



PUBLIC PERCEPTION OF LEGAL REGULATION OF ARTIFICIAL INTELLIGENCE

B.N. Tokhtakhunov ^{*1} , **A.B. Montaev** ² , **Zh.A. Altaev** ³ , **Sh. Eraliev** ⁴ , **M.A. Akmadi** ⁵ 

^{1,3} *al-Farabi Kazakh National University, Almaty, Kazakhstan*

² *M. Auezov South Kazakhstan University, Shymkent, Kazakhstan*

⁴ *Lund University, Lund, Sweden*

⁵ *Kazakh National Women's Teacher Training University, Almaty, Kazakhstan*

*E-mail: ¹tokhtakhounovbakhtiyar@gmail.com, ²elim_menim@mail.ru
³altaev.kaznu@gmail.com, ⁴sherzod.eraliev@soclaw.lu.se,
⁵akmadi.moldir@gmail.com*

Abstract. The growing integration of artificial intelligence (AI) into professional practice, public administration, and everyday decision-making raises important questions about its legal regulation and social implications. This study examines the social dimensions of AI regulation in Kazakhstan, focusing on how support for government oversight relates to privacy concerns, perceptions of citizens' rights, legal awareness, trust in AI, and practical experience with these technologies. Its significance lies in examining regulation through public attitudes, extending discussion beyond legal and institutional frameworks to an understudied national context.

The study draws on a sociological survey conducted in Kazakh and Russian among residents of Kazakhstan's megacities. Descriptive statistics, correlation analysis, and chi-square tests were used to examine relationships between regulatory preferences, attitudes toward AI, practical experience, and selected sociodemographic characteristics.

The findings show that support for government regulation is associated with concerns about privacy and the protection of citizens' rights. Respondents who perceived greater risks to individual rights were more likely to favor government oversight, whereas those with greater practical experience of AI preferred less government intervention. Trust in AI did not preclude support for regulation: respondents expressing greater trust also recognized the need for legal oversight. Thus, trust in technology and support for its regulation can coexist.

The study concludes that public perceptions of AI regulation reflect an interplay of perceived risks, trust, legal awareness, and practical experience rather than a simple division between technological acceptance and rejection. It provides empirical evidence from Kazakhstan for sociological debates on AI governance and demonstrates the relevance of public attitudes to regulatory discussions. The findings also highlight the

Received: 05.07.2026; Revised: 20.09.2026; Approved: 28.09.2026; Available online: 30.09.2026

*the corresponding author

need for further research into how citizens interpret AI, assess its implications for their rights, and define the appropriate scope of government oversight.

Keywords: artificial intelligence, public perception, legal regulation, ethics, digital governance, Kazakhstan.

Introduction

In today's digital world, advances in artificial intelligence (AI) are reshaping legal, economic, and social systems around the world. AI influences court decision-making and the automation of government services, raising complex legal and ethical issues that require careful analysis and regulatory enactment. Although a substantial body of research has examined AI governance in the European Union, China, and the United States (Lima, 2020), comparatively less attention has been paid to AI governance and its public perception in emerging and transitional contexts such as Kazakhstan. Moreover, much of the existing literature approaches AI regulation from legal, technological, and policy perspectives, while the public-perception dimension of AI governance remains comparatively underexplored (Lima, 2020: 10; Mays, 2025). This study examines perceptions of the legal regulation of artificial intelligence among residents of Astana, Almaty, and Shymkent, three major urban centres in Kazakhstan. Kazakhstan has pursued an extensive digital transformation agenda through national initiatives such as the Digital Kazakhstan programme and the subsequent development of institutional structures responsible for artificial intelligence and digital development. However, considerably less is known about how citizens perceive emerging AI regulation, how aware they are of relevant regulatory developments, and which factors are associated with their support for state regulation. Examining these questions is particularly relevant in Kazakhstan, where the development of AI governance is occurring alongside broader processes of digital transformation and institutional modernization.

The object of the study is the adult population of Astana, Almaty, and Shymkent.

The subject of the research is the relationship between ethical attitudes, self-reported awareness of AI regulation, trust in AI technologies, practical AI use, and support for state regulation of AI.

The aim of the research is to examine the social factors associated with support for state regulation of artificial intelligence among residents of Astana, Almaty, and Shymkent. Specifically, the study examines the relationships between support for state regulation and concerns about privacy and citizens' rights, self-reported awareness of AI regulation, trust in AI technologies, practical AI use, and ethical attitudes toward AI. It also assesses whether perceptions of Kazakhstan's readiness to introduce effective legal mechanisms for AI regulation are associated with support for state regulation.

The hypothesis of the study is that support for state regulation of artificial intelligence among respondents in Astana, Almaty, and Shymkent is associated with ethical attitudes, self-reported awareness of AI regulation, trust in AI technologies, and practical AI use, with greater concern about potential violations of privacy and citizens' rights expected to be associated with stronger support for state regulation.

The research problem. In Kazakhstan, the expanding use of AI in public administration, education, business, and everyday life has increased the importance of developing regulatory mechanisms that address privacy, accountability, citizens' rights, and the potential risks associated with AI applications. These regulatory developments are taking place alongside rapid digital transformation, making public perceptions of AI governance an increasingly relevant area of inquiry. The social legitimacy of AI regulation may depend not only on the formal content of legal rules but also on how citizens perceive AI-related risks, evaluate AI technologies, and understand the emerging regulatory environment. Regulatory attitudes may therefore vary according to individuals' practical experience with AI, self-reported awareness of AI regulation, trust in AI technologies, ethical attitudes, and concerns about privacy and citizens' rights. The research problem concerns how these factors are associated with support for state regulation within the context of Kazakhstan's developing AI governance framework.

The research gap and contribution of the study. Despite the rapid expansion of research on AI governance, the social foundations of public support for AI regulation remain less extensively examined than its legal, technological, and institutional dimensions. Existing legal and policy research has primarily addressed normative models, institutional accountability, risk classification, data protection, and comparative regulatory frameworks (De Almeida, 2021; Hacker, 2024; Bissaliyev, 2025; Brown, 2025; Kalmyrza, 2025). Social research has increasingly examined public perceptions of AI, including perceived risks, trust, acceptance, and attitudes toward its societal consequences (Lima,

2020: 21; Kogabayev, 2024; Kurmangali, 2024). However, less attention has been paid to how these dimensions interact in shaping public support for AI regulation, particularly outside the extensively studied North American, European, and East Asian contexts. This gap is particularly evident in Kazakhstan. Existing studies have examined the country's digital transformation, emerging AI legislation, smart governance initiatives, and specific applications of artificial intelligence (Orynassar, 2024; Alimkhanov, 2024; Kogabayev, 2024; Kalmyrza, 2025; Bissaliyev, 2025; Mukhamedkazy, 2025), but comparatively little empirical evidence is available on how citizens perceive AI regulation and which factors are associated with their support for state regulation. Consequently, the relationships between ethical attitudes, self-reported awareness of AI regulation, trust in AI technologies, practical AI use, perceived risks to privacy and citizens' rights, and support for state regulation remain insufficiently examined in the Kazakhstani context. This study addresses this gap by examining these dimensions within a single empirical framework based on survey data from adult residents of Astana, Almaty, and Shymkent. Rather than treating support for regulation as a simple expression of either technological acceptance or rejection, the study examines how regulatory attitudes are associated with perceived risks, trust in AI technologies, self-reported regulatory awareness, ethical attitudes, and practical AI use. In doing so, the study complements predominantly legal and technological approaches to AI governance with a sociological perspective centred on public perceptions of regulation. It also contributes empirical evidence from a Central Asian and post-Soviet urban context that remains comparatively underrepresented in the international literature on public attitudes toward AI governance.

Literature review

Public perceptions of artificial intelligence and support for regulation. Public attitudes toward AI cannot be characterized simply in terms of enthusiasm or rejection. Research shows that individuals may simultaneously perceive AI as useful and innovative while expressing concerns about its social consequences, lack of transparency, and potential misuse. Kelley et al. (2021), using survey data from eight countries, showed that public perceptions of AI encompass multiple dimensions, including perceived usefulness, excitement, anxiety, and expectations of future change. These findings demonstrate that positive and negative evaluations of AI can coexist, producing a multidimensional pattern of public attitudes. Brown et al. (2025) further showed that perceptions of AI vary according to the context of application and the significance of decisions made or supported by AI systems. Individuals may be more accepting of algorithmic assistance in relatively low-risk contexts while expressing greater concern when AI is involved in decisions affecting rights, employment, health, or other consequential areas of life. Sartori and Bocca (2023) explain this complexity through the broader social and cultural contexts in which perceptions of AI develop. Public attitudes toward AI are shaped not only by direct experience with technology but also by cultural expectations, previous experiences with institutions, and perceptions of social change. This perspective is important because it treats public opinion as part of the social environment in which emerging technologies acquire legitimacy rather than simply as a reaction to technological innovation. O'Shaughnessy et al. (2023) similarly found that cultural values, risk perceptions, egalitarian beliefs, and technological skepticism are associated with attitudes toward AI use and governance. Perceived benefits may be more directly related to openness toward AI than to preferences regarding its regulation (O'Shaughnessy et al., 2023: 163; Papagiannidis, 2025). These findings indicate that acceptance of AI technologies and support for their regulation should be treated as related but conceptually distinct dimensions of public opinion. Moreover, variation across societies emphasizes the importance of cultural and institutional context in understanding public attitudes toward AI governance (O'Shaughnessy et al., 2023: 169; Mays, 2025).

Ethical concerns and regulatory awareness as determinants of regulatory support. Ethical concerns are central to public perceptions of AI because AI systems may affect privacy, equality, autonomy, and access to public and private resources. The literature on responsible AI emphasizes principles such as fairness, transparency, accountability, explainability, human oversight, and protection from harm. De Almeida et al. (2021) translated these principles into a governance framework linking ethical assessment with stakeholder participation and institutional accountability. Their approach moves beyond abstract ethical principles by proposing mechanisms through which such principles can be incorporated into organizational and regulatory practices. Smuha (2021) provides a broader international perspective, showing that AI regulation has become an area in which different jurisdictions seek to balance innovation, security, trustworthiness, and the protection of fundamental rights. Regulation therefore

functions not only as a mechanism for addressing technological risks but also as an instrument through which states define the conditions under which AI development and deployment are considered socially acceptable. Hacker (2024) extends the concept of responsible AI regulation by arguing that assessments of AI should consider environmental sustainability alongside individual rights and market effects. Research on responsible AI governance likewise emphasizes that ethical principles require practical mechanisms of implementation, including monitoring, accountability systems, impact assessments, auditing procedures, and clearly defined institutional responsibilities (Kalmyrza, 2025: 248). From the perspective of public attitudes, concerns about privacy, discrimination, accountability, and other potential harms may be associated with stronger support for regulatory intervention when individuals perceive existing safeguards as insufficient (Zhang, 2020; Wilczek, 2025). Perceived risk is therefore particularly relevant because it may connect general concerns about the social consequences of AI with expectations concerning regulatory oversight. An additional dimension concerns public awareness of AI-related regulation. Awareness of existing or emerging regulatory rules may influence how individuals understand the responsibilities of governments, organizations, and technology developers. However, self-reported awareness of regulation should be distinguished from objective legal knowledge. Individuals who report having heard about AI-related laws or rules may differ in their regulatory attitudes, but such awareness does not necessarily indicate detailed knowledge of the content or effectiveness of those regulations. This distinction is particularly important when examining public support for AI governance because awareness of regulatory developments and confidence in their implementation represent conceptually different dimensions.

Trust in AI, experience of use, and regulatory preferences. Trust represents another important but complex dimension of public attitudes toward artificial intelligence. Existing research distinguishes between trust in the technical performance of AI systems, trust in organizations that deploy AI, and trust in institutions responsible for governing its use. Zhang and Dafoe (2020) found that citizens may perceive AI governance challenges as significant while simultaneously expressing limited confidence in governments, companies, or other organizations to address those challenges responsibly. Their study therefore highlights the importance of distinguishing concern about AI-related problems from confidence in the actors responsible for addressing them. More recent research similarly emphasizes that trust in AI is context-dependent rather than uniform (Wang, 2025). It may vary according to the application, the potential consequences for users, and the allocation of responsibility when an AI-supported decision produces an undesirable outcome. Research on AI in the public sector further suggests that trust may depend on the type of task and on how responsibilities are distributed between human decision-makers and automated systems. In this context, citizens may evaluate not only whether an AI system performs effectively but also whether its use is accompanied by appropriate accountability and human oversight (Brauner, 2023: 5). Practical experience with AI adds another dimension to the relationship between trust and regulatory attitudes. Greater familiarity with AI may reduce uncertainty associated with an unfamiliar technology and may enable users to develop more differentiated perceptions of its capabilities and limitations (Attard-Frost et al., 2024). However, greater experience does not necessarily translate into uniformly higher trust or lower concern. Direct interaction with AI systems may expose users to both their practical benefits and their limitations. Consequently, AI use, trust in AI, perceived risks, and support for regulation should be examined as distinct but potentially related dimensions rather than treated as indicators of a single general attitude toward technology.

AI governance in Kazakhstan: institutional development and public legitimacy. Kazakhstan's AI governance framework has undergone substantial legal and institutional development in recent years. A major step was the adoption of the Law of the Republic of Kazakhstan "On Artificial Intelligence" No. 230-VIII of 17 November 2025, which established a dedicated legal framework for the development, deployment, and regulation of AI systems. The Law defines key principles of AI governance, including legality, fairness and equality, transparency and explainability, accountability and controllability, protection of human well-being and freedom of decision-making, data protection and privacy, and safety and security. It also introduces a risk-based classification of AI systems and establishes specific requirements for high-risk systems, while prohibiting certain AI practices capable of manipulating individuals or restricting their ability to make informed decisions (Law of the Republic of Kazakhstan No. 230-VIII, 2025). The adoption of the AI Law was accompanied by the Law of the Republic of Kazakhstan No. 231-VIII of 17 November 2025 "On Amendments and Additions to Certain Legislative Acts of the Republic of Kazakhstan on Artificial Intelligence and Digitalization," which incorporated AI-related provisions into the broader national legal framework, including

requirements concerning AI-generated media content (Law of the Republic of Kazakhstan No. 231-VIII, 2025). Implementation of these reforms continued in 2026 through a package of subordinate regulatory measures. In January 2026, the Prime Minister approved a list of implementing legal acts covering, among other areas, criteria for identifying AI systems, documentation requirements, trusted high-risk AI systems, the National Artificial Intelligence Platform, data governance, and information security (Order of the Prime Minister of the Republic of Kazakhstan No. 2-r, 2026). Together, these developments indicate a transition from a predominantly strategic approach to digitalization toward a more specific legal framework in which AI systems are subject to principles of risk classification, transparency, accountability, data protection, and state oversight. Research on AI in Kazakhstan has developed alongside this broader process of digital transformation and regulatory institutionalization. Existing studies have primarily examined national digital strategies, institutional modernization, smart governance, technological adoption, and the gradual development of the AI regulatory framework (Kogabayev, 2024; Kalmyrza, 2025). Kurmangali et al. (2024) situate Kazakhstan within the broader Central Asian trend toward state-supported digital governance and technological development, demonstrating how AI policy in the region is connected with national modernization, economic competitiveness, and administrative reform. Kogabayev and Banerjee (2024) examine smart governance initiatives and identify both the potential of digital technologies and continuing challenges related to institutional coordination, infrastructure, citizen participation, and implementation. Studies of digitalization in Kazakhstan have also examined how technological transformation affects interactions between citizens and the state, including access to public services and expectations concerning government responsiveness (Orynbasar, 2024; Wang, 2025). Other studies have addressed sector-specific applications of AI and related legal and institutional challenges in areas such as education, intellectual property, and public services (Orynbasar, 2024; Kalmyrza, 2025).

However, approaches to AI focus primarily on the perspectives of legal adaptation, organizational efficiency, technological readiness, or institutional development rather than on citizens' perceptions of regulation (Papagiannidis, 2025). Existing legal analyses have also identified challenges concerning risk classification, accountability, procedural safeguards, transparency, and oversight within Kazakhstan's developing AI governance framework. The adoption of dedicated AI legislation makes the public-perception dimension particularly relevant because the formal development of regulatory mechanisms does not itself establish how citizens understand, evaluate, or support them. The literature demonstrates that public attitudes toward AI may combine expectations of social and technological benefits with concerns about privacy, discrimination, autonomy, transparency, and accountability. Research on responsible AI has identified ethical principles and governance mechanisms intended to translate commitments to fairness, transparency, and accountability into practice. Studies of trust further demonstrate that trust in AI technologies, trust in organizations using AI, and trust in public institutions responsible for governance are conceptually distinct. Comparative research also indicates that attitudes toward AI and its regulation vary across cultural and institutional contexts, limiting the extent to which findings from one society can be directly generalized to another. Much of the empirical evidence on public perceptions of AI governance has been generated in North America, Western Europe, and several technologically advanced Asian countries, while Central Asia remains comparatively underrepresented. Research on Kazakhstan has concentrated primarily on the legal, institutional, and technological dimensions of digital transformation and AI governance, with limited sociological evidence on how citizens perceive AI regulation and its necessity. Previous research has often examined ethical concerns, regulatory awareness, trust in AI, perceived risks, and practical experience with AI separately rather than considering their relationships within a single empirical framework. Consequently, there remains limited evidence on how these dimensions are associated with support for state regulation of AI in the Kazakhstani context. The present study addresses these theoretical and empirical gaps by examining the relationships between concerns about privacy and citizens' rights, ethical attitudes, self-reported awareness of AI regulation, AI use, trust in AI technologies, perceived regulatory readiness, and support for state regulation among adult residents of Astana, Almaty, and Shymkent.

Research materials and methods

This study employed a cross-sectional quantitative survey design to examine public perceptions of the legal regulation of artificial intelligence. Data were collected between May and October 2025 among adult residents of Astana, Almaty, and Shymkent, the three largest cities of Kazakhstan. These cities were selected because they represent the country's major administrative, economic, educational, and demographic centres and provide an appropriate

urban context for examining public engagement with rapidly developing digital technologies. The geographical scope of the study was deliberately limited to these three cities; consequently, the findings are interpreted as reflecting the perceptions of the surveyed urban population rather than those of the population of Kazakhstan as a whole. Eligible participants were residents of one of the three selected cities and were aged 18 years or older. A quota sampling strategy was applied to achieve an appropriate distribution of respondents across the study sites. Quotas were established with reference to the adult population of each city and gender. In addition to the principal variables of interest, the questionnaire collected socio-demographic information on respondents' age, gender, educational attainment, employment status, and self-reported financial situation. A total of 1,065 questionnaires were initially collected. All questionnaires subsequently underwent a data-quality screening procedure before statistical analysis. Two principal exclusion criteria were applied. First, questionnaires with incomplete responses to the variables required for the main analysis were excluded. Second, questionnaires displaying clear evidence of non-differentiated response patterns were removed. These cases consisted of respondents who repeatedly selected the same response option across questionnaire items irrespective of item content, indicating insufficient engagement with the questionnaire. Following the application of these quality-control criteria, 338 questionnaires were excluded, resulting in a final analytical sample of 727 respondents. Only these valid cases were included in the descriptive and inferential statistical analyses. The socio-demographic characteristics of the final sample are presented in Table 1.

Table 1 . Socio-demographic characteristics of respondents, N = 727

Socio-demographic characteristics	Astana	Almaty	Shymkent
Gender			
Male	35.1	46.5	18.4
Female	12.4	53.0	34.6
Age			
18–25	12.8	57.1	30.1
25–34	17.1	56.5	26.5
35–44	16.8	54.2	28.9
45–54	20.0	43.6	36.4
55–64	2.0	53.1	44.9
65+	27.3	13.6	59.1
Education			
Incomplete secondary education	14.3	0	85.7
Secondary vocational education	7.3	61.0	31.7
Higher education (Bachelor's degree)	15.5	49.9	34.5
Postgraduate education (Master's degree)	20.6	65.7	13.7
Doctor of Science / Candidate of Science / PhD	18.4	53.1	28.6
Financial status			
Low income	14.8	13.2	20.9
Middle income	67.5	54.7	62.7
High income	17.7	32.1	16.4

Note: Compiled by the authors based on survey data

Research instrument and operationalization of variables. Data were collected using a structured questionnaire informed by previously tested instruments examining public perceptions of artificial intelligence, AI-related regulation, and trust in AI technologies (Lima et al., 2020; Mays et al., 2025). The questionnaire was adapted to the legal, institutional, linguistic, and socio-cultural context of Kazakhstan. The analysis focused on six principal dimensions: support for state regulation of AI; AI use and practical experience; trust in AI technologies; concern about privacy

and citizens' rights; self-reported awareness of AI-related laws and regulations in Kazakhstan; and ethical attitudes toward the use of AI. The principal variables included in the correlation analysis were operationalized as individual questionnaire items rather than as multi-item psychometric scales. Consequently, internal-consistency measures such as Cronbach's alpha were not applicable to these indicators. Support for state regulation was assessed through respondents' perceptions of whether state regulation of AI is necessary. AI use captured respondents' practical engagement with AI technologies. Trust referred specifically to trust in AI technologies in everyday life and should therefore be distinguished from institutional or governmental trust, which was not directly measured in the survey. Concern about privacy and citizens' rights reflected respondents' perceived risks associated with AI use. Regulatory awareness was assessed through respondents' self-reported awareness of laws or rules regulating the use of AI in Kazakhstan; accordingly, this indicator is interpreted as awareness of AI regulation rather than as an objective measure of legal knowledge. Ethical attitudes were assessed through respondents' evaluation of the acceptability of using AI in professional contexts.

The questionnaire primarily used ordered response categories, including five-point Likert-type items where applicable. Five-point items ranged from 1, indicating the lowest level of agreement or endorsement, to 5, indicating the highest level. Other questions, including AI use and awareness of AI-related regulation, were coded according to their respective response categories. The direction of coding was taken into account when interpreting the statistical associations. The questionnaire was available in both Kazakh and Russian. Prior to the main data collection, a pilot study involving 42 respondents was conducted to assess clarity of wording, linguistic equivalence between the two language versions, cultural appropriateness, and questionnaire completion time. Based on the pilot feedback, several items were revised to improve clarity and comprehension before the main fieldwork commenced.

Data collection was conducted between May and October 2025 using a mixed-mode survey procedure combining paper-based and online questionnaires. In Almaty, data were collected offline using paper questionnaires. In Astana and Shymkent, the survey was administered online. In all three cities, recruitment followed the predetermined quota structure used for the study. Participation was voluntary. Before completing the questionnaire, respondents received information explaining the purpose of the study, the voluntary nature of participation, procedures for maintaining confidentiality and anonymity, and their right to discontinue participation at any stage without adverse consequences. Informed consent was obtained from all respondents before participation. No personally identifiable information was collected. The use of different modes of data collection across the study sites was taken into consideration when interpreting between-city differences. Because survey mode and city were not independently varied within each location, observed differences between cities cannot be attributed solely to geographical or contextual factors and may also partly reflect differences associated with the mode of questionnaire administration.

Following data-quality screening, the final dataset of 727 valid cases was coded and analysed using IBM SPSS Statistics. The statistical analysis consisted of descriptive and inferential procedures. First, descriptive statistics were used to characterize the sample and summarize the distribution of responses. Frequencies and percentages were calculated for categorical variables, while appropriate measures of central tendency and dispersion were used to summarize ordered variables where relevant. Second, associations among the principal study variables were examined using Spearman's rank-order correlation coefficient (ρ). Spearman's correlation was selected because the principal analytical variables were measured using ordinal or categorical response formats and therefore did not require the assumptions of interval-level measurement and normality associated with Pearson's product-moment correlation. The analysis examined associations among support for state regulation of AI, AI use, privacy and rights concerns, trust in AI technologies, self-reported awareness of AI regulation, perceptions of Kazakhstan's readiness to establish effective legal mechanisms for AI, and ethical attitudes toward AI use. Statistical significance was evaluated using two-tailed tests, with $p < .05$ considered statistically significant and $p < .01$ indicating stronger statistical evidence. Chi-square (χ^2) tests of independence were used to examine associations between categorical variables, including differences in AI-related perceptions across socio-demographic groups and cities. Where chi-square tests were reported, Cramer's V was used as a measure of effect size to distinguish the statistical significance of an association from its substantive magnitude. Because the study employed a cross-sectional design, all identified relationships are interpreted as statistical associations and not as evidence of causal relationships.

Ethical considerations. The study protocol was reviewed and approved by the ethics committee of the al-Farabi Kazakh National University (No IRB-A1054, dated 06 February 2025). The study conformed to internationally

recognized ethical standards for human-based social science research. All respondents provided informed consent prior to participation; participation was voluntary, anonymity was guaranteed, and all data collected were stored and analyzed in anonymous form.

Limitations of the study. This study focuses only on three major cities of Kazakhstan: Astana, Almaty, and Shymkent. Megacities' populations are more likely to have access to AI and digital infrastructure, as well as participate more actively in regulatory discussions. By contrast, the views of rural residents or those in areas with poor Internet access can vary widely. Therefore, the results may be more reflective of urban sentiment and cannot be fully applied to the entire country.

Results and discussion The results presented in Figure 1 show statistically significant relationships between sociodemographic characteristics and several aspects of AI perception. The observed associations were predominantly weak, suggesting that sociodemographic characteristics were only modestly associated with respondents' perceptions of AI



Figure 1. Correlation matrix between socio-demographic characteristics and public perceptions of artificial intelligence.

Note: Spearman's rank-order correlation coefficients (ρ) were calculated using IBM SPSS Statistics, and the visualization was produced in R using the ggplot2 package.

As shown in Figure 1, the strongest association among the examined sociodemographic characteristics was observed between educational attainment and support for state regulation of AI ($\rho = -.286$, $p < .01$). The negative association indicates that higher educational attainment was associated with lower support for the perceived necessity of state regulation of AI. Professional experience showed a weak positive association with support for state regulation ($\rho = .106$, $p < .05$). A weak but statistically significant association was also observed for personal income ($\rho = .115$, $p < .01$). The associations between sociodemographic characteristics and perceptions of AI were small in magnitude and should therefore be interpreted cautiously. Differences were also observed across the three surveyed cities in respondents' concerns about potential violations of privacy and citizens' rights associated with AI. In Astana, 36.2% of respondents reported being very concerned and a further 28.4% reported being concerned, resulting in a combined proportion of 64.6%. The corresponding proportions reporting concern were 40.7% in Almaty and 42.1% in Shymkent. Thus, although concerns about AI-related privacy and citizens' rights were evident across all three cities, they were particularly pronounced among respondents in Astana. The association between city and level of privacy concern was statistically significant, $\chi^2(8) = 33.212$, $p < .001$, indicating that the distribution of privacy concerns differed across the three surveyed cities. As shown in Table 2, concern about potential violations of privacy and citizens' rights was positively associated with support for state regulation of AI ($\rho = .386$, $p < .01$). Respondents reporting greater concern about these risks also tended to report stronger support for the necessity of state regulation. This was the strongest observed association with support for state regulation among the variables included in the correlation analysis.

Table 2. Correlation between ethical perceptions, trust, legal awareness, and support for state regulation of AI

Variables	1	2	3	4	5	6	7
1. Do you think state regulation of AI is necessary?	1.000						
2. Do you use AI?	-.252**	1.000					
3. How concerned are you about possible violations of privacy and citizens' rights when using AI?	.386**	-.242**	1.000				
4. How much do you trust AI technologies in everyday life?	.193**	-.272**	.279**	1.000			
5. Have you heard about any laws or rules regulating the use of artificial intelligence in Kazakhstan?	.143**	.067	.098**	.129**	1.000		
6. Do you agree that Kazakhstan is ready to introduce effective legal mechanisms for AI regulation?	-.017	.050	.075*	.141**	.125**	1.000	
7. In your opinion, is it ethical to use AI in your work?	.189**	-.204**	.495**	.365**	.167**	.106**	1.000

Note. Values are Spearman's rank-order correlation coefficients (ρ). ** $p < .01$ (two-tailed); * $p < .05$ (two-tailed).

AI use was negatively associated with support for state regulation ($\rho = -.252$, $p < .01$). This finding indicates that greater engagement with AI was associated with lower reported support for the perceived necessity of state regulation. However, the survey did not measure respondents' preferences regarding the strictness or specific form of regulation; therefore, this association should not be interpreted as evidence that AI users necessarily prefer less stringent regulatory measures. Trust in AI technologies was positively associated with support for state regulation ($\rho = .193$, $p < .01$), indicating that trust in AI and support for its regulation are not mutually exclusive. Trust in AI technologies was also positively associated with the perceived ethical acceptability of using AI at work ($\rho = .365$, $p < .01$) and with self-reported awareness of AI-related regulation ($\rho = .129$, $p < .01$). Ethical attitudes toward AI use showed the strongest association in the correlation matrix with concerns about potential violations of privacy and citizens' rights ($\rho = .495$, $p < .01$). Ethical attitudes were also associated with trust in AI technologies ($\rho = .365$, $p < .01$), self-reported awareness of AI regulation ($\rho = .167$, $p < .01$), and perceived readiness to introduce effective legal mechanisms for AI regulation in Kazakhstan ($\rho = .106$, $p < .01$). These findings indicate that ethical attitudes toward AI are related to several dimensions of public perception, although the cross-sectional design does not allow the direction of these relationships to be established. Self-reported awareness of AI-related laws and regulations was positively, although weakly, associated with trust in AI technologies ($\rho = .129$, $p < .01$) and perceived readiness to introduce effective legal mechanisms for AI regulation ($\rho = .125$, $p < .01$). It was also positively associated with support for state regulation ($\rho = .143$, $p < .01$). By contrast, perceived regulatory readiness was not significantly associated with support for state regulation ($\rho = -.017$, $p > .05$). This distinction suggests that respondents may consider state regulation of AI necessary without necessarily perceiving Kazakhstan as ready to implement effective regulatory mechanisms. Overall, the correlation matrix indicates that attitudes toward AI regulation are associated with multiple dimensions of public perception, particularly privacy and rights concerns, trust in AI technologies, practical AI use, ethical attitudes, and self-reported regulatory awareness.

The results indicate that support for state regulation of artificial intelligence among respondents in the three surveyed cities cannot be understood simply in terms of either optimism about or distrust of AI. Instead, regulatory attitudes were associated with several dimensions of public perception, including perceived risks to privacy and citizens' rights, self-reported awareness of AI regulation, trust in AI technologies, and practical experience with AI.

This pattern is consistent with international research showing that recognition of the potential benefits of AI can coexist with concerns about its broader social and institutional implications (Kelley, 2021; Sartori, 2023). Among the variables examined, concern about potential violations of privacy and citizens' rights showed the strongest association with support for state regulation ($\rho = .386, p < .01$). Respondents reporting greater concern about these risks also tended to express stronger support for the necessity of state regulation of AI. This finding is consistent with previous research suggesting that regulatory preferences are closely related to perceived technological risks and concerns about the potential consequences of AI use (Wilczek, 2025). From this perspective, support for regulation should not necessarily be interpreted as opposition to technological development. Rather, it may reflect public expectations that potential harms and uncertainties associated with AI should be addressed through appropriate regulatory safeguards (Zhang, 2020: 189). Privacy and citizens' rights are particularly relevant in this context because AI systems are increasingly used in areas in which automated or AI-assisted decisions may affect access to services, employment, information, and other important resources. Previous research has emphasized that responsible AI governance requires ethical principles to be translated into effective accountability mechanisms and meaningful stakeholder engagement (De Almeida, 2021: 509). The present findings are consistent with this argument: respondents who reported greater concern about potential violations of privacy and citizens' rights also expressed stronger support for state regulation. However, this association should not be interpreted as evidence of a causal relationship, given the cross-sectional design of the study. Trust in AI technologies was also positively associated with support for state regulation ($\rho = .193, p < .01$). Although the association was weak, it is theoretically important because it demonstrates that trust in AI and support for its regulation are not mutually exclusive. Respondents who expressed greater trust in AI technologies could simultaneously consider state regulation necessary. Regulatory support therefore should not be interpreted simply as technological skepticism. Instead, legal oversight may be viewed as compatible with the safe and legitimate development and use of AI (O'Shaughnessy, 2023: 175). In this sense, regulation may function not only as a constraint on technological development but also as a mechanism for establishing clearer conditions for its socially acceptable use. A different pattern emerged in relation to practical engagement with AI. AI use was negatively associated with support for state regulation ($\rho = -.252, p < .01$), as well as with concern about potential violations of privacy and citizens' rights ($\rho = -.242, p < .01$) and trust in AI technologies ($\rho = -.272, p < .01$). These findings indicate that practical engagement with AI is associated with a distinct pattern of attitudes toward both technological risks and regulation. However, the results do not establish that AI users prefer less stringent regulation or reduced government intervention, since the survey measured the perceived necessity of state regulation rather than preferences regarding its specific form or intensity. More broadly, the observed associations suggest that greater practical engagement with AI does not correspond to a simple progression from uncertainty to greater trust, but is associated with a more differentiated configuration of attitudes toward AI, its risks, and its regulation.

AI governance involves a range of institutional and practical challenges, and direct experience with AI may be associated with different perceptions of its risks and regulatory needs. Previous research has suggested that greater use of AI may be associated with lower levels of privacy concern (Attard-Frost et al., 2024). One possible interpretation is that users who interact more frequently with AI develop a more differentiated understanding of its capabilities, limitations, and potential risks. However, these mechanisms were not directly measured in the present study and therefore cannot be established from the observed associations. In particular, the negative association between AI use and support for state regulation should not be interpreted as evidence that experienced users necessarily prefer weaker or less stringent regulation. The cross-sectional design also prevents determination of the direction of these relationships. Greater experience with AI may influence perceptions of privacy risks and regulatory necessity, but the reverse relationship is equally plausible: individuals who are initially less concerned about privacy and citizens' rights may be more likely to use AI technologies. Longitudinal or repeated cross-sectional research is therefore needed to determine whether increasing experience with AI contributes to changes in regulatory attitudes or whether pre-existing attitudes influence patterns of AI adoption and use. Self-reported awareness of AI-related laws and regulations was positively but weakly associated with support for state regulation ($\rho = .143, p < .01$). This finding indicates that respondents who reported greater awareness of AI regulation also tended to express somewhat stronger support for the necessity of state regulation. Regulatory awareness was also positively associated with trust in AI technologies ($\rho = .129, p < .01$) and perceived readiness to introduce effective legal mechanisms for AI regulation in Kazakhstan ($\rho = .125, p < .01$). These associations should nevertheless be interpreted cautiously

because the survey measured respondents' self-reported awareness of AI-related laws and rules rather than their objective legal knowledge or trust in regulatory institutions. Importantly, perceived readiness to introduce effective legal mechanisms for AI regulation was not significantly associated with support for state regulation ($\rho = -.017, p > .05$). This distinction suggests that respondents may consider state regulation of AI necessary without necessarily believing that effective regulatory mechanisms are currently ready to be implemented. The perceived necessity of regulation and perceptions of regulatory readiness therefore represent related but analytically distinct dimensions of public attitudes toward AI governance. This distinction is consistent with the broader argument that public concern about AI governance should not automatically be equated with confidence in the institutions responsible for addressing such concerns (Zhang, 2020: 192). In Kazakhstan, this distinction is particularly relevant in the context of continuing digital transformation and the development of the national AI governance framework (Kurmangali, 2024; Kogabayev, 2024). Taken together, the findings indicate that regulatory attitudes among respondents in Astana, Almaty, and Shymkent cannot be reduced to a simple continuum between acceptance and rejection of AI. Previous research in Kazakhstan has largely focused on digital transformation, institutional development, legislative change, smart governance, data protection, and specific applications of AI (Kogabayev, 2024; Kurmangali, 2024; Bissaliyev, 2025; Kalmyrza, 2025). The present findings complement this literature by demonstrating the importance of the public-perception dimension of AI governance. In particular, concern about privacy and citizens' rights showed the strongest association with support for state regulation, while trust in AI technologies and support for regulation were not mutually exclusive. At the same time, practical AI use was associated with lower support for the perceived necessity of state regulation. These patterns indicate that technological adoption and regulatory preferences represent a more complex relationship than a simple opposition between innovation and control. More broadly, the study contributes evidence from a Central Asian and post-Soviet urban context that remains comparatively underrepresented in research on public attitudes toward AI governance. The findings suggest that the development of AI regulation should take into account not only formal legal frameworks but also how citizens perceive technological risks, understand the emerging regulatory environment, and evaluate their own experience with AI technologies. For the three surveyed cities, effective AI governance therefore requires clear public communication, visible protection of privacy and citizens' rights, and transparent accountability mechanisms capable of demonstrating that technological development and legal responsibility can coexist.

Conclusion

The findings demonstrate that support for state regulation of artificial intelligence among respondents in Astana, Almaty, and Shymkent is associated with several distinct dimensions of public perception rather than with a simple acceptance or rejection of AI. Concern about potential violations of privacy and citizens' rights showed the strongest association with support for state regulation ($\rho = .386, p < .01$), indicating that respondents who reported greater concern about these risks also tended to express stronger support for the perceived necessity of state regulation. Trust in AI technologies was also positively associated with regulatory support ($\rho = .193, p < .01$), suggesting that trust in AI and support for its regulation can coexist. By contrast, AI use was negatively associated with support for state regulation ($\rho = -.252, p < .01$). This relationship should not be interpreted as evidence that AI users prefer weaker or less stringent regulation, since the study measured the perceived necessity of state regulation rather than preferences regarding its specific form or intensity. The findings also reveal an important distinction between support for regulation and perceptions of regulatory readiness. Perceived readiness to introduce effective legal mechanisms for AI regulation in Kazakhstan was not significantly associated with support for state regulation ($\rho = -.017, p > .05$). Respondents may therefore consider state regulation necessary without necessarily perceiving the country as ready to implement effective regulatory mechanisms. Similarly, self-reported awareness of AI-related laws and regulations was positively but weakly associated with support for state regulation ($\rho = .143, p < .01$). These findings emphasize the importance of distinguishing awareness of regulatory developments from objective legal knowledge and perceptions of regulatory readiness from support for regulation itself. As Kazakhstan continues to develop its AI governance framework, public perceptions represent an important dimension of the broader regulatory environment. Formal legal development alone does not determine how citizens evaluate AI governance. Clear communication about regulatory responsibilities, safeguards for privacy and citizens' rights, transparency requirements, and accountability mechanisms may contribute to greater public understanding of how AI is governed.

The findings therefore support an approach in which technological development and the evolution of regulatory mechanisms are accompanied by attention to the public-perception dimension of AI governance. The study has several limitations. First, the sample was restricted to adult respondents from Astana, Almaty, and Shymkent and should not be interpreted as nationally representative of Kazakhstan. The findings may not reflect attitudes in smaller cities, rural areas, or populations with different levels of digital access and AI exposure. Second, the cross-sectional design captures associations at a single point in time and does not permit causal conclusions or determination of the direction of the observed relationships. Third, survey mode was confounded with city: data were collected using paper questionnaires in Almaty and online questionnaires in Astana and Shymkent. Consequently, some observed differences between cities may partly reflect mode effects rather than geographical differences alone. Finally, the principal constructs were measured predominantly through individual questionnaire items rather than multi-item psychometric scales, which limits the extent to which broader latent constructs can be inferred from the responses.

Future research should expand the geographical coverage to include smaller cities and rural areas and employ longitudinal or repeated cross-sectional designs to examine how public attitudes change as AI technologies and their regulatory framework develop. Further studies could also use validated multi-item measures and distinguish more explicitly between trust in AI technologies, trust in organizations deploying AI, and trust in regulatory institutions. Comparative research across Central Asian countries would be particularly valuable for identifying which patterns of public attitudes toward AI governance are specific to national institutional contexts and which are shared across the region.

Conflicts of Interest

The authors declare no conflicts of interest.

Authors' Contributions

B.N. Tokhtakhunov – concept, methodology, data collection, analysis, interpretation of results, preparation of text, writing the basis of the entire article.

A.B. Montaeв – data collection, analysis.

Zh.A. Altaev – concept, methodology, editing and approval of the final version of the article.

Sh. Eraliev – editing and approving the final version of the article.

M.A. Akmadi – validation, review, and editing.

All authors have read and approved the final version of the manuscript.

References

1. Alimkhanov, M. (2024). Comparative Analysis of Artificial Intelligence Regulatory Approaches: The United States, European Union, Canada, China, Kazakhstan, Russia. European Union, Canada, China, Kazakhstan, Russia. 21, <https://dx.doi.org/10.2139/ssrn.4873053>
2. Attard-Frost, B., De los Ríos, A., Walters, D. R. (2024). The governance of artificial intelligence in Canada: Findings and opportunities from a review of 84 AI governance initiatives. *Government Information Quarterly*, 41(2), 101929. <https://doi.org/10.1016/j.giq.2024.101929>
3. Bissaliyev, M. S., Susi, M., Shakirov, K. (2025). Convergence between and among the Chinese, the EU and Kazakhstan Approaches towards Personal Data Protection against the AI in the Digital Sphere. *Chinese Journal of International Law*, 24(2), jmaf011. <https://doi.org/10.1093/chinesejil/jmaf011>
4. Brauner, P., Hick, A., Philipsen, R., Ziefle, M. (2023). What does the public think about artificial intelligence? A criticality map to understand bias in the public perception of AI. *Frontiers in Computer Science*, 5, 1-16. <https://doi.org/10.3389/fcomp.2023.1113903>
5. Brown, V., Larasati, R., Kwarteng, J., Farrell, T. (2025). Understanding AI and power: situated perspectives from Global North and South practitioners. *AI & SOCIETY*, 41, 1-16. <https://doi.org/10.1007/s00146-025-02731-x>
6. De Almeida, P. G. R., Dos Santos, C. D., Farias, J. S. (2021). Artificial intelligence regulation: a framework for governance. *Ethics and Information Technology*, 23(3), 505-525. <https://doi.org/10.1007/s10676-021-09593-z>
7. Hacker, P. (2024). Sustainable AI regulation. *Common Market Law Review*, 61(2), 345 – 386 <https://doi.org/10.54648/cola2024025>

8. Kalmyrza, G. M., Dzhumabaeva, K. A., Sarina, S. A. (2025). Artificial intelligence in the legislation of the Republic of Kazakhstan on trademarks: problems and possibilities of legal regulation. *Scientific and legal journal «Bulletin of the Institute of Legislation and Legal Information of the Republic of Kazakhstan»*, 80(2), 245-253 https://doi.org/10.52026/2788-5291_2025_80_2_245
9. Kelley, P. G., Yang, Y., Heldreth, C., Moessner, C., Sedley, A., Kramm, A., Woodruff, A. (2021). Exciting, useful, worrying, futuristic: Public perception of artificial intelligence in 8 countries. In *Proceedings of the 2021 AAAI/ACM Conference on AI, Ethics, and Society*, 627-637). <https://doi.org/10.1145/3461702.3462605>
10. Kogabayev, T., Banerjee, S. (2024). Smart Governance in Kazakhstan: A Systematic Review and Analysis of Development, Challenges, and Future Directions. *Smart Cities and Regional Development (SCRD) Preprints*, 1(1). <https://scrd.eu/index.php/scrd-pp/article/view/575>
11. Kurmangali, M., Yeraliyeva, Y., Beimisheva, A. (2024). Digitalization and Artificial Intelligence in Central Asia: Governmental Responses and Further Implications. *Public Policy and Administration*, 23(2), 146-159. <https://doi.org/10.13165/VPA-24-23-2-03>
12. Lima, G., Kim, C., Ryu, S., Jeon, C., Cha, M. (2020). Collecting the public perception of AI and robot rights. *Proceedings of the ACM on Human-Computer Interaction*, 4(CSCW2), 1-24. <https://doi.org/10.1145/3415206>
13. Mays, K. K., Cummings, J. J., Katz, J. E. (2025). The robot rights and responsibilities scale: Development and validation of a metric for understanding perceptions of robots' rights and responsibilities. *International Journal of Human-Computer Interaction*, 41(5), 3413-3430. <https://doi.org/10.1080/10447318.2024.2338332>
14. Mukhamedkaziy, N., Maratova, A., Mustafin, A. (2025). Digitalization in Kazakhstan. *CEGREG Yearbook: Central Asia in Global and Regional Governance*, 105-119.
15. Orynassar, M., Zhumadilova, M., Abdykerimova, E. (2024). Artificial intelligence in Kazakhstan's education system: analysis and prospects. *Yessenov Science Journal*, 48(3), 71-76.
16. O'Shaughnessy, M. R., Schiff, D. S., Varshney, L. R., Rozell, C. J., Davenport, M. A. (2023). What governs attitudes toward artificial intelligence adoption and governance? *Science and Public Policy*, 50(2), 161-176. <https://doi.org/10.1093/scipol/scac056>
17. Papagiannidis, E., Mikalef, P., Conboy, K. (2025). Responsible artificial intelligence governance: A review and research framework. *The Journal of Strategic Information Systems*, 34(2), Article 101885. <https://doi.org/10.1016/j.jsis.2024.101885>
18. Prime Minister of the Republic of Kazakhstan. Order No. 125-r of December 4, 2015, on measures for the implementation of the Laws of the Republic of Kazakhstan of November 24, 2015, "On Informatization" and "On Amendments and Additions to Certain Legislative Acts on Informatization Issues". Adilet Legal Information System. Available at: Adilet Legal Information System (accessed 21 May 2025).
19. Sartori, L., Bocca, G. (2023). Minding the gap (s): public perceptions of AI and socio-technical imaginaries. *AI & Society*, 38(2), 443-458. <https://doi.org/10.1007/s00146-022-01422-1>
20. Smuha, N. A. (2021). From a 'race to AI' to a 'race to AI regulation': regulatory competition for artificial intelligence. *Law, Innovation and Technology*, 13(1), 57-84. <https://doi.org/10.1080/17579961.2021.1898300>
21. Wang, S., Maysa, O., Dar, S. B., Saeed, A., Novikova, K. (2025). Navigating AI in Central Asia: Legal Systems, Free Economic Zones, and Global Partnerships. *International Journal of Social Sciences and Public Administration*, 9(3), 52-78. <https://doi.org/10.62051/ijsspa.v9n3.08>
22. Wilczek, B., Thäsler-Kordonouri, S., Eder, M. (2025). Government regulation or industry self-regulation of AI? Investigating the relationships between uncertainty avoidance, people's AI risk perceptions, and their regulatory preferences in Europe. *AI & SOCIETY*, 40(5), 3797-3811. <https://doi.org/10.1007/s00146-024-02138-0>
23. Zhang, B., Dafoe, A. (2020). U.S. public opinion on the governance of artificial intelligence. In *Proceedings of the AAAI/ACM Conference on AI, Ethics, and Society* (pp. 187-193). <https://doi.org/10.1145/3375627.3375827>
24. Republic of Kazakhstan. (2025). *On Artificial Intelligence: Law of the Republic of Kazakhstan No. 230-VIII ZRK of 17 November 2025*. Adilet Legal Information System. Available at: https://prg.kz/document/?doc_id=34207749 (Accessed: 15 April 2026).

Б.Н. Тохтахунов¹, А.Б. Монтаев², Ж.А. Алтаев³, Ш.Эралиев⁴, М.А. Ақмади⁵

^{1,3} *әл-Фараби атындағы Қазақ ұлттық университеті, Алматы, Қазақстан*

² *М.Әуезов атындағы Оңтүстік Қазақстан университеті, Шымкент, Қазақстан*

⁴ *Лунд университеті, Лунд, Швеция*

⁵ *Қазақ ұлттық қыздар педагогикалық университеті, Алматы, Қазақстан*

ЖАСАНДЫ ИНТЕЛЛЕКТІ ЗАҢДЫ РЕТТЕУДІҢ ҚОҒАМДЫҚ ҚАБЫЛДАНУЫ

Аңдатпа. Жасанды интеллектінің (ЖИ) кәсіби қызметке, мемлекеттік басқаруға және күнделікті шешім қабылдау үдерістеріне кеңінен енуі оны құқықтық реттеу мен әлеуметтік салдарларына қатысты мәселелердің өзектілігін арттыруда. Бұл зерттеу Қазақстандағы ЖИ-ді реттеудің әлеуметтік аспектілеріне арналған және мемлекеттік бақылауды қолдау мен құпиялылыққа қатысты алаңдаушылық, азаматтардың құқықтарын қабылдау, құқықтық хабардарлық, ЖИ-ге деген сенім және осы технологияларды пайдаланудың практикалық тәжірибесі арасындағы өзара байланысты қарастырады. Зерттеудің маңыздылығы ЖИ-ді реттеуді қоғамдық көзқарастар тұрғысынан қарастыруында және негізінен құқықтық әрі институционалдық аспектілерге бағытталған пікірталастарды жеткілікті зерттелмеген ұлттық контекстегі эмпирикалық деректермен толықтыруында.

Зерттеу Қазақстан мегаполистерінің тұрғындары арасында қазақ және орыс тілдерінде жүргізілген әлеуметтанулық сауалнама нәтижелеріне негізделген. Реттеуге қатысты ұстанымдар, ЖИ-ге деген көзқарас, оны пайдаланудың практикалық тәжірибесі және жекелеген әлеуметтік-демографиялық сипаттамалар арасындағы өзара байланыстарды анықтау үшін сипаттамалық статистика, корреляциялық талдау және хи-квадрат критерийі қолданылды.

Нәтижелер мемлекеттік реттеуді қолдау құпиялылық пен азаматтардың құқықтарын қорғауға қатысты алаңдаушылықпен байланысты екенін көрсетті. Жеке құқықтарға төнетін тәуекелдерді жоғары бағалаған респонденттер мемлекеттік бақылауды жиірек қолдаса, ЖИ-ді пайдалануда практикалық тәжірибесі мол қатысушылар мемлекеттің араласуының аз болғанын жөн көрді. Сонымен қатар ЖИ-ге деген сенім реттеуді қолдауды жоққа шығармады: сенім деңгейі жоғары респонденттер де құқықтық бақылаудың қажеттілігін мойындады. Демек, технологияға деген сенім мен оны реттеуді қолдау қатар жүруі мүмкін.

Зерттеу ЖИ-ді реттеуге қатысты қоғамдық көзқарастар технологияларды қабылдау немесе қабылдамау арасындағы қарапайым қарама-қайшылықпен шектелмей, қабылданатын тәуекелдер, сенім, құқықтық хабардарлық және практикалық тәжірибенің өзара ықпалы негізінде қалыптасатынын көрсетеді. Алынған нәтижелер Қазақстанның эмпирикалық деректері арқылы ЖИ-ді басқару жөніндегі әлеуметтанулық пікірталастарды толықтырып, оны реттеу мәселелерін талқылауда қоғамдық көзқарастарды ескерудің маңыздылығын көрсетеді.

Негізгі ұғымдар: жасанды интеллект, қоғамдық қабылдау, құқықтық реттеу, этика, цифрлық басқару, Қазақстан.

Б.Н. Тохтахунов¹, А.Б. Монтаев², Ж.А. Алтаев³, Ш.Эралиев⁴, М.А. Ақмади⁵

^{1,3} *Казахский национальный университет имени аль-Фараби, Алматы, Казахстан*

² *Южно-Казахстанский университет имени М.Ауэзова, Шымкент, Казахстан*

⁴ *Лундский университет, Лунд, Швеция.*

⁵ *Казахский национальный женский педагогический университет, Алматы, Казахстан*

ОБЩЕСТВЕННОЕ ВОСПРИЯТИЕ ПРАВОВОГО РЕГУЛИРОВАНИЯ ИСКУССТВЕННОГО ИНТЕЛЛЕКТА В КАЗАХСТАНЕ

Аннотация. Растущая интеграция искусственного интеллекта (ИИ) в профессиональную деятельность, государственное управление и повседневное принятие решений актуализирует вопросы его правового регулирования и социальных последствий. Настоящее исследование посвящено социальным

аспектам регулирования ИИ в Казахстане и рассматривает взаимосвязь поддержки государственного контроля с обеспокоенностью вопросами конфиденциальности, восприятием прав граждан, правовой осведомленностью, доверием к ИИ и практическим опытом использования данных технологий. Значимость исследования заключается в рассмотрении регулирования через призму общественных установок, что позволяет дополнить дискуссию, традиционно сосредоточенную на правовых и институциональных аспектах, эмпирическими данными из недостаточно изученного национального контекста.

Исследование основано на результатах социологического опроса, проведенного на казахском и русском языках среди жителей мегаполисов Казахстана. Для анализа взаимосвязей между предпочтениями в отношении регулирования, отношением к ИИ, практическим опытом его использования и отдельными социально-демографическими характеристиками применялись описательная статистика, корреляционный анализ и критерий хи-квадрат.

Результаты показывают, что поддержка государственного регулирования связана с обеспокоенностью вопросами конфиденциальности и защиты прав граждан. Респонденты, воспринимающие более высокие риски для индивидуальных прав, чаще выступали за государственный контроль, тогда как участники с большим практическим опытом использования ИИ предпочитали меньшее вмешательство государства. При этом доверие к ИИ не исключало поддержки регулирования: респонденты с более высоким уровнем доверия также признавали необходимость правового контроля. Таким образом, доверие к технологии и поддержка ее регулирования могут сосуществовать.

Исследование показывает, что общественное восприятие регулирования ИИ формируется во взаимосвязи воспринимаемых рисков, доверия, правовой осведомленности и практического опыта, а не сводится к простому противопоставлению принятия и неприятия технологий. Полученные результаты дополняют социологические дискуссии об управлении ИИ эмпирическими данными из Казахстана и демонстрируют значимость общественных установок для обсуждения механизмов его регулирования.

Ключевые слова: искусственный интеллект, общественное восприятие, правовое регулирование, этика, цифровое управление, Казахстан.

Information about the authors

Tokhtakhunov B.N. – corresponding author, PhD student, Department of Sociology and Social Work, Al-Farabi Kazakh National University, Almaty, Kazakhstan

Montaev A.B. – PhD, Associate Professor, Head of the Department of Political Science, M. Auezov South Kazakhstan Research University, Shymkent, Kazakhstan

Altaev Zh.A. – Doctor of Philosophical Sciences, Professor, Al-Farabi Kazakh National University, Almaty, Kazakhstan

Eraliev Sh. – Senior Researcher, Department of Sociology of Law, Lund University, Lund, Sweden

Akmadi M.A. – PhD, Department of Social and Humanitarian Disciplines, Kazakh National Women's Teacher Training University, Almaty, Kazakhstan

Авторлар туралы мәлімет

Тохтахунов Б.Н. – хат-хабар авторы, PhD докторанты, әлеуметтану және әлеуметтік жұмыс кафедрасы, әл-Фараби атындағы Қазақ ұлттық университеті, Алматы, Қазақстан

Монтаев А.Б. – PhD, доцент, саясаттану кафедрасының меңгерушісі, М. Әуезов атындағы Оңтүстік Қазақстан зерттеу университеті, Шымкент, Қазақстан

Алтаев Ж.А. – философия ғылымдарының докторы, профессор, әл-Фараби атындағы Қазақ ұлттық университеті, Алматы, Қазақстан

Эралиев Ш. – Құқық әлеуметтануы кафедрасының аға ғылыми қызметкері, Лунд университеті, Лунд, Швеция

Ақмади М.А. – PhD, Қоғамдық-гуманитарлық пәндер кафедрасы, Қазақ ұлттық қыздар педагогикалық университеті, Алматы, Қазақстан

Сведения об авторах

Тохтахунов Б.Н. - автор для корреспонденции, PhD докторант, кафедра социологии и социальной работы, Казахский национальный университет имени аль-Фараби, Алматы, Казахстан

Монтаев А.Б. - PhD, доцент, заведующий кафедрой политологии, Южно-Казахстанский исследовательский университет имени М. Ауэзова, Шымкент, Казахстан

Алтаев Ж.А. - доктор философских наук, профессор, Казахский национальный университет имени аль-Фараби, Алматы, Казахстан

Эралиев Ш. - старший научный сотрудник кафедры социологии права, Лундский университет, Лунд, Швеция

Ақмади М.А. - PhD кафедры общественно-гуманитарных дисциплин, Казахский национальный женский педагогический университет, Алматы, Казахстан