

LEGAL PRINCIPLES AND FEATURES OF ARTIFICIAL INTELLIGENCE USE IN THE PROVISION OF LEGAL SERVICES

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ABSTRACT

Objective: The objective of the article is to explore the practical application of artificial intelligence in legal services. The authors analyze different categories of artificial intelligence and its current applications in various fields.

Method: The authors conducted an analysis of artificial intelligence in legal services. They examined categories such as intelligence, weak intelligence, technical systems, expert systems, and robotics. The study also involved assessing existing uses of artificial intelligence in fields like medical diagnostics, automotive, and television.

Result: The study suggests that artificial intelligence has the potential to be a valuable tool in delivering legal services. The authors propose various forms of artificial intelligence application in the legal domain, including contract preparation, decision-making, information model construction, and legal situation modeling. The research highlights challenges associated with incorporating artificial intelligence in legal services and emphasizes the need for appropriate legislative regulations.

Conclusion: In conclusion, the authors present an innovative perspective on the practical application of artificial intelligence in legal services. The study explores the feasibility of using artificial intelligence to enhance legal service delivery and interprets different categories of artificial intelligence. The authors underscore potential forms of AI in legal services, outline challenges in its integration, and advocate for necessary legislative measures and regulatory tools to ensure ethical and legal implementation. This research contributes to the growing body of knowledge regarding the use of artificial intelligence in diverse areas, including the legal field.

Keywords: artificial intelligence, digital devices, legal services, robotics, human rights.

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PRINCÍPIOS JURÍDICOS E CARACTERÍSTICAS DA UTILIZAÇÃO DA INTELIGÊNCIA ARTIFICIAL NA PRESTAÇÃO DE SERVIÇOS JURÍDICOS

RESUMO

Objetivo: O objetivo do artigo é explorar a aplicação prática da inteligência artificial em serviços jurídicos. Os autores analisam diferentes categorias de inteligência artificial e suas aplicações atuais em vários campos.

Método: Os autores realizaram uma análise da inteligência artificial em serviços jurídicos. Eles examinaram categorias como inteligência, inteligência fraca, sistemas técnicos, sistemas especializados e robótica. O estudo também envolveu a avaliação dos usos existentes de inteligência artificial em áreas como diagnósticos médicos, automotivo e televisão.

Resultado: o estudo sugere que a inteligência artificial tem potencial para ser uma ferramenta valiosa na prestação de serviços jurídicos. Os autores propõem várias formas de aplicação de inteligência artificial no domínio jurídico, incluindo a preparação de contratos, tomada de decisões, construção de modelos de informação e modelagem de situação legal. A pesquisa destaca os desafios associados à incorporação da inteligência artificial nos serviços jurídicos e enfatiza a necessidade de regulamentação legislativa apropriada.

Conclusão: Em conclusão, os autores apresentam uma perspectiva inovadora sobre a aplicação prática da inteligência artificial em serviços jurídicos. O estudo explora a viabilidade do uso de inteligência artificial para melhorar a prestação de serviços jurídicos e interpreta diferentes categorias de inteligência artificial. Os autores ressaltam possíveis formas de IA em serviços jurídicos, descrevem desafios em sua integração e defendem medidas legislativas e ferramentas regulatórias necessárias para garantir a implementação ética e legal. Esta pesquisa contribui para o crescente corpo de conhecimento sobre o uso da inteligência artificial em diversas áreas, incluindo o campo legal.

Palavras-chave: inteligência artificial, dispositivos digitais, serviços jurídicos, robótica, direitos humanos.

1 INTRODUCTION

Modern trends in digitalisation have significantly impacted the content and nature of social relationships across all spheres of activity, necessitating appropriate legislative adjustments to ensure proper legal regulation (Huang et al., 2023). Consequently, the relevance of investigating legal principles and the development of artificial intelligence as a necessary instrument in the realm of legal services is growing, demanding comprehensive research, the attainment of relevant results, and suggestions for enhancing legal provisions.



The issue of applying artificial intelligence in various fields of activity is closely related to practical implementation (AI Conference, 2021); however, there is no unified mechanism for practical and technological realisation that would influence scientific research development. The application of artificial intelligence across different spheres of activity essentially represents a variety of problems, each characterised by varying degrees of uniqueness, generality, abstraction, complexity, and development, and posing their own fundamental and practical challenges. These problems encompass areas such as pattern recognition, learning, self-learning, heuristic programming, modelling, devising a general theory of self-organising systems, constructing physical neuron models, and so on, many of which have substantial independent significance. Although important practical and theoretical breakthroughs have been made in all these directions, intensive research continues in various domains of activity. Since human-analogue intelligence has not yet been developed, the aim is to create a mechanism or tool capable of reproducing certain forms of human intellect.

Proponents in the legal services sphere favour the implementation of an electronic management system as an instrument that allows for the resolution of tasks not requiring the full spectrum of human cognitive abilities, but rather specific human intellect skills, by which lawyers will provide services of higher quality, more expeditiously and with more outstanding excellence (Atkinson, Bench-Capon and Bollegala, 2020). Consequently, the popularity of artificial intelligence in the legal services sector is rapidly increasing since practicing lawyers and legal firms recognise that its potential will fundamentally transform the service delivery mechanism, rendering legal services more accessible, efficient, and profitable.

Thus, artificial intelligence provides the legal services sector access to novel tools and methods that can optimise their processes, expand their research capabilities, and enhance overall productivity. For example, previously, several lawyers may have had to conduct extensive research over several days; now, with the correct query input to a chatbot, a swift foundational legal analysis with references to specific regulatory acts or appropriate legal positioning options can be produced, saving a significant amount of working hours.

The *purpose* of this scholarly publication is to elucidate the legal underpinnings of utilising artificial intelligence in the domain of legal services, as well as to analyse distinct issues and particularities associated with the application of various models or



forms of artificial intelligence in judicial, advocacy, notarial, legislative, and legal practice.

2 THEORETICAL FRAMEWORK

In the realm of academia, the works of esteemed scholars such as Baranov (2017, 2018, 2019), Katkova (2020), Bieliakov, Lande & Novikova (2013), Pylypchuk et al. (2017), Kharitonova and Kharitonov (2017, 2018), Dutchak et al. (2020), have been pivotal in elucidating the issues of legal regulation and the legal regime of information technologies and artificial intelligence use. These distinguished researchers have made remarkable strides in exploring the intricacies involved in the implementation of artificial intelligence in various legal spheres, including judicial, advocacy, and notarial functions (Zhou, J., 2023). Their studies have delved into both the advantages and challenges that stem from the application of such technologies, taking into account their impact on the efficiency, accessibility, and overall quality of legal services.

Individual issues of artificial intelligence use in the field of jurisprudence have been studied by researchers such as Berezhyvets (2019), Varava (2020), Kostenko (2021), Kravchuk and Borovikova (2019), Leshchenko et al. (2021), Myronets (2021), Pryimachuk (2019), Hubanova et al. (2018). These scholars have contributed to a better understanding of the intricate relationship between law and technology, paving the way for more effective and comprehensive legal regulation of AI tools in the legal domain.

In the field of legal and economic sciences, extensive analysis of issues related to artificial intelligence use has been conducted by prominent researchers such as Radutnyi (2017), Kostenko (2021), Karmaza and Grabovska (2021), Kuklin (2018), Buhera (2018), Zarosylo et al. (2020), Lelechenko et al. (2021). Their inclinations involved exploring the potential of AI to transform various sectors, understanding how AI technology impacts the legal profession and economy, and addressing ethical concerns and potential inequalities resulting from AI implementation. Notable discoveries and achievements of these researchers include the proposal of innovative legal solutions, the identification of potential risks and challenges, and the development of frameworks for integrating AI into law and economics. Their investigations have gained popularity due to their relevance and ability to address the pressing concerns stemming from the continued development of AI technology (Alblooshi, M. A. J. A., 2023).



Nevertheless, issues of legal support and legislative definition of the concept of artificial intelligence, as a tool of providing legal services, the development of relevant models or forms of artificial intelligence for the legal services sphere, and the legal regime of artificial intelligence use in judicial, legislative, notarial, advocacy and any legal practice remain underexplored enough (International Organization for Standardization and International Electrotechnical Commission, 2020).

3 METHODOLOGY

The object of study focuses on the domain of providing legal services that utilise artificial intelligence as the primary instrument. *The subject of investigation* concerns the legal foundations and specific challenges associated with deploying artificial intelligence across various spheres of human activity, particularly in the legal profession.

The central tenets of this scholarly inquiry are centred on an analysis of theoretical principles and legal regulations that govern the use of artificial intelligence in the delivery of legal services. To comprehensively explore the key issues, a combination of general legal and specialised research methodologies were employed throughout the study.

The normative comparative analysis method was employed to clarify the contents of legal frameworks and identify any existing gaps or inconsistencies in the regulation of AI applications in legal practice. The systemic-structural approach was actively utilised to evaluate and summarise diverse scientific positions concerning the legal regime governing artificial intelligence implementation. This method aided in understanding the intricacies and interrelations between various aspects of AI-powered legal services.

The generalisation method was employed to assess real-life examples and synthesise the most critical issues encountered in practice, facilitating the formulation of practical solutions to address these challenges. Additionally, the research was enhanced by integrating interdisciplinary perspectives from other fields, such as economics, sociology, and ethics.

These methodological tools converge to serve the overall objective of resolving tasks outlined in this article, subsequently generating distinct scientific results illustrated in the final conclusions. The findings contribute valuable insights and recommendations to the ongoing discourse surrounding integrating artificial intelligence into legal services. Moreover, they advance our understanding of this rapidly evolving technology's implications and potential benefits.



4 RESULTS AND DISCUSSION

Artificial intelligence represents a unique product of technological progress, enabling electronic mechanisms to learn by utilising human experience and their own knowledge, adapting to new conditions within their prescribed use, performing multifaceted tasks that were once solely in the domain of human capabilities, predicting events, and optimising resources of various natures.

The rapid development of information technologies and accomplishments in artificial intelligence research has sparked immense public interest and academic discussions, which can be generally divided into two positions. The first stance is characterised by concerns about increasingly sophisticated electronic management systems, which in turn, substantially complicate human life. The subsequent perspective, thoroughly presented by Kasparov (2010), namely "Don't fear intelligent machines, work with them," is optimistic about the potential improvement of human living conditions, recognising the positive prospects for effective collaboration between humans and intellectual technologies. Thus, new opportunities created by technological advancements in this field – such as big data processing, machine learning, virtual and augmented reality tools, among others – raise questions about the risks they pose for society and people's lives as a whole.

Understanding the definition of "artificial intelligence" is quite broad and ambiguous in content and is interpreted differently in various scientific works, each characterised by its unique nature:

A. It is an organised collection of information technologies, through the application of which complex multifaceted tasks can be performed using a system of scientific research methods and information processing algorithms acquired or independently created during work, as well as creating and using their own knowledge bases, decision-making models, information processing algorithms, and determining ways to achieve set objectives (Berezevets, 2019);

B. They are highly developed systems that analyse established conditions and make, to some extent, autonomous decisions to achieve defined goals. The Organisation for Economic Cooperation and Development, in its principles, states that artificial intelligence is a machine system that can make predictions, recommendations, or decisions, influencing real or virtual environments based on a human-defined set of goals (OECD, 2019);



C. Works with artificial intelligence as objects of social relations are perceived only as possible assistance in social relations, where the subjects are individuals and legal entities. For example, AI is used as a tool in the inventive process: in genetic programming, artificial neural networks, as scientist-robots; works with artificial intelligence as separate subjects of legal relations are perceived only as separate independent subjects of social relations with the possibility of relatively independently and, to a sufficient extent, realising and evaluating the significance of their actions and the actions of others; sources of increased danger and considering taking into account all specific conditions of responsibility for the damage caused by the source of increased danger (Katkova, 2020);

D. Artificial intelligence (AI) encompasses various concepts and technologies that enable machines to perform functions traditionally considered the prerogative of humans. These include data science, machine learning, deep learning, neural networks, object and image recognition, computer vision, and face recognition (Evergreen, 2023);

E. AI is a subfield of computer linguistics and informatics, concerned with the formalisation of problems similar to those tackled by humans. It represents the capacity of an engineered system to process, apply, and enhance acquired knowledge and skills (Huang et al., 2023);

F. Machines and software programmes powered by AI can analyse received information, draw conclusions, and make decisions based on that information. A crucial characteristic of AI devices is their ability to continuously learn, accumulate knowledge, and successfully apply it. This capacity for learning and action is akin to the human brain (Iatsyshyn, Kovach and Romanenko, 2018);

G. In a biological sense, AI can be considered a non-living entity capable of performing certain functions inherent to human intelligence. This is achieved through computer software, the system's autonomy, and its ability to learn, analyse, and exchange information with society. AI can adapt its actions to its environment (social relations) (Kostenko and Kostenko, 2020).

Summarising various positions and approaches to defining AI, it can be understood as a software product (digital device) that acts as an object in a relationship, receiving a specific query from the subject of that relationship. The AI system analyses



and processes the given information, ultimately producing an objective decision representative of human intellectual activity and functioning similarly to human thought.

Scientists distinguish between the following types of artificial intelligence:

- Weak Artificial Intelligence (WAI);
- Strong Artificial Intelligence (SAI);
- Artificial Superintelligence (ASI), which is understood as an intellect significantly smarter than the best human intellect in any sphere of activity (Perc, Ozer & Hojnik, 2019).

There is also another classification for robots: simple robot, robot android, and android (Baranov, 2018). It is worth noting that robots have already been created around the world that possess their bodies, imitate sign language (ASIMO), express emotions (Kismet), serve as voice assistants (Siri), and more (Tzafestas, 2018). Sophia is a humanoid robot that has gained high popularity due to its human-like appearance, set of mimetic reactions, and controversial statements during discussions. In 2017, Saudi Arabia granted citizenship rights to the robot (Riccio, 2021).

It is important to consider the question of different models or forms of artificial intelligence that will be used when providing various types of legal services. In our opinion, the form of artificial intelligence can be understood as the external expression of its content in the shape of an electronic programme, an automatic control system, a digital device, or a software product for the automated performance of tasks following a legal professional's actions through generalisation, analysis, and information processing.

Considering the varying forms of artificial intelligence, which cannot exist without software, and taking into account that this issue remains legislatively undefined, we suggest distinguishing the use of different forms of artificial intelligence in the field of providing legal services and subsequently establishing a regulatory framework for their use, methods, and action mechanisms:

- Computer programmes;
- Information technologies with artificial intelligence (digital devices, chatbots, databases, electronic applications);
- Electronic solicitor, electronic judge, electronic expert, electronic notary, electronic investigator, electronic advocate, electronic registrar (robots, robotics).

Having analysed scientific works on the content of forms of artificial intelligence, it has been concluded that the forms of artificial intelligence can be divided into different



types, for example, depending on the nature of legal service (procedural activity, notarial acts, registration actions, expert activity, contractual activity, investigative actions, etc.), as well as depending on the task set by the client or solicitor (development of a court decision, preparation of a statement, drafting of a contract, development of a notarial resolution, preparation of a registration card, scientific explanation, preparation of an expert conclusion, etc.). We support scientists and practitioners, as it is already time in Ukraine to legally establish electronic document circulation, reduce the number of paper documents that an individual submits for legal action; automation of a number of processes in procedural and legal activities of a solicitor, judge, notary, advocate, expert, etc. Therefore, the analysis of scientific papers has shown that domestic researchers mostly reduce the application of artificial intelligence only to the use of computer programmes or information technologies with artificial intelligence; however, they do not consider an electronic person as a possible subject of legal relations.

The European Parliament in the Resolution of 16 February 2017 on Civil Law Rules on Robotics (European Parliament resolution of 16 February 2017 with recommendations to the Commission on Civil Law Rules on Robotics (2015/2103 (INL) proposed the creation of a system for the registration of robots, an insurance fund, civil liability, the responsibility of developers and owners of robots, etc. (European Parliament, 2017). In addition, paragraph 59 of this Resolution provides for the subjectivity of robots under the name "electronic person" with a range of specific rights and obligations. Therefore, attributing the above-mentioned type of artificial intelligence as a subject or quasi-subject of civil relations in Ukraine is currently a subject for discussion since the legal status of an electronic person in Ukraine is not defined by legislation.

At the current stage of legal regulation for the use of artificial intelligence in Ukraine, there exists only a concept for the development of artificial intelligence, approved on 2 December 2020, under № 1556-r. According to this concept, the implementation of information technologies, which includes artificial intelligence technologies, is an integral component of the development of socio-economic, scientific-technical, defence, legal, and other activities in areas of national importance. The lack of conceptual foundations for state policy in the field of artificial intelligence prevents the creation and development of a competitive environment in the aforementioned activity spheres.



The principles for the development and use of artificial intelligence technologies, which fully comply with the principles of the Organisation for Economic Co-operation and Development on artificial intelligence, are as follows:

- A. Promoting inclusive growth, sustainable development, and well-being;
- B. Developing and using artificial intelligence systems only when adhering to the rule of law, fundamental human and citizen rights and freedoms, democratic values, and ensuring appropriate guarantees during the application of such technologies;
- C. Ensuring that the activities and decision-making algorithms of artificial intelligence systems comply with legislation on personal data protection, and respecting the constitutional right of everyone to non-interference with personal and family life in connection with the processing of personal data;
- D. Providing transparency and responsible disclosure of information about artificial intelligence systems;
- E. Ensuring the reliable and secure functioning of artificial intelligence systems throughout their lifecycle, along with the continuous assessment and management of potential risks;
- F. Assigning responsibility for the proper functioning of artificial intelligence systems to organisations and individuals developing, implementing, or using these systems, in accordance with the stated principles (Verkhovna Rada of Ukraine, 2020).

The primary task of the legislator is to strike a balance between, on one hand, the interests of society, which lie in harnessing the maximum potential of new technologies that can potentially provide positive solutions to a wide array of significant issues faced by individual citizens and society as a whole, and on the other hand, minimising the risks and adverse consequences of employing innovative technologies in various spheres of life.

The question of legal grounds for utilising appropriate electronic programmes, automated management systems, robotics, electronic applications, digital organisms, and other forms of artificial intelligence which possess certain characteristics of intellectual activity but are created by humans and operate in either the physical or digital world, entails a complex goal of selecting the most rational and effective actions (in accordance with pre-determined parameters and characteristics) that must be executed in order to



accomplish the set objective through perceiving specific environments, interpreting collected structured or unstructured data, and justifying knowledge and skills obtained from such data. These AI systems are capable of analysing, recognising, understanding, and identifying rational ways of achieving results, as well as making decisions, constructing approximate informational models, simulating highly intricate cognitive processes, including modelling various legal situations and, accordingly, proposing mechanisms for the protection of rights and settlement of disputes.

The usage of artificial intelligence and information technologies in rendering legal services is possible in various branches of jurisprudence, specifically in civil and commercial transactions, the justice system, administrative and criminal law, criminal civil and commercial litigation, labour, housing and land laws, notary law, advocacy, and prosecution, among others.

Among the wide range of legal services that artificial intelligence can provide, some specific examples include the construction of legal positions, offering legal consultations, preparing procedural and legal documents, including contracts, modelling court decisions, outlining relevant legal consequences, conducting various types of expertise, carrying out investigative-procedural actions, providing registration services, examining evidence, and identifying or establishing a person's identity. However, this list of legal services is not exhaustive, as there is an intensive development of digitalisation or digitisation – the transition to digital technologies and the transformation of any information or informational processes into digital format – which will initiate the use of artificial intelligence in all other legal services where there is no need for the actual activity of a lawyer.

There is already some experience in implementing artificial intelligence in the field of jurisprudence. For instance, researchers from University College London and the University of Sheffield have created a "computer judge" that predicts decisions of the European Court of Human Rights with 79% accuracy. The developed algorithm takes into account not only legal evidence but also the moral aspect of the case. The "computer judge" analyses the case text using a machine learning algorithm. For the algorithm's development, the team allowed the "computer judge" to scan published decisions from 584 cases involving torture and degradation; the "electronic judge" established verdicts with 79% accuracy.



Scientists do not consider artificial intelligence as a way to replace the activities of lawyers, judges, notaries, advocates, investigators, experts, or law enforcement officers. Instead, they see it as a useful auxiliary tool for quickly identifying patterns in modelling various judicial decisions and creating procedural and legal documents. The development and implementation of artificial intelligence in the form of software products will facilitate the work of lawyers in the field of legal services by analysing and processing the information provided by them. It will yield as a result of the programme's work a ready-made contract, expert opinion, procedural or legal document, notarial inscription, scientific explanation from a specialist, filled registration card, completed application, complaint, etc. (Khatniuk & Levitska, 2022)

Until recently, it seemed that robotics and digital devices would never replace humans in fields such as jurisprudence, but today we stand on the cusp of digitisation. Thanks to automation and digital technologies, the analysis and processing of documents (e.g., contract drafting, statement of claim, expert opinions, judgements, etc.) are already being carried out automatically (Karmaza, 2021).

Considering the rapid development of artificial intelligence, one of the problematic tendencies in a lawyer's future work will be daily and continuously growing competition. It may happen that, in the future, legal and natural persons will be able to find a lawful way to resolve issues on their own, using legal outsourcing services only when absolutely necessary. As for the legal profession, the critical factor will not be the professional skills possessed by a specialist, but their ability to use and effectively combine the whole range of their expertise for collective problem-solving. Therefore, there is an urgent need to develop new methods of acquiring knowledge and practical skills for future lawyers in the field of innovative technologies and artificial intelligence. Close collaboration between jurisprudence and innovative technologies and artificial intelligence will provide an opportunity to create global innovative products in the UK, which already exist in other countries, helping to make life conflict-free, orderly, and harmonious (Atkinson, Bench-Capon & Bollegala, 2020).

5 CONCLUSION

Thus, we see that artificial intelligence is already an integral part of objective reality today, acquiring relevant forms and requiring the establishment of a legal regime on a daily basis. Artificial intelligence necessitates precise legislative regulation to avoid



rights violations and breaches of confidentiality. The key to successfully providing quality legal services lies in artificial intelligence assisting lawyers, notaries, experts, barristers, judges, registrars, and investigators in preparing procedural and legal documents, searching for judicial practice, and applying the necessary legislative standards.

Summing up the existing scientific positions, the practice of using, and technical achievements in artificial intelligence usage when providing legal services, as well as its possible forms or mechanisms of application, the aim is to develop high-quality artificial intelligence for legal services provision. Firstly, we propose establishing a unified definition of artificial intelligence in the realm of legal services, which refers to a software product (digital device) that, as an object of relations, receives a specific query from the subject of these relations, gathers, analyses, and processes the given information, and as a result of the programme's work, provides a ready and objective decision that demonstrates human intellectual activity working analogously to human reasoning.

The next step involves determining the forms of artificial intelligence that can be employed in the field of legal services provision and further regulating their usage, means, and mechanisms of action: (i) computer programmes; (ii) information technologies with artificial intelligence (digital devices, chatbots, databases, electronic applications); (iv) electronic lawyer, electronic judge, electronic expert, electronic notary, electronic investigator, electronic advocate, electronic registrar (robotics, robototechnics).

Within the broad range of legal services provided by artificial intelligence, specific examples include constructing legal positions, offering legal consultations, preparing procedural and legal documents, including contracts, modelling court decisions, determining relevant legal consequences, conducting various types of expertise, carrying out investigative-procedural actions, providing registration services, examining evidence, and identifying or establishing a person's identity. To facilitate the search for solutions to specific tasks and simplify the process of modelling legal positions, crafting relevant decisions, preparing separate procedural and legal documents, and expert conclusions, we propose outlining appropriate filters or detail parameters for each individual legal service.



AUTHORSHIP AND LEVEL OF CONTRIBUTION

Nataliia Khatniuk conceptualized and designed the study, analysed and interpreted data, and wrote the initial draft of the manuscript.

Tetiana Shestakovska conducted a systematic literature review, contributed to the study design, provided critical feedback on the manuscript, and approved the final version of the manuscript.

Viktor Rovnyi contributed to the study design, provided technical support for data analysis, and reviewed and edited the manuscript.

Nelli Pobiianska contributed to the study design, conducted data analysis, and provided feedback on the draft manuscript.

Yuriy Surzhyk contributed to the study design, provided consultations on legal aspects of artificial intelligence, and reviewed the manuscript.



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