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ORIGINAL SCIENTIFIC ARTICLE

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RECOGNITION AND ENFORCEMENT OF THE BLOCKCHAIN ARBITRAL AWARDS UNDER THE NEW YORK CONVENTION

Abstract: *Blockchain technology is reshaping a wide range of sectors, from finance and law to art. The rise of blockchain platforms offering "blockchain arbitration" suggests a shift toward faster, cheaper and decentralized dispute resolution. A key advantage often highlighted is the potential for automatic enforcement of decisions using smart contracts. However, since this is only a possibility, many decisions will be enforced through traditional means. Given the inherently global nature of blockchain arbitration disputes, an important consideration is whether their decisions can be recognized and enforced under the New York Convention. This paper explores whether blockchain arbitration decisions qualify as awards enforceable under the New York Convention and whether their decision-making process meets the Convention's enforcement criteria. The author recognizes that the procedural aspect of public policy may be undermined by the way decisions are rendered in blockchain arbitrations.*

Key words: Blockchain Arbitration, New York Convention, Recognition and Enforcement of Arbitral Awards, Public Policy, Smart Contracts, Blockchain Technology, Decentralized Justice System.

1. Introduction: Features of Blockchain Arbitrations

Arbitration has traditionally been the preferred method for resolving commercial disputes. However, due to its characteristics and advantages over litigation,[1] its scope has expanded to include disputes related

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1 On the advantages (and disadvantages) of arbitration, see Knežević, G., Pavić, V., 2013, *Arbitraža i ADR*, 3rd edition, Belgrade, Pravni fakultet Univerziteta u Beogradu, pp. 18–21; Stanivuković, M., 2013, *Međunarodna arbitraža*, Belgrade, Službeni glasnik, pp. 29–31; Moses, M. L., 2008, *The Principles and Practice of International Commercial Arbitration*, Cambridge, Cambridge University Press, pp. 3–5.

to foreign investments, sports, intellectual property, employment, and any other area where party autonomy plays a significant role and where the parties are free to dispose of their claims. Commercial arbitration itself, as the most typical private dispute resolution mechanism, can be categorized in various ways. Depending on the field in which disputes arise, certain types of arbitration can be further distinguished, such as construction arbitration, consumer arbitration, commodity arbitration, as well as arbitration related to disputes involving smart contracts[2] and crypto arbitration concerning disputes over digital assets.[3]

As a private method of dispute resolution, arbitration continues to be portrayed as the most attractive forum for disputes involving a foreign element, particularly those in which the parties come from different countries and where cross-border enforcement of the award is necessary. The key advantage of arbitration in such cases is the United Nations Convention on the Recognition and Enforcement of Foreign Arbitral Awards (New York Convention),[4] which has been ratified by 172 countries.[5] The Convention provides a limited set of grounds for refusing recognition of an arbitral award, thereby making its recognition and enforcement significantly easier compared to court judgments.

Recently, even laypersons outside the tech industry have become familiar with terms such as cryptocurrencies, digital tokens, blockchain, smart contracts, and Web3. Distributed ledger technology, more commonly known as blockchain technology, along with the associated Web3,

2 A draft of special rules has been introduced by a global arbitral institution, see JAMS, JAMS Smart Contract Clause and Rules, (https://www.jamsadr.com/rules-smart-contracts, 22. 9. 2024).

3 Taylor, E., Wu, J., Li, Z., 2022, Crypto Arbitration: A Survival Guide, *Kluwer Arbitration Blog*, 29 September, (https://arbitrationblog.kluwerarbitration.com/2022/09/29/crypto-arbitration-a-survival-guide, 22. 9. 2024). Some crypto arbitrations have gained prominence on the global stage, such as the one between the world's largest crypto exchange, Binance, and nearly 700 investors. For details on the arbitration and the issues raised, see Montoya, S., 2024, Resolving crypto disputes through arbitration: the Binance case before the Hong Kong International Arbitration Center (HKIAC). *The Law. Mediación y arbitraje*, No. 18, pp. 2–23.

4 UNCITRAL, 2015a, *Convention on the Recognition and Enforcement of Foreign Arbitral Awards (New York 1958)*, New York, United Nations, (https://uncitral.un.org/sites/uncitral.un.org/files/media-documents/uncitral/en/new-york-convention-e.pdf, 23. 4. 2025). Serbia ratified the Convention through the Law on the Ratification of the Convention on the Recognition and Enforcement of Foreign Arbitral Awards, *Official Gazette of the SFRY* – International Treaties, No. 11/81.

5 This makes the New York Convention one of the most successful United Nations conventions in general, not only in the field of international commercial law. New York Convention, n.d., Contracting States, (https://www.newyorkconvention.org/contracting-states, 18. 10. 2024).

is permeating various established industries, revolutionizing the way we conclude contracts, make payments, buy and sell goods, and view art. Predictions suggest that it will also spread to many other sectors, including the real estate market.

Blockchain is a buzzword in both the theory and the practice of dispute resolution.[6] In addition to all the types of traditional arbitration, a new type has recently emerged, which, due to its nature, should be classified into a separate category – blockchain arbitration. Namely, various platforms have appeared on the global stage aimed at resolving disputes on the blockchain, primarily seeking to meet the needs of users in the rapidly growing Web3 industry. The goal is to separate the entire decentralization-driven industry from the hierarchical national courts and to resolve disputes on the blockchain itself in a faster, more efficient, and cost-effective manner. These are not merely theoretical ideas, as data shows that blockchain arbitrations are already being conducted and that a blockchain arbitration decision has been enforced by a national court, albeit through indirect means.[7]

The business community continually seeks more efficient methods of resolving disputes; meaning dispute resolution methods that are both less costly and quicker than traditional court or arbitration proceedings.[8] The

6 New technologies have often sparked innovations in dispute resolution. For example, in China, Internet courts have been established in certain cities, focusing on resolving disputes related to the Internet and new technologies, primarily through online hearings. Spain is currently conducting an analysis of the introduction of specialized courts for blockchain-related disputes. See Álvarez, O. P., Vidal, O. V., Vallespinós, L. D., Unlocking Blockchain Evidence in International Arbitration, *Iurgium*, Vol. 2022, No. 43, pp. 15–30. Moreover, arbitration institutions dedicated to blockchain technology are emerging around the world, with the first established in Japan and the first in Europe located in Poland. This development raises important considerations regarding the potential impact of blockchain technology on traditional arbitration and whether the proliferation of new companies in this sector will lead to an increase in the number of users of conventional arbitration. See Sajjad, R., 2023, Blockchain Arbitration: Promises and Perils, *The American Review of International Arbitration Blog*, (https://aria.law.columbia.edu/blockchain-arbitration-promises-and-perils, 22. 9. 2024).

7 The enforcement of the aforementioned award occurred within a purely domestic arbitration framework and through an indirect method. Following the mandate outlined in the arbitration agreement, the arbitrator in the traditional arbitration setting incorporated the decision from blockchain arbitration, and, as has been the case with any other domestic arbitral awards, it was executed without the requirement of recognition and enforcement. See Sharma, C., 2022, Blockchain Arbitral Award: Potential Challenges in Recognition and Enforcement under the New York Convention, *Revista Română de Arbitraj*, Vol. 16, No. 4, p. 95.

8 Stanivuković, M., Adjudication as a Preliminary Step to Arbitration: A Case of First Impression in Serbia, in: Keča, R., (ed.), 2018, *Harmonisation of Serbian and Hungarian*

blockchain industry features the following characteristics that impact the way disputes should be resolved:[9] (i) decentralization, (ii) removal of intermediaries, (iii) transparency of the transactions, (iv) immutability and security, (v) pseudonymity and anonymity of the users, (vi) efficiency, automation and reduction of operational costs, (vii) the use of cryptocurrencies and tokenization, (viii) innovation and adaptability, and (ix) global reach and influence.

Blockchain arbitration, as an online method of dispute resolution, employs a completely different mechanism for adjudication from traditional methods, such as litigation and arbitration. Its main feature is resolving disputes directly on the blockchain, with the potential accompanying option of automatic enforcement of the decision via a smart contract.[10] Thus, the option of an escrow account is available in small e-commerce disputes, whereby the disputed funds are already held on the platform itself. Once a decision is made, the payment of the awarded funds to the creditor does not depend on the compliance of the losing party. This is a significant advantage of blockchain arbitration.

Law with the European Union Law, p. 138. In an ideal world, the characteristics of the dispute resolution would align with the features of the industry in which the disputes have arisen. Technology, which underpins certain transactions, can become outdated in just a few months and the prices of crypto assets are highly volatile, which necessitates swift action. A particular indicator of this price instability occurred during the so-called "crypto winter" of 2022, which was triggered by a series of preceding events. During that period, investors worldwide reportedly lost USD 2 trillion. See Disparte, D., Walia, M., 2023, 2022 was a hard year for crypto – but it may have been just what the industry needed, *World Economic Forum*, (https://www.weforum.org/agenda/2023/04/2022-was-a-hard-year-for-cryptocurrencies-but-it-may-have-been-just-what-the-industry-needed, 22. 9. 2024). Additionally, the average selling price of non-fungible tokens (NFTs) was USD 6,900 in January 2022, while it dropped to below USD 2,000 by March 2022. See Tan, J. H., 2023, Blockchain "Arbitration" for NFT-Related Disputes, *Contemporary Asia Arbitration Journal*, Vol. 16, No. 1, p. 158.

9 For a dispute resolution forum to be attractive to the blockchain industry, it must meet all these characteristics. Traditional arbitration has consistently demonstrated adaptability and the ability to address the specific needs of various types of users. For a comparison of traditional arbitration with the requirements of users from the Web3 industry, see Jovanović, S., 2023, Arbitration in Smart Contracts Disputes – A Look Into the Future, *Annals of the Faculty of Law in Belgrade*, Vol. 71, No. 4, pp. 767–771.

10 The concept of smart contracts often accompanies blockchain arbitration and can be defined as legally binding agreements in which some or all contractual obligations are defined and automatically executed through a computer program. Smart contracts, including smart legal contracts, aim to follow conditional logic with specific and objective inputs: if "A" occurs, then execute step "B". The definition is from Law Commission, 2021, Smart Legal Contracts, Law Com No. 401, p. 1. See the classification of different types of smart contracts, some of which are more or less "smart" in *ibid.*, pp. 22–23.

The main difference between traditional arbitration and blockchain arbitration lies in who makes the decisions. In the latter, so-called jurors typically decide, and they are generally chosen randomly from a pool of individuals who register to adjudicate a particular dispute, utilizing crowdsourcing. Thus, the parties have no influence over the selection of the jurors, their qualifications, or experience, and often do not even know who they are. The parties also do not have the opportunity to challenge their appointment. On Kleros, which is one of the most well-known and developed platforms for blockchain arbitration, which refer to as "crypto courts" by some authors,[11] jurors are selected from those who have staked the most cryptocurrency (PNK) to participate in adjudicating a particular dispute. Following this, a vote takes place, which is quite simplified, as jurors choose between several potential outcomes of the dispute, demonstrating that the platform is designed for resolving straightforward, binary disputes. The decision is made by majority rule. Jurors are compensated as follows: those who voted against the majority lose their staked cryptocurrencies, while those who voted with the majority receive the cryptocurrencies lost by the others, along with a fee paid by the parties. This decision-making process is conducted using game theory, specifically Schelling points, which involves making decisions based on what one believes other equally informed and rational individuals will decide.[12]

The challenges faced by blockchain arbitration are evident in complex long-term transactions and business projects. High-value contracts of great complexity and duration, such as those in the construction or energy

11 Dylag, M., Smith, H., 2023, From cryptocurrencies to cryptocourts: blockchain and the financialization of dispute resolution platforms, *Information, Communication & Society*, Vol. 26, No. 2, p. 373.

12 While platforms like Aragon use the same decision-making system, other networks, such as Jur and Mattereum, adopt a system that is a step closer to the regulatory framework of international arbitration (such as the New York Convention, the UNCITRAL Model Law on International Commercial Arbitration, etc.) to make their decisions more enforceable worldwide. However, they still lack the flexibility of broader party autonomy and the role of conflict of laws, which are present in classical international commercial arbitration processes. See Lacasa, P., Can Blockchain Arbitration become a proper 'International Arbitration'? Jurors vs. Arbitrators, *Conflicts in Law.net*, (https://conflictoflaws.net/2022/can-blockchain-arbitration-become-a-proper-international-arbitration-jurors-vs-arbitrators, 22. 9. 2024). Certain platforms also incorporate artificial intelligence that can analyze historical data to predict potential outcomes. This is considered an advantage, as it can encourage parties to settle and avoid the entire arbitration process. See Purdue Global Law School, 2023, A Look at the Use of Blockchain Technology in the Arbitration Process, *Purdue Global*, 19 May, (https://www.purduegloballawschool.edu/blog/news/blockchain-arbitration, 22. 9. 2024).

industries, do not involve simple, binary transactions.[13] Therefore, automatic enforcement will generally not be possible. Earlier research has concluded that blockchain arbitration is suitable for low-value and low-complexity disputes, which are typically not suitable for resolution through traditional arbitration.[14] The reasons for this are clearly tied to the characteristics of blockchain arbitration. However, as blockchain arbitration evolves, there is a potential for it to become suitable for resolving disputes arising from long-term, complex and high-value business relationships.[15] Undoubtedly, the winning party will seek to enforce the decision in their favor. With the increase in the value and complexity of the disputes that this type of arbitration can cover,[16] so will the need for its cross-border enforcement worldwide. This is where the previously mentioned New York Convention comes into play.

This paper analyzes whether decisions rendered by blockchain arbitrations can be considered arbitral awards eligible for cross-border recognition under the New York Convention. Furthermore, if the answer is affirmative, the question arises whether a decision made in blockchain arbitration, due to the specific method of selecting decision-makers and their manner of decision-making, meets the requirements of Article 5 of the New York Convention, or whether national courts will refuse to give the decision effect beyond the borders where it was made. To this end, the paper analyzes whether blockchain arbitration, considering its features, is autonomous to the extent that it does not even require the New York Convention (Section 2). Following this, we will explore whether decisions of blockchain arbitration can be regarded as foreign arbitral awards suitable for recognition (Section 3), and whether these decisions meet the conditions for being recognized and enforced under the Convention (Section 4). Given that Kleros is one of the most popular, developed and ambitious platforms,[17] and that a Kleros "arbitral" decision was incorporated into a

13 Sajjad, R., 2023.

14 See the analysis in Jovanović, S., 2023, pp. 777–778.

15 Although blockchain arbitrations, as a decentralized justice system, are designed for blockchain disputes (on-chain), they are not limited to them and can also be used for regular (off-chain) disputes. See Coello, D. M., 2023, The New York Convention on the Enforcement of Decentralized Justice System's Decisions: A Perspective from the Evolutionary Interpretation of Treaties, *ITA in Review*, Vol. 5, No. 2, p. 46.

16 Which is certainly the intention of the developers: Quiros, F., 2020, Federico Ast, cofundador y CEO de Kleros: Blockchain tiene muchas aplicaciones en el ámbito legal, *Cointelegraph*, 10 February, (https://es.cointelegraph.com/news/federico-ast-co-founder-and-ceo-of-kleros-blockchain-has-many-applications-in-the-legal-field, 22. 9. 2024).

17 Due to greater transparency and the large number of documents issued by the platform itself, authors studying blockchain arbitration pay particular attention to Kleros. See Dylag, M., Smith, H., 2023, p. 373.

traditional arbitral award with its seat in Mexico and enforced before the national courts of that country, the primary focus of the research will be on decisions made on this platform.

2. To What Extent is Blockchain Arbitration Autonomous?

Decisions rendered by blockchain arbitration are not based on any national or international law. Moreover, due to the possibility of automatic enforcement against the losing party, opinions have been expressed that an autonomous blockchain legal order is emerging, suggesting that blockchain arbitration itself does not need to rely on existing legal frameworks.[18] Consequently, blockchain arbitration is viewed as autonomous within such perspectives.

The concept of arbitration autonomy, which functions independently of any national legal system, is not new.[19] Nevertheless, it is somewhat implausible to view this autonomy as complete isolation from national systems, as states govern the world through their legislative activities and nothing exists entirely outside their control.[20] Arbitration is a private process with public law functions, and it operates within a framework of relative independence in relation to the courts, which are meant to provide assistance and support.

The concept of "autonomous arbitration" is reiterated in the context of blockchain arbitration, highlighting its independence from states and public interests, while placing strong emphasis on maximizing the autonomy of the parties involved. For arbitration to achieve complete emancipation from the state, it must become a self-sufficient system that does not

18 Chevalier, M., 2021, From Smart Contract Litigation to Blockchain Arbitration, a New Decentralized Approach Leading Towards the Blockchain Arbitral Order, *Journal of International Dispute Settlement*, Vol. 12, No. 4, p. 571.

19 In terms of arbitration, three distinct ideas are distinguished: substantive autonomy, procedural autonomy, and total autonomy. See Michaels, R., Is Arbitration Autonomous?, in: Lim, C. L., (ed.), 2021, *The Cambridge Companion to International Arbitration*, Cambridge, Cambridge University Press, p. 115.

20 Michaels, R., 2021, fn. 64: Michaels, R., 2010, The Mirage of Non-State Governance, *Utah Law Review*, p. 31. The autonomy of arbitration is not understood in that sense; instead, it refers to a set of specific policies within state and arbitral institutions that support the arbitration authority. This distinction sets apart states that are attractive arbitration venues and promotes their established arbitration institutions. However, this varies from case to case, depending on the specific state, arbitral institution, the legal issues being addressed and the policies intended to be achieved. See *ibid*., pp. 136–137.

rely on courts or any state law. Closely linked to the autonomy of arbitration is the idea of an arbitral legal order, which encompasses a set of legal principles that are necessary and sufficient for the existence of arbitration. Its source lies in the will of the parties and is independent of all national norms.[21] Attempts to separate arbitration from national states and their laws do not lead to its isolation from international law and conventions, hence, the New York Convention is undeniably crucial for the cross-border existence of arbitration agreements and awards. It appears that, with blockchain arbitration, an additional step is being taken. When discussing blockchain arbitration as an autonomous arbitral legal order, the direction is toward total autonomy, where no legal source from the external world – including the New York Convention – has any influence or compulsion.

In this context, the key question is whether blockchain arbitration can be regarded as fully autonomous, eliminating the need for enforcement assistance from state authorities. This characteristic would exist only if the execution of the decision occurs directly on the blockchain through smart contracts. Achieving a comprehensive ecosystem, where everything takes place in the digital realm, utilizing blockchain, smart contracts, tokens and cryptocurrencies, without requiring any external intervention, is undeniably commendable. If such automatic execution of decisions is possible, then, theoretically, one could conclude that a blockchain arbitral ecosystem exists, which is a *terra incognita* for international arbitration.[22] Conversely, for blockchain arbitral decisions to be enforceable in other states, they must be deemed arbitral awards in accordance with the New York Convention and must fulfill the conditions for recognition and enforcement under that Convention.

3. Can a Decision Rendered by a Blockchain Platform Qualify as an Arbitral Award?

Although various platforms promote their dispute resolution services as blockchain "arbitration", and the term is commonly used in both academic and professional literature, the mere focus on private dispute resolution method does not necessarily mean it qualifies as arbitration in the legal sense recognized by national laws and international conventions. It

21 Steingruber, A. M., 2021, Chapter 4: The Juridical Nature of Arbitration with Particular Regard to its Consensual Nature, *Consent in International Arbitration*, Oxford, Oxford University Press, p. 59.

22 See Ortolani, P., 2019, The impact of blockchain technologies and smart contracts on dispute resolution: arbitration and court litigation at the crossroads, *Uniform Law Review*, Vol. 24, No. 2, p. 434.

is rightly emphasized that distinguishing between arbitration as a concept and arbitration as a legal institution is essential. As a concept, arbitration refers to the process of submitting a dispute to a private individual whose decision the parties have agreed to abide by. As a recognized legal institution, however, arbitration is regulated by both national and international legal frameworks, with the arbitrator's award being final and legally enforceable.[23]

Arbitration always follows trends and, in the pursuit of efficiency, employs modern technologies to facilitate,[24] expedite and enhance the entire process. Hence, the incorporation of blockchain technology and metaverse tools in arbitration is also encouraged.[25] However, is a dispute resolution mechanism that is entirely based on blockchain (on-chain) truly arbitration?

Firstly, it is necessary to start from the basic definitions of the terms arbitration and award. According to Black's Law Dictionary, arbitration is a method of dispute resolution that involves one or more neutral parties chosen by the disputing parties, and whose decision is binding.[26] An award is defined as a final decision or judgment by an arbitrator or jury that assesses damages.[27]

Blockchain arbitration lacks some of the fundamental characteristics of traditional arbitration. For instance, parties cannot freely choose jurors, which is one of the key advantages of arbitration.[28] This results in a loss of influence over the qualifications and nationality of the jurors. Even if such an option was available, the question arises whether

23 Coello, D. M., 2023, p. 48.

24 Sometimes out of necessity, and other times due to trends and efficiency, online hearings are becoming common. See Pavić, V., Djordjević, M., 2021, Virtual Arbitration Hearings: The New Normal?, *Annals of the Faculty of Law in Belgrade*, Vol. 69, No. 3, p. 570.

25 Prominent arbitration conferences are already addressing the issue of arbitration and the metaverse, with one session at the Paris Arbitration Days conducted using metaverse tools. See Chan, E. *et al.*, 2022, Paris Arbitration Week Recap: Metaverse-Related Sessions, *Kluwer Arbitration Blog*, (https://arbitrationblog.kluwerarbitration.com/2022/04/24/paris-arbitration-week-recap-metaverse-related-sessions, 22. 9. 2024).

26 Garner, B. A., (ed.), 2004, *Black's Law Dictionary*, deluxe 8th edition, St. Paul, Thomson West, p. 112.

27 *Ibid.*, p. 147.

28 However, there are also rules of permanent arbitral institutions that, as a rule, provide for the selection of arbitrators to fall within the purview of the institution. See London Court of International Arbitration, 2020, LCIA Arbitration Rules 2020, Art. 5, paras. 6, 7 and 9, (https://www.lcia.org/Dispute_Resolution_Services/lcia-arbitration-rules-2020, 24. 4. 2025).

jurors with the necessary qualifications are accessible within the pool of "blockchain arbitrators". On blockchain platforms, parties cannot select the language of the proceedings, the seat of arbitration (which may not even exist), applicable substantive law, and similar factors,[29] which significantly limits party autonomy.

Confidentiality is another key advantage of traditional arbitration. Yet, blockchain arbitration operates like an open court with no safeguards for confidentiality, following a permissionless system. This means that all claims, arguments and even evidence presented by the parties, are recorded in a public, distributed ledger, accessible to anyone.[30] Given that the Web3 community is still largely composed of enthusiasts primarily focused on securing investments for their business ventures, they often meet through forums, social media groups, conferences and networking events. Frequently, they are known by pseudonyms across these various platforms. As a result, other members of the community can discover if a particular member is involved in a dispute, the nature of the dispute, and its monetary value. Such information also becomes readily available to potential investors.[31]

Although some (albeit few) countries recognize the right to appeal arbitral awards, the single-instance nature of arbitration is one of its main features and advantages. In contrast, blockchain arbitration within the Kleros platform allows a dissatisfied party to appeal as many times as they deem necessary – the only restriction being that each appeal has a higher cost. This is because each subsequent appeal is decided by twice as many jurors (plus one to ensure an odd number) as in the previous instance.[32]

Kleros decisions do not need to be thoroughly reasoned. It is only required to provide the parties with a statement explaining the grounds on which the decision was made, along with a brief text clarifying the juror's vote.[33] In contrast, traditional arbitral awards must be reasoned, unless the parties have expressly agreed otherwise.[34] In Kleros, jurors do not apply any national law, rather they resolve the merits of the case using

29 Lacasa, P., 2022.

30 Sajjad, R., 2023.

31 While transparency is a fundamental characteristic of blockchain and a key value in the industry, those who control this data can easily leverage it for their own benefit. Consequently, confidentiality, one of the most significant advantages of traditional arbitration, should not be overlooked.

32 Kleros.io, 2020, *Dispute Revolution: the Kleros Handbook of Decentralized Justice*, Kleros, p. 271, (https://kleros.io/book.pdf, 22. 9. 2024).

33 *Ibid.*

34 Serbian Arbitration Act, *Official Gazette of the Republic of Serbia*, No. 46/2006, Art. 52 (1).

game theory principles. In traditional arbitration, witness statements can be central to establishing facts and assessing credibility, often through oral examination and cross-examination before the tribunal. In blockchain-based arbitration platforms, like Kleros, however, the decentralized, pseudonymous, and text-based nature of proceedings makes it difficult, if not impossible, to conduct meaningful witness examinations. This limitation may reduce the evidentiary depth of such proceedings and, in certain cases, undermine the probative value of the resulting decision, particularly where the facts of the case depend heavily on witness testimony. As the value and complexity of disputes before Kleros increases, similar concerns are likely to arise regarding the use of expert witnesses, whose findings and opinions often play an important role in resolving technically or commercially complex cases.

Comparing blockchain arbitration to traditional arbitration reveals that the former lacks many important features of arbitration.[35] Nevertheless, this does not automatically mean that it cannot be considered a form of arbitral dispute resolution. Arbitration has many variations, and as previously emphasized, it can be tailored to different types of users. For instance, in commodity arbitrations, where speed is prioritized, it is common for a single arbitrator to resolve the dispute, with the appointment left to the institution rather than the parties involved.[36] In investment arbitration, confidentiality is gradually yielding to public interest, leading to the adoption of a convention on transparency,[37] a concept that was previously considered incompatible with arbitration.

Most importantly, blockchain arbitration is based on the parties' agreement to submit their dispute for resolution, therefore, it is a contractually agreed method of dispute resolution, much like traditional arbitration. Just as parties in traditional arbitration agree to follow the rules of various institutions for different types of arbitration, users of blockchain arbitration adhere to the procedural rules of the platform they have chosen. This is where their party autonomy is most evident. The fact that their autonomy is later more restricted than in traditional arbitration does not change the reality that they chose this method. Thus, the use of the

35 Most of the characteristics mentioned in relation to arbitration (e.g., confidentiality) are perceived as essential, but they are not necessarily inherent features of arbitration.

36 See, for example, Belgrade Arbitration Center, 2018, Belgrade Rules on Commodity Arbitration, Art. 15(2) and Art. 16(1), (https://www.arbitrationassociation.org/wp-content/uploads/2021/07/Pravilnik-o-resavanju-berzanskih-sporova.pdf, 27. 4. 2025).

37 UNCITRAL, 2015b, *United Nations Convention on Transparency in Treaty-based Investor-State Arbitration* (*New York, 2014*) – Mauritius Convention on Transparency), New York, United Nations.

term "arbitration" in the context of blockchain arbitration is not necessarily inappropriate.

However, for parties from different countries, as is common on blockchain as a global network, it is not enough that the mechanism they chose is merely called "arbitration". More importantly, they need the decision to be recognized and enforced globally. The New York Convention enables cross-border recognition and enforcement, so it is necessary to examine whether a blockchain decision can be considered an arbitral award eligible for recognition under this Convention. Guidelines have been developed, offering objective criteria that facilitate the identification of decisions eligible for enforcement under the Convention. An analysis of numerous doctrinal definitions shows that the two primary conditions are that: the decision must be made by an arbitral tribunal, and it must resolve a legal dispute between the parties in a final manner.[38] Gary Born highlights three key elements of an arbitral award: (i) the decision must result from an arbitration agreement that entrusts the dispute to arbitration, (ii) it must meet certain minimum formal requirements, and (iii) it must definitively resolve the merits of the dispute, not merely a procedural issue.[39]

Additionally, the Convention stipulates that the party seeking recognition and enforcement should submit, along with its request, a duly authenticated original of the award or a duly certified copy, as well as the original arbitration agreement or a duly certified copy. [40] As a result, only arbitral awards in written form can be enforced under the New York Convention,[41] meaning that the decisions of blockchain platforms currently do not meet this requirement.

For a final arbitral award to be enforceable, it must be rendered based on a valid arbitration agreement. In blockchain arbitrations, the arbitration agreement may be expressed in the form of a computer code, raising the question of whether it satisfies the formal requirement under the Convention, which mandates that the arbitration agreement be in writing.[42] The provision was adopted in 1958, with no reference to electronic

38 Wolff, R., Article I, in: Wolff, R., (ed.), 2019, *New York Convention: Article-by-Article Commentary*, 2nd edition, pp. 33–34.

39 Born, G. B., 2014, *International Commercial Arbitration*, 2nd edition, Alphen aan den Rijn, Kluwer Law International, p. 2923.

40 The New York Convention, Art. 4.

41 See also Wolff, R., 2019, p. 34.

42 "Each Contracting State shall recognize an agreement in writing under which the parties undertake to submit to arbitration all or any differences which have arisen or which may arise between them in respect of a defined legal relationship, whether contractual or not, concerning a subject matter capable of settlement by arbitration. The term 'agreement in writing' shall include an arbitral clause in a contract or an

communication. However, considering the widespread use of electronic commerce and the functional equivalence approach regarding the form requirement, which underpins the UNCITRAL Model Law on Electronic Commerce,[43] the UNCITRAL Model Law on Electronic Signatures,[44] and the UN Convention on the Use of Electronic Communications in International Contracts,[45] a special recommendation was issued by UNCITRAL on this matter.[46] It explicitly states that Article 2(2) of the Convention should not be applied as a *numerus clausus*. Additionally, Article 7(4) of the 2006 UNCITRAL Model Law on International Commercial Arbitration stipulates that the requirement for a written form can be met through electronic communication, as long as the information on the arbitration agreement is accessible in a way that allows for future reference to that agreement.[47]

From the above, it follows that the written form of an arbitration agreement is flexible, and there is a policy of *in favorem negotii* in place. However, it is necessary to meet the three main purposes for which the written form is required: to serve as proof that the parties agreed to arbitration, to confirm the exact content of that agreement, and to ensure that the parties were fully aware that by opting for arbitration,[48] they were simultaneously excluding the jurisdiction of the courts.[49]

An analysis of the solutions provided by the New York Convention, which sets the highest standard for regulating the formal validity of arbitration agreements, along with national laws that generally relax formal

arbitration agreement, signed by the parties or contained in an exchange of letters or telegrams." New York Convention, Art. 2(1 and 2).

43 UNCITRAL, 1999, *Model Law on Electronic Commerce (1996) with additional article 5 bis as adopted in 1998*, New York, United Nations.

44 UNCITRAL, 2002, *Model Law on Electronic Signatures with Guide to Enactment 2001*, New York, United Nations.

45 UN GA Res. 60/21, Convention on the Use of Electronic Communications in International Contracts, UN Doc. A/RES/60/21, (9 December 2005).

46 UNCITRAL, n.d., Recommendation regarding the interpretation of article II, paragraph 2, and article VII, paragraph 1, of the Convention on the Recognition and Enforcement of Foreign Arbitral Awards, done in New York, 10 June 1958 (2006), (https://uncitral.un.org/en/texts/arbitration/explanatorytexts/recommendations/foreign_arbitral_award, 23. 4. 2025).

47 Asensio, P. M., 2024, *Conflict of Laws and the Internet*, 2nd edition, Elgar Information Law and Practice, p. 476.

48 The development of technology, particularly artificial intelligence (AI), can lead to issues regarding the declaration of intent in arbitration agreements, in cases when they are concluded through AI.

49 Schramm, D., Elliott, G., Pinsolle, P., Article II, in: Kronke, H. *et al.*, (eds.), 2010, *Recognition and Enforcement of Foreign Arbitral Awards: A Global Commentary on the New York Convention*, Kluwer Law International, p. 74.

requirements, shows that, due to the flexible and broad interpretation by courts, arbitration agreements in code meet the form requirement under the New York Convention. Therefore, they can be enforced under Articles 1 and 2 of the Convention by national courts.[50] Additionally, based on the "more favourable rule", authors recognize that blockchain arbitration agreements in code would satisfy the form requirement, especially considering the Electronic Communications Convention and the UNCITRAL Model Law on Electronic Commerce.[51] As disputes grow in complexity, traditional written contracts referencing blockchain arbitration, as well as hybrid agreements,[52] will likely become more common, and they will be as valid as other classic written agreements.

Given these dilemmas, it is not surprising that Kleros tested the enforceability of its decisions in an indirect manner. A Mexican court enforced a domestic arbitral award in a dispute where, following the commencement of proceedings, the arbitrator, acting on the instructions of the arbitration agreement, referred the parties to Kleros. After the platform rendered its decision, the arbitrator adopted it as their own award. The Mexican court then enforced this decision like any other arbitral award.[53] This approach allowed the parties to bypass the shortcomings and potential enforcement issues surrounding decisions in blockchain arbitration by incorporating it into a traditional arbitral award.[54] However, while combining traditional and blockchain arbitration may be feasible,

50 For analysis and conclusion, see Sharma, C., 2022, p. 90.

51 See Sanyal, A., 2022, Arbitration Tech Toolbox: Can the New York Convention Stand the Test of Technology Posed by Metaverse Awards?, Kluwer Arbitration Blog, 20 December, (https://arbitrationblog.kluwerarbitration.com/2022/12/20/arbitration-tech-toolbox-can-the-new-york-convention-stand-the-test-of-technology-posed-by-metaverse-awards, 22. 9. 2024).

52 One part of the contract is in coded form while the other part follows the traditional contract format. See Law Commission, 2021, p. 6. In such a contract, the dispute resolution section is often specified in the traditional part of the contract, rather than through code.

53 Sharma, C., 2022, p. 95.

54 While in this case the arbitrator acted pursuant to an explicit mandate from the parties to adopt the decision of the Kleros platform, this approach still raises concerns regarding the professional and ethical duties of arbitrators. The duty to exercise personal, independent, and impartial judgment is a fundamental requirement in arbitration. Even when parties agree to delegate certain decision-making functions, arbitrators must ensure that such delegation does not undermine their core responsibilities or the integrity of the process. Relying mechanically on an external decision without independent and diligent assessment could be seen as incompatible with these duties, potentially affecting the validity and legitimacy of the award. One possible safeguard would be for arbitrators to treat the platform's output as a nonbinding expert report, subject to their own independent assessment, rather than to directly adopt it.

it significantly increases both time and costs compared to the level where blockchain arbitral decisions are enforceable by national courts. These challenges are even greater in a cross-border context.

4. Challenges to Recognition and Enforcement of Blockchain Arbitral Awards

Blockchain arbitrations lack a designated seat, which leads to their characterization as anational or "floating" awards due to the absence of a *lex arbitri*. Anational awards, not tied to any specific country (without a seat of arbitration), pose challenges under the New York Convention. Specifically, Article 1 of the Convention stipulates that it applies to the recognition and enforcement of arbitral awards between individuals or legal entities made in the territory of a country other than in the country where recognition and enforcement are sought. It also applies to awards that are not considered domestic in the country where the recognition or enforcement is sought. Consequently, under the first sentence of Article 1, an award must have a specific affiliation with a state, distinct from the country where recognition is requested. This is logical, as only foreign arbitral awards require recognition. Domestic awards, by contrast, have the same effect as court judgments and are enforceable like any judicial decision in the countries where they are rendered.[55]

However, according to the second sentence of Article 1, the Convention also applies to arbitral awards that are not considered domestic in the country where recognition or enforcement is sought.[56] Based on this provision, there are interpretations in both older[57] and more recent literature[58] that under the New York Convention recognition of anational awards[59] is not impossible. This interpretation implies that, in the country of enforcement, any award that is not domestic may be recognized,

55 Art. 65(1) of the Serbian Arbitration Act stipulates that a domestic arbitral award has the effect of a domestic final court judgment and is enforced in accordance with the provisions of the law governing enforcement proceedings.

56 The New York Convention, Art. 1(1).

57 Rensmann, T., 1998, Anational Arbitral Awards, *Journal of International Arbitration*, Vol. 15, No. 2, p. 55, with references to case law in footnote 128 and literature in footnote 130.

58 For arguments regarding blockchain arbitral awards, see Coello, D. M., 2023, pp. 50–54.

59 There are also the views that the idea of anational decisions should be completely rejected. See Thöne, M., 2016, Delocalisation in International Commercial Arbitration, *SchiedsVZ | German Arbitration Journal*, Vol. 14, No. 5, p. 258.

regardless of whether it was rendered based on foreign national law, *lex mercatoria procesualis arbitralis*, or any other anational legal framework.

The issue of recognizing anational awards does not end with such broad interpretations. Certain national courts may take the view that awards rendered without the application of a national procedural legal framework contradict public policy, which serves as a basis for refusing recognition *ex officio*.[60] Additionally, courts may consider that the inability to review the award in annulment proceedings violates public policy.[61] It is a fact that the public policy clause must be narrowly interpreted and invoked only in cases where the fundamental principles of the state recognizing the award are breached. Nevertheless, the argument that there is no room for applying the public policy clause to anational awards, given that the fundamental principles of procedural fairness are guaranteed by Article 5(1) of the New York Convention,[62] cannot be easily extended to blockchain arbitral awards. In blockchain arbitration, parties often waive many procedural safeguards that are guaranteed by the Convention in favor of a swift, cost-effective, but often rough form of justice. It would not be reasonable to allow them, when contesting recognition, to rely on procedural rules they initially agreed to waive. Since noncompliance with procedural safeguards under Article 5(1) is only considered if raised by a party, the court will not examine these issues in enforcement proceedings. The minimum standard will be the procedural guarantees that are part of the public policy of the state where recognition is sought. Given the uncertainty caused by the lack of a designated seat in blockchain arbitrations, it might be advisable for blockchain platforms to preselect an arbitration seat either in a jurisdiction where the platform is based or in a country that is friendly to blockchain technology and its derivatives (especially cryptocurrencies), in cases where the parties do not specify a seat in a written (or hybrid) agreement.

We believe that, although blockchain arbitrations raise certain concerns regarding compliance with procedural guarantees related to a fair trial, which will be discussed in the following sections, the party dissatisfied with an award cannot later rely on the grounds prescribed in Article 5(1) of the New York Convention, which courts consider only upon the objection of the party challenging recognition. By exercising their autonomy, the party accepted the method of dispute resolution that was

60 Art. 5(2)(b) of the New York Convention, stipulates that the recognition and enforcement of a foreign arbitral award may be refused if the award is contrary to the public policy of the state in which recognition is sought.

61 Rensmann, T., 1998, p. 57, with references to the authors of that view in footnote 139.

62 See *ibid.*, p. 57.

predetermined by the rules of blockchain arbitration. Subsequently invoking those rules as grounds to deny the enforcement of the award could be viewed as an abuse of procedural rights. A dissatisfied party may only invoke the grounds under Article 5(1) that arose during the arbitration proceedings and were not foreseen by the platform's dispute resolution rules. Moreover, only those predetermined procedural rules of blockchain arbitration that violate the procedural guarantees constituting the public policy of the state where recognition is sought could lead to the refusal of recognition and enforcement. The further course of this paper will examine whether the operation of blockchain arbitrations potentially violates the procedural aspect of public policy[63] and whether such awards face a bleak future in the context of cross-border enforcement.

The mandatory provisions of national laws and international conventions that parties cannot derogate from by selecting specific rules have the potential to constitute norms within the procedural aspect of public policy. According to the UNCITRAL Model Law, an arbitrator, before accepting appointment, must disclose any circumstances that may raise doubts about their impartiality and independence.[64] The Serbian Arbitration Act explicitly stipulates that an arbitrator must remain impartial and independent with respect to the parties and the subject matter of the dispute.[65] In traditional arbitration, considerable efforts have been made to ensure compliance with these rules, including the issuance of specific guidelines that, while belonging to soft law, are strongly adhered to in international arbitrations, such as the IBA Guidelines on Conflicts of Interest in International Arbitration.[66]

Under national laws, parties may agree on the procedure for appointing arbitrators.[67] Consequently, if they can delegate the selection to an arbitral institution or an appointing authority, they may also entrust it to a blockchain protocol, provided it follows a predetermined procedure. Nonetheless, a problematic aspect of the Kleros system is the decision-making

63 The procedural aspect of public policy relates to the decision-making process, not the substantive outcome. See Varadi, T. *et al.*, 2020, *Međunarodno privatno pravo*, 19th edition, Belgrade, Pravni fakultet Univerziteta u Beogradu, p. 554. The process of enforcing foreign judicial and arbitral decisions verifies whether the minimum standards of fair procedure and the fundamental procedural principles of the recognition country have been observed. See Jakšić, A., 2021, *Međunarodno privatno pravo*, Belgrade, Službeni glasnik, p. 312.

64 UNCITRAL Model Law, Art. 12(1).

65 Serbian Arbitration Act, Art. 19(3).

66 International Bar Association, 2024, IBA Guidelines on Conflicts of Interest in International Arbitration, 25 May.

67 Serbian Arbitration Act, Art. 17(1).

process and the self-selecting mechanism for jurors, which can cast doubt on their independence and impartiality, particularly from a financial perspective. The decisions are made by laypeople who voluntarily apply to resolve disputes, motivated solely by the desire to render a decision that aligns with the majority of other jurors and thus increase their financial stake. Decision-making based on game theory and Schelling points raises further concerns that jurors might not have thoroughly examined all the details of the case, but rather made their decisions based on what they believe an average juror with average attention would conclude from a regular review of the documentation and evidence submitted by the parties. In the Kleros system, jurors who vote against the majority lose their stake, a mechanism designed, according to Kleros, to encourage truthful voting by punishing "dishonest" or dissenting jurors.[68] In traditional arbitral tribunals, it is not uncommon for an arbitrator to hold a dissenting opinion, especially in complex disputes involving numerous legal issues,[69] but such arbitrators are not financially penalized for their differing views.

Contrary to the views of some authors, who argue that the likelihood of a juror having a vested interest in the outcome of the dispute, due to a relationship with one of the parties, is lower than that of arbitrators in traditional arbitration,[70] we believe that the lack of adequate oversight can undoubtedly call into question the integrity of the proceedings. Within the Kleros system, especially when the pool of jurors is limited, there is potential for misconduct. For instance, multiple affiliated individuals could register under different profiles with the highest number of tokens, thereby forming a majority among the jurors.[71] In this way, they could manipulate the outcome by voting contrary to what they believe the majority of other (unaffiliated) jurors will decide. However, they would still "win" because they have formed a majority, allowing them to claim the assets of the other jurors as well as the fees paid by the parties. At the present, the number of potential jurors is not large, and there are Kleros communities on social media (such as Telegram, which is generally popular in the crypto space).

68 Dylag, M., Smith, H., 2023, p. 378.

69 In traditional arbitration, having differing opinions is not prohibited, however, there are varying viewpoints regarding the publication of dissenting opinions. See Rees, P. J., Rohn, P., 2009, Dissenting Opinions: Can they Fulfil a Beneficial Role?, *Arbitration International*, Vol. 25, No. 3, pp. 329–333.

70 Tan, J. H., 2023, p. 159, referring in footnote 77 to Kleros Yellow Paper, supra note 19, p. 9; Ast, F., Dimov, D., 2018, Is Kleros a Fair Dispute Resolution System?, *Kleros*, (https://blog.kleros.io/is-kleros-a-fair-dispute-resolut ion-system, 22. 9. 2024).

71 This is due to the fact that the one who stakes the most tokens has the highest chance of being selected as a juror. See Kleros.io, 2020, *Dispute Revolution: the Kleros Handbook of Decentralized Justice*, Kleros, p. 44.

This raises at least a seed of doubt that some jurors might have the means and opportunity to coordinate and reach a collective decision, which would clearly be against Kleros rules.[72] Although these measures are still insufficient, Kleros is developing mechanisms to prevent manipulation, and any premature disclosure of votes is valid grounds for challenging a decision within the Kleros system.[73]

Some authors suggest that financial bias could be addressed by establishing a control system where external experts would review decisions to ensure they are made for the right reasons, rather than simply aligning with the likely majority opinion.[74] However, we see several shortcomings of this proposal. Key concerns revolve around who would conduct the proposed anonymous peer reviews, how they would be selected, and what should be their qualifications. In the Kleros system, anyone who provides the necessary tokens can potentially serve as a juror, and if external experts are chosen from the same pool, the quality of oversight would be severely limited. Moreover, engaging external experts to review decisions, while possibly reducing the need for an unlimited number of appeals under the current system, would inevitably increase costs for the parties, as it would be a mandatory part of the process rather than a matter of the party's choice to appeal the decision.

The anonymity of jurors[75] (as well as external experts, if that innovation is adopted) is another issue that may prevent the enforcement of an award under the New York Convention. Parties in the Kleros system receive no information about who decided their dispute. Moreover, jurors do not provide statements of independence and impartiality, which are mandatory in traditional arbitration. As a result, parties are unable to request the disqualification of a juror if they suspect bias and conflict of interest. As already emphasized in the section discussing the transparency issues in blockchain arbitration, Web3 communities are still relatively small, thus, despite the use of pseudonyms, a juror might recognize one of the parties in the proceedings and be biased,[76] while the other party remains unaware and unable to address the issue.

72 This issue is also recognized in: Tan, J. H., 2023, p. 162.

73 Lesaege, C., George, W., Ast, F., 2021, Kleros Long Paper v2.0.2, *Kleros*, p. 38.

74 Sharma, C., 2022 with referencing in footnote 129 to DiMatteo, L. *et al.*, (eds.), 2021, Legal Tech and ADR, *The Cambridge Handbook of Lawyering in the Digital Age*, Cambridge, Cambridge University Press.

75 Blockchain platforms must, first and foremost, ensure that the selected juror is an adult, taking into account that national laws require the age of majority for arbitrators. See Serbian Arbitration Act, Art. 19(3).

76 Because they are involved with that party in one of the projects, they are members of the same decentralized autonomous organization (DAO) or a group on social media.

In a case dating back to 1976, the Cologne Court of Appeals concluded that the procedural mechanism for ensuring the impartiality of arbitrators is the challenge procedure against them, and this mechanism can only be effective if the parties know the names of the arbitrators. In this specific case, the mechanism for appointing arbitrators was agreed upon by the parties and involved them ultimately being unaware of who was deciding on the dispute. Both parties participated in the formation of the arbitral tribunal according to the agreed rules and without objection, which served as an additional argument in favor of recognizing the arbitral award. Nevertheless, the Court held that the contractual method of selecting the arbitrator, as well as the behavior of the parties, was contrary to imperative norms that are part of public policy, leading to the rejection of the recognition of the arbitral award.[77]

The question arises whether parties, through their autonomy, can exclude the mandatory provisions of national laws concerning the independence and impartiality of arbitrators, and thus preemptively waive the right to invoke these grounds in proceedings for the recognition and enforcement of an award. This question is particularly relevant given that the parties are aware of the decision-making process, the potential for financial bias, and the lay nature of the decision-making, which lacks guidance from universally accepted principles and does not rely on any national or international law. The answer hinges on whether such an arrangement infringes upon the realm of public policy.

The extent to which parties can influence the selection of decision-makers and the arbitration process itself depends not only on the theory of the nature of arbitration that should predominantly be accepted[78] but also on the nature of the arbitrator's role. The central dilemma is whether the function of the arbitrator is public or private, which is closely tied to the nature of arbitration. Two main theories exist: jurisdictional theory, which likens arbitrators to judges whose authority derives from state sovereignty, and contractual theory, which views arbitrators as service providers whose function stems from the parties' agreement.[79] As is often the case, neither theory, when taken to its extreme, fully captures the

77 For more information about the case before the German court, see Várady, T., 2009, Waiver in Arbitral Proceedings and Limitations on Waiver, *Annals of the Faculty of Law in Belgrade*, Vol. 57, No. 3, p. 18.

78 Gaillard, E., Theories of International Arbitration, in: Kröll, S., Bjorklund, A. K., Ferrari, F., (eds.), 2023, *Cambridge Compendium of International Commercial and Investment Arbitration*, Cambridge, Cambridge University Press, pp. 27–35.

79 Michaels, R., Roles and Perceptions of International Arbitrators, An Introduction, in: Mattli, W., Dietz, T., (eds.), 2014, *International Arbitration and Global Governance, Contending Theories and Evidence*, Oxford, Oxford University Press, p. 68.

essence of arbitration. Just as the hybrid nature of arbitration is often accepted,[80] the arbitrator's role is also hybrid: it includes judicial functions, but the foundation of those functions is the parties' agreement. In practice, party autonomy is increasingly constrained by societal expectations, and the arbitrator's private role is progressively being replaced by a public function, one of whose aims is to protect public interests. Arbitrators are required to uphold public policy. Ongoing discussions, both theoretical and practical, focus on the role of overriding mandatory rules in arbitration. Additionally, human rights are gaining increasing prominence in international commercial arbitration.[81] Arbitrators are, hence, private judges, but their awards are equated with judgments issued by state judges.

In line with the nature of the arbitrator's role, particularly regarding their appointment and the exercise of their function, parties do not have complete freedom. Due to the arbitrator's public function, certain minimum rules must be respected. For instance, an arbitrator must be an adult with legal capacity who is independent and impartial in relation to the parties.[82]

According to Serbian law, it would not be possible for the parties to agree that an arbitrator be a person connected to or dependent on one of the parties involved in the proceedings, as independence and impartiality of the arbitrator are mandatory legal requirements from which the parties cannot derogate.[83] In the case of *Suovaniemi v. Finland*,[84] the European Court of Human Rights (ECtHR) addressed whether parties can waive procedural guarantees in arbitration in advance. In that arbitration proceeding, the arbitrator stated that he had a conflict of interest, but the parties did not object to his appointment. Later, one party sought to annul the award, arguing that it had been revealed during the process that the arbitrator was biased due to the conflict of interest. The national courts did not set aside the award, and the case was brought before the ECtHR,

80 We use the term "often" because courts in many countries accept this approach. However, the cases of accepting contractual or jurisdictional nature of arbitration are far from isolated. See Gaillard, E., 2023, pp. 34–35.

81 Butler, P., Human Rights in International Commercial and Investment Arbitration, in: Kröll, S., Bjorklund, A. K., Ferrari, F., (eds.), 2023, *Cambridge Compendium of International Commercial and Investment Arbitration*, Cambridge, Cambridge University Press, pp. 139–141, 161–163.

82 Conditions are derived from Article 19 of the Serbian Arbitration Act. The Act also adds the condition that an arbitrator cannot be a person who has been sentenced to an unconditional prison term while the consequences of the conviction persist.

83 Stanivuković, M., 2018, p. 142, referencing the Serbian Arbitration Act, Art. 19: "An arbitrator must be impartial and independent in relation to the parties and the subject-matter of the dispute."

84 ECtHR, *Suovaniemi v. Finland*, No. 31737/96.

which concluded that the party had unequivocally waived the condition of the arbitrator's impartiality. According to the ECtHR's understanding, this unequivocal waiver had to be respected, as the party had legal representation, which was a sufficient guarantee that they were aware of the consequences. This was not the first instance where the ECtHR considered it possible to waive procedural guarantees in voluntary arbitration, provided that minimum procedural standards are respected.[85]

In regard to the case before the ECtHR, it is important to mention the IBA Guidelines on Conflicts of Interest in International Arbitration, which, although nonbinding, serve as a benchmark for arbitrators, parties, arbitral institutions, and judges.[86] These Guidelines contain three lists: the Red List, the Orange List, and the Green List, ranked by the severity of the grounds that lead to conflicts of interest or may create the impression that the arbitrator is not independent and impartial. If any ground appears on the Red List (which contains two sub-lists), a conflict of interest exists.[87] Situations that are on the non-waivable Red List represent a gross violation of the principle of independence and impartiality of arbitrators, stemming from the fundamental principle that no one can be their own judge,[88] and should be considered to fall under the institution of public policy. Within this list, one situation noted is where the arbitrator has a significant financial or personal interest in one of the parties or the outcome of the dispute.[89] As previously discussed, jurors in the Kleros arbitration have a financial interest in the outcome of the dispute since their earnings or losses depend on whether the party they voted for wins. By investing tokens to gain the role of a juror, they become directly financially interested in the result of the voting, thereby entering the role of a judge in game theory where their stakes are involved. Just as the losing

85 Kaufmann-Kohler, G., 2009, When arbitrators facilitate settlement: towards a transnational standard, *Arbitration international*, Vol. 25, No. 2, p. 198, with reference to *Suovaniemi v. Finland*.

86 It is noted that the guidelines can also serve as a supplement for national judges in interpreting minimum standards of independence, as they represent a consensus on what is deemed appropriate at the international level. Ali, S., Neuhaus, S. K., The Emergence of Soft Law as an Applicable Source of Procedural and Substantive Law, in: Kröll, S., Bjorklund, A. K., Ferrari, F., (eds.), 2023, *Cambridge Compendium of International Commercial and Investment Arbitration*, Cambridge, Cambridge University Press, p. 544.

87 International Bar Association, 2024, p. 4. It is understood that situations on the Green List do not create conflicts of interest or their appearance. Depending on the facts of the case, situations on the Orange List may raise doubts in the eyes of the parties and must therefore be disclosed by the arbitrators.

88 International Bar Association, 2024, p. 14.

89 International Bar Association, 2024, 1.3.

party forfeits the disputed assets, a juror voting for that party also loses the funds they invested to gain the right to vote. From all this, it is clear that jurors in the Kleros system decide on disputes in which they have a direct financial interest in the outcome.

5. Concluding Remarks

Blockchain technology aims for decentralization, striving to be independent of any central authorities. In this context, blockchain arbitration, rooted in the values of the aforementioned technology, seeks isolation from states and their national courts. However, this goal can only be achieved if decisions are made and enforced directly on the blockchain network, through self-executing smart contracts. In this case, we are dealing with a closed blockchain system where interventions from national courts and their enforcement power, backed by the state, are unnecessary. Moreover, in this scenario, we can talk about a fully autonomous blockchain arbitration that is not only separate from national laws but also from conventions that are key drivers of international arbitration, including the New York Convention. This represents a significant level of development that deserves applause.

Nevertheless, a significant number of decisions made in blockchain arbitrations will concern disputes that exist outside the blockchain network and not on a smart contract. Therefore, the enforcement of these decisions will depend on the willingness of the losing party or an external authority that has the power to enforce them, as is the case with awards from traditional arbitration. By their nature, the disputes will be global, and blockchain arbitrations will need to strive to fall under the scope of the New York Convention if they want to achieve cross-border enforcement of their decisions.

We have primarily examined the Kleros system, recognized as the most advanced and ambitious initiative for delivering decentralized justice. On one hand, despite numerous formal and substantive issues regarding the decisions of blockchain arbitration, we have established that, under the current circumstances or with minimal adjustments, they can be considered arbitral awards under the New York Convention.

On the other hand, if blockchain arbitral awards are submitted for recognition and enforcement before national courts, we are uncertain about their favorable prospects under Article 5 of the New York Convention. National courts may consider that the absence of a seat for blockchain arbitration is contrary to their public policy, as the awards are not

rendered according to any national procedural law and there is no possibility of exercising control over the award through annulment proceedings. However, this problem varies from state to state, while the following issue remains universal.

The juror selection procedure (self-selection) and the manner of their decision-making raise doubts about the financial bias of the jurors concerning the outcome of the dispute. Given that party autonomy is the supreme postulate in arbitration, it can be argued that by consciously choosing blockchain arbitration, the parties waive many procedural guarantees provided by the New York Convention. By opting for blockchain arbitration instead of traditional arbitration, the parties waive their right to invoke violations of procedural guarantees from the Convention that have been overridden by the rules of blockchain arbitration, which courts only consider upon a party's objection. However, they cannot waive the minimal procedural guarantees and principles of fair trial that fall under the public policy of the state of recognition, which the court must consider *ex officio*. Consequently, we have analyzed whether the decision-making process in blockchain arbitration significantly undermines the principle of arbitrator impartiality. Our findings indicate that the existing mechanism, which relies on self-selection of jurors and decision-making based on game theory and the Schelling point, raises concerns about potential financial bias among jurors. This is particularly relevant given that their financial position is contingent upon the outcome of the dispute. If national courts recognize this as well, the cross-border future of blockchain arbitral awards looks bleak.

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PRIZNANJE I IZVRŠENJE ODLUKA BLOKČEJN ARBITRAŽA PREMA NJUJORŠKOJ KONVENCIJI

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APSTRAKT

Blokčejn tehnologija utiče na brojne industrije i oblasti, ne zaobilazeći ni arbitražno pravo. Porast platformi koje nude „blokčejn arbitražu" nagoveštava pomak ka bržem, jeftinijem i decentralizovanom rešavanju sporova. Kao glavna prednost ističe se mogućnost samostalnog izvršenja odluka putem pametnih ugovora. Ipak, budući da je to samo mogućnost, veliki broj odluka biće izvršen tradicionalnim putem. Sporovi koji se rešavaju blokčejn arbitražama su po prirodi globalni, te je potrebno obezbediti prekogranično dejstvo njihovih odluka. Ovaj rad istražuje da li se odluke blokčejn arbitraža mogu smatrati odlukama podobnim za priznanje prema Njujorškoj konvenciji i da li proces njihovog donošenja zadovoljava uslove za priznanje iz Konvencije. Autor u radu prepoznaje da procesni aspekt javnog poretka država priznanja može da bude narušen načinom na koji se donose odluke u blokčejn arbitražama, što je osnov za odbijanje priznanja i izvršenja od strane sudova po službenoj dužnosti.

Ključne reči: blokčejn arbitraža, Njujorška konvencija, priznanje i izvršenje arbitražnih odluka, javni poredak, pametni ugovori, blokčejn tehnologija, decentralizovani pravosudni sistem.

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