



CIVIL AND ARBITRATION PROCESS

ГРАЖДАНСКИЙ И АРБИТРАЖНЫЙ ПРОЦЕСС

<https://doi.org/10.22363/2313-2337-2023-27-1-148-165>

Research Article / Научная статья

Blockchain, metaverses and NFT in civil procedure and arbitration in Russia, China and USA

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Abstract. The research is devoted to the study of new technologies — blockchain, metaverse and NFT — in civil procedure and arbitration in Russia, China and USA. The author analyzes the basic concepts and characteristics of the above technologies and gives examples of their use in judicial practice. Recent US judicial precedents (2021 and 2022), which consolidate the possibility of using blockchain and NFT technologies in court proceedings are looked at. The research aims at shaping the idea of possible application of blockchain, metaverse and NFT technologies in civil proceedings; it is based on the analysis of regulations, judicial practice of Russia, foreign countries, and scientific sources. The employed methodology is empirical methods of comparison, description, and interpretation, theoretical methods of formal and dialectical logic. Private scientific methods include legal-dogmatic method and interpretation of legal norms. The outcome of the research shows that blockchain and NFT technologies have become an effective tool used by the courts of USA and China in the analysis of electronic evidence and some other procedural actions including notification of an unknown defendant through a non-interchangeable token (NFT). The research came to the following conclusions. Blockchain transactions are often called anonymous or at least pseudonymous, but this is not the case. The issue of blockchain anonymity has been raised in several cases heard by US courts. The blockchain analysis of tools industry has allowed the court and the parties to the dispute to analyze transactions on the blockchain and in many cases trace them to an identifiable user, even if such users have taken steps to conceal their identity. It is essential to refer to the US courts experience allowing private companies to conduct Technology Assisted Review (TAR).

Key words: blockchain in court, NFT technologies in court, the first arbitration court of the Metaverse, GZAC, electronic evidence, platform justice, judicial blockchain Analytics

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Information on financing. The research was carried out with the financial support of the Grant of the President of the Russian Federation No. НШ-3270.2022.2 “Evolution or revolution of civil proceedings: digitalization through the prism of artificial intelligence”.

Conflicts of interest. The author declares no conflict of interest.

Article received 01st December 2022

Article accepted 15th January 2023

For citation:

Ermakova, E.P. (2023) Blockchain, metaverses and NFT in civil procedure and arbitration in Russia, China and USA. *RUDN Journal of Law*. 27 (1), 148—165. <https://doi.org/10.22363/2313-2337-2023-27-1-148-165>

Блокчейн, метавселенные и NFT в гражданском судопроизводстве и арбитраже России, Китая и США

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Аннотация. Исследованы новые технологии — блокчейн, метавселенные и NFT — в гражданском судопроизводстве и арбитраже России, Китая и США. Проанализированы основные понятия и характеристики перечисленных технологий, а также приведены примеры их использования в судебной практике. Представлены новые судебные прецеденты США (2021 и 2022 годов), закрепляющие возможность использовать технологии блокчейна и NFT в судопроизводстве. Цель исследования — сформировать представление о возможности использования технологий блокчейна, метавселенных и NFT в гражданском судопроизводстве на основе анализа нормативных актов, судебной практики России и зарубежных стран и научных источников. Применены эмпирические методы сравнения, описания, интерпретации; теоретические методы формальной и диалектической логики. Применялись частнонаучные методы: юридико-догматический и метод толкования правовых норм. Проведенное исследование показало, что технологии блокчейна и NFT стали действенным инструментом, используемым судами США и КНР при анализе электронных доказательств и некоторых других процессуальных действиях, в частности уведомления неизвестного ответчика через невзаимозаменяемый токен (NFT). Блокчейн-транзакции часто называют анонимными или, по крайней мере, псевдонимными, но это не так. Вопрос об анонимности блокчейна был поднят в нескольких делах, рассмотренных судами США. Индустрия инструментов анализа блокчейна позволила суду и сторонам в споре анализировать транзакции на блокчейне и во многих случаях проследить их до идентифицируемого пользователя, даже если такие пользователи предприняли шаги для сокрытия своей личности. Следует обратиться к опыту судов США, которые разрешили частным компаниям проводить «Анализ с использованием технологий» (Technology Assisted Review (TAR)).

Ключевые слова: блокчейн в суде, технологии NFT в суде, первый арбитражный суд Метавселенной, гражданский процесс, арбитраж, медиация, электронные доказательства, платформенное право, процесс США, процесс КНР

Конфликт интересов. Автор заявляет об отсутствии конфликта интересов.

Информация о финансировании. Исследование выполнено при финансовой поддержке Гранта Президента РФ № НШ-3270.2022.2 «Эволюция или революция гражданского судопроизводства: цифровизация через призму искусственного интеллекта».

Дата поступления в редакцию: 01 декабря 2022 г.

Дата принятия к печати: 15 января 2023 г.

Для цитирования:

Ермакова Е.П. Blockchain, metaverses and NFT in civil procedure and arbitration in Russia, China and USA // RUDN Journal of Law. 2023. Т. 27. № 1. С. 148—165. <https://doi.org/10.22363/2313-2337-2023-27-1-148-165>

Introduction

The digital economy presupposes an online environment for using information technology. Therefore, the traditional dispute resolution system, which requires a paper system for filling out statements of claim and presence of the parties in the courtroom, has become less practical and can no longer meet the needs of the Internet community. Blockchain technologies (in particular, NFT technologies) are employed in court proceedings in many countries of the world, although most lawyers (not to mention ordinary citizens) do not know what these terms mean and what the consequences of their use in judicial practice are (Rusakova et al, 2020). The first case where a Chinese court in 2018 upheld the plaintiff's use of a public blockchain service was to verify the authenticity of online evidence of copyright infringement in the case *Huatai Yimei v. Daotong Technology* (2018). The judge of the first instance of the Hangzhou Internet Court noted: “We must maintain an open and neutral position regarding the use of blockchain for the analysis of individual cases. We cannot exclude it just because it is a complex technology” (Tang, 2021).

In November 2022, the Guangzhou Arbitration Commission of China (GZAC) announced on its social media platform that the Metaverse Arbitration Court created by them had recently ruled on the *first case* concerning the virtual world¹. On February 6, 2022, the New York Court of First Instance issued a court order in *LCX AG vs. John Doe*. The court order concerned electronic notification of an unknown defendant via a non-interchangeable token (NFT)². On June 24, 2022, the High Court of England and Wales issued a similar order in *Fabrizio D'Aloia v. Persons Unknown, Binance Holdings Ltd. and Others* and granted a special request “For the issuance of a temporary injunction and permission to file a claim through NFT”³. That judicial precedent was the *first in England* following the order of the American court⁴. American lawyers

¹ Chinese Arbitral Institution Awards China's First Property Dispute Case in the Metaverse// China Justice Observer. 20 Dec 2022. <https://www.chinajusticeobserver.com/a/chinese-arbitral-institution-awards-china-s-first-property-dispute-case-in-the-metaverse> [Accessed 22.12.2022].

² LCX AG vs. John Doe Nos. 1-25. Holland & Knight LLP. 7/19/2022. Available at: <https://www.hklaw.com/en/general-pages/lcx-ag-v-doe> [Accessed 14th November 2022].

³ Fabrizio D'Aloia v. Persons Unknown, Binance Holdings Ltd. and Others [2022] EWCH 1723 (Ch) BL-2022-001008 (June 24, 2022). Gauge Data Solutions Pvt. Ltd. Available at: <https://www.casemine.com/judgement/uk/62e2d868b50db92150dadd60> [Accessed 14th November 2022].

⁴ LCX AG vs. John Doe Nos. 1-25// Holland & Knight LLP. 7/19/2022. URL: <https://www.hklaw.com/en/general-pages/lcx-ag-v-doe> [Accessed 14th November 2022].

noted that both court orders raise the question of how widespread NFT technology services will become in US and UK⁵.

Innovative technologies used in state courts and in cases of alternative dispute resolution through arbitration, mediation, etc. are growing at an incredible rate. With the development of technology, there is no doubt that blockchain, virtual court sessions, electronic evidence and NFT can provide new opportunities and solutions for the legal system, especially for litigation. Such solutions suggest higher efficiency and profitability of civil procedure (Bergquist, 2021).

On the blockchain concept

Blockchain in legal proceedings has relatively recently become the subject-matter of scientific research by Russian scholars. However, the research vector is primarily focused on the issues of the concept of electronic evidence and possibility of its use in court (Zatsepin, 2020). Let us consider this term in more detail. Blockchain technology originated from a branch of mathematics called cryptography. At the basic level, blockchain is a “decentralized, shared digital registry, whose work is based on the consensus of a global peer-to-peer network”⁶. As Grasky and P. Embley, experts of the National Center for State Courts of the USA pointed out, blockchain is a set of technologies that creates an encrypted, distributed registry. Probably the most famous application of blockchain is the digital currency Bitcoin (Graski & Embley, 2018).

It is not possible to change data in one block without changing the rest of the chain and without obtaining peer-to-peer consensus. This process makes it extremely difficult for individuals to carry out malicious actions or falsify information, because as soon as data enters the blockchain, they, in fact, remain there forever (Bergquist, 2021). Since blockchain does not exist in one place, it offers two distinct advantages over a central server: both wider access and greater security.

Blockchain technology has evolved over several stages. *The first stage*: the idea of blockchain technology was described back in 1991, when scientists S. Haber and U. Stornetta has implemented a solution for digital documents with a time stamp so that they cannot be retroactively issued or forged. In 2004, G. Finney II introduced a system called RPoW. The system worked by receiving a non-replaceable or non-interchangeable Hashcash token based on *proof of work* and signed in RSA, which could then be transferred from person to person. On January 3, 2009, Bitcoin appeared; it gave rise to the idea of data chain blocks. The idea was put forward by a person or group using the pseudonym *Satoshi Nakamoto*. The first bitcoin block was mined by S. Nakamoto. The first recipient of Bitcoin was G. Finney II; he received 10 bitcoins from S. Nakamoto in the first bitcoin transaction in the world on January 12, 2009⁷.

⁵ Mooney J., Huntsman B. Notice and process of service via NFTs: A new frontier in tech and litigation? Kennedys Law LLP. 2022. Available at: <https://kennedyslaw.com/thought-leadership/article/notice-and-process-of-service-via-nfts-a-new-frontier-in-tech-and-litigation/> [Accessed 14th November 2022].

⁶ Leonard T. BlockChain for Transportation: Where the Future Starts. TMW Systems, Inc. 2017. Available at: <http://logisticsandfintech.com/wp-content/uploads/2017/11/TMW-Whitepaper-Blockchain-for-transportation-LaF-Nov-2017.pdf> [Accessed 14th November 2022].

⁷ Blockchain History. Binance Academy. Available at: <https://academy.binance.com/ru/articles/history-of-blockchain> [Accessed 14th November 2022].

As noted by the American author Sh. Berquist, *the second stage* was the blockchain innovation. That stage consisted in recognizing that the technology could be used to manage Bitcoin separately from currency. With that discovery, introduction of the technology into other kinds of inter-organizational collaboration has become a reality (Bergquist, 2021).

The third stage in the history of blockchain was the *smart contract* revolution. In 2013, programmer V. Buterin started developing a new, distributed computing platform based on blockchain — Ethereum — which demonstrated scripting functionality called smart contracts. Smart contracts are programs that are applied and executed in the Ethereum blockchain. They can be used, for example, to make a transaction if certain conditions are met. Smart contracts are written in specific programming languages compiled into bytecode, which can then be read and powered by a decentralized Turing virtual machine called the Ethereum Virtual Machine (EVM)⁸. The smart contract was included in the second-generation blockchain system known as Ethereum. The Ethereum system embeds computer programs into the blockchain. This system allows to symbolize financial instruments such as loans or bonds, not just bitcoin tokens.

The main functions of blockchain technology. Blockchain relies on three main functions — decentralization, immutability and anonymity. which work together, providing an opportunity to eliminate intermediaries.

The first main function of the blockchain is *decentralization*. Blockchain is based on the concept that there should be no intermediary that allows transactions to be carried out in a decentralized manner. This is done by distributing tasks previously performed by a single entity among many performers in the system. The blockchain software is controlled by individual computers connected to each other via the Internet the world over. Every computer in the blockchain is running the same software. If one of them is disconnected, the network continues to work. Even if every computer in the world collapses at the same time, the blockchain will still store its data in distributed ledgers. This characteristic provides protection against negligence or incompetence of intermediaries in the performance of duties and responsibilities, which ensures the accuracy of transactions.

Blockchain ensures *the immutability of data*. All information stored in the blockchain is permanent and cannot be changed. The information is immutable. While other systems and databases provide the ability to modify and manipulate records, blockchain does not. Compare this with traditional data storage methods that require involvement of a third party. The need for human participation in trusted transactions inevitably leads to corruption, bloat and inefficiency. Blockchain is able to automate each of these aspects, which can lead to large-scale financial and social changes. With the help of blockchain, users can create unique content that cannot be stolen and infinitely duplicated; this allows them to better monetize their work. As soon as a data chain is formed, then at this moment the chain becomes permanent without the possibility of reversing it.

⁸ Blockchain History. Binance Academy. Available at: <https://academy.binance.com/ru/articles/history-of-blockchain> [Accessed 14th November 2022].

Anonymity is the third main function of blockchain technology, because *it* allows anonymous and pseudonymous exchanges. Blockchain ensures it by providing security with private key encryption. This type of encryption can verify the identity of the persons involved in the transaction. The anonymous function of identifying individuals is important for the blockchain system for many reasons. Initially, when authenticating a block, an anonymous function ensures that Miners and nodes do not take into account the parties' identity. However, if a person's identity is disclosed in a publicly available blockchain, the information and data that can be collected about that person can be extensive and confidential. Blockchains are immutable, so an individual may face significant damage to their privacy (Bergquist, 2021).

Note that the issue of blockchain anonymity has been raised in several cases considered by US courts. American lawyers emphasized that “blockchain transactions are often said to be anonymous or at least pseudonymous — but are they really? At least for some users, part of the appeal of using cryptocurrency is the perceived anonymity it seemingly offers. But increasingly, judicial decisions and governmental enforcement activity show that this perception is mistaken. A burgeoning industry of blockchain analysis tools now enables governments and litigants to analyze cryptocurrency transactions on the blockchain and in many cases trace them back to an identifiable, real-world user, even where such users have taken steps to conceal their identity. Recent developments show how courts and enforcers have embraced using this technology” (Schwinger, 2022).

Russian researchers have noted that the data storage period in the blockchain registry is not limited, so the information can be stored almost forever. Taking into account the above properties, the technology of the distribution register can be used as a method of ensuring information credibility generated both in a court document, circulation and exchange of procedural and other instruments between direct trial participants, executive authorities, prosecutors, public and other organizations and associations, including the most problematic issue in the electronic documents exchange — presentation of evidence electronically in criminal, civil proceedings or arbitration (Zatsepin, 2020).

In the field of dispute resolution, blockchain technology has formed a new online dispute resolution system that provides inexpensive and affordable justice. Earlier we wrote that “it is necessary to recognize the fact that the digital revolution has radically changed public relations. The global economy is changing rapidly and requires a new regulatory framework to ensure the security of transactions, including transnational ones, also concluded in electronic form and smart contracts. ... In addition to the appearance of a new type of contracts, we can observe a boom in online retail. For example, on retail platforms “eBay” and “Amazon” (USA), Taobao (China) monthly (!!!) more than a billion purchase and sale transactions are concluded. According to a report by Professor Ethan Katsch at the ODR Forum 2019, eBay resolves more than 60 million disputes a year and, in 90% of cases, without human intervention. This leads to radical changes in legal practice. Traditional dispute resolution methods, such as State court and international arbitration, are ineffective for dealing with a large volume of small domestic and small transnational disputes” (Ermakova, 2022:115). This is how decentralized justice appeared — a new approach to online dispute resolution that

combines: 1) blockchain (a decentralized database), 2) crowdsourcing (involving a wide range of jurors in dispute resolution), 3) game theory (a mathematical method for studying optimal strategies in games). However, we believe that the term *decentralized justice* should be translated into Russian as *platform justice*, which more accurately reflects the essence of this concept.

In Europe, three platforms based on blockchain technology play an innovative role in platform justice: *Kleros*, *Aragon* and *Jur*. The *Jur* platform does not yet operate, the *Kleros* (France) and *Aragon* (Spain) platforms have already been launched in France and Switzerland, respectively. In the USA, the American Arbitration Association (AAA) actively uses a special digital service called *Modria*. The *Modria* platform was launched back in 2011 and is a joint project of eBay and PayPal. The positive experience from *Modria* allows to expand the range of companies using this platform, and in 2014, AAA announced the beginning of operating *Modria* as an ODR tool (Kupchina, 2022:53).

On the NFT Concept

As noted by Russian and foreign experts, in 2021, NFT and the metaverse, as well as transactions derived from them, have become very popular all over the world. Many giant Internet companies have expanded their business to NFT, whose applications are also based on blockchain technology⁹. Let us figure out what NFT is. According to the definitions of Russian programmers, an NFT, or non-interchangeable token, is an accounting unit assisting to create a digital impression for any unique item. It includes paintings, photos, videos, music, GIFs, in short, any content that claims to be at least of some kind of uniqueness. They are of great value for collectors, gamers and art lovers, and can be bought and sold at auctions. These tokens are stored in a blockchain — a chain of blocks — and each of them contains certain information. A token is just a record in one of the blocks, and, as a rule, there can be a lot of such similar records. For example, each individual bitcoin is an exact copy of another such bitcoin, which allows to compare them with a currency. But what should you do if you need to create a unique token that has no analogues? The answer is NFT¹⁰.

Each of the NFTs exists in a single instance, and all information about their author, transactions and buyers is stored in the blockchain. Like any blockchain project, NFT is not tied to any certain server, and by buying it, you claim your right to a digital object accepted the world over. The real mainstream of NFT became evident in 2021. According to JPMorgan analysts, monthly sales of digital tokens fluctuated at \$2 billion, and the total market capitalization of the NFT universe was \$7 billion. Such certificates confirm ownership of a digital painting, music, book, etc.¹¹.

⁹ Wang V. et al. Blockchain 2022. China. Chambers. 08th May 2022. Available at: <https://practiceguides.chambers.com/practice-guides/blockchain-2022/china/trends-and-developments> [Accessed 14th November 2022].

¹⁰ Grishin Ya. (2022) NFT in simple words: what is it and how to make money on it. SOVCOMBLOG. 19th October 2022. Available at: https://sovcombank.ru/blog/glossarii/nft-prostim-i-slovami-chto-eto-i-kak-na-nem-zarabotat?utm_referrer=https%3A%2F%2Fwww.google.com%2F [Accessed 14th November 2022]. (in Russian).

¹¹ NFT and Metaverses: How can economies unite and digitalize? Habr. 31.01.2022. Available at: <https://habr.com/ru/post/648755/> [Accessed 14th November 2022]. (In Rus).

“The year 2021 was a turning point in the development of digital art. The widespread use of NFT in the art industry has revolutionized the modern understanding of intellectual property rights (IPR) and the transfer of IPR. The role of agents as intermediaries between artists and art connoisseurs lost its importance, and so did the role of streaming services. Blockchain technology rewards creators for the sales of works on the secondary market and their subsequent use”. The peculiarity of the sale of works of digital art in NFT is that the object of such transactions is not the works of digital art themselves, but a unique digital code (token) into which such works (for example, a painting, video recording or other digital file) have been previously converted (Brisov & Pobedkin, 2022:44).

On the Metaverse Concept

According to Russian economic observers, the metaverse is a convergence of physical, augmented and virtual reality in a common online space. An example of the interaction of the metaverse and the real world is the film *The first player to get ready*. The prototype of the Matrix in the real world is the Internet. Major players from the world Wide Web and technology are already making plans to create a metaverse. For example, in 2021, Mark Zuckerberg announced the start of work on the *three-dimensional Internet*, which will completely change our understanding of interaction with content — we will not consume information but will be inside it¹².

In 2022, virtual reality has gone far beyond the needs of the gaming world. The pandemic has made its own adjustments to the usual course of events. Therefore, all the attention of companies and investors has shifted to the new digital reality. Even today we see that real estate and land in the metaverses are growing much faster than in the existing reality in the offline world. In the first six months of 2021, digital real estate prices jumped by 3,000 percent. Also, the statements of technology giants make us think about a new virtual future. Global giants Twitter and YouTube have begun to master web 3.0 and NFT technologies. Facebook has turned into Meta, and is creating its own meta universe along with other startups. Within such realities, everyone will have digital property and their own capabilities that allow them to work in the virtual world and receive real resources¹³. The metaverse is filled with *content and experiences* created by its users, both individuals and organizations. Metaverse design is relevant in the educational and corporate environment, as well as in the field of communications.

Russian researcher A. Izmaylova noted that the metaverse is a new economic system that will enable members of society to create, exchange, dispose of and consume goods in virtual space. This is a new round of economic development, which indicates the growing attention to decentralized systems and ways of interacting with digital assets (Izmaylova, 2022:176).

¹² What is the metaverse and why is everyone talking about it. RBC. 06.12.2022. <https://trends.rbc.ru/trends/industry/61449fa89a7947159f1df418> [Accessed 20th December 2022].

¹³ NFT and Metaverses: How can economies unite and digitalize? Habr. 31.01.2022. Available at: <https://habr.com/ru/post/648755/> [Accessed 14th November 2022].

Blockchain and NFT regulation in Russia

Neither blockchain, nor NFT, nor electronic evidence are officially regulated in Russian legislation. Moreover, Russian scientists do not have a single position concerning electronic evidence in court proceedings. We agree with the opinion of experts that “this is primarily due to a number of challenges in assessing its accuracy and admissibility, as well as requirement for mandatory identification of the person who provided it as a trial participant, and the need to ensure security and protection of personal data” (Ermilov, 2022:81).

Federal Law No. 149-FZ of 27.07.2006 (effective as amended on 05.12.2022) On Information, Information Technologies and Information Protection formulated the basic concepts: a) Information means statements (communication, data) regardless of their form; b) Information Technology means processes and methods intended for search, collection, storage, processing, presentation, and distribution of information as well as the means to implement such processes and methods; c) Electronic Message means information transferred or received by a user of an Information and Telecommunications Network; d) Electronic Document means Recorded Information presented in electronic form, that is, in a form fit for human perception using computers, as well as for transmission over Information and Telecommunications Networks and processing within Information Systems. Article 11.1 was introduced by Federal Law No. 227-FZ of 27.07.2010. Later in the Federal Law No. 220-FZ of June 23, 2016, On Amending Certain Legislative Acts of the Russian Federation as Regards the Application of Electronic Documents in Activities of Judicial Bodies set forth the possibility of using electronic documents as evidence in court proceedings (Part 1 of Article 71 of the Civil Procedural Code of the Russian Federation and Part 3 of Article 75 of the Commercial Procedure Code of the Russian Federation). But the issue of applying electronic technologies to store and analyze evidence has not been resolved.

We agree with A.T. Bonner's opinion that an electronic document and a paper document are absolutely independent types of documents. “These media have significant specifics. To the extent necessary, it should be reflected in the current legislation. At the same time, electronic documents are automatically equated by the legislator and judicial practice with traditional written documents, and other modern sources of information, i.e., physical evidence. They do not take into account that the same source can simultaneously contain information of two kinds — information that can be deciphered using the appropriate code or “hieroglyphics”, for example, text, and information in the form of certain visual images, color and sound sensations. It is wrong to equate such media with written or physical evidence” (Bonner, 2016:288—289).

We believe that electronic proof differs from traditional methods of proof; electronic instruments provide both unique opportunities for obtaining information and create certain problems in producing documents. These differences can be grouped into several categories:

— Firstly, the volume and number of locations of electronic documents is much larger than that of conventional documents, since electronic documents are easier to duplicate than paper documents. For example, the same e-mail is often sent to numerous recipients, and then it is forwarded to others. Moreover, electronic document

search engines include much more cites/files for storage than archives usually associated with paper documents; electronic documents are held on computer hard drives, network servers, backup tapes, email servers, etc. (Ward, 2007).

— Secondly, electronic documents are almost impossible to destroy; if a shredded paper document is mostly irrevocable, *deleting* an electronic document usually does not mean that it has been erased, it just changes its status to *not in use* (Recycle Bin).

— Thirdly, electronic documents contain additional information that paper documents cannot provide, including metadata and system data. Metadata is information written into an electronic file; it contains details about the file, such as creation date, author, source and history. System data refers to records of computer usage, for example, when the user logged in or turned it off, websites that the user visited, passwords, and documents that were printed or faxed.

Therefore, it is necessary to enshrine in the procedural legislation of Russia not only a definition of electronic evidence, but also ways of storing and investigating it. Besides, it is essential to look at the experience of US courts that allow private companies to conduct *Technology Assisted Review* (TAR) — the process of prioritizing or encoding a collection of documents applying computer software that classify documents within broad topics. Another positive example is China that has created state-owned judicial blockchain platforms in 2019. The National e-Evidence platform includes the courts of 22 provinces of the People's Republic of China¹⁴.

It should also be noted that currently the issue of NFT is also not legally regulated in Russia. The first attempt to introduce the concept of *non-fungible token* into legislation was made in Draft Law No. 126586-8 On Amendments to Article 1225 of Part Four of the Civil Code of the Russian Federation; it was defined as a unique digital asset (images, videos or other digital content) in the form of non-interchangeable data stored in a distributed registry system (the blockchain system). The bill received a lot of critical reviews and was “frozen”. Russian lawyer M. Samartseva proposed a different definition for NFT: “NFT is a digital record in a decentralized network based on distributed registries, confirming the rights to digital content and allowing identification of the objects to which it relates, including objects of civil rights and intellectual property rights”¹⁵.

Judicial practice. As many Russian lawyers argue that electronic evidence must be notarized so that the court does not have any doubts concerning its authenticity. Thus, in accordance with Articles 102, 103 of the Fundamentals of the Legislation of the Russian Federation on Notaries, in the presence of the parties and interested persons, the notary records the information contained in electronic correspondence, drawing up a protocol of site inspection, which is admissible evidence in court. As judicial practice shows, a similar situation is connected with electronic messages transmitted via mobile applications WhatsApp, Viber, etc. (Ermilov, 2022:83).

¹⁴ *Weiwei S.* Ordering the Courts: Understanding China’s Big Precedent Push. Sixth Tone. 17th August 2020. Available at: <https://www.sixthtone.com/news/1006064/ordering-the-courts-understanding-chinas-big-precedent-push> [Accessed 14th November 2022].

¹⁵ *Sazonova M.* NFT Regulation: what the first draft law in Russia offers. GARANT-SERVICE. 8th August 2022. Available at: <https://www.garant.ru/news/1559192/> [Accessed 14th November 2022]. (in Russian).

Blockchain and NFT Regulation in the USA

In 1999, the Uniform Law of the USA On Electronic Transactions granted legal and evidentiary force to electronic records, and in 2004 the Uniform Commercial Code of the USA determined electronic commerce (Murray, 2007). In 2002, the Electronic Government Act stipulated that document submitted electronically must be publicly available on the Internet. In 2006, the US Federal Rules of Civil Procedure (hereinafter referred to as the FRCP) introduced the concept of electronic evidence, and procedure for disclosing electronic evidence became known as “e-discovery”.

There is no legislative regulation of blockchain technology at the federal level in the USA, but there is a broad and somewhat inconsistent approach to blockchain at the state level. According to economic observers, congressional committees and US government agencies are still trying to agree on how digital assets, including NFT, will affect the global and domestic economy. The regulatory approach fluctuated between a complete ban or strict restrictions and the requirement for crypto enterprises to adhere to the same reporting standards as banks or brokerage houses. To assume that adoption of NFT regulation is just around the corner is incorrect. It may take some time before the laws in America catch up with the changes in this area¹⁶.

But the market's interest in cryptocurrencies and blockchain technology continues to grow, as some cryptocurrencies experienced a boom during the coronavirus pandemic¹⁷. The relevance of the American legislative system is reflected in forecasts that blockchain spending in the United States will grow to \$41-60 billion by 2025. Several states in the US have passed laws in response to the recent blockchain boom; among them are: 1) *Arizona* (Collection of Arizona Laws § 44-7061 (2018))¹⁸; 2) *Illinois* (Blockchain Technology Act of 2018)¹⁹; the Illinois law is considered one of the most comprehensive US laws in the field of blockchain²⁰; 3) *Tennessee* (Tennessee Code § 47-10-202 (2018))²¹; the law recognizes the legal right to use distributed registry technology and smart contracts when conducting electronic transactions and protects the ownership rights to certain information protected by distributed registry technology (Ermakova & Frolova, 2021:83).

As the American lawyers emphasize, currently a patchwork of laws and regulations creates confusion and even hostility towards various blockchain businesses.

¹⁶ The regulatory considerations of NFTs in the United States. Cointelegraph. 2022. Available at: <https://cointelegraph.com/cryptocurrency-regulation-for-beginners/the-regulatory-considerations-of-nfts-in-the-united-states> [Accessed 14th November 2022].

¹⁷ *Kappos D. et al.* United States: Blockchain. The Legal 500. 2022. Available at: <https://www.legal500.com/guides/chapter/united-states-blockchain/> [Accessed 14th November 2022].

¹⁸ Arizona Revised Statutes Annotated § 44-7061 (2018). Available at: <https://www.azleg.gov/ars/44/07061.htm> [Accessed 14th November 2022].

¹⁹ Blockchain Technology Act. H.B. 5553, 100th Gen. Ass. 2nd Reg. Sess. (Ill. 2018). LegiScan. 2022. Available at: <https://legiscan.com/IL/bill/HB5553/2017> [Accessed 14th November 2022].

²⁰ *Adcock C.* An Update on State Smart Contract Legislation. National Law Review. Vol. X. No 106. April 15, 2020. Available at: <https://www.natlawreview.com/article/update-state-smart-contract-legislation> [Accessed 14th November 2022].

²¹ Tennessee Code Unannotated. Available at: <https://law.justia.com/codes/tennessee/2021/> [Accessed 14th November 2022].

Without a workable federal regulatory system, many businessmen and entrepreneurs are moving their businesses abroad, where clearer and friendlier laws have created a thriving blockchain economy. Although a clear path to comprehensive regulation of crypto assets in the United States has not yet been invented, though politicians have certainly tried. In fact, on March 9, 2022, President Biden issued an executive order (EO) On Ensuring Responsible Development of Digital Assets. The EO is broad in nature and requires the federal government to study more broadly legal issues, national security issues and other issues related to politics and technology²².

It should also be mentioned that on March 8, 2021, W. Davidson submitted to the US Congress a draft of Token Taxonomy Act (HR 1628). Among other provisions, the bill exempts digital tokens from the definition of security, and also eliminates inconsistent regulation by states. According to this bill, cryptocurrencies must meet certain requirements to be recognized as digital tokens²³.

Moreover, the US government has identified anonymity in blockchain transactions as a key issue in litigation against offenders who apply this technology. An example is the case *U.S. v. 280 Virtual Currency Accounts*²⁴ (2020), which followed two hacks of virtual currency exchanges by North Korean entities. Blockchain analytic services allow law enforcement agencies to identify the individuals behind illegal or disputed transactions (Schwinger, 2022).

What is Blockchain Analytics? Technology Assisted Review (TAR) is the process of prioritizing or encoding a collection of documents using a computerized system that uses the human judgments of one or more experts on a smaller set of documents, and then extrapolates these judgments to the remaining collection of documents. A document is a separate piece of information stored electronically (ESI), and a collection of documents is created by searching for or collecting documents that may be relevant to issues in dispute. TAR becomes useful when the volume of ESI is very large, for example, to detect thousands or even millions of documents. TAR applies Machine Learning capabilities to identify patterns in text data (Bell, 2022).

Supervised machine learning. Human review is needed to *teach* the software whether it has correctly classified various documents; it refers to the method of teaching the software which documents are relevant as a TAR protocol. The legal reviewer encodes the documents in the training set by marking them (for example) as responsive or unresponsive. Using this information, the program applies it to other documents. The above TAR process where a training set is followed by several rounds of sampling and corrections, can be contrasted with an alternative approach called continuous active

²² *Kappos D. et al.* United States: Blockchain. The Legal 500. 2022. Available at: <https://www.legal500.com/guides/chapter/united-states-blockchain/> [Accessed 14th November 2022].

²³ *Goforth C.* The Token Taxonomy Act of 2021: Preemption of inconsistent state laws. 14th March 2021. Available at: <https://cointelegraph.com/news/the-token-taxonomy-act-of-2021-preemption-of-inconsistent-state-laws> [Accessed 14th November 2022].

²⁴ *U.S. v. 280 Virtual Currency Accounts*. Civ. No. 20-2396 (D.D.C. Aug. 27, 2020). Justice.gov. 2020. Available at: <https://www.justice.gov/opa/press-release/file/1310421/download> [Accessed 14th November 2022].

learning, or what has been called TAR 2.0. Here, human analysis and machine learning process are combined; review and learning occur simultaneously.

Unsupervised Machine Learning. Clustering is another form of TAR where documents are divided into categories or groups in such a way that documents in one group are more similar to each other than documents in other groups. Clustering does not require human intervention and is a form of unsupervised machine learning²⁵.

Memorandum of the U.S. Magistrate Judge Zia Faruqui from February 8, 2022. US law enforcement agencies cooperate with several commercial blockchain analysis companies to investigate virtual currency transactions. These companies analyze blockchain and try to identify individuals or groups involved in virtual currency transactions. In fact, these companies create large databases that group transactions into *clusters* by analyzing the data underlying virtual currency transactions. U.S. Justice of the U.S. Magistrate Judge Zia Faruqui in his Order *In Re: Search 2022*²⁶ expressed full support for the search for blockchain analysis services to provide reliable evidence. The analysis of the blockchain with virtual currency was held following the *remote access Trojan attack* in August 2016, which was able to hack the security systems of the cryptocurrency exchange and penetrate its network. Hackers initiated thousands of unauthorized Bitcoin transactions, as a result of which almost 120,000 bitcoins were transferred to external wallets controlled by hackers. But with *clustering software*, the US government was able to trace those funds to target accounts (Schwinger, 2022).

The first case related to a non-interchangeable token (NFT) is the case *LCX AG vs. John Doe* heard in the New York Court of First Instance on February 6, 2022. The court order concerned electronic notification of an unknown defendant via a non-interchangeable token (NFT)²⁷. On June 2, 2022, the Supreme Court of the State of New York confirmed the Order of the Court of First Instance and issued an Order that authorized the plaintiff's lawyer to hand over a copy of the Order and other legal documents, including the underlying Summons and Complaints against the person or persons controlling the address of the cryptocurrency wallet (Ethereum) via airdrop of a unique special purpose token (Service Token) to that wallet address. The service token contains a hyperlink to a website created by the plaintiff's lawyer, where the Order and other legal documents for service (Service hyperlink) are placed. The service hyperlink also includes a tracking mechanism when a person clicks on it. American lawyers emphasized that this was the first time that a court in the United States had authorized the service of legal documents through tokenized distribution. This is a landmark decision that may eventually lead to significant changes in the permitted

²⁵ *Bell F. et al.* AI Decision-Making and the Courts. A guide for Judges, Tribunal Members and Court Administrators. The Australasian Institute of Judicial Administration Incorporated. June 2022. Available at: https://aija.org.au/wp-content/uploads/woocommerce_uploads/2022/06/AI-DECISION-MAKING-AND-THE-COURTS_Report_V5-2022-06-20-11zkls.pdf [Accessed 14th November 2022].

²⁶ *In Re: Search of Multiple Email Accounts Pursuant to 18 U.S.C. §2703 for Investigation of Violation of 18 U.S.C. §1956 et al.*, 2022 WL 406410 (D.D.C. Aug. 26, 2021, released Feb. 8, 2022). e-discovery Assistant. Available at: https://app.ediscoveryassistant.com/case_law/39870-in-the-matter-of-the-search-of-multiple-email-accounts [Accessed 14th November 2022].

²⁷ *LCX AG vs. John Doe Nos. 1-25.* Holland & Knight LLP. 7/19/2022. Available at: <https://www.hkllaw.com/en/general-pages/lcx-ag-v-doe> [Accessed 14th November 2022].

methods of service in accordance with the Civil Procedure Regulations, especially given that the use of blockchain technology is becoming more widespread and better understood in the business and legal community²⁸.

Blockchain and NFT regulation in China

As noted by the Chinese authors, with strong political support from the government, the use of blockchain technologies is expanding in China. The main applications of blockchain in 2021 include: a) cryptocurrency trading, b) depositing and collecting evidence in lawsuits, c) media content censorship standards, d) imported container administration platforms, and e) non-interchangeable tokens (NFT)²⁹.

Since 2013, China has topped the world rankings in terms of online retail transactions. In 2016, four Chinese online retailers —Alibaba, JD.com, Xiaomi and Suning.com — entered the top ten of the world's best e-commerce companies. The Taobao Marketplace platform, which was created by Alibaba Group in 2003, has since turned into an online shopping giant in China, and has also become the eighth most visited website in the world. As of March 2021, its monthly active users have reached 792 million, ranking first among Chinese and global e-commerce platforms. Article 63 of the Law of the People's Republic of China on Electronic Commerce of 2019 (E-Commerce Law)³⁰ allowed e-commerce operators to create their own online dispute resolution systems. It should be noted that Alibaba has created its own relatively advanced dispute resolution system in the field of electronic commerce (Deng, 2020). It consists of various online dispute resolution platforms based on blockchain technologies (Taobao, Tmall platforms).

On the other hand, in June 2018, Chinese Hangzhou Internet Court in its decision in the case *Hangzhou Huatai Yimei Cultural Media Co., Ltd. v. Shenzhen Daotong Technology Development Co., Ltd.* indicated that electronic evidence stored on a third-party platform based on blockchain is legal and reliable³¹. This was the first time that a Chinese court acknowledged that blockchain evidence can be equated with other judicial evidence. Based on the characteristics of blockchain technology, the Rules of Online Litigation of the People's Court, published by the Supreme People's Court of the People's Republic of China on June 16, 2021, established the presumption that

²⁸ *Staples C. Court Authorizes First-Ever Service of Court Documents via Air-Drop of Non-Fungible Token (NFT) to Cryptocurrency Wallet Address// Shumaker, Loop & Kendrick, LLP. 17th June 2022. Available at: <https://www.jdsupra.com/legalnews/court-authorizes-first-ever-service-of-3668226/> [Accessed 14th November 2022].*

²⁹ *Wang V. et al. Blockchain 2022. China. Chambers. 08 th May 2022. Available at: <https://practiceguides.chambers.com/practice-guides/blockchain-2022/china/trends-and-developments> [Accessed 14th November 2022].*

³⁰ E-Commerce Law of the People's Republic of China (Adopted at the Fifth Session of the Standing Committee of the 13th National People's Congress on August 31, 2018). URL: https://ipkey.eu/sites/default/files/documents/resources/PRC_E-Commerce_Law.pdf [Accessed 14th November 2022].

³¹ *Yu M. How Chinese Courts Review Electronic Evidence Stored on Blockchain? China Justice Observer. 29th August 2021. Available at: <https://www.chinajusticeobserver.com/a/how-chinese-courts-review-electronic-evidence-stored-on-blockchain> [Accessed 14th November 2022].*

electronic evidence recorded on the blockchain was not forged³². We agree with the Russian scientist E.P. Rusakova that “inclusion of a new evidentiary presumption — the authenticity of electronic data stored in the blockchain — into the procedural legislation of China under the influence of digitalization is a new vector of development not only of procedural law, but also of substantive law in world practice” (Rusakova, 2022:17).

As we have mentioned above, in 2019, the National e-Evidence Platform was set up in the country, which includes the courts of 22 provinces of the People's Republic of China. It means creation of a unified and electronic evidence standard, that is, generalization of experience through legal Big Data, and its introduction into the digital system of public security, prosecutor's office and court cases to regulate the behavior of judges.

Blockchain technology can be used to protect electronic data and prevent their falsification during the entire cycle of electronic data collection, transmission and storage. Compared to traditional methods of collecting and storing evidence, blockchain technology is suitable as an important auxiliary method of electronic data collection and storage. For example, the Electronic Evidence Platform is located on the homepage of the Judicial Services website of the Zhengzhou Intermediate People's Court of Henan Province, China. This platform will allow you to save evidence on the blockchain of the court. The platform provides the following services: verification and preservation of evidence, as well as electronic discovery and public disclosure. Proofs such as electronic contracts can be uploaded directly via a web page, and a summary of electronic data can be recorded in the blockchain in real time (Tang, 2021).

As Chinese experts emphasized, until now, China had no specific rules regarding transactions supported by NFT. In judicial practice (including in the first trial related to NFT in China, which took place in 2022), the court focused on copyright infringement of NFT works and did not rule on the nature of NFT digital assets, NFT digital asset trading activities and liability for infringement of rights in disputes related to NFT (Wang, 2022).

The first arbitration court of the Metaverse. In July 2022, the Guangzhou Arbitration Commission of China (GZAC) announced that it had established the first arbitration court of the Metaverse, the Meta City Arbitration Court (Yuanbang). The court is located in the main building of the Meta City Hall, the Floating Island of Libra, making it the first Metaverse arbitration court in the world. In November 2022, GZAC announced on its social media platform that the Metaverse Arbitration Court created by it had recently ruled on the first case concerning the virtual world³³. The case concerned creation of virtual avatars in the Metaverse community and the trading of non-fungible tokens (NFT). After receiving a digital image from the NFT development company, the party applied it to offline printing of clothes which it planned to sell. That

³² Du G., Yu M. China's First National Online Litigation Rules Series-01: Scope of Application & Adjudication Rules. China Justice Observer. 04 Jul 2021. Available at: <https://www.chinajusticeobserver.com/a/china-s-first-national-online-litigation-rules-series-01-scope-of-application-&-adjudication-rules> [Accessed 14th November 2022].

³³ Chinese Arbitral Institution Awards China's First Property Dispute Case in the Metaverse. China Justice Observer. 20 Dec 2022. Available at: <https://www.chinajusticeobserver.com/a/chinese-arbitral-institution-awards-china-s-first-property-dispute-case-in-the-metaverse> [Accessed 22nd December 2022].

led to a copyright dispute, which was heard by GZAC. According to the arbitration agreement reached by mutual consent, the parties submitted their disputes to the Meta City Arbitration Court (Yuanbang) via the Metaverse GZAC electronic filing channel. Ultimately, in the presence of the arbitrators, the NFT developer company granted the other party the right to use the digital image and offered to share the profits received.

Thus, for the first time in the history of arbitration, the arbitration court settled the dispute concerning the actions of the parties carried out both in the metaverse (creation of virtual avatars) and outside it in the real world (offline printing of clothes and their sale). The dispute ended in a settlement agreement. But questions arise about what would happen if an arbitration award was made? Would the winning party be able to enforce the arbitration award and how?

Conclusions

1. An electronic document and a paper document are independent types of documents: firstly, the volume and number of locations of electronic documents are much greater than those of conventional documents; secondly, electronic documents are almost impossible to destroy; thirdly, electronic documents contain additional information that paper documents they cannot provide.

2. Blockchain transactions are often described as anonymous or at least pseudonymous, but this is not the case. The issue of blockchain anonymity has been raised in several cases heard by US courts. The blockchain analysis tools industry has allowed the court and litigants to analyze transactions on the blockchain and in many cases trace them to an identifiable user, even if such users have taken steps to conceal their identity.

3. All of the above indicates the necessity to consolidate in the procedural legislation of Russia not only a separate concept of electronic evidence, but also ways of storing and studying them. Consideration should be given to the experience of the US courts, which allowed private companies to conduct Technology Assisted Review (TAR).

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