

Blockchain and civil proceedings: points of convergence

Blockchain y procesos civiles: puntos de convergencia

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Abstract

The rapid development of information technology and the creation of an information society requires the transformation of all spheres of public life. Justice and the civil process remain unchanged, as the latest information technologies have become an indispensable tool in the field of justice for the effective governance and proper functioning of democracy, and on the other hand they remain a significant challenge. Given these circumstances, it is important to analyze the features of the introduction of blockchain technology in civil proceedings and to explore points of contact on this issue. The work aims to study the place of blockchain in civil proceedings, analysis of problematic issues, and prospects for the introduction of blockchain technologies in civil cases. The object of research is the points of convergence between the blockchain and the civil process. The subject of the study is the social relations that arise, change and end when using blockchain technologies in civil proceedings. The research methodology is a set of philosophical, general scientific, and special methods of scientific knowledge, such as comparative law, hermeneutic, historical, method of analysis, generalization, synthesis, and analogy. As a result of the research, international trends in the use of blockchain technologies in civil proceedings were analyzed, as well as attention was paid to national developments on the research topic. In addition, the article considers the institutions of civil procedural law, in which it is possible and appropriate to use blockchain technology. The use of this technology will significantly change the usual rules of civil proceedings and may change the procedural guarantees of judges. Therefore, provided that blockchain technologies are used safely and in a coordinated manner in civil proceedings, the state will be able to modify the guarantees of justice, reduce the burden on the courts, unify judicial practice, and provide convenience for the parties.

Key words: Blockchain, blockchain platform, civil process, online court, technology.

Resumen

El rápido desarrollo de la tecnología de la información y la creación de una sociedad de la información requiere la transformación de todas las esferas de la vida pública. La justicia y el proceso civil se mantienen inalterables, pues las últimas tecnologías de la información se han convertido en una herramienta indispensable en el campo de la justicia para la efectiva gobernabilidad y el buen funcionamiento de la democracia, y por otro lado siguen siendo un importante desafío. Dadas estas circunstancias, es importante analizar las características de la introducción de la tecnología *blockchain* en los procesos civiles y explorar puntos de contacto sobre este tema. El trabajo tiene como objetivo estudiar el lugar de *blockchain* en los procedimientos civiles, el análisis de cuestiones problemáticas y las perspectivas para la introducción de tecnologías *blockchain* en casos civiles. El objeto de investigación son los puntos de convergencia entre *blockchain* y el proceso civil. El objeto de estudio son las relaciones sociales que surgen, cambian y terminan al utilizar tecnologías *blockchain* en procesos civiles. La metodología de la investigación es un conjunto de métodos filosóficos, científicos generales y especiales del conocimiento científico, tales como el derecho comparado, la hermenéutica, la histórica, el método de análisis, la generalización, la síntesis y la analogía. Como resultado de la investigación, se analizaron las tendencias internacionales en el uso de tecnologías *blockchain* en procesos civiles, así como también se prestó atención a los desarrollos nacionales en el tema de investigación. Además, el artículo considera las instituciones del derecho procesal civil, en las que es posible y adecuado utilizar la tecnología *blockchain*. El uso de esta tecnología cambiará significativamente las reglas habituales de los procedimientos civiles y puede cambiar las garantías procesales de los jueces. Por lo tanto, siempre que las tecnologías *blockchain* se utilicen de manera segura y coordinada en los procesos civiles, el Estado podrá modificar las garantías de justicia, reducir la carga de los tribunales, unificar la práctica judicial y brindar comodidad a las partes.

Palabras clave: *blockchain*, proceso civil, plataforma *blockchain*, tecnología, tribunal en línea.

Resumo

O rápido desenvolvimento da tecnologia da informação e a criação de uma sociedade da informação exigem a transformação de todas as esferas da vida pública. A justiça e o processo civil permanecem inalterados, pois as mais recentes tecnologias de informação tornaram-se uma ferramenta indispensável no campo da justiça para a governança efetiva e o bom funcionamento da democracia e, por outro lado, continuam sendo um desafio significativo. Diante dessas circunstâncias, é importante analisar as características da introdução da tecnologia *blockchain* no processo civil e explorar pontos de contato sobre esse assunto. O trabalho tem como objetivo estudar o lugar do *blockchain* no processo civil, análise de questões problemáticas e perspectivas para a introdução das tecnologias *blockchain* no processo civil. O objeto de pesquisa são os pontos de convergência entre a *blockchain* e o processo civil. O tema do estudo são as relações sociais que surgem, mudam e terminam ao usar tecnologias *blockchain* em processos civis. A metodologia de pesquisa é um conjunto de métodos filosóficos, científicos gerais e especiais de conhecimento científico, como direito comparado, hermenêutico, histórico, método de análise, generalização, síntese e analogia. Como resultado da pesquisa, foram analisadas as tendências internacionais no uso de tecnologias *blockchain* em processos civis, bem como foi dada atenção aos desenvolvimentos nacionais sobre o tema da pesquisa. Além disso, o artigo considera os institutos do direito processual civil, em que é possível e adequado o uso da tecnologia *blockchain*. O uso dessa tecnologia alterará significativamente as regras usuais do processo civil e poderá alterar as garantias processuais dos juízes. Portanto, desde que as tecnologias *blockchain* sejam utilizadas com segurança e, de forma coordenada, nos processos cíveis, o Estado poderá modificar as garantias da justiça, diminuir o ônus dos tribunais, unificar a prática judiciária e proporcionar comodidade às partes.

Palavras-chave: *Blockchain*, processo civil, plataforma *blockchain*, tecnologia, tribunal online.

I. INTRODUCTION

In modern conditions of the development of public relations, more and more attention is paid to the use of the latest technologies to resolve disputes in civil proceedings. The issue of digitalization of the judiciary became especially relevant during the COVID-19 coronavirus pandemic. One way to use information technology in civil proceedings is to use blockchain technology.

In general, a blockchain is a distributed registry based on cryptographic algorithms that contain a database of all previous transactions, and is decentralized. One of the main advantages of using blockchain technology is that it operates on a platform of decentralized (distributed) databases. The information in this registry is stored on multiple independent computers that are not connected by a single owner or location. Copies of the same database are hosted on different servers, so it is impossible to change the information alone. Blockchain technology involves storing the same database on different servers and encrypting data¹.

1 Ihor Britchenko & Yuliia Danshina. ADVANTAGES, OPPORTUNITIES AND DISADVANTAGES OF BLOCKCHAIN TECHNOLOGY. Financial and Credit Mechanism of Activation of the Investment Process: Collection of Materials of the III International Scientific-Practical Conference. Kyiv: KNEU. (2017). P. 106-109.

Blockchain is a very promising technology for many areas of business, including law. There are many options for using blockchain technology in the judiciary: from automating accounting processes, abandoning paperwork, and improving the security of data storage, to controlling access to them and the use of smart-contracts in making certain court decisions.

The increase in the scope of blockchain and virtual assets requires the creation of a legal framework for regulating relations in the field of application of systems based on this technology. At the legislative level in Ukraine, it needs the concept for the development of digital competencies and approval of the action plan for its implementation (Law 167-r, 2021)². Also, the emphasis is on computerization of social infrastructure, virtualization and provision of cloud services, and legalization of virtual assets (adopted the Law "On Virtual Assets", not yet entered into force)³. Regarding the international guarantee of data security, including the use of blockchain technology, guidelines are contained in Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016, on the protection of natural persons concerning the processing of personal data and the free movement of such data, and repealing Directive 95/46/EC⁴.

As for the help of blockchain technologies in civil proceedings, at first glance it is more used for private law purposes: fixing smart-contracts, registration of intellectual property, and investment in ISO format, and on the other hand, there are ample opportunities for the use of this technology in civil proceedings. Moreover, the use of the blockchain in the judicial process not only automates but also builds trust in judges. For example, a judge will be able to have his/her unique identifier and thus confirm his/her participation in the process, and the decision with this signature written in the blockchain can be supplemented, but the original version cannot be corrected/changed. The automation of the judiciary through the introduction of blockchain technologies is the near future, although of course justice is not an exact science and is based on morality, ethics, and justice, and it is quite difficult to digitize.

2 Law 167-r of 2021. On approval of the Concept of development of digital competencies and approval of the action plan for its implementation: Order of the Cabinet of Ministers of Ukraine. March 3, 2021 (Ukraine). Available at: <https://zakon.rada.gov.ua/laws/show/167-2021-p#Text>

3 Law 2074-IX of 2022. On Virtual Assets. February 17, 2022 (Ukraine). Available at: <https://zakon.rada.gov.ua/laws/show/2074-20#Text>

4 See: Trade Union of Education and Science Workers of Ukraine. *UN Report on the Internet and Technology: Challenges and Benefits for Society*. 2019; Regulation (EU) 2016/679 of 2016. On the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation). European Parliament and of the Council of 27 April 2016. Available at: <https://eur-lex.europa.eu/eli/reg/2016/679/oj>

Given the urgency of the issue of implementing the blockchain in the judiciary, it is important to study in detail the points of contact between the blockchain and the civil process.

II. METHODOLOGY

The authors used a set of methods of scientific knowledge, which allowed us to achieve our goals. Thus, the benefit of the comparative-legal method made it possible to resemble the legal characteristics of different countries and determine what measures should be taken to effectively use blockchain technology in civil proceedings. Given that the comparative-legal method contains a number of techniques, including macro and micro comparisons, internal and external, doctrinal, normative, functional, and other types of comparisons, the use of this method allows to determine the collision points of blockchain and civil process and accumulate empirical knowledge.

The hermeneutic method was utilized to interpret the content of laws and other regulations governing the usefulness of blockchain technology in public administration and the judiciary. This method allowed to qualitatively interpret the content of legal texts, making it possible to understand the will of the legislator concerning the question of the place of blockchain technology.

Moreover, the evolution of the use of blockchain technology and its introduction into the judicial systems of different countries has become possible to trace using the historical method. Insufficient use of the historical method in the study of social institutions reduces the potential for any research. Without recourse to the historical explanation of the essence of the legal phenomenon, it becomes impossible to comprehensively understand the processes of origin, formation, development, and improvement of state and legal phenomena. In other words, without the historical reproduction of the legal life of society, it is impossible to fully comprehend it. Therefore, the help of the historical method played a significant role in this study.

The benefit of such a method of scientific knowledge as a generalization allowed to record the general features and properties of the civil process with the use of blockchain technology and without such use. This method also helped to combine information about the international experience of using the blockchain in civil proceedings and the views of scholars on this issue to find points of contact between the blockchain and the civil process.

Additionally, logical methods are also meaningful for research. Thanks to the method of analysis, the blockchain was studied as a tool for improving the civil

process. In addition, the works of scientists on the research issue and the following regulations were examined:

- The Constitution of Ukraine;
- The Civil Code of Ukraine;
- The Civil Procedure Code of Ukraine;
- The Law of Ukraine “On Virtual Assets”;
- The Order of the Cabinet of Ministers of Ukraine “On approval of the concept of development of digital competencies and approval of the action plan for its implementation”;
- Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016, on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC.

Finally, using the synthesis method, blockchain technology is presented as an integral part of the civil process. The method of analogy led to the extrapolation of scientific developments of methodological rules from other areas to the field of civil procedure.

III. LITERATURE REVIEW

Blockchain technologies are in the field of scientific interests of many scientists and lawyers in Ukraine and abroad. Therefore, Barabash⁵ examined the issue of blockchain technology by states and commercial companies. The author notes that the success of blockchain technologies will depend on a favourable regulatory climate, on the business ecosystem of each country, ready to take advantage of new technology opportunities, and on the appropriate industry structure. In many respects, the delay in the implementation of chain technology is due to the legislation of certain states and internal specifics, as in the case of Ukraine, where they are not yet ready to finally say goodbye to the «shadow» approach to management.

Peculiarities of the use of electronic litigation as a necessary element of the digital transformation of society and the state were studied by Bezhevets⁶. The

5 Yuliia Barabash. *Technology – To Work: What Determines the Development of the Blockchain in Ukraine*. 2021.

6 Alina Bezhevets. *Electronic litigation as a necessary element of digital transformation of society and the state*. INFORMATION AND LAW 35. 2020. P. 142-146.

advantages, opportunities, and disadvantages of blockchain technology were surveyed by Britchenko and Danshina⁷. The issue of the possibility of automating the proceedings with the help of blockchain technologies was investigated by Buyalska⁸.

What is more, Varavka⁹ studied the problems of legal regulation of smart-contracts as a form of civil law contract. The researcher found that despite the growing popularity of smart-contracts, their legal regulation in the world and Ukraine is virtually absent. Most countries around the world try to regulate smart-contracts with securities and financial instruments legislation, which does not correspond to the economic or legal content of a smart-contract. It was also concluded that Ukraine needs to recognize the most common cryptocurrencies as the official means of payment, as well as to issue its state cryptocurrency. According to the researcher, it is necessary to make changes to civil law in terms of defining a smart-contract as one of the types of civil law contract, which is expressed in the form of software code and is automatically executed in a distributed network. To minimize shortcomings, it is necessary to provide for mandatory identification of the parties to the smart-contract, as well as to introduce a mandatory electronic text appendix to the smart-contract, which will determine the terms of the contract and will have legal force in case of software code errors and conflicts between the parties in court.

Problematic issues of e-government implementation were considered by Gapeev¹⁰. Key elements and models of the organization of blockchain technology in space activities were interpreted by Gurova and Kirpachova¹¹. Prospects for the development of blockchain technology in Ukraine in various fields were explored by Davydova¹². Additionally, the problem of the impact of modern technologies of distributed data processing on social development, changes in attitudes that need proper legal regulation, and state influence was studied by Doronin¹³. Dumchikov and

7 Ihor Britchenko & Yuliia Danshina, *supra*, note 1.

8 Katya Buyalska. *And Who Are the Judges? – How Blockchain can Affect the Automation of Litigation*. CRYPTOTEXTY. 2018.

9 Vasyl Varavka. *Problems of Legal Regulation of Smart Contracts*. ACTUAL PROBLEMS OF JURISPRUDENCE 21. 2020. P. 143-151.

10 Leonid Gapeev. *E-government: Problems, Priorities, Tasks*. CIVIL SERVANT 3. 2018.

11 Anna Gurova & Mariia Kirpachova. *Legal principles of blockchain application in space activities: key elements and models of technology organization*. ENTREPRENEURSHIP, ECONOMY AND LAW 9. 2020. P. 24-30.

12 Iryna Davydova. *Blockchain Technology: Prospects for Development in Ukraine*. JOURNAL OF CIVILIZATION 26. 2017. P. 38-41.

13 Ivan Doronin. *The Use of Modern Technologies of Distributed Data Processing: The Law and Functions of the State*. INFORMATION AND LAW 21. 2017. P. 51-58.

Shevtsov¹⁴ studied the prospects of using blockchain technology in the context of state formation and development.

In their work, Dyachenko and Shevchuk¹⁵ highlighted the theoretical and practical aspects of consolidating electronic evidence in civil proceedings in Ukraine and abroad. In particular, the authors explored the main differences in procedural legislation regarding the definition of electronic evidence, the benefit of the original electronic document and its copy, and the role of a qualified electronic signature to certify a copy. The authors also outlined the problematic issues in the use of electronic evidence in civil proceedings and suggested ways to improve electronic evidence by borrowing from the best practices of other countries, and assessed the possibility of introducing forensic methods in civil proceedings.

Moreover, Zasemkova¹⁶ considered the differences in resolving disputes using blockchain technology. The author emphasizes that one of the most significant technological achievements of recent times is blockchain technology, which is gaining more and more recognition and has an impact on a growing number of industries. With the development of new technologies, new types of disputes are emerging that cannot always be resolved through existing mechanisms, such as court or arbitration. Analyzing projects-analogs of courts, the author draws attention to the problems that may arise when using them, and ways to eliminate such shortcomings.

Sinegubov¹⁷ discussed the issues of understanding the blockchain as an object of civil rights. In her work, Chaikina¹⁸ evaluated the Institutes of Civil Law and procedural means by which the use of blockchain technologies is appropriate. Prospects for the introduction of artificial intelligence and blockchain technologies in commercial litigation were considered by Chernykh¹⁹. Shemshuchenko²⁰ considered problematic issues of using artificial intelligence in justice and ways to solve them.

14 Mikhail Dumchikov & Yaroslav Shevtsov. *The Prospect of Using Blockchain Technology in the Context of the Formation and Development of the State*. A YOUNG SCIENTIST 91. 2021. P. 267-271.

15 Serhii Dyachenko & Victor Shevchuk. *Electronic Means of Proof in Civil Proceedings*. CONSTITUTIONAL STATE 42. 2021. P. 145-153.

16 Olesia Zasemkova. *Dispute Resolution Using Blockchain Technology*. ACTUAL PROBLEMS OF RUSSIAN LAW 101. 2019. P. 160-167.

17 Oleh Sinegubov. *DEBATABLE ISSUES OF UNDERSTANDING THE BLOCKCHAIN AS AN OBJECT OF CIVIL RIGHTS*. Ministry of Internal Affairs of Ukraine, Kharkiv. 2021.

18 Anna Chaikina. *Applied application of blockchain technologies in civil proceedings*. UNIVERSITY NEWSPAPER 12. 2021. P. 165-170.

19 Oleksandr Chernykh. *Prospects for the Introduction of Artificial Intelligence and Blockchain Technologies in Commercial Litigation*. HIGHER SCHOOL OF ADVOCACY OF NAAU. 2021.

20 Valeriia Shemshuchenko. *Artificial Intelligence in Justice*. CENTER FOR DEMOCRACY AND THE RULE OF LAW. 2020.

Peculiarities of using blockchain technology in jurisprudence were considered by Allen, Lane and Poblet²¹. According to the authors, Blockchain technology serves as an infrastructure for the self-fulfillment of reasonable contracts. At the same time, these new contracting opportunities have created problems with resolving disputes. The authors also considered institutional governance opportunities for contracting parties (e.g., mediation, private arbitration, and courts) to create a dispute resolution border (DRPF). The authors also remark that blockchain technology is a technology that promotes new methods of dispute resolution, including for disputes arising from traditional legal agreements.

Further, Atzori²² examines the extent to which blockchain and decentralized platforms can be seen as hyperpolitical tools capable of managing social interactions on a large scale and rejecting traditional central authorities. The researcher's analysis highlights the risks associated with the dominance of private power in distributed ecosystems, which could lead to the general deprivation of citizens' rights and the emergence of a global state without citizenship. Although technological utopians insist on the demise of any centralized institution, this article advocates for the role of the state as a necessary central point of coordination in society, showing that algorithm-based consensual decentralization is an organizational theory rather than a separate political theory.

Decentralized justice has been addressed by researchers such as Aouidef, Deffains and Ast²³. According to the authors, traditional dispute resolution methods such as court and international arbitration are ineffective in dealing with large claims of low value across national borders, and decentralized justice is a new online dispute resolution approach that combines blockchain, crowdsourcing and game theory to create solutions that are radically more effective than existing methods. The authors review the decentralized justice industry and the key players involved. It presents several key industry dimensions and an overview of the choice of mechanism design made by these different platforms. Finally, the hypothesis of industry growth and how it may develop in the future is discussed.

21 Darcy Allen, Aaron Lane & Marta Poblet. *The Governance of Blockchain Dispute Resolution*. HARVARD NEGOTIATION LAW REVIEW 25. 2019. P. 75-101.

22 Marcella Atzori. *Blockchain Technology and Decentralized Governance: Is the State Still Necessary?* SOCIAL SCIENCE RESEARCH NETWORK. 2015.

23 Yann Aouidef, Bruno Deffains & Fwderico Ast. *Decentralized Justice: A Comparative Analysis of Blockchain Online Dispute Resolution Projects*. FRONT BLOCKCHAIN. 16 March 2021.

Peculiarities of litigation over bitcoins and other cryptocurrencies have been the subject of research by Brumberg and Tienne Wolff²⁴. According to De Filippi and McMullen²⁵, blockchain management can refer to two concepts: either managing a blockchain system or using a blockchain system to manage an external organization or process. This report focuses on first establishing and enforcing rules and processes for the development and operation of blockchain systems.

The role of the blockchain in resolving online disputes was considered by Katsh and Rabinovich-Einy²⁶. Besides, Naftalis and Frankel²⁷ considered the key details of patenting a blockchain on the example of litigation. The main question addressed in the article by Ølnes, Ubacht and Janssen²⁸ is whether blockchain technology will lead to innovation and transformation of government processes. To address this issue, the authors presented a critical assessment of the often-exaggerated benefits of blockchain technology that can be found in the literature, and discussed their implications for government organizations and processes.

The principles of blockchain technology were analyzed by Pilkington²⁹. Stannard³⁰ also reflected the analysis and features of blockchain technology in his work. The article by Zaprutin, Nikiporets-Takigawa, Goncharov, Sekerin and Gorokhova³¹ examines current trends in the development of the justice system due to the impact of digitalization, expressed in the use of digital technologies that complement the traditional system of evidence. The authors note that the use of evidence obtained by e-mail, electronic digital signatures and electronic documents is becoming more common.

24 John R. Brumberg & Peter St. Tienne Wolff. *Bitcoin, Cryptocurrencies, and Civil Litigation: Courts Reckon with the Dawn of an Emerging Asset Class*. PIETRAGALLO. 15 June 2021.

25 Primavera de Filippi & Greg McMullen. *Governance of Blockchain Systems: Governance of and by Distributed Infrastructure*. BLOCKCHAIN RESEARCH INSTITUTE AND COALA. 2018.

26 Ethan Katsh & Orna Rabinovich-Einy. (2019). *Blockchain and the Inevitability of Disputes: The Role of Online Dispute Resolution*. JOURNAL OF DISPUTE RESOLUTION 2. 2019. P. 47-75.

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28 Svein Ølnes, Jolien Ubacht & Marijn Janssen. *Blockchain in Government: Benefits and Implications of Distributed Ledger Technology for Information Sharing*. GOVERNMENT INFORMATION QUARTERLY 3. 2017. P. 355-364.

29 Marc Pilkington. *Blockchain Technology: Principles and Applications*. RESEARCH HANDBOOK ON DIGITAL TRANSFORMATIONS. Vol. 225. 2016. P. 225-253.

30 Liam Stannard. *Blockchain in Construction: How It Will Change the Industry*. BIG RENZ. 2021.

31 Denis Zaprutin, Galina Nikiporets-Takigawa, Vitaly Goncharov, Vladimir Sekerin & Anna Gorokhova. *Legal Practice in the Blockchain Era: The Use of Electronic Evidence*. REVISTA GÊNERO E-INTERDISCIPLINARIDADE 1. 2020.

According to Cheng, Daub, Domeyer and Lundqvist³², blockchain technology can simplify the management of trusted information by making it easier for government agencies to access and use critical public sector data while maintaining the security of that information. The application of LegalLedger-Blockchain as a way of resolving disputes was studied by Haridas, Saroj, Maddala and Kiruthika³³. Finally, the peculiarities of the online judicial system and problematic issues of such activities were considered by Susskind³⁴.

IV. RESULTS AND DISCUSSION

1. General principles of using blockchain technology

Today, blockchain technology is a revolutionary tool used to record transactions and link them together to form a "chain" known as a distributed book. The following blockchain principles can be identified:

- Secure multilayer encryption using mathematical functions hides data in an encrypted string that is difficult to crack;
- Decentralized connections, called "nodes", automatically verify transactions, leading to a digital paper trail of verified records;
- Scalable because the information is not stuck on the central server, the blockchain can be scaled to fit very large projects³⁵.

Blockchain technology can be used for any transaction or exchange of information involving government and the courts. The fundamental characteristics of this technology allow for a wide range of processes for asset register, inventory, and information exchange, both solid assets such as physical property and intangible assets such as patents, ideas, reputation, intentions, health data, and information. The potential benefits make the blockchain attractive for its use by the judiciary and other authorities. But at the same time, its distributed nature and the need to choose

32 Steve Cheng, Matthias Daub, Axel Domeyer & Martin Lundqvist. *Using Blockchain to Improve Data Management in the Public Sector*. MCKINSEY COMPANY. 2017.

33 Soumya Haridas, Shalu Saroj, Sairam Tushar Maddala & M. Kiruthika. *LegalLedger – Blockchain in Judicial System. Innovative Data Communication Technologies and Application*. DEVFOLIO. 2022.

34 Richard Susskind. *ONLINE COURTS AND THE FUTURE OF JUSTICE*. Oxford University Press. (2019).

35 Liam Stannard, *supra*, note 30.

a design require transformations on the part of the government to reap these benefits. While traditional systems have relatively simple controls, the distributed nature of the blockchain requires changes in responsibilities and new approaches to management³⁶.

2. International experience in using blockchain technology

The introduction of blockchain technologies in the judicial systems of the world's leading countries has its characteristics. Consider them in more detail. Country features of using the blockchain:

a. The People's Republic of China. There are three Internet courts in Hangzhou, Beijing, and Guangzhou. Litigation through the online court platform has the legal force of ordinary litigation, even though the Internet court makes decisions online. Internet courts have disputes related to online sales of goods and services, lending, copyright and related rights, infringement of personal non-property rights and/or property rights via the Internet, and infringement of rights to domain names claims for liability for product quality. Parties to litigation must be authenticated through online authentication, which includes certificate verification, biometric identification, or certification of a national unified authentication platform, and obtains a special account to use the online litigation platform. The parties and other participants in the trial shall submit exclusively in electronic form the materials of the trial, including identity cards, business licenses, power of attorney, identity card of the legal representative, as well as any evidence in the case. The document provided by the party, after approval by the Internet court, is considered appropriate evidence in the case and that corresponds to the original. If the other party denies the authenticity of the above materials and has reasonable grounds, the Internet court obliges the party to provide the court with the original of the disputed document³⁷.

Evidence provided in the process by the Internet court must be provided by e-commerce platform operators, network service providers, and relevant government agencies, and must be accessed in an orderly manner, verified by the Internet court, recorded in real-time, and securely protected. The court platform allows the user to use the Internet to view and search for evidence after identification. Users can create a proof, the hash of which is stored on the blockchain. In this way, the blockchain solves the issue of data generation by establishing the time, place, person, circumstances

³⁶ *Id.*

³⁷ TADVISER. 2020: *Courts in China Begin to Use Electronic Locks with a Blockchain to Protect Evidence*. 17 July 2020.

that occurred, etc. Internet courts use the platform to maintain electronic archives at the same time. Thus, paper case archives are completely transformed into electronic archives. Appeals in cases heard in Internet courts are considered online. The online hearing of the courts of the second instance takes place according to the rules of consideration of the case by the court of the first instance³⁸.

b. Dubai. The first blockchain-based court to establish a cryptocurrency industry center in the United Arab Emirates has been established in Dubai³⁹.

c. Moldova. It introduces artificial intelligence technologies for simplified proceedings⁴⁰.

d. Georgia. It introduces artificial intelligence technologies for simplified proceedings⁴¹.

The main factor that slows down the implementation of the blockchain in civil proceedings is the problem of identification and verification, *i.e.*, the actual interaction of the virtual world with the real one. The current system of civil proceedings in Ukraine does not even provide for uniform unified access of all participants in the case to the electronic exchange of documents, although Ukraine is moving towards this.

3. Convergence points of civil process and blockchain technology

Article 55 of the Constitution of Ukraine provides for the right to appeal in court against decisions, actions or omissions of public authorities, local governments and officials, and, therefore, the court must not refuse a person to accept or consider a complaint on the grounds provided by law⁴². The Civil Code defines the methods of protection of the violated right⁴³, and the Civil Procedure Code of Ukraine provides tools and regulates the procedure of such protection⁴⁴.

In general, the primary function of judges is to resolve a dispute over the right. The result of this function is a decision that comprehensively gives unambiguous

38 Alina Bezhevets, *supra*, note 6.

39 UAE-CONSULTING. *The DIFC Courts, together with Smart Dubai, will Launch the World's First Blockchain-Based Court*. 2018.

40 Oleksandr Chernykh, *supra*, note 19.

41 *Id.*

42 Law 254 of 1996. Civil Code of Ukraine. (Ukraine).

43 Law 435-IV of 2003. Civil Code of Ukraine. January 16, 2003 (Ukraine). Available at: <https://zakon.rada.gov.ua/laws/card/435-15>

44 Law 1618-IV of 2004. Civil Procedure Code of Ukraine. March 18, 2004 (Ukraine). Available at: <https://zakon.rada.gov.ua/laws/show/1618-15#Text>

answers to the requirements of the parties and supports the answers with legitimate and unambiguous reasons for such a decision. This is the result expected from the civil process by citizens who apply to the court, while the trial process is of interest to the parties as much as it is necessary to prove their position to the court.

The process of proving in the conditions of technological development is inevitably simplified: this is facilitated by numerous systems of information fixation – visual, biometric, textual, and positional. The digital footprint left by the citizen on a voluntary basis, following the need to simplify the receipt of any public and private services, is tremendous. The simplicity of capturing information in time and almost anywhere becomes sometimes a benefit, sometimes a threat⁴⁵.

In the described development, the place of dispute resolution will be relevant only in a small number of disputes, mostly indicated in the rules of exclusive jurisdiction. Given the rule that a judge should not perceive information directly to avoid cognitive distortion, for the vast amount of digital evidence often it does not matter where the judge deciding is located⁴⁶. Especially if the parties communicate with the judge remotely or do not communicate at all, as in summary proceedings. This means that the part of the dispute that does not require the presence of the parties can be resolved by absolutely any judge (judges), as it consists in choosing the reasoned position of one of the parties and the legal motivation of their choice. The operative part and the reasons for the judge's decision can be recorded in the system of distributed registers, where in case of appeal they will be considered collectively.

In such a situation, blockchain technology will allow you to publicly record the moment of the judge's decision and his motives, as well as automatically calculate the outcome of the proceedings in any instance. The proposed mechanism is suitable for any model of review – both appellate and cassation, because regardless of the boundaries of the review, the idea of an independent decision of each judge in the collegial composition does not change.

Of course, online blockchain-based courts are not a short-term prospect. It should be mentioned that even the means of recording facts already available, with their proper systematization, require a radical overhaul of the system of review of court decisions, excluding from the review system retrial under the rules of the court of the first instance as excessive. The use of blockchain technology in both offline and online justice can also be a tool to address a number of civil litigation issues:

45 THIS DAY. *Blockchain Technology and the Public Service*. 2022.

46 UN Digital Library. *The Age of Digital Interdependence. Report of the UN Secretary-General's High-Level Panel on Digital Cooperation*. 2019.

1. The problem of litigation. The workload of judges can be taken into account while the distribution of cases: for offline hearings by automatically distributing cases between judges of a particular court; for online hearings by distributing cases among all judges of the appropriate level of generic jurisdiction available for the selection of an automated system.
2. A unified approach to judicial practice. Unification of practice on certain legal issues, in this case, will inevitably take place in the country as a whole, and not regionally due to the dependence of the qualification class of judges on the abolition of the appellate court.
3. Professional development of judges. The criteria for improving the qualification class of a judge may include the number of times his/her arguments/interpretations were supported by judges of higher instances⁴⁷.

The operation of such a service depends on the ability of every citizen to have access to it: unlike private companies that offer automatic dispute resolution as an alternative to claims when introducing even the simplest solutions to private disputes by software, the state must teach citizens to use them. In addition, it is important to follow the steps of the user's account, regardless of where and how he used the service, so that if you find an erroneous result be able to track at what stage the problem occurred and why — as a result of user error or system error.

Fixing the user action algorithm using a distributed registry can ensure that information about the device from which the action was performed is captured and stored to avoid third-party interference. Any action is recorded by the digital signature (key) of the account holder. Changes in the content of the action (the information transmitted to the service) will invalidate the signature of the owner, the change will be blocked, and information about the intervention will be available. For example, Kleros and Aragon are built on fully decentralized blockchains with untrusted transactions in the sense that any user can join as a node. Jur is built on VeChain, which uses the consensual Proof of Authority algorithm with trusted nodes⁴⁸.

Therefore, the use of blockchain technology in civil proceedings has both risks (that need to be addressed) and significant benefits in terms of convenience and innovation for the parties and the court.

47 Olesia Zasemkova, *supra*, note 16.

48 Yann Aouidef, Bruno Deffains & Fwderico Ast, *supra*, note 23.

IV. CONCLUSIONS

As a result of research on points of collision of a blockchain and civil process, the following conclusions are made:

1. Blockchain is an advanced technology from distributed registry technology. In this case, the records are made in the unit of account, which encrypts the size of the physical indicator of the resource, which, in fact, is the subject of the transaction.
2. Blockchain technology simplifies access to justice, but requires special skills, both from judges and court staff, citizens and lawyers.
3. The international experience of such countries as China, Georgia, Moldova, and United Arab Emirates, shows that the operation of courts on the basis of blockchain is a common practice and is actively implemented in the world. However, such implementation requires time-consuming data protection work.
4. The use of blockchain technology in civil proceedings can be an aid in solving a number of problems in civil proceedings: the problem of litigation, the formation of a unified approach to judicial practice, and advanced training of judges.

Regarding further scientific research, it is important to pay attention to the features of evidence storage using blockchain technology.

VII. REFERENCIAS

- Alina Bezhevets. *Electronic litigation as a necessary element of digital transformation of society and the state*. INFORMATION AND LAW 35. 2020. P. 142-146. Available at: http://ippi.org.ua/sites/default/files/17_14.pdf
- Anna Chaikina. *Applied application of blockchain technologies in civil proceedings*. UNIVERSITY NEWSPAPER 12. 2021. P 165-170. Available at: <https://vestnik.msal.ru/jour/article/view/1634>
- Anna Gurova & Mariia Kirpachova. *Legal principles of blockchain application in space activities: key elements and models of technology organization*. ENTREPRENEURSHIP, ECONOMY AND LAW 9. 2020. P. 24-30. Available at: <http://www.pgp-journal.kiev.ua/archive/2020/9/6.pdf>

Constitution of Ukraine. June 28 of 1996 (Ukraine). Available at: <https://zakon.rada.gov.ua/laws/show/254к/96-вр#Text>

Darcy Allen, Aaron Lane & Marta Poblet. *The Governance of Blockchain Dispute Resolution*. HARVARD NEGOTIATION LAW REVIEW 25. 2019. P. 75-101. Available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3334674

Denis Zaprutin, Galina Nikiporets-Takigawa, Vitaly Goncharov, Vladimir Sekerin & Anna Gorokhova. *Legal Practice in the Blockchain Era: The Use of Electronic Evidence*. REVISTA GÊNERO E-INTERDISCIPLINARIDADE 1. 2020. Available at: <https://www.periodicojs.com.br/index.php/gei/article/view/45>

Ethan Katsh & Orna Rabinovich-Einy. (2019). *Blockchain and the Inevitability of Disputes: The Role of Online Dispute Resolution*. JOURNAL OF DISPUTE RESOLUTION 2. 2019. P. 47-75. Available at: <https://scholarship.law.missouri.edu/cgi/viewcontent.cgi?article=1837&context=jdr>

Ihor Britchenko & Yuliia Danshina. ADVANTAGES, OPPORTUNITIES AND DISADVANTAGES OF BLOCKCHAIN TECHNOLOGY. Financial and Credit Mechanism of Activation of the Investment Process: Collection of Materials of the III International Scientific-Practical Conference. Kyiv: KNEU. (2017). P. 106-109. Available at: https://www.researchgate.net/publication/323175480_Britcenko_IG_Dansina_UV_Perevagi_mozlivosti_ta_nedoliki_tehnologii_blokcejn_IG_Britcenko_UV_Dansina_Finansovo-kreditnij_mehanizm_activeuziIII

Iryna Davydova. *Blockchain Technology: Prospects for Development in Ukraine*. JOURNAL OF CIVILIZATION 26. 2017. P. 38-41.

Ivan Doronin. *The Use of Modern Technologies of Distributed Data Processing: The Law and Functions of the State*. INFORMATION AND LAW 21. 2017. P. 51-58. Available at: http://ippi.org.ua/sites/default/files/8_4.pdf

John R. Brumberg & Peter St. Tienne Wolff. *Bitcoin, Cryptocurrencies, and Civil Litigation: Courts Reckon with the Dawn of an Emerging Asset Class*. PIETRAGALLO. 15 June 2021. Available at: <https://www.pietragallo.com/publications/bitcoin-cryptocurrencies-and-civil-litigation-courts-reckon-with-the-dawn-of-an-emerging-asset-class/>

Katya Buyalska. *And Who Are the Judges? — How Blockchain can Affect the Automation of Litigation*. CRYPTOTEXTY. 2018. Available at: <https://cryptotexty.com/automation-of-legal-proceedings/>

Kristopher B. Kastens & Timothy Layden. First District Court Decision on Blockchain Technology Patent Eligibility. LEXOLOGY. 2022. Available at: <https://www.lexology.com/library/detail.aspx?g=42ee7fb5-1667-41fa-bdf3-779e48db72a0>

- Leonid Gapeev. *E-government: Problems, Priorities, Tasks*. CIVIL SERVANT 3. 2018. Available at: <https://i.factor.ua/ukr/journals/ds/2018/march/issue-3/article-34920.html>
- Liam Stannard. *Blockchain in Construction: How It Will Change the Industry*. BIG RENZ. 2021. Available at: <https://www.bigrentz.com/blog/blockchain-in-construction>
- Marc Pilkington. *Blockchain Technology: Principles and Applications*. RESEARCH HANDBOOK ON DIGITAL TRANSFORMATIONS. Vol. 225. 2016. P. 225-253. Available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2662660
- Marcella Atzori. *Blockchain Technology and Decentralized Governance: Is the State Still Necessary?* SOCIAL SCIENCE RESEARCH NETWORK. 2015. Available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2709713
- Mikhail Dumchikov & Yaroslav Shevtsov. *The Prospect of Using Blockchain Technology in the Context of the Formation and Development of the State*. A YOUNG SCIENTIST 91. 2021. P. 267-271. Available at: <https://molodyivchenyi.ua/index.php/journal/article/download/460/445+&cd=40&hl=en&ct=clnk&gl=en&client=safari>
- Oleh Sinegubov. DEBATABLE ISSUES OF UNDERSTANDING THE BLOCKCHAIN AS AN OBJECT OF CIVIL RIGHTS. Ministry of Internal Affairs of Ukraine, Kharkiv. 2021. Available at: http://www.knuba.edu.ua/ukr/wp-content/uploads/2021/04/Nyzovyi_Pravo_na_imiia_v_cyfrovu_epohu-2-15.pdf
- Oleksandr Chernykh. *Prospects for the Introduction of Artificial Intelligence and Blockchain Technologies in Commercial Litigation*. HIGHER SCHOOL OF ADVOCACY OF NAAU. 2021. Available at: <https://www.hsa.org.ua/blog/perspektyvy-vprovadzhennya-shtuchnogo-intelektu-ta-blokchejn-tehnologij-u-gospodarskomu-sudochynstvi/>
- Olesia Zasemkova. *Dispute Resolution Using Blockchain Technology*. ACTUAL PROBLEMS OF RUSSIAN LAW 101. 2019. P. 160-167. Available at: <https://cyberleninka.ru/article/n/razreshenie-sporov-s-pomoschyu-tehnologii-blokcheyn>
- Primavera de Filippi & Greg McMullen. *Governance of Blockchain Systems: Governance of and by Distributed Infrastructure*. BLOCKCHAIN RESEARCH INSTITUTE AND COALA. 2018. Available at: <https://hal.archives-ouvertes.fr/hal-02046787/document>
- Richard Susskind. ONLINE COURTS AND THE FUTURE OF JUSTICE. Oxford University Press. (2019). Available at: <https://doi.org/10.1093/oso/9780198838364.001.0001>

- Serhii Dyachenko & Victor Shevchuk. *Electronic Means of Proof in Civil Proceedings*. CONSTITUTIONAL STATE 42. 2021. P. 145-153. Available at: <http://pd.onu.edu.ua/article/view/232417>
- Soumya Haridas, Shalu Saroj, Sairam Tushar Maddala & M. Kiruthika. *LegalLedger – Blockchain in Judicial System*. *Innovative Data Communication Technologies and Application*. DEVFOLIO. 2022. Available at: <https://devfolio.co/projects/legalledger-blockchain-in-judicial-system-7e92>
- Steve Cheng, Matthias Daub, Axel Domeyer & Martin Lundqvist. *Using Blockchain to Improve Data Management in the Public Sector*. MCKINSEY COMPANY. 2017. Available at: <https://www.mckinsey.com/~media/McKinsey/Business%20Functions/McKinsey%20Digital/Our%20Insights/Using%20blockchain%20to%20improve%20data%20management%20in%20the%20public%20sector/Using-blockchain-to-improve-data-management-in-the-public-sector.pdf>
- Svein Ølnes, Jolien Ubacht & Marijn Janssen. *Blockchain in Government: Benefits and Implications of Distributed Ledger Technology for Information Sharing*. GOVERNMENT INFORMATION QUARTERLY 3. 2017. P. 355-364. Available at: <https://www.sciencedirect.com/science/article/pii/S0740624X17303155>
- TADVISER. *2020: Courts in China Begin to Use Electronic Locks with a Blockchain to Protect Evidence*. 17 July 2020. Available at: https://tadviser.com/index.php/Article:Blockchain_in_courts
- UAE-CONSULTING. *The DIFC Courts, together with Smart Dubai, will Launch the World's First Blockchain-Based Court*. 2018. Available at: <https://www.uae-consulting.com/infocentr/uae-dubai-business-company-worlds-first-court-of-the-blockchain>
- THIS DAY. *Blockchain Technology and the Public Service*. 2022. Available at: <https://www.thisdaylive.com/index.php/2022/04/27/blockchain-technology-and-the-public-service/>
- Trade Union of Education and Science Workers of Ukraine. *UN Report on the Internet and Technology: Challenges and Benefits for Society*. 2019. Available at: <https://pon.org.ua/novy-ny/7202-zvt-oon-schodo-nternetu-ta-tehnology-vikliki-y-blago-dlya-susplstva.html>
- UN Digital Library. *The Age of Digital Interdependence. Report of the UN Secretary-General's High-Level Panel on Digital Cooperation*. 2019. Available at: <https://digitallibrary.un.org/record/3865925>
- Valeriia Shemshuchenko. *Artificial Intelligence in Justice*. CENTER FOR DEMOCRACY AND THE RULE OF LAW. 2020. Available at: <https://cedem.org.ua/analytics/shtuchnyj-intelekt-pravosuddia/>

Vasyl Varavka. *Problems of Legal Regulation of Smart Contracts*. ACTUAL PROBLEMS OF JURISPRUDENCE 21. 2020. P. 143-151. Available at: <http://dspace.wunu.edu.ua/bitstream/316497/38499/1/Varavka.pdf>

Yann Aouidef, Bruno Deffains & Federico Ast. *Decentralized Justice: A Comparative Analysis of Blockchain Online Dispute Resolution Projects*. FRONT BLOCKCHAIN. 16 March 2021. Available at: <https://www.frontiersin.org/articles/10.3389/fbloc.2021.564551/full>

Yuliia Barabash. *Technology — To Work: What Determines the Development of the Blockchain in Ukraine*. 2021. Available at: <https://mind.ua/openmind/20230171-tehnologiyi-v-robotu-vid-chogo-zalezhit-rozvitok-blokchejnu-v-ukrayini>