BLOCKCHAIN ARBITRATION AND SMART CONTRACTS IN INDIA

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Abstract

One of the new developments in the age of technology is Blockchain Technology. Technology that has the power to modify the perspective on how things are done so far and all the orthodox strategies that our human brain is used to. In simple words, like any other technological development, Blockchain is created to reduce the effort of a person and increase the role of technology to increase productivity for the task concerned. In technological world smart contracts have gained a lot of popularity and acknowledgement. In the field of law, the influence of innovations is rising at a mind-blowing pace which is increasing day by day. Although blockchain technology has been one of the most talked about developments in technology in recent years, its effect on legal processes remains to be mysterious. This article details about the blockchain and smart contracts and their usage in arbitration. In this article the difference between traditional and smart contracts are summarised. It also explores the Indian scenario and stand on smart contracts.

Introduction

The 21st Century is no stranger to technology. The fast-paced life that has become the characteristic of the century finds its place in the rapid changes and innovation in technology. Having become both the cause and the effects in the lives lead in this millennium, technology has entered all forays of our life and we have learnt to not only embrace but also rely upon its utilities. The true moments for reckoning the technological innovations have however risen in the past few months when the virtual touch is the only one declared to be safe for all. With every aspect in our life witnessing a new normal, each field have tried to cope with them, devising novel mechanisms. It is in this light that technology e-contracts needs to be appreciated. The International Chamber of Commerce refers to electronic contracting as "the automated process to contract via the parties' computers whether network or through electronic messaging. E-contracts can be entered through via e-mail or through the world wide web to what are known as the website-based e-contracts."[1]

Synchronising the operational framework of the e-contracts with the legal requirements of dispute resolution mechanism is of significance. Arbitration is preferred more as dispute resolution in e-commerce for various reasons of flexibility of forum, facilitation in the cross-border dealings and swift settlement by avoiding the convention litigation. It therefore becomes essential to ensure that an arbitration clause in an e-contract meets all the requirements of enforceability both by assessing it from the point of view of international agreements that set out rules relating to arbitration as well as the legal systems of different countries and their individual requirements.

In our day to day lives, a technology such as Blockchain with such multidimensional capabilities could be channelized for various uses. This takes us to Smart Contracts, the second major part of this article. Blockchain is a wide field in which one small head is used under "Smart Contracts". Smart contracts are not specified to date in any of the Indian laws, but can be extracted from one of the notifications1 issued in 2018 by the Telecom Regulatory Authority of India (TRAI) for a general idea.

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[1] Leonard, A., 2018. The Blockchain Is a Reminder of the Internet's Failure. [Blog] *OneZero*, https://onezero.medium.com/the-blockchain-is-a-reminder-of-the-internets-failure-b16c58d70413 (last visited May 11, 2021).

Smart contracts relate to a digitally encrypted agreement codified through Cryptography, according to the notification. Smart contracts are smart because, along with regulatory enforcement, they operate on the execution of predetermined commands. They also specifically exclude space of any kind for human intervention or human error. All these steps and procedures are documented, processed and carried out simultaneously on all systems. Each party should therefore check the stage at which the agreement is operating right now and whether or not it has been honoured properly.

For different purposes that will be addressed in depth later in this article, the contracting party profits from such contracts. One of the prima facie benefits of the Smart Contract is that it will not do so until the agreement is codified in finality, even though the party wishes to amend or modify the agreement in his favour.

Evolution of Blockchain arbitration

The first period of blockchain arbitration actually began shortly after the invention of cryptocurrency and bitcoins, which was launched in 2009. The e-commerce during the period basically revolved around payments in cryptocurrencies. So, we witnessed anonymous parties entering into commercial relationships using anonymous money.so it was fairly obvious from the beginning that there should be some dispute prevention mechanism in order for this system to work. therefore, two models were introduced during this period, the first one being a centralised administrator of the marketplace and the other being an arbitrator platform.[2]

The dark web during that period used to deal with illegal items which they used to trade where the buyer would place the bitcoin in the platform and thereafter would wait for the delivery, but the good mostly were not conforming to the expectations of the buyer and thus where the role of market administrators come into effect. The buyer would ask the administrator to reverse the transaction and send him the bitcoin back. The problem in this platform was there was a lot of

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[2] J. Neally, D. and Hodge, M., 2018. *Blockchain in the Courts*. [ebook] Phoenix, Arizona, http://blogs.asucollegeoflaw.com/lsi/files/2018/12/First-Annual-Karjala-Workshop-Report.pdf (last visited May 11, 2021).

power concentrated on the platform. On one hand, the administrator was deciding the cases on merit, but also on the other hand, he was executing everything. That actually created a lot of scandals where such market places would basically take the money and shut down. Therefore, it was fairly obvious that an independent system needs to be introduced and thereafter the concept 'multi-signature' wallet was introduced, that is collectively held by numerous parties. However, the early period did not include any dispute resolution clauses, no clear rules, also there was no applicable law in case of dispute. In most cases, the decisions were actually enforced immediately.

As far as the second phase and the current phase is concerned, it is innovative on one hand having decentralised mechanism and one instance of that is a platform which governs cloud arbitrations which basically allows anyone to be appointed as an arbitrator.[3] The actual consideration is to pledge some kind of monetary funds like bitcoins or token and the catch in this platform is the more the amount one can stake at this platform, the higher he gets a chance to be appointed as an arbitrator.[4] Therefore, if a person is sure of his knowledge and skills as an arbitrator and he has the money to stake then he gets the chance to be appointed and then decide the fate of the dispute through majority decision. This concept somehow penalises the arbitrators, since it will look into majority vote as well as the arbitrator's and if the latter votes for the minority decision, he will actually lose the stake.[5]

On the other hand, there has been attempts to introduce mechanisms with the standards of the smart contracts. However, it has proven to be very hard to actually combine the concept of blockchain with the standards of national arbitration laws as well as the international conventions.

Blockchain Technology in Arbitration

Blockchain is described as a "open, distributed ledger that can effectively and verifiably and permanently record transactions between two parties." The working principle of a blockchain is

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[3] Wright, Aaron and De Filippi, Primavera, Decentralized Blockchain Technology and the Rise of Lex Cryptographia (March 10, 2015), https://ssrn.com/abstract=2580664 (last visited May 11, 2021)

[4] Daniel J. Neally & Maria L. Hodge, Blockchain in the Courts (2018), http://blogs.asucollegeoflaw.com/lsi/files/2018/12/First-Annual-Karjala-Workshop-Report.pdf (last visited May 11, 2021)

[5] Blockchain: Wall Street's Most Game-Changing Technology Advance Since the Internet Forbes, https://www.forbes.com/sites/richdaly/2016/07/11/blockchain-wall-streets-most-game-changing-technology-advance-since-the-internet/?sh=554bc86c4d87 (last visited May 11, 2021)

focused on the concatenation of each transaction or movement as a" block "to the system as the simplest definition, so that the platform is constantly growing. The whole system is updated with each new transaction and the transaction becomes available everywhere in the world to the concerned parties. This technology is based on a chain of blocks, just as the name of the technology implies. This technology traces its origins back to 1991. W. and Stuart Haber. Scott Stornetta was the first group of individuals who thought about creating a technology that would use cryptography to inscribe information into tiny digital blocks. These blocks consist of codes that encrypt information not only for security purposes, but also time stamp information for future reference.[6]

Arbitration aims to be a short and comprehensive decision-making procedure, as an alternative to classical methods of conflict resolution. In this respect, due to the fact that there is no mechanism requiring approval and supervision at all stages, and intermediary institutions are not involved in the process, the blockchain promises to be an ideal framework for the trial process. Banks that are interested in legal and financial transactions as intermediary institutions can be evaluated as an example in this regard. Costs will be incurred at any point of the transactions carried out by banks and credit institutions and the completion of the transactions will take some time. By eliminating such entities from the process, the blockchain system aims to proceed more effectively.

Since there is no digital authority yet whose legal assessment has been confirmed, the arbitral award must surely contain human judgement. The award should therefore be made outside of the platform of the blockchain. Consequently, by moving it to the blockchain network, the applicability of the award would be possible. In this respect, the arbitrator will serve as a "oracle" that provides input to satisfy the obligations under the smart contract.[7] Oracle allows the blockchain or smart contract to connect with external data, that is, beyond the blockchain network, the world.

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[6] Blockchain: Wall Street's Most Game-Changing Technology Advance Since The Internet Forbes, https://www.forbes.com/sites/richdaly/2016/07/11/blockchain-wall-streets-most-game-changing-technology-advance-since-the-internet/?sh=554bc86c4d87 (last visited May 11, 2021)
[7] Blockchain, Smart Contracts And Arbitration - Technology - Turkey Mondaq.com, https://www.mondaq.com/turkey/fin-tech/967452/blockchain-smart-contracts-and-arbitration (last visited May 11, 2021).

In addition, digitising the arbitration process would inevitably bring down costs. In addition, blockchain technology is expected to reduce the security risks resulting from exchanging information via e-mail and other similar means in terms of privacy.

Smart Contracts

Blockchain arbitration aims to be an effective decision-making mechanism, particularly in relatively small disputes arising from smart contracts. Smart contracts do not always need to be smart, but its rather a code. There is actually a technological representation of the agreement between the parties and these smart contracts code are therefore representing a self-executable code or electronic instructions formulated up in computer code, based on the pre-agreed conditions of the parties.

Blockchain arbitration, especially in relatively small conflicts arising from smart contracts, aims to be an effective decision-making mechanism.

As described above, with the realisation of predetermined conditions, smart contracts are executed. In other words, they can be expressed as "coded instructions that execute an act after an event happens. Smart contracts can also be referred to as self-executing contracts, and only particular parts of contracts that can be conditioned and automated can be referred to as" self-executing contracts. Insurance contracts, for example, are deemed eligible to be issued as smart contracts, since the pay-out is made automatically when the risk calculated by the smart contract is realised. Nevertheless, there are concerns regarding the scope of the implementation of smart contracts, since all contracts cannot be built as if-then statements. Indeed, most contract clauses are interpreted by contract law standards, such as the principle of good faith. At present, only smart contract obligations that can be enforced remotely are binding.

Dispute Resolution Mechanism of Smart Contracts

There may be numerous instances where the smart contracts can go wrong. Firstly, it may be the case that the code is not exactly what the parties negotiated for. Secondly, the data that is being fed into the smart contract, for example, the time schedule, is somehow corrupt and unreliable,

there may be an issue with the quality of the goods, and there is no way for the smart contract to verify the standards of such goods. Perhaps there may be some legal reasons rendering such a contract null and void.

There needs to be some kind of dispute resolution mechanism for smart contracts to operate, as the possible issues that might occur in a smart contract may be three times that of three parties in the contract, i.e. a buyer, a seller and the network on which the code is produced. The issues which occur at the stage of creation, the stage of performance or after the contract has been enforced. Since foreign transactions are involved and the parties don't know each other personally much of the time. A centralised administrator could take advantage of this, and scams could be possible. Therefore, an alternative system would be arbitration with a blockchain. They are capable of being drafted in a programming language because arbitrations are already based on a contract. It is important to translate the contract terms into a block code and store them on the blockchain. Including submission of arguments, proof or simply contact with the tribunal, the whole blockchain arbitration mechanism can be automated. In times like these, where the need for the hour is a globally open online court, blockchain arbitration may be a game changer. It would, without any bias, universally impart transparent justice.[8]

Smart Contracts V/S Traditional Contract

The distinction between Smart Contracts and Traditional Contracts must be understood for a deeper understanding of smart contracts. The word 'traditional contracts' applies simply to the most basic type of a contract. In which the parties agree on the terms of their contract, bearing in mind the purpose and the ultimate aim of the entire agreement. These contracts provide the parties concerned with the alteration of their contract with a very flexible approach.

There are few advantages of Smart Contracts: -

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[8] OpenCourt: Legally Enforceable Blockchain-Based Arbitration Medium, https://media.consensys.net/opencourt-legally-enforceable-blockchain-based-arbitration-3d7147dbb56f (last visited May 11, 2021)

- Process is speedy: - Smart contracts have taken the advantage of easily and highly efficiently performing tasks. Smart contracts are focused on reducing human interference, thereby removing human errors, such as time spent on paperwork preparation, document error correction, etc. Computer codes prevent mistakes like this.

- Reliability: - Smart Contracts are based on pre-defined commands that are executed automatically at any point of a contract. Also, via the network, the record of each such transaction is fed directly into each participant 's device simultaneously. Therefore, it prevents any possibility of influencing or tempering certain transactions.

- Security: - The USP of Smart Contracts is Stability. Data encrypted by encryption and distributive ledger framework features ensures data security. Each block contains information and one would have to hack all the blocks in a chain as they are connected to each other to change that.

- To minimise operating costs, the neighbouring costs such as commissions, fees, procedural costs, costs related to different formalities and paperwork are also reduced with the advantage of reducing human errors. Basically, when the task of an intermediary is set aside, the expenses associated with such intermediaries also vanish.

Smart Contracts: - Indian Overview

One must know that the acceptance of Blockchain as a form of technology and Smart Contracts as one of its uses are two separate things before discussing the Indian Smart Contracts scenario. If a nation has a positive attitude towards Blockchain technology, it would not ipso facto imply that it will embrace open arms Smart Contracts as well. In recognising the potential of Blockchain technology, India as a developing nation is not failing. Instead, as part of their research and development projects, different government agencies have begun to use "Blockchain".

There is only one known example in India of the use of smart contracts between Bajaj Electronics and Yes Bank, which focuses on the financing of blockchain vendors.[9] RBI, meanwhile, has

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[9]Overview: The Enforceability of Smart Contracts in India STALawFirm, https://www.stalawfirm.com/en/blogs/view/enforceability-of-smart-contracts-in-india.html (last visited May 11, 2021).

published a white paper on Distributed Ledger Technology, Blockchain and Central Banks which promises financial institutions the potential use of technology and is a step forward in India's innovation and use of emerging technology.

The importance of and are slightly tangent to the concept of patenting Blockchain technology. A writ petition for registration of a patent was filed and approved in the High Court of Delhi. The Patent Authorities had earlier rejected the patent claim on the ground that it falls under the group of items which are not considered to be inventions. It is not patentable per se, as software under Section 3(k)8 of the Patents Act, 1970 and Blockchain is a kind of software.

The Information Technology Act, 2000 gives legality to use the signature digitally. As described above, Smart Contracts use cryptography for coding into the system based on the ledger. Smart Contracts also use digital authentication signatures and safe restricted access. The only point of concern is that digital signatures produced under Blockchain Technology are not the kind allowed under the Information Technology Act, 2000. Digital signatures are self-produced under Blockchain technology.

The Indian Contracts Act, 1872 outlines how a legal contract has to be. It draws out the essentials of the valid contract and agreement. Agreement must be made with free consent and must have lawful object. All the conditions under Section 10 of the Indian Contract Act, 1872 are fulfilled by Smart Contracts. They are also proper and legal contracts under the Indian Contract Act, 1872, as far as the validity of Smart Contracts is concerned.

Legal Challenges

The validity of the arbitration clause is the cornerstone of the arbitration agreement. Therefore, arbitration agreement as any other agreement between the parties needs to fulfil some of the general requirements of the law to which it is subjected. In smart contracts, the parties are actually entering into a very specific clause and in order to have a valid offer and acceptance[10], it is essential

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[10] Kevin Werbach, *TRUST, BUT VERIFY: WHY THE BLOCKCHAIN NEEDS THE LAW*, WERBACH INITIAL FORMAT (2018), https://poseidon01.ssrn.com/delivery.php? (last visited May 11, 2021)

to know the workings of this clause, the nature and the effects of these clause. Therefore, these clauses pose to be different from the traditional clauses. For example, an arbitration clause in a smart contract could stop the execution of a smart contract and it may have a predetermined way of appointing the arbitrators. Thus, when parties are concluding such arbitration clauses, they need to have complete knowledge or the opportunity to receive such knowledge about the effect of the process they are binding themselves into.

Secondly, we also need to examine some of the specific requirements for arbitration agreements. Since Geneva Convention already stipulates that the arbitration agreement must be made in writing, therefore, in our particular case, smart contracts can be concluded entirely in codes, but the question might crop up whether this could be sufficient to be considered as 'in writing'. However Geneva Convention is somewhat flexible in its interpretation of its notion 'in wiritng' and might include also the electronic mode of communication as long as the information contained in the agreement code is accessible and usable for subsequent reference and also we have witnessed that other works by UNCITRAL highly promoted the technological neutrality and also functional equivalence, which can also be utilised in the case of smart contracts.

Arbitration Procedure

We know that the seat of arbitration has a very important implication such as governing the relationships within the arbitration as well as the relationships between the arbitration and the courts. However, in many of the presented models, although they are presenting themselves as legally binding, any reference as to the seat of arbitration cannot be found.[11] Some times this is out of ignorance or some times it is made intentionally, not be bound by any local law, but this actually raises the question that is it actually practicable that such seat-less arbitration can actually be recognised as valid at all or can there be an arbitral award which was not rendered without any designated seat and can actually be enforced.[12]

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[11]Aarni Heiskanen, *The technology of trust: How the Internet of Things and blockchain could usher in a new era of construction productivity*, 8 Construction Research and Innovation , 66-70 (2017), https://www.researchgate.net/publication/321217066_The_technology_of_trust_How_the_Internet_of_Things_and_blockchain_could_usher_in_a_new_era_of_construction_productivity (last visited May 11, 2021)

[12] David. R. Johnson & David Post, Law and Borders - The Rise of Law in Cyberspace, FIRST MOND AY (2006), https://firstmonday.org/ojs/index.php/fm/article/view/1310/1230. (last visited on Nov. 9, 2020)

Enforceability

In smart contract concept, there constitutes a relationship between the two parties and the platform through which they are entering into the relationship, i.e., between the seller and the buyer, between the seller and the platform and between the buyer and the platform. The dispute can arise threefold, during the formation stage of the contract, in the performance stage or after the contract has been implemented in the enforcement stage. Let's focus about contract formation and the disputes that might crop up during that stage.[13] As we already discussed, smart contracts are just computer programs which do certain things when prompted the right code or clicked the right button. There arises no issue when the performance is instant, for example, a simple fund transfer, if both the parties have a digital wallet and they transfer fund to each other in exchange of a cup of coffee. If the coffee is not delivered, then the basic intention of smart contract would not be fulfilled, as a result the fund would not be transferred and the contract would be frustrated. But the actual problem arises when it comes to performance of the contract which entails issues that would happen afterwards, after entering into the contract. For example, if we buy or sell a machine and the machine is supposed to perform in certain ways or the seller has given a warranty of the machine of a year or 5 years and it started creating a problem during the warranty period, in that case the smart contracts would not solve the problem.

It does not matter whether the contract is written or not, made face to face in the same place; we can enter into a contract nowadays very easily through internet or though other modes of communication and does not even matter whether the promise is made in actual exchange of money. What really matters for the purpose of enforceability of a contract is first of all we have to know that whether the parties are sure of the identity of the contracting parties; if we do not know whom we are talking to on the other side, the enforcement of the contract becomes very complex at the first hand. Secondly, we have to know whether the party is within the legal capacity to enter into a contract, that they actually own what they are selling or for that matter, they are legally authorised to represent the company that they are speaking on behalf of. We also need to know that the subject matter of the contract is not illegal, not everything can be bought and sold in every

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[13] Apurba Chakraborty, How Blockchain Promises to Heal Mankind's Chronic Pains, MEDIUM (Dec. 25, 2018), https://medium.com/altcoin-magazine/how-blockchain-promises-to-fix-the-trust-deficit-in-todays-internet-economy-b210d931f163. (last visited on Nov. 9, 2020)

country, for example alcohol cannot be sold legally in Saudi Arabia, and last but not the least the parties have intention to enter into a binding agreement that can be enforced, if necessary.[14]

Also, parties enjoy great freedom during contract formation, individuals can bind themselves to all kinds of things that may or may not be favourable for them. We all have some limitations, for example, if some party's minors cannot enter into certain type of contracts especially if it involves hefty amount of money. However, for commercial contracts, there are very few limitations as such. Unless there is a contract for grave illegal items like chemical weapons, businesses can enter into any other type of contract and enforce the performance of such easily without any legal complication as such.

Thus, as far as the question of legality and enforceability of smart contract is concerned, it can well be said that almost all smart contracts are actually legally valid, because parties have the full freedom to enter into these kinds of contracts. However, to quote Eleanor Roosevelt, "With freedom, comes responsibility"[15], therefore there are various problems which needs to be addressed while contract formation. Contracts are entered only to exchange money, but they need some details which cannot be easily coded on the blockchain. To analyse more on this issue, while the price and quantity of the goods can be coded, the coding of quality, warranties, limitations of liability, payment terms that are not instant, applicability of law in case of dispute, which forum needs to be used for the settlement of disputes is quite complex. If these compliances are not well coded, unfortunately, a lot of things may go wrong, and the parties may end up in an agreement as binding but not satisfying their expectation.

There may be a question which might crop up while performance of a contract is that what happens if the goods bought as a result of smart contracts do not perform as promised or they break down after delivery, or what happens if the contract is more complex than just an exchange of goods for money, for example, including Intellectual Property licensing, shipping and insurance obligations, after-sales-service, etc. and then a new set of problems which might crop up as to what happens if the programmer has made mistakes while coding the Smart Contract functions, or worse for that matter, what happens if an escrow account or a platform gets hacked while the contract is pending

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[14] Amy Wan Lecture, Blockchain and Dispute Resolution, University of Haifa (via Videoconferencing), April 3, 2019.

and the funds are held in a smart contract. To solve these issues or prevent such kinds of issues to crop up, we need to draft a strong contract in addition to coding. Smart contracts need enforcement options that work.[16] The procedures for enforcement in relation to arbitrators shall also be enhanced and arbitrators must have a good understanding of the business, understands smart contracts and is equipped well to deliver fast, affordable and enforceable decisions. Thus, smart contracts should include 'smartarb' clauses which should be available to for dispute settlement in future.

Conclusion

Under Blockchain Technology, the process, significance and function of Smart Contracts is very clearly explained above. Whereas in India, the legal predicament of Smart Contracts is quite uncertain. For such uncertainty, there are two main explanations.

Many envisage that the blockchain framework would allow transactions to be carried out quickly and efficiently. Fast and cost-friendly arbitration is considered to be one of the potential advantages of this technology. The threats of the blockchain method, however, should be measured correctly. While blockchain technology offers attractive solutions in the current situation, it is not yet an alternative to classical arbitration, mainly because of problems with compliance. Furthermore, the process's organisational and procedural dimensions are not completely determined and usable. Other issues about the process to be carried out through a blockchain are the relevant law and competence.[17]

The legal fraternity needs to be more open minded and bias free while, the tech community needs to maximize their potential and gain enough expertise in the field of arbitration and smart contracts and only then the difference can be covered. Since the outcomes of the detrimental cases cannot

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[16] EOS Dispute Resolution & Arbitration Working Group — Recap Sept 3–7 & Plans for Sept 10–14 & ECAF Update Medium, https://medium.com/@amywan/eos-dispute-resolution-arbitration-working-group-recap-sept-3-7-plans-for-sept-10-14-ecaf-55482c03f36 (last visited May 11, 2021)
[17] Kleros, The Blockchain Dispute Resolution Layer Next Generation Internet, https://www.ngi.eu/blockchainsforsocialgood/2019/12/20/kleros-the-blockchain-dispute-resolution-layer/#:~:text=Kleros%20is%20an%20online%20dispute,commerce%2C%20collaborative%20economy%20and%20others. (last visited May 11, 2021)

be anticipated so there needs to be a mechanism to resolve the disputes arising out of such smart contracts.[18] Especially there needs to be a codified law which would be applicable in a particular jurisdiction. The preference of the parties should be to introduce an arbitral model including rules whereby an audit of the code with the underlying rules be made in order to ensure that the code is actually conforming with the rules prescribed.[19]

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[18] Orna Rabinovich-Einy & Ethan Katsch, *Blockchain and the Inevitability of Disputes: The Role for Online Dispute Resolution*, Volume 2019 Journal of Dispute Resolution (2019), https://scholarship.law.missouri.edu/jdr/vol2019/iss2/6 (last visited May 11, 2021)

[19] Darcy W. E. Allen et al., *The Governance of Blockchain Dispute Resolution*, Volume 25 Harvard Negotiation Law Review (2020), https://www.researchgate.net/publication/340827439_The_Governance_of_Blockchain_Dispute_Resolution_-_Harvard_Negotiation_Law_Review_Vol_25 (last visited May 11, 2021)