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ARTIFICIAL

INTELLIGENCE IN AZERBAIJANI JUSTICE: STATUS AND PROSPECTS

INTELIGENCIA ARTIFICIAL EN LA JUSTICIA AZERBAIYANA: ESTADO Y PERSPECTIVAS

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ABSTRACT

This article is devoted to the analysis of the potential and limitations of introducing artificial intelligence technologies into the activities of judicial bodies against the background of the digitalization of the modern Azerbaijani state. The article highlights the achievements in the field of computerization of the work of Azerbaijani courts and the use of electronic technologies in judicial practice. The doctrinal and legislative definitions of artificial intelligence are considered, and a distinction is made between strong and weak artificial intelligence. Particular attention is paid to the prospects for the introduction of weak artificial intelligence algorithms in the Azerbaijani judicial system, emphasizing the potential benefits of such technologies for improving judicial office work, statistical analysis and archive storage. The importance of using artificial intelligence technologies to optimize routine technical procedures, provision of advisory support and prediction of court decisions is also emphasized.

Keywords: Artificial intelligence, Digital technologies, Electronic information environment, Court, Electronic justice.

RESUMEN

Este artículo analiza las posibilidades y limitaciones de la introducción de tecnologías de inteligencia artificial en las actividades de los órganos judiciales en el contexto de la digitalización del Estado azerbaiyano moderno. El artículo destaca los logros en el campo de la informatización del trabajo de los tribunales azerbaiyanos y el uso de tecnologías electrónicas en la práctica judicial. Se examinan las definiciones doctrinales y legislativas de inteligencia artificial y se hace una distinción entre inteligencia artificial fuerte y débil. Se presta especial atención a las perspectivas de introducción de algoritmos de inteligencia artificial débil en el sistema judicial azerbaiyano, destacando los posibles beneficios de dichas tecnologías para mejorar el trabajo de la oficina judicial, el análisis estadístico y el almacenamiento de archivos. También se destaca la importancia de utilizar tecnologías de inteligencia artificial para optimizar los procedimientos técnicos rutinarios, la prestación de apoyo consultivo y la predicción de las decisiones judiciales.

Palabras clave: Inteligencia artificial, Tecnologías digitales, Entorno de información electrónica, Tribunal, Justicia electrónica.

INTRODUCTION

The rapid development of digitalization in modern society contributes to the active introduction of automated technologies into the work of the state apparatus as a whole, including its most important component - the judicial system. An analysis of current legislation and judicial practice indicates that the Azerbaijani state apparatus is actively moving towards integrating digital technologies into national legal proceedings. Nabatov (2023) states:

Digital technologies are penetrating all spheres of human activity, including criminal proceedings. This process cannot be called systemic or orderly, as it is still rather fragmentary. However, these new phenomena are becoming increasingly widespread and significant, both at the legislative level and at the level of law enforcement, which requires scientific understanding of these processes and the development of systemic legislative regulation. (Nabatov, 2023).

Today, an electronic information environment has been established in Azerbaijan that provides remote access to justice and the receiving of necessary information on the activities of judicial bodies at various levels. Digital technologies have demonstrated their social relevance and high efficiency. In a relatively short period of time, almost all forms of administration of justice have undergone significant changes as a result of the processes of informatization of public relations (Gadim et al., 2023).

It is difficult to imagine a modern court without computerized information systems and electronic document management. IT technologies make it possible to hold court hearings via videoconferencing, submit procedural documents remotely, receive court notices, and review case materials. Official websites of judicial bodies and relevant internet portals provide the opportunity to promptly update information on cases under consideration online. The introduction of these innovations has significantly increased the accessibility and quality of domestic legal proceedings. At the same time, it is important to note that the mentioned innovations represent a process of digitalization of the procedural form, which, using information technologies, supplements traditional legal proceedings algorithms with additional technical capabilities. In this regard, a number of experts express a well-founded opinion that such a set of technologies is more accurately characterized by the terms “electronic provision of justice” or “informatization of court activities” (Papagianneas & Junius, 2023; Sergiienko et al., 2023). This approach allows for a clear distinction between the listed means and the deeper digitalization of justice associated with the use of artificial intelligence technologies.

Artificial intelligence technologies can significantly change the judicial process, in particular through the automation of evidence assessment and decision-making on cases. In this context, we are talking about a more fundamental transformation of judicial practice, which is more correctly described by the term “e-justice” (Caterini & Simon Castellano, 2022; Dement & Inglis, 2024; Granados, 2024). For example, Kolokolov (2021) believes it is possible to use artificial intelligence technologies to identify and correct all kinds of violations in the form of procedural documents, as well as to identify poor-quality and potentially unreliable information received by the investigator. Sergiienko et al.(2019) states that, based on machine learning of artificial neural networks, the results of investigations of criminal cases of a certain category can be used to assess the sufficiency of the evidence collected, meaning artificial neural networks should receive information about what was missing to render a guilty verdict Kolokolov (2021) indicates that one of the models for introducing artificial intelligence into the justice system is its work “on level with the judge”, or replacing the judge with artificial intelligence.

But although the integration of AI into judicial systems has a lot of potential, but it is also fraught with a lot of challenges and ethical dilemmas. Bias in AI systems, coming from historical patterns within the training data, can perpetuate or amplify unfair outcomes, especially in sensitive areas like criminal justice. Besides, such black box AI decision-making lacks the transparency needed for building confidence that would even cast aspersions of accountability for incorrect decisions-in particular, on developers, users, or technology. In addition, the requirement for huge sets of personal data calls for efficient measures in terms of data privacy and security in order to avoid misuse. In the light of AI’s inability to solve highly complex cases, this approach points to the retention of human judgment, especially when dealing with subtle or emotionally charged situations. Therefore, these ethical issues have led to many researches to raise concerns since as any tool AI to be beneficial have to be used in a correct way (Blount, 2024; Ovchinnikov et al., 2020; Razmetaeva, 2024; Ryabtseva, 2023). Therefore, this article explores the potential transformative effects of artificial intelligence on the judicial system, analyzing how its integration may alter the nature and functioning of legal processes. It examines the impact of AI technologies on evidence analysis, decision-making, and other critical aspects of judicial proceedings, while also evaluating the associated benefits and risks of these advancements.

DEVELOPMENT

In order to present evidence to the court, a participant in a criminal proceeding places it as a file in the relevant criminal case on the court's website. All documents must be submitted in PDF (Portable Document Format), which does not allow changes to their content. With the help of the system, participants in criminal proceedings can familiarize themselves with case materials, file complaints and petitions to the court electronically, download and view documents (Pastukhov, 2018). According to Ishchenko (2019), the electronic document management system in the US federal courts is not capable of correcting the main drawback of the archaic Anglo-Saxon process, which is characterized by a cumbersome and expensive solution to all issues in a court hearing, but it has significantly simplified the preparation of cases for trial.

The concept of artificial intelligence today does not have a single and established definition either in regulatory documents or in scientific doctrine. In various sources - both foreign and domestic - one can find many interpretations of this term. In its broadest sense, artificial intelligence is considered a set of technologies that enable computer systems to imitate, to varying degrees, the intellectual capabilities of the human mind. This includes the ability of machines to perform tasks that traditionally require human intelligence, such as learning, decision making, pattern recognition, and natural language processing. However, despite the abundance of definitions, the common understanding is that artificial intelligence is a field of computer science aimed at creating systems that can exhibit behavioral or cognitive characteristics similar to humans. These technologies can range from simple algorithms that can perform specific tasks to more complex systems that are capable of self-learning and adapting based on accumulated experience.

Thus, despite the existing differences in definitions, the central idea of artificial intelligence is the creation of machines and programs that can perform tasks that require intellectual effort and, perhaps, over time, reach a level that can rival human abilities. Among the various definitions of artificial intelligence proposed by legal scholars, one of the most detailed and comprehensive is presented by P.M. Morhat. In his opinion, artificial intelligence is a fully or partially autonomous self-organizing computer-hardware-software system, which can be virtual or cyber-physical, as well as bio-cybernetic (Morhat, 2017).

Morhat (2017) defines artificial intelligence as a system that has the following capabilities and possibilities.

1. Anthropomorphic-intelligent cognitive functions: Artificial intelligence is capable of performing tasks that require intelligence, such as pattern and symbol recognition, language interpretation, reflection, reasoning, modeling, imaginative thinking (including both meaning-generating and meaning-perceiving thinking), and information analysis and evaluation.
2. Self-organization and self-regulation: The system has the ability to self-referentially self-regulate and adapt to changing conditions. This includes the ability to maintain homeostasis, genetic search (using heuristic algorithms to save and transmit important information from "parent" data in "subsequent generations" of information), accumulation of information and experience, learning and self-learning (including on the basis of one's own mistakes and accumulated experience).
3. Development and application of algorithms: Artificial intelligence can independently develop and apply algorithms that ensure self-homologation (the process of checking and confirming its own correctness), as well as create and carry out tests for its own testing, checking its effectiveness in both computer and physical reality (if possible).
4. The system can make independent decisions, including creative ones, and solve problems and issues under conditions of uncertainty and complexity.

Thus, P.M. Morkhat offers a comprehensive and detailed understanding of artificial intelligence, emphasizing its potential capabilities and the variety of functions that allow artificial intelligence systems to operate at a level close to human intelligence. This document defines artificial intelligence as a set of technological solutions designed to imitate human cognitive functions. This includes the ability to self-learn and find solutions without pre-defined algorithms. Artificial intelligence should demonstrate results that are comparable in quality and efficiency, at least, to the results of human intellectual activity in performing specific tasks. This definition highlights key aspects of artificial intelligence:

1. Imitation of cognitive functions: Artificial intelligence should be able to imitate various intellectual processes that are characteristic of humans. This includes functions such as perception, recognition, decision-making, reasoning, and the ability to think abstractly.
2. Self-learning and adaptation: An important characteristic is the ability of artificial intelligence to self-learn, which allows the system to improve its functions and results based on accumulated experience and data. This means that artificial intelligence is capable of not only executing pre-set algorithms but also independently developing new approaches to solving problems.
3. Finding solutions without predefined algorithms: Artificial intelligence should be able to find solutions

to problems without relying solely on pre-programmed algorithms. This means using methods and strategies that allow the system to adapt and find optimal solutions under conditions of uncertainty.

4. Comparability with human intelligence: When performing specific tasks, the performance of artificial intelligence should be comparable to the results that would be expected from a person with the appropriate qualifications and experience. This implies that artificial intelligence is capable of reaching a level that is comparable to human intellectual activity in terms of accuracy, efficiency, and quality of task performance.

The sphere of justice, as a special socially significant area of activity, has traditionally been considered to be completely controlled by the human mind and its moral and ethical principles. However, recently views on this issue have begun to change. A number of scientific publications express the opinion that the judicial system cannot ignore the achievements of scientific and technological progress. Artificial intelligence technologies will inevitably be involved in the administration of justice to one degree or another and in a different quality. Assessments of the prospects for integrating artificial intelligence into the justice system range from moderate and cautious to radical, suggesting the complete replacement of human judges with robots in mantles. For example, Kolokolov (2021) states that "all judicial systems and their technologies existing in the world are a product of the industrial era that belonged to the last century, or even the century before last". It is quite obvious that such technologies have no place in a post-industrial society. The virtual court office is rapidly replacing traditional court offices.

Thinking within this paradigm, a transition from traditional justice, subject to human error, weakness, and passion, to an impartial and mathematically precise jurisprudence is set forth. This new justice would be inescapable, uniform, ubiquitous, and impeccable in its legality. Such a notion creates an attractive image of ideal justice, free from subjective factors and human errors of perception. However, it is important to consider that the full implementation of artificial intelligence in justice comes with many challenges and risks, including issues of ethics, privacy, and legal liability. A careful analysis and balanced approach to the integration of these technologies into judicial practice is required to ensure a harmonious and effective combination of human and machine intelligence in the justice process.

The topic of the "bot judge" has attracted considerable interest in recent years among programmers, legal scholars, practicing lawyers, journalists, and the general public around the world. Discussions around this issue raise many questions of both a philosophical-ethical and legal-technical nature. What changes are expected to the judicial process in the near and distant future? Can computer programs replace a human judge in principle? What prospects and potential benefits does the introduction of artificial intelligence technologies into legal proceedings provide? What risks are associated with the intervention of "non-human intelligence" in the administration of justice, and what measures can be taken to prevent and minimize them?

Questions remain about whether our understanding of legality and justice will change with the development of digital technologies, how this will affect the legitimacy and authority of the judicial system, and whether the further development of artificial intelligence can guarantee the observance of human rights. At the moment, there are no definitive answers to these questions. Nevertheless, the process of integrating artificial intelligence into judicial activities is gradually but steadily gaining ground in many countries. Interesting experience has already been accumulated along this path, which demonstrates both the potential for the use of artificial intelligence in law enforcement and judicial practice, as well as many difficulties and problems. The latter include:

- Opacity and non-verifiability of algorithms: Many AI systems suffer from opacity, making it difficult to understand how decisions are made, as well as to verify and validate them.

- Errors and inaccuracies in results: The use of artificial intelligence may lead to errors and inaccuracies that could affect the fairness of judicial decisions.

- Bias and discrimination: Electronic intelligence may exhibit biases, leading to discriminatory decisions based on faulty or biased data.

- Personal data leaks: The use of artificial intelligence may be associated with risks of leaks and unauthorized access to personal data.

Thus, the introduction of artificial intelligence into the judicial system is a complex and multifaceted process that requires a careful approach and assessment. Further research and development are needed to minimize risks and ensure the effective and ethical use of artificial intelligence technologies in justice. To solve the above-mentioned problems, development companies are investing heavily in upgrading the algorithms used. At the same time, the relevant legislative framework is being improved. Particularly targeted and active efforts to regulate the processes of using artificial intelligence technologies

in justice are being undertaken within the European Union. In December 2018, the European Commission for the Efficiency of Justice (CEPEJ) adopted the European Ethical Charter on the Use of Artificial Intelligence in Judicial Systems and their Environment. This document was an important step in establishing principles and norms that should guide the use of artificial intelligence in judicial practice, ensuring the ethical and responsible use of technologies.

The European Ethical Charter sets out key principles such as transparency, accountability, data security, and equality that must be respected in the development and implementation of artificial intelligence in judicial systems. These principles aim to minimize risks and ensure that artificial intelligence technologies are used in the interests of justice and human rights, and to ensure that their use does not violate fundamental legal and ethical standards. The enactment of such regulations and standards is an important step towards the creation of reliable and effective artificial intelligence systems that can be successfully integrated into the justice system, while ensuring high standards of ethics and legal protection.

In Azerbaijan, the use of artificial intelligence technologies, both in the sphere of public administration in general and in judicial practice in particular, still lacks clear legislative regulation. The absence of a formulated regulatory framework and its lag behind the rapid development of technologies remain one of the main obstacles to the development of the artificial intelligence market in the country. Experts note that this lag in legislation creates significant difficulties for the effective implementation and use of artificial intelligence technologies. The lack of clear and relevant legal norms makes it difficult to both develop and implement innovative solutions in justice and public administration.

In order to ensure sustainable growth and integration of artificial intelligence technologies in Azerbaijan, it is necessary to adopt comprehensive legislative initiatives that will meet modern requirements and provide legal protection for both users and developers of technologies. This approach will help create favorable conditions for the growth of the artificial intelligence market, facilitating its safe and effective implementation in various areas, including judicial practice.

The process of developing optimal approaches to integrating artificial intelligence technologies into judicial practice is currently carried out primarily through empirical and doctrinal means. The first significant experience in this direction was the Belgorod experiment of 2021. As part of this experiment, artificial intelligence technology was used in several areas of justices of the peace in the Belgorod region to automate the process of generating court orders for collecting debts on property, land, and transport taxes.

Experts emphasize that in this case, we are not talking about the use of a fully autonomous "electronic mind," but about the implementation of so-called "weak artificial intelligence." In this context, artificial intelligence performed only certain standardized routine functions, such as checking details and preparing draft documents. Thus, the use of artificial intelligence in this experiment was limited to the automation of certain stages of the process, which made it possible to evaluate its effectiveness and identify possible problems without relying on the complete autonomy of the system. This experience demonstrated the potential of AI technologies to simplify routine tasks and showed that even at the stage of using "weak" AI, significant improvements in document management and a reduction in the workload of judicial bodies could be achieved.

In the field of applied legal research, our scientists have already proposed a number of interesting developments. One of these developments, deserving special attention, is a computer technology for determining the optimal measure of criminal punishment called the "Electronic Scales of Justice." This system was created by the Honored Lawyer of the Republic of Azerbaijan, Doctor of Law, Professor I.M. Rahimov, and Doctor of Law, Professor Kh.J. Alakbarov. The Electronic Scales of Justice technology is a unique solution that has no analogues in the global legal community. It is designed to help determine the most appropriate punishment in criminal cases. Unlike traditional methods, this development uses computer algorithms to analyze various factors associated with a case and offer evidence-based recommendations for sentencing. This approach allows for a significant improvement in the objectivity and consistency of judicial decisions, reduces the influence of subjective factors, and increases the fairness of justice. The introduction of the "Electronic Scales of Justice" technology could become an important step in the modernization of criminal justice and ensuring a more transparent and fair sentencing process.

CONCLUSIONS

The integration of AI into judicial processes has immense potential to transform legal systems in the direction of efficiency, cost reduction, and increased access to justice since artificial Intelligence technologies hold immense promise in document management, predictive analysis, and automated decision-making. These innovations can help classify vast amounts of legal documents, predict case outcomes, and automate routine decisions, freeing

human judges to focus on more complex cases. But this technological development is not without its critical challenges. Ethical concerns have arisen on biases, potential prejudices, and data privacy, in particular, considering that AI systems need access to large, sensitive datasets.

In the context of Azerbaijan, important steps have been taken in court digitalization, but a lack of a clear and updated legislative framework presents a serious barrier to effective integration of these technologies. We strongly believe that the responsible implementation of AI in judicial systems needs to be balanced, with technological innovation aligned with human oversight. In accomplishing this, there is a need for the development of robust regulatory frameworks, mitigation of biases, enhancement of transparency in decision-making, and continuous training of legal professionals. Rather, this is complementary to human judgment, not to replace the same, so that it serves the cause of justice in an equitable and transparent manner. The future is brilliant regarding AI in the judicial system, but its success would depend on how the already existing challenges are carefully met. Ongoing research, improvement of technological capabilities, and a commitment to ethical principles will prove to be the main issues in fully realizing the use of Artificial Intelligence in the legal process.

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