and responsibility. This approach brings the Kazakh model closer to the developments of UNESCO and the European Commission, where issues of AI ethics are considered as an integral part of legal regulation.

Special attention is paid to the transparency of AI systems (Article 125), including the obligation of developers to disclose information about parameters and training samples, as well as the human right to verify the reliability of decisions made with the participation of AI. In combination with article 126 on "explainability", this creates the basis for the formation of the principle of accountability, which is actively being developed in international practice.

No less significant is article 127, which establishes the obligation of human control over AI systems. The principle of "human-in-the-loop" is formulated here not in technological terms, but as a legal norm: the user and the owner are obliged to preserve the possibility of canceling or restricting AI actions, especially if human rights are affected.

The chapter also consistently reveals the mechanisms for protecting personal data and non-discrimination (Articles 128 and 129), which fully correlates with the approaches of the EU and the OECD. It is noteworthy that the draft Digital Code focuses on the quality and representativeness of data, as well as the need to prevent unpredictable decisions based on biased algorithms.

At the level of legal status and responsibility, the legislator retains the classical model, according to which responsibility for harm caused (including death, property losses, etc.) is assigned to the developer, manufacturer, user, or other involved person (art. 135). Although the text does not raise the issue of the legal personality of AI as such, the norms indicate the need for a special approach to determining the source of responsibility in complex cases, which allows the legal system to remain flexible in future adaptation.

Article 134 is also of interest, which confirms that the results of intellectual activity obtained during the creation of AI are protected in accordance with the Civil Code. However, it is not specified in which cases a person can be recognized as the author of the result, and in which cases the use of AI will exclude the presence of a protected object. This problem remains open and requires additional doctrinal and legislative study. Riemer, within the framework of the European Parliament (electronic personhood concept).

The Government of Kazakhstan has approved the Concept of Artificial Intelligence (AI) development for 2024–2029 [15]. The strategic goal is to turn AI into one of the drivers of economic and technological growth. Today, Kazakhstan has potential, but faces a number of challenges: weak digital infrastructure, lack of qualified personnel, insufficient availability and quality of data, poor development of scientific research and gaps in legislation.

According to the Oxford Insights Government Readiness Index for AI, Kazakhstan ranked 72nd out of 193 countries in 2023. The strengths are the availability of digital data and the basic digital infrastructure. Weak – lack of strategy, lack of capacity, weak innovation ecosystem, shortage of AI personnel.

Consideration of the Concept of Artificial Intelligence development in Kazakhstan for 2024–2029 allows us to record an institutional shift in government policy towards AI. For the first time, at the level of a strategic document, AI is recognized not just as a technological tool, but as a key driver of the industrial and digital transformation of the economy. This indicates a shift from a fragmented legal response to a systematic regulatory and political elaboration of the topic.

The concept establishes a strategic vector: the formation of a national AI ecosystem based on the principles of responsibility, transparency, non-discrimination, ethics and inclusivity. Unlike previous approaches, the main focus is shifting to creating conditions for the safe and responsible integration of AI into public administration, healthcare, industry, the agricultural sector and other key sectors.

The results of the analysis allow us to identify the following key provisions (table 1):

Table 1 – Key directions and features of legal regulation of AI in Kazakhstan according to the Concept of 2024–2029

№	Key provisions	Description
1	Formation of a regulatory framework	Kazakhstan is starting to formalize the legal framework for the development of AI: it is planned to adopt a law «On the development of artificial Intelligence», create an industry council, and develop standards and compliance assessment mechanisms. However, the text of the document still lacks a clear definition of the legal personality of AI, which limits the possibilities for building a full-fledged model of legal responsibility.
2	Focus on ethical and legal integration	The Concept emphasizes the importance of ethical standards and cautions against discriminatory, opaque or potentially dangerous decisions. This brings the Kazakh model closer to European practice, where human rights are at the center of the approach to AI regulation.
3	Development of the national language model (KazLLM)	The creation of our own LLM model (KazLLM) in the Kazakh language is an important step not only in technological sovereignty, but also in the legal sense, as it involves the localization of AI regulation, taking into account the cultural and linguistic context.
4	Institutionalization of security	The strategy details the technical, ethical, legal, and social aspects of AI security. This confirms the orientation towards an integrated approach similar to the models of the OECD and UNESCO.
5	Economic justification	The estimates of the impact of AI on GDP growth by sector demonstrate that government policy in the field of AI is based not only on a regulatory framework, but also on pragmatic economic motivation. This reinforces the arguments in favor of the early introduction and regulation of AI technologies.
Note: Compiled by the authors.		

The 2024–2029 concept is an important document laying the foundations for the legal regulation of artificial intelligence in Kazakhstan. Together with the draft Digital Code, it forms the foundation for the further development of a full-fledged legal doctrine in the field of AI, which is especially important in a rapidly changing technological environment.

To assess the prospects and timeliness of this approach, it is advisable to consider international experience.: how the legal and strategic development of artificial intelligence is being carried out in other countries that have already made significant progress in this area. Let's start with an analysis of the American model, one of the most well-developed and pragmatic AI development management systems. The concept of artificial intelligence development in Kazakhstan for 2024–2029 represents an important step towards formalizing the national legal system in this area. The document sets out the government's intentions to create a regulatory framework that includes ethical standards, a certification system for AI products, and a definition of the legal status and responsibilities of participants in the technological ecosystem. However, in comparison with the US legal approach, there is a fundamental difference in the strategy and legal philosophy of regulating artificial intelligence.

The concept of artificial intelligence development in Kazakhstan for 2024–2029 represents an important step towards formalizing the national legal system in this area. The document sets out the government's intentions to create a regulatory framework that includes ethical standards, a certification system for AI products, and a definition of the legal status and responsibilities of participants in the

technological ecosystem. However, in comparison with the US legal approach, there is a fundamental difference in the strategy and legal philosophy of regulating artificial intelligence.

The American model, enshrined in the Order of the President of the United States dated February 11, 2019 "On preserving American leadership in the field of artificial intelligence", is a typical example of flexible, minimally restrictive legal regulation. The United States is consciously abandoning a strict preliminary regulatory framework, betting on stimulating technological breakthroughs and market competition. The main principle underlying the American strategy is "do not interfere": excessive regulation is perceived as a threat to national technological leadership. This means that the US legal system is being created as a response to technological challenges, and not as a pre-built barrier. In practice, this is implemented in the form of industry self-regulation, grant support, the development of technical standards and ethical recommendations, rather than directive legislation.

Kazakhstan, on the contrary, is moving towards the creation of a centralized legal architecture based on state regulation. The Concept separately emphasizes the need to develop a law on the development of AI, the introduction of a conceptual framework, the introduction of the institution of responsibility, as well as the formalization of ethical standards. Special attention is paid to the creation of institutional structures: the AI Industry Council, the Committee for the Development of AI and Innovation. Kazakhstan is trying to build a comprehensive regulatory model focused on ethics, safety, protection of rights and risk reduction, which brings its approach closer to the European regulatory model.

The US legal philosophy is pragmatic and result–oriented: do not create unnecessary barriers until the technology reaches a stage where the risks become tangible. In American practice, the soft law mechanism is actively used: codes of conduct, recommendations, standards of organizations like NIST (National Institute of Standards and Technology). At the same time, coordination is carried out through the National AI Committee, where both government agencies and the private sector are represented. This model allows you to quickly adapt to technological changes and focus on strategic goals: strengthening the economy, defense and social sustainability. Instead of a single law, the United States offers a network of industry-specific and thematic documents, which creates flexibility, but at the same time potentially leads to legal gaps, especially in the area of responsibility and protection of citizens' rights.

In contrast, Kazakhstan seeks to immediately lay down basic legal definitions and mechanisms. This can give stability to the legal system and make it more predictable for market participants, but at the same time creates risks of excessive regulation, especially against the background of the rapid evolution of technology, where the accuracy of formulations may become obsolete faster than new standards are adopted. Also, as of 2024, Kazakhstan still lacks a full-fledged regulatory system regulating key aspects: the status of AI as a subject, the distribution of responsibility between developers and users, the permissibility of autonomous decision-making, etc. These issues have been identified as priorities so far, but have not received legal formalization.

A comparative analysis shows that the United States and Kazakhstan are at different phases of the legal development of artificial intelligence. The United States is a mature, decentralized model with minimal government intervention and a strong private sector. Kazakhstan is an emerging centralized model focused on legal certainty and state control. Each of the approaches reflects the specifics of the political and economic system of the respective country. With the rapid growth of technology, the key success factor will be not only the availability of standards, but also the ability of the system to adapt them quickly. The United States relies on flexibility and innovation, while Kazakhstan relies on structure and predictability. Time and the dynamics of technological risks will show which way will be more effective in the long term.

The legal regulation of artificial intelligence in China reflects an ambitious, centralized, and state-run model that is fundamentally different from both American pragmatism and the emerging approach of Kazakhstan. Since 2017, since the publication by the State Council of the People's Republic of China of the "Next Generation Artificial Intelligence Development Plan", the development of AI has been officially declared a strategic national priority. China is not just developing technology, it is building an integrated ecosystem in which legal regulation, standardization, ethics, human resources and the industrial base are synchronized in a single state course.

When compared with Kazakhstan, the main difference lies in the level of integration of AI into the structure of national policy. In the Chinese model, artificial intelligence is seen as an instrument of geopolitical competition, technological dominance, and economic transformation. The legal framework in China is not autonomous – it is fully embedded in strategic programs such as "Made in China 2025" and the military-civilian merger. In this context, law is not just a means of limiting risks, as in Western countries, but an element of planned engineering of the technological future.

Kazakhstan, on the contrary, is at the stage of creating a basic regulatory structure. The 2024–2029 Concept outlines the tasks of developing a law on the development of AI, defining the conceptual framework, and implementing ethical norms, standards, and certification. However, Kazakhstan's approach is rather "cautious" and declarative: the state only creates conditions for further development and does not claim technological leadership. China is already operating in terms of global dominance, planning to take a leading position in the global AI economy by 2030.

China's legal system is focused on proactive regulation. It provides not only general principles, but also specific measures for the legal support of breakthrough technologies, from autonomous driving to service robotics. This is a rare case when legislative and ethical components accompany technological planning for growth. At the same time, it is worth noting that the Chinese model focuses very little on the protection of human rights. The use of technologies such as ubiquitous facial recognition demonstrates that in China, legal norms serve primarily the interests of the state, not the individual. In this sense, the Kazakh Concept, despite its rudimentary stage of development, is closer in spirit to the European ethical and legal model: it declares the principles of transparency, non-discrimination and the priority of human rights.

An important element of the legal architecture of the PRC is the active role of academic and private structures in the development of norms. The 2019 Beijing Principles of Artificial Intelligence were formed not only by government agencies, but also by leading universities and companies (Baidu, Alibaba, etc.). This demonstrates the pragmatic union of government, science and business. Kazakhstan also declares the involvement of the private sector and the expert community (creation of an industry council on AI), but so far at the level of future initiatives.

The legal regulation of artificial intelligence in the European Union demonstrates the most balanced and ethically oriented approach among the leading global actors. Unlike the United States, where the priority is to protect technological leadership, and China, where legislation supports a centralized technological breakthrough, the European Union is building an AI legal architecture around human rights, fairness, and transparency. This approach is especially valuable in an era when technological development calls into question the fundamental principles of democracy, personal autonomy, and legal certainty.

Since 2017, the EU has been consistently shaping an AI regulatory strategy, starting with exploring the legal aspects of robotics and ending with creating a comprehensive regulatory ecosystem. Special attention is paid to the harmonization of the legal regimes of the participating countries, which is logical in the context of supranational jurisdiction. Thus, even when national norms are being formed, AI regulation is initially laid down within the framework of pan–European standards - this guarantees legal compatibility and a single digital market.

The main feature of the European model is its rootedness in ethical principles. The principles outlined in the HLEG (Ethics Guidelines for Trustworthy AI) documents include human control, non-discrimination, confidentiality, transparency, and sustainable development. This puts Europe in the position of a moral leader in AI discourse. For Kazakhstan, whose Concept of 2024–2029 also declares the values of responsibility, ethics and human rights, the European model is a relevant guideline. However, there is still a significant gap between the declaration and implementation: the EU already has many regulatory and policy documents in force, while Kazakhstan is just planning to create a fundamental law.

It is interesting to note that the EU, despite the slow approval, has developed the concept of "electronic identity" for AI systems, suggesting the possibility of legal liability of machines. Although this proposal has not yet become the norm, it demonstrates a willingness to transform traditional legal categories. In Kazakhstan, this level of discussion has not yet been reached: the conceptual framework is only being formed, and the legal personality of AI has not been determined.

The European model is based on preventive and "soft" regulation: principles, recommendations and strategies outstrip strict legal measures. This contrasts with the Chinese model of "proactive directive

regulation" and the American attitude towards minimal interference in the business environment. Kazakhstan can learn a lesson in favor of a flexible, step–by-step model - with a strong ethical and human rights component, but without excessive bureaucratization, with a focus on trust in AI and legal certainty for developers. The legal regulation of AI in the EU can be described as a desire to build a legitimate, sustainable and inclusive technological environment. The Kazakh Concept is largely consonant with this model, especially in terms of values and emphasis on security, but requires much more detailed study, both in terms of specific legal mechanisms and in the architecture of regulatory documents. European experience shows that legal regulation of AI should begin with ethics, but end with effective, flexible and adaptive law enforcement practices.

The Kazakh model of legal regulation of artificial intelligence, outlined in the Concept of 2024–2029, is in its infancy and demonstrates ambitions for a systematic approach. At the same time, in comparison with the developed legal systems – the USA, the European Union and China – there are both substantive differences and potential growth points. This requires interpretation in the context of existing scientific views and practices. Comparing with the American approach, we see that the United States relies on minimal government intervention and the priority of market development, as Villasenor (2020) wrote in particular, emphasizing the importance of "smart regulation" to support technological leadership. The US President's 2019 executive order focuses on freedom of innovation and the protection of national technological superiority. The Kazakh model, on the contrary, involves the gradual introduction of legislative and ethical frameworks, which brings it closer to the European approach.

From this point of view, the work of researchers such as Floridi and Cowls (2019), who have developed ethical principles of "reliable AI" that are widely recognized in the EU, is of interest. They formed the basis of the HLEG Guidelines and the European Commission's White Paper on AI. The Kazakh Concept declares similar values – non-discrimination, transparency, protection of rights and freedoms, but there are no clear mechanisms for their implementation. We believe that at this stage it is important for Kazakhstan not only to adopt these principles, but also to provide institutional guarantees for their observance.

In contrast, the Chinese model is dominated by state directionalism. As noted by Ding (2018), in China, AI is considered as a tool of technological sovereignty and public administration. Despite the existence of ethical declarations such as the Beijing Principles, in reality Chinese practice is characterized by limited attention to privacy and individual rights issues. Kazakhstan takes an intermediate position in this regard, declaring its orientation towards international principles, but retaining elements of centralized control and planning, as can be seen from the creation of an AI Committee and an industry Council.

At the same time, we note that, unlike the USA and the EU, Kazakhstan still lacks a legal definition of the legal personality of AI. Researchers such as Solaiman (2017) and Calo (2015) emphasize that the legal status of autonomous AI systems is a key element for building a model of responsibility. In the Kazakh Concept, this aspect is omitted, which limits the potential for implementing AI in complex areas (for example, autonomous management, healthcare, finance).

We also notice that the issue of distributed responsibility and the need for transparency of algorithms is actively discussed in foreign literature (for example, Bryson et al., 2020). In Kazakh practice, these topics have only been outlined so far. Although the need for labeling AI products and developing standards has been stated, there is no regulatory implementation of these mechanisms. With this in mind, we are convinced that further development of legal regulation should go in the direction of legal certainty and consistency.

Summarizing the above, we draw the following conclusions:

The Kazakh model of AI regulation reflects a hybrid approach combining elements of European ethicocentrism, Chinese planning, and American innovation orientation, but so far mainly at the declarative level.

Unlike foreign systems, Kazakhstan does not yet have:

- a legal definition of the subjectivity of AI;
- mechanisms of legal responsibility for the actions of autonomous systems;
- institutionalized ethical procedures and risk assessment;
- sufficient conditions for open access to data and the development of local models.

We support the idea of step-by-step implementation of regulation, but we insist on the need for:

- accelerated adoption of the law "On the development of AI";
- a clear division of responsibility between the developer, the owner and the user of AI;
- development of mechanisms for ethical audit and certification of AI products.

Comparison with international practice shows that Kazakhstan can use its position as an advantage by adapting the best solutions without having to break established systems.

Conclusion

The legal regulation of artificial intelligence in Kazakhstan is still in the conceptual design stage. Despite important strategic statements, regulatory gaps, especially regarding the legal status of AI and the allocation of responsibilities, have not yet been eliminated. The key weakness lies not in the lack of ambition, but in the lack of specificity and elaboration of tools for achieving the stated goals.

We believe that further progress is possible only if we move from the declarative stage to the normative implementation, where the priority will be the development of flexible but legally significant mechanisms. Kazakhstan needs to:

- clearly define the legal status of AI, even if it is an intermediate category, such as a functional entity or an electronic person;
- introduce a tiered regulatory model, as is done in the EU, where the approach to legal control depends on the degree of autonomy and risk;
- create an ethical audit and certification system for AI products based on both technical and legal criteria;
- consider the distribution of responsibility between the participants of the AI ecosystem - from developers and owners to end users;
- to consolidate procedures for transparency and explainability of AI decisions at the level of law, and not just as a recommendation;
- provide conditions for free access to training samples on public platforms, while complying with personal data protection standards.

It is also important to provide mechanisms for rapid adaptation of legislation to changing technologies. In the context of digital transformation, waiting 5–7 years to adjust legal norms means falling behind forever. Therefore, we suggest using the «regulatory sandbox» model to test legal decisions in real time.

Kazakhstan will have to not only catch up with global trends, but also build its own model – pragmatic, flexible and ethically sustainable. This is possible only if the government, the scientific community and business present a united front. We are convinced that the legal maturity of AI in Kazakhstan is not only a matter of legal technique, but also an indicator of the maturity of the country's digital policy as a whole.

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ЖАСАНДЫ ИНТЕЛЛЕКТТІ ҚҰҚЫҚТЫҚ РЕТТЕУ

Аңдатпа

Мақала жедел цифрлық даму контекстінде жасанды интеллекттің құқықтық табиғаты мен реттелуін талдауға арналған. Мақалада Қазақстандағы, АҚШ-тағы, Еуропалық Одақтағы және Қытайдағы жасанды интеллектті құқықтық реттеу тәсілдері салыстырылады, олардың түбегейлі айырмашылықтары мен қиылысу нүктелері анықталады. Қазақстан Республикасының цифрлық кодексінің жобасына және жасанды интеллектті дамытудың 2024–2029 жылдарға арналған тұжырымдамасына ерекше назар аударылады, бұл этикалық нормаларды, техникалық стандарттар мен құқықтық жауапкершілік тетіктерін біріктіретін тұтас құқықтық модель құру әрекетін көрсетеді. Мақалада ұлттық стратегияларда, нормативтік актілерде және этикалық декларацияларда көрсетілген реттеу философиясындағы айырмашылықтар ашылады. Жасанды интеллект жүйелерінің техникалық сипаттамаларын да, олардың дербестігі мен негізгі құқықтарға әсеріне байланысты тәуекелдерді де ескеретін икемді, бейімделгіш және көп деңгейлі құқықтық реттеу қажеттілігі туралы қорытынды жасалады. Зерттеу нәтижелері декларативті нормалардан АИ құқықтық мәртебесін, алгоритмдерді сертификаттауды, этикалық аудитті, шешімдердің ашықтығын және жауапкершілікті бөлуді қоса алғанда, операциялық механизмдерге көшудің маңыздылығын көрсетеді.

Тірек сөздер: жасанды интеллект, құқықтық реттеу, құқықтық субъектілік, цифрлық кодекс, этика, АИ стратегиясы, нормативтік-құқықтық база.

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ПРАВОВОЕ РЕГУЛИРОВАНИЕ ИСКУССТВЕННОГО ИНТЕЛЛЕКТА

Аннотация

Статья посвящена анализу правовой природы и регулирования искусственного интеллекта в контексте стремительного цифрового развития. В статье сравниваются подходы к правовому регулированию ИИ в Ка-

захстане, США, Европейском союзе и Китае, выявляются их принципиальные различия и точки пересечения. Особое внимание уделяется проекту Цифрового кодекса Республики Казахстан и Концепции развития искусственного интеллекта на 2024–2029 гг., которые отражают попытку построения целостной правовой модели, сочетающей этические нормы, технические стандарты и механизмы юридической ответственности. В статье раскрываются различия в философии регулирования, отраженные в национальных стратегиях, нормативных актах и этических декларациях. Делается вывод о необходимости гибкого, адаптивного и многоуровневого правового регулирования, которое может учитывать как технические характеристики систем искусственного интеллекта, так и риски, связанные с их автономией и воздействием на основные права. Результаты исследования указывают на важность перехода от декларативных норм к оперативным механизмам, включая правовой статус ИИ, сертификацию алгоритмов, этический аудит, прозрачность решений и распределение ответственности.

Ключевые слова: искусственный интеллект, правовое регулирование, правосубъектность, цифровой кодекс, этика, стратегия ИИ, нормативно-правовая база.

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