THE DIGITAL ERA OF CRIMINAL JUSTICE AND ITS FEATURES DUE TO THE CURRENT DEVELOPMENT OF COMPUTER TECHNOLOGY AND ARTIFICIAL INTELLIGENCE

A ERA DIGITAL DA JUSTIÇA PENAL E SUAS CARACTERÍSTICAS DEVIDO AO DESENVOLVIMENTO ATUAL DA INFORMÁTICA E DA INTELIGÊNCIA ARTIFICIAL

LA ERA DIGITAL DE LA JUSTICIA PENAL Y SUS CARACTERÍSTICAS DEBIDO AL DESARROLLO ACTUAL DE LA TECNOLOGÍA INFORMÁTICA Y LA INTELIGENCIA ARTIFICIAL

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Abstract

The article considers and studies the pros and cons of digital criminal justice with due regard to the latest scientific achievements in the field of computer technology, neural networks, and artificial intelligence. The digitalization of criminal justice is an inevitable result of a radical change in the way of life, which was influenced by the rapid development of electronic information technologies. Currently, they are used in criminal justice as a means of assisting the judge and other parties to criminal proceedings in improving the quality of their work, reducing the time and effort spent on the implementation of the procedural rights and obligations assigned to them. The study of the Russian litigation practice has shown that the list of specific forms of using computer technologies is quite long in criminal proceedings. Due to the emergence of neural networks and the consistent implementation of artificial intelligence, scientific literature suggests the complete replacement of traditional criminal justice with the electronic (automated) implementation of criminal proceedings, including criminal cases considered on the merits.

Keywords: criminal justice, digitalization of judicial activity, artificial intelligence, classification of crimes, legal reference system



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Resumo

O artigo considera e estuda os prós e os contras da justiça criminal digital, levando em conta as mais recentes conquistas científicas no campo da tecnologia de computadores, redes neurais e inteligência artificial. A digitalização da justiça criminal é um resultado inevitável de uma mudança radical no modo de vida, que foi influenciado pelo rápido desenvolvimento das tecnologias de informação eletrônica. Atualmente, são utilizados na justiça penal como meio de auxiliar o juiz e demais partes do processo penal na melhoria da qualidade do seu trabalho, reduzindo o tempo e o esforço despendidos na implementação dos direitos e obrigações processuais que lhes são atribuídos. O estudo da prática contenciosa russa mostrou que a lista de formas específicas de uso de tecnologias de computador é bastante longa em processos criminais. Devido ao surgimento das redes neurais e a implementação consistente da inteligência artificial, a literatura científica sugere a substituição completa da justiça criminal tradicional pela implementação eletrônica (automatizada) de processos criminais, incluindo casos criminais considerados no mérito.

Palavras-chave: justiça criminal, digitalização da atividade judiciária, inteligência artificial, classificação de crimes, sistema de referência legal

Resumen

El artículo considera y estudia los pros y los contras de la justicia penal digital teniendo en cuenta los últimos avances científicos en el campo de la tecnología informática, las redes neuronales y la inteligencia artificial. La digitalización de la justicia penal es el resultado inevitable de un cambio radical en la forma de vida, en el que influyó el rápido desarrollo de las tecnologías de la información electrónica. Actualmente, se utilizan en la justicia penal como un medio para ayudar al juez y otras partes del proceso penal a mejorar la calidad de su trabajo, reduciendo el tiempo y el esfuerzo dedicados a la implementación de los derechos y obligaciones procesales que se les asignan. El estudio de la práctica litigante rusa ha demostrado que la lista de formas específicas de uso de tecnologías informáticas es bastante larga en los procesos penales. Debido a la aparición de las redes neuronales y la implementación constante de la inteligencia artificial, la literatura científica sugiere el reemplazo completo de la justicia penal tradicional por la implementación electrónica (automatizada) de los procesos penales, incluidos los casos penales considerados sobre el fondo.

Palabras clave: justicia penal, digitalización de la actividad judicial, inteligencia artificial, tipificación de delitos, sistema de referencia legal

1. INTRODUCTION

The current informatization of society has radically changed all spheres of its life. Those types of activities that previously could only be performed by a person are now doable by computer technology. According to historical standards, computer technology has appeared relatively recently. It is generally accepted that the first universal electronic computer based on a lamp was developed in the USA in 1945. Prototypes of computer devices appeared even earlier. In 1922, Charles Babbage, Professor of Mathematics from England, invented an analytical and calculating machine. However, its characteristics differed from modern computers and it could not be connected with the history of computer



equipment. The first computers aimed at performing complex computational operations, therefore they were called electronic computers. Subsequently, the functions of computer devices expanded significantly. They began to be used to process large amounts of information since this was required by the rapid development of industrial relations in society. During its short history, computer technologies have improved so much that now artificial intelligence can fully replace human intellectual activity.

This optimism is conditioned by the fact that the field of information technology, like no other branch of science and technology, has undergone large-scale transformations in such a short time. Computer devices have not only significantly increased their power (the amount of data processed), they have also decreased in size, which made them portable and cheaper in financial terms. As a result, they became available to the majority of the population. All these factors stipulated the large-scale digitalization of society, expanding the application of computer technologies. In developed economies, computer devices have long become an attribute of the daily lifestyle (life) of a modern person. In several cases, the close relationship of a person with computer technology turns into an acute socio-psychological problem. This is especially true of adolescents, whose growing up coincided with the ongoing digitalization of society. While dwelling on this issue, experts mainly focus on the video game addiction of young people (Ronzhin, 2018) and their Internet addiction (Udovenko, 2017). However, the reality is much more complicated than it might seem at first glance. Dependence on computer technology has negative consequences in many areas of human life, including intellectual and communication skills. While scientists develop effective measures to solve this problem, the use of digital technologies continues to expand since the scientific and technological progress of society cannot be stopped. For example, a group of Russian scientists developed the concept of an electronic budget (Kiselev, et al., 2018) to reduce the number of abuses in the financial sector. This process was accelerated by the coronavirus pandemic, which led to a decrease in interpersonal contacts and replaced them with virtual communication (safer in the conditions of infectious diseases). Such a traditional sphere of human activity as criminal justice also goes through digitalization.

2. Methods

A comprehensive study of the new digital reality of criminal justice is not possible without an extensive methodological and scientific base that will help to draw substantiated and correct conclusions on the theoretical and practical issues under consideration. It



Revista Jurídica Unicuritiba. Curitiba.V.3, n.70 p. 826-837 [Received/Recebido: Dezembro 17, 2021; Accepted/Aceito: Março 15 2022] Esta obra está licenciado com uma Licença <u>Creative Commons Atribuição-NãoComercial 4.0 Internacional</u>. mainly includes general scientific methods due to a rather wide research object and subject: analysis, synthesis, comparison, generalization, observation, the historical method, experiment, etc. The above-mentioned methods aim at revealing advantages and determining disadvantages in the use of artificial intelligence and computer technologies in the organization and conduct of criminal proceedings. In this regard, it is necessary to consider the opinions of specialists on the optimal digitalization of criminal proceedings. A crucial role in the study is played by legal and sociological methods. Their use is due to criminal justice as a specific area of digital technologies and artificial intelligence.

3. Results and Discussion

Criminal justice is the activity of judicial authorities aimed at considering and resolving criminal cases. It has great social significance as it plays a decisive role in ensuring law and order in society. Therefore, it is not possible to fully automate modern criminal justice. Nevertheless, digital technologies actively enter into this area of professional activity. They are used in criminal justice in the following forms: 1) for preparing procedural documents (court decisions, sentences, etc.); 2) for consulting with electronic reference legal systems (for example, "Konsultant Plus", "Garant", "Kodeks") which have different levels of convenience and coverage of legal materials; 3) for holding virtual court hearings via Zoom, Skype and similar electronic platforms; 4) for submitting various documents to judicial authorities (complaints, appeals) using the Internet and the related services; 5) for posting materials on the activities of judicial authorities in the field of administering criminal justice on the Internet; 6) for transferring all forensic records to the electronic format; 7) for recording court sessions using various computer technologies and digital devices.

The common thing that unites all the above-mentioned forms of using digital technologies in criminal proceedings is that they are auxiliary, i.e. they do not replace a person but make it easier to consider and resolve criminal cases. In modern scientific literature, calls are often heard not to be limited to this. The growing involvement of digital technologies in criminal justice is associated with the possible emergence of artificial intelligence. According to K.S. Novikova, "artificial intelligence, in this case, does not act as a technical device aimed at optimizing legal proceedings, it is rather an alternative to the functions exercised by a judge" (Novikova, 2020, p. 241). Theoretically, there are three options for using artificial intelligence in the field of criminal justice: 1) to consider and resolve criminal cases in full without human participation; 2) to administer criminal justice



Revista Jurídica Unicuritiba. Curitiba.V.3, n.70 p. 826-837 [Received/Recebido: Dezembro 17, 2021; Accepted/Aceito: Março 15 2022] Esta obra está licenciado com uma Licença <u>Creative Commons Atribuição-NãoComercial 4.0 Internacional</u>. in full, but under human control; 3) to participate in certain aspects of judicial activities for the consideration and resolution of criminal cases, which is mainly of a technical (auxiliary) nature.

Before talking about the amount and ways of participation of artificial intelligence in criminal justice, we should ask ourselves two significant questions. The first issue is related to the availability of a purely technical ability to administer criminal justice by artificial intelligence. One thing can be said for sure: nowadays there is no artificial intelligence that could fully replace the human mind. At the moment, artificial intelligence is quite capable of assisting a person in professional activities but cannot completely replace people. This is especially true for professions requiring a high level of creative skills. The judge is one of those professions where developed creative qualities are needed because the judge's activity in solving certain legal issues is not just a series of simple logical operations that can be easily algorithmized but the formulation of new conclusions. In common law countries, judicial authorities fulfill their lawmaking function by creating judicial precedents. In the continental (Romano-Germanic) system of law, judges are not endowed with such a function but widely use their creative abilities in the process of interpreting legal norms and establishing their connection with specific life situations. It is also necessary to take into account that such categories as a sense of responsibility, introspection, moral self-control, and self-condemnation are inaccessible to artificial intelligence (Sycheva, 2019, p. 15). Thus, it is still difficult to create universal artificial intelligence that would be suitable for solving any problem of criminal proceedings, even at the conceptual level.

The concept of artificial intelligence is still controversial since not all scientists have the same vision. For instance, G.S. Osipov believed that artificial intelligence was the subject of computer science and the technologies created on its basis were information technologies that allowed intelligent reasoning and actions to be performed using computing systems and other artificial devices (Osipov, 2001, p. 5). Considering the concept of artificial intelligence in the field of jurisprudence, P.M. Morkhat claimed that it should be understood as a fully or partially autonomous self-organizing computer-hardware-software virtual or cyberphysical, including biocybernetic, system capable of thinking, self-organizing, learning and making independent decisions, etc. (Morkhat, 2017, p. 69).

The definition of artificial intelligence is also contained in Russian legislation. Clause 5 of the National Strategy on the Development of Artificial Intelligence approved by Decree of the President of the Russian Federation of October 10, 2019 No. 490 "On



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the Development of Artificial Intelligence in the Russian Federation" defines it as a set of technological solutions that allow to simulate human cognitive functions (including selflearning and finding solutions without a predetermined algorithm) and obtain, when performing specific tasks, results, at least, comparable with the results of human intellectual activity (The Collected Acts of the Russian Federation of October 14, 2019). The "at least" word in the above-mentioned definition is unnecessary since different people have different intellectual abilities, which means that the results of human intellectual activity are not the same. Difficulties are also caused by the objective measurement of human intellectual abilities. Human intelligence is a too multifaceted phenomenon that is difficult to reduce to a few basic parameters. In 1983, Howard Gardner created a theory according to which a person has eight different types of intelligence: linguistic, logicalmathematical, spatial, bodily-kinesthetic, musical, interpersonal, intrapersonal, and naturalist (BrainApps.ru, 2016). Although this theory was not widely accepted in the scientific community, it has a rational kernel. The number of tasks that a modern person faces in daily life is so great and diverse that when solving them it is necessary to use intellectual qualities that differ from each other. The tests currently used to determine IQ (intelligence quotient) are valid but cannot fully assess the entire intellectual potential of a person. Humankind is not fully aware of all the possibilities that the mind given by nature provides. Of course, no country in the world has created such a machine that could reproduce all the intellectual abilities of a mentally healthy and socially developed person. Artificial intelligence can significantly exceed the level of human abilities in solving tasks of the same type. For example, there are computer programs that can guite easily beat a person at chess. This rule refers not to ordinary people but winners of the world chess championships, i.e. the best of the best in this game. As for purely mathematical abilities, computer technologies initially surpassed an average person in the ability to quickly, accurately, and correctly make various calculations. However, a person still has no equal in the ability to implement creative functions. This quality is especially important in the administration of criminal justice. Some scientists claim that artificial intelligence is technologically ready to solve the entire range of tasks related to the administration of criminal justice. They base their reasoning on the fact that artificial intelligence is a rapidly developing phenomenon, whose potential and abilities are growing day by day. For example, American scientists conducted an experiment and made artificial intelligence analyze decisions of the European Court of Human Rights. In the process, it was found that artificial intelligence was able to predict the decisions of this court in 79% of cases after studying the case materials (Vasilev, Shpopper, & Mataeva, 2018, p. 40).



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The second issue is social. It reveals the public need to replace a person in criminal proceedings with artificial intelligence. Simply put, the second question is whether to change human criminal justice to the activity of artificial intelligence for the consideration and resolution of criminal cases. How can society benefit from this? In the end, digitalization is not carried out for its own sake but to make the life of people safer, more comfortable, and better in all its aspects. The answer to this question presupposes the clarification, first of all, of shortcomings that human activity has in the administration of criminal justice and which can be eliminated by the introduction of artificial intelligence into the work of the judiciary. There is no doubt that most shortcomings of human justice are directly related to human nature and inherent vices: laziness, greed, selfishness, bias, fear, etc. This stipulates all the negative aspects of the criminal justice involving a person that annoy society: a low level of professionalism of judges, significant corruption risks, errors in the legal assessment of facts, the ability to put pressure on the court when making decisions, opportunistic considerations of judges making decisions in one or another benefit, etc. Theoretically, artificial intelligence is quite capable of eliminating all these violations in the work of criminal justice. However, not only vices are inherent in people but also numerous virtues. They are characterized by mercy, compassion, a sense of duty, which artificial intelligence cannot possess. These are very significant qualities in the work of criminal justice, without which its full-fledged administration is unthinkable. The humanistic aspect is also important in this regard. Putting digital technologies at the head of criminal justice, humankind recognizes the power of the machine and allows the latter to control its own destiny. This is not to mention the fundamental change in the nature of criminal and criminal procedural relations from the standpoint of their composition. In human justice, the court represents the state in relations with the guilty person and the victim. The transfer of functions for administering justice to artificial intelligence deprives the defendant of the opportunity to interact with living representatives of the state apparatus and to exert the influence provided by law on the course of criminal proceedings while realizing one's procedural rights in full. Indeed, all these issues can be gradually resolved but many people are not psychologically ready to make equal contact with artificial intelligence, which can complicate the implementation of judicial activities to consider and resolve criminal cases.

Hence, we can make an unambiguous conclusion that there is no real social need for the consideration of criminal cases only with the help of artificial intelligence. This does not mean that artificial intelligence cannot be used in the field of criminal proceedings. In criminal justice, it is quite possible to use artificial intelligence in its strongest capacities,



Revista Jurídica Unicuritiba. Curitiba.V.3, n.70 p. 826-837 [Received/Recebido: Dezembro 17, 2021; Accepted/Aceito: Março 15 2022] Esta obra está licenciado com uma Licença <u>Creative Commons Atribuição-NãoComercial 4.0 Internaciona</u>I. namely in solving specific problems. The criminal procedural activity of courts is expressed in two main aspects: 1) substantive, i.e. the establishment of offense-related facts; 2) formal, i.e. the legal assessment of the act committed by the guilty person. None of these aspects of the court's activities for the consideration and resolution of criminal cases should be fully entrusted to artificial intelligence due to their complexity. At the same time, artificial intelligence will be able to participate in certain types of judicial activity, for example, when determining the type and amount of penalty. This will help remove many claims addressed to courts and related to the fairness of the punishment imposed on the perpetrator, which is especially important for countries whose criminal legislation provides limited sanctions of criminal law norms. Some progress has already been achieved in this direction. On May 14, 2019, the program "Electronic scales of justice" was launched in Azerbaijan. Besides specialists in the field of computer technologies, doctors of law and professors I.M. Ragimov and Kh.D. Alikperov participated in its development. This program determines the type and amount of punishment within the limits provided for by the Criminal Code of the Republic of Azerbaijan and recommended to be appointed to the guilty person (Pashentsev, 2020, p. 8). The Russian judicial practice needs a similar program. At the same time, it should not accurately determine the type and amount of punishment that a court recommends to be imposed on the guilty person. It would be enough if such a program indicates the sanction from the article that it recommends the court to apply to the person who committed the crime, thereby reducing the limits of punishment established by criminal law.

In addition to imposing punishment, artificial intelligence could be effectively used in the classification of crimes. Academician V.N. Kudryavtsev highlighted the need to use computers for such purposes. In one of his scientific works, he provided an example of the practical use of computers in this activity by G.I. Bushuev. In the mid-1990s, the scholar collaborated with a team of mathematicians and developed a program for the classification of crimes associated with man-made disasters, accidents, and casualties (Kudryavtsev, 1999, p. 8).

The commission of even the most common crimes (for example, theft through the use of computer technology) makes it relevant to properly assess and prove the methods of their commission in the modern information society. This is especially important for the theft of non-cash funds, whose investigation is impossible without knowledge in the field of digital technologies (Tretiak, & Ryabova, 2020).

We recommend using artificial intelligence in criminal proceedings based on the following principles:



1) The principle of human control, i.e. all the decisions of artificial intelligence should be subject to verification by the court, especially in case of doubt about their compliance with legal norms and factual circumstances of the case. Thus, the legal fate of offenders lies in the hands of human justice.

2) The principle of reversibility of verdicts delivered by artificial intelligence, which states that its decisions should not have such legal or actual consequences that cannot be eliminated, and the position of parties to criminal proceedings should be returned to their original state. Based on the decision of artificial intelligence, the perpetrator cannot be subject to the death penalty in those countries where it is still applied.

3) The principle of limited use, assuming that artificial intelligence in judicial activity should solve specific tasks assigned to it. Artificial intelligence should not determine the guilt or innocence of the person who committed the crime, or replace judicial authorities when interacting with the defendant or the victim. Within the framework of criminal proceedings, artificial intelligence can consider and resolve only such issues that require the implementation of simple logical operations leading to certain conclusions. Controversial, complex, and convoluted criminal cases should not be reviewed and resolved solely by artificial intelligence.

The principle of using artificial intelligence of the same level of complexity. 4) Currently, the development of artificial intelligence in different countries proceeds at different rates. Even in one country, companies engaged in the development of artificial intelligence can be at different levels of creating these technologies. According to the Chinese Academy of Sciences, leaders in the field of artificial intelligence were Microsoft, Google, and Facebook as of 2019 (InvestFuture, 2020). This suggests that the artificial intelligence of different developers will have different levels of cognitive abilities. The use of artificial intelligence created by different developers in the criminal proceedings of one country will violate the principle of equality before the law. We are not the only ones to feel the severity of this issue. In relation to computer technology, many scientists operate with the concepts of strong and weak types of artificial intelligence, implying their unequal ability to solve problems of varying degrees of complexity. The performance of the most complex logical operations by artificial intelligence does not indicate an understanding of their true meaning, which is very important for criminal procedural activities. However, the idea of strong artificial intelligence still has its supporters. The Australian-American philosopher D. Chalmers defended the version of strong artificial intelligence and successfully parried all attacks aimed at criticizing this type (Chalmers, 1996).



Since court activities for the consideration and resolution of criminal cases are described as highly intellectual, only the most advanced artificial intelligence created by humankind can be used for these purposes. However, it is necessary to pay special attention to the fact that certain difficulties will inevitably arise when using artificial intelligence in criminal justice. Firstly, artificial intelligence is a technology with almost limitless development potential that is being realized in real life. Consequently, criminal cases will be considered by a more advanced artificial intelligence, which will deliberately put persons who committed crimes at different times in unequal conditions in the face of criminal justice. Secondly, artificial intelligence is developed mainly by private transnational corporations with huge financial resources. Through technical and software-based support for the activities of artificial intelligence in the field of criminal proceedings, they will be able to gain control over the state function of ensuring and maintaining law and order.

5) The use of artificial intelligence in criminal proceedings should not deteriorate the position of the guilty person or the victim if the former takes part in the administration of justice in a criminal case, as well as violate the rights and freedoms guaranteed by universally recognized international documents or constitutional acts. This principle of using artificial intelligence in the criminal procedural activity of courts is a special manifestation of a fundamental legal principle, i.e. the principle of humanism.

6) The principle of voluntary consent to using artificial intelligence in criminal proceedings. The defendant, the victim, and other parties to criminal proceedings shall voluntarily agree that artificial intelligence will be used in the criminal process they are involved in. The consent signed by all the parties should indicate the technical parameters of artificial intelligence, its brand name, and developer, forms, and methods of using it in court activities, the possibility of appealing the decisions made by it. The use of artificial intelligence in court activities for the administration of criminal justice should not, under any circumstances or in any way, limit the procedural rights of persons participating in criminal proceedings.

The above-mentioned principles of using artificial intelligence in criminal proceedings shall be consolidated at the legislative level, preferably in an international document. Thus, its provisions will help bring the norms of national legal systems of different countries to a certain standard and regulate this system of public relations. This document can be called a convention on the use of artificial intelligence, digital and computer technologies in the work of international and national courts. It is worth mentioning that such attempts have already been made. In November 2017, the draft Model Convention on Robotics and Artificial Intelligence was published on the Internet by



Revista Jurídica Unicuritiba. Curitiba.V.3, n.70 p. 826-837 [Received/Recebido: Dezembro 17, 2021; Accepted/Aceito: Março 15 2022] Esta obra está licenciado com uma Licença <u>Creative Commons Atribuição-NãoComercial 4.0 Internaciona</u>l. Andrey Neznamov and Viktor Naumov (Robopravo, 2020). According to Article 32 entitled "Conscious interaction", "any human interaction with artificial intelligence should not be carried out without the instruction and consent of such a person". In terms of content, this article is similar to the last of the above-mentioned principles of using artificial intelligence in criminal proceedings, which is expressed in the voluntary consent of the parties to criminal proceedings to use artificial intelligence.

4. Conclusion

The effective use of artificial intelligence in the field of criminal justice is impossible without the appropriate training of legal personnel with a certain level of digital literacy. In this regard, scientific works emerge that provide a proper theoretical and methodological basis for combining the practical skills of lawyers with the ability to use the latest computer and information technologies in their professional activities (Smirnov, et al., 2020). Certain assistance in solving this issue is provided by a variety of additional educational programs on the use of digital technologies and artificial intelligence in the legal practice implemented by leading Russian and foreign universities.

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