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Will the Commercialisation of Blockchain Technologies Change the Face of Arbitration?

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Blockchain and its potential applications are well-documented by technologists and early-adopters. Over the last 12 months, however, this technology has started to take centre stage in more mainstream industry discussions. With the price of Bitcoin spiking early this year (following which the cryptocurrency lost over 50% of its value), blockchain has become big news and regulators are also starting to consider what new legislation is required to account for blockchain's popularity.

Most of the headlines still focus on digital currencies. However, blockchain has far wider-reaching potential and has the prospect fundamentally to disrupt modern business practice in many sectors. Indeed, in a number of sectors, blockchain applications are already being tested as a means to streamline industrial processes and make cross-border trade more transparent, efficient and cost-effective.

In many of those industries, arbitration is currently the prevailing mechanism for resolving commercial disputes. As users of arbitration are rushing to understand and evaluate how blockchain can enhance their business, arbitration practitioners need to appreciate what impact this trend could have for the popularity and physiognomies of arbitration in the future.

Blockchain and smart contracts explained

In simple terms, blockchain is a way of recording data. It is a decentralised public ledger of transactions that is maintained by its users, rather than by a trusted third party. Each blockchain 'protocol' operates on cryptographic technology and acts as a dynamic registry for the exchange of digital assets and verification of digital information.

Transactions on the blockchain are divided into encrypted, irreversible and time-stamped 'blocks' which are shared and corroborated by the users of the blockchain (or a selection of such users). Users of the blockchain can see the block (and, in some cases, approve it), but nobody can unilaterally modify any block that has been approved. Each 'block' is then chained to the next block, using cryptographic signatures to ensure validity and prevent tampering.

'Smart contract' is the term that is used to refer to software programmes that are built on the blockchain. A smart contract is not a contract in the traditional sense, and this term therefore causes some confusion. Instead, a smart contract is the execution via software code of an agreement (or part of an agreement) reached between two or more parties.

How will disputes evolve as blockchain grows in popularity and application?

Some technologists argue that blockchain and smart contracts eliminate the need for disputes altogether on the basis that the parties' bargain is automatically implemented in a decentralised manner, when the conditions agreed between the parties are fulfilled. However, this assumes that parties transact in a perfect world in which their agreements are limited to digital transactions. That is of course a very different world to the one in which we live.

Indeed, much of the performance required under commercial contracts takes place in the physical world. As a result, while self-executing smart contracts and blockchain applications have the potential to increase the efficiency of dispute resolution dramatically, disputes will not disappear altogether. It is therefore of central importance that 'smart contracts' are anchored within a valid legal framework and that parties identify, at the outset, the applicable dispute resolution mechanism.

A sensible solution, at this stage, is for parties to enter into 'smart agreements', meaning traditional legal agreements (entered into in compliance with traditional principles of contract formation), which contain one or more clauses that will be executed through smart contracts on the blockchain.

This approach ensures that parties preserve their ability to resolve both blockchain and real-world disputes in a single chosen dispute resolution forum (or tailored mechanisms for different types of disputes, if the parties so elect). It also ensures that all of the parties' rights and obligations pertaining to a legal relationship (or a particular aspect thereof) can be identified readily in a single document.

In the event that parties develop 'smart contracts' without a sound legal basis for their enforcement in the real world, those parties will face very real issues in determining the applicable laws and relevant decision makers for resolving their disputes (for instance, if there is a software bug in the code of their smart contract, an external data source is discontinued or a future disagreement arises between the parties regarding the way in which the software executed). Indeed, the decentralised and extra-territorial nature of transactions that take place on the blockchain makes conflict of law questions extremely complex.

Is arbitration the best forum for resolving disputes under 'smart agreements'?

Assuming that parties heed the advice of entering into 'smart agreements', should they refer their 'blockchain disputes' to arbitration?

In the author's view, arbitration is a perfect candidate for resolution of blockchain-based disputes.

Arbitration is a non-national and neutral dispute resolution forum which enables parties to nominate a tribunal of industry or technical specialists to efficiently and effectively resolve the different types of disputes that may arise from their relationship (which, as mentioned above, may include real world as well as digital world disputes, in each case ranging from a simple contract law claim to claims of a highly technical and complex nature).

The relative ease of cross-border enforcement of awards under the New York Convention also gives arbitration a huge advantage in the context of blockchain disputes, given the transnational nature of this technology and of the players involved in blockchain transactions.

But arbitration also offers a further material benefit in this context, compared to court litigation. Indeed, the inherent flexibility of the arbitral process (its procedure being tailored in material respects by the parties' agreement) enables efficient conflict management approaches to be developed and for the dispute resolution process itself to harness the benefits of blockchain technology. This means that arbitration has the potential to keep pace with a new breed of disputes.

The flexibility of arbitration can also enable parties to agree an arbitration procedure which helps to head off the challenges that arise from the pseudonymity of users on the blockchain and the immutability of published 'blocks'.

Indeed, arbitration offers parties the ability to resolve all or some of the issues in dispute 'via the blockchain'. Indeed 'blockchain arbitration' can enable an arbitral tribunal to draw upon evidence available on the blockchain in reaching its decision. That decision can then also be recorded directly on the blockchain in encrypted form (such that it can automatically be enforced, if the operative parts of the award entail a transaction of digital assets).

Several companies are developing arbitration protocols that parties can include as part of the code of their smart contracts. Indeed, successful 'mock' arbitrations have also taken place 'on the blockchain' to evidence the viability of this concept.

However, notwithstanding the exciting potential for 'blockchain arbitration', the same message applies as for any other smart contract: an arbitration protocol on the blockchain must be enforceable in the real world. Again, this militates in favour of parties entering into smart agreements, before publishing to the blockchain the relevant smart contracts agreed thereunder (including in relation to their agreed dispute resolution mechanism).

Conclusion

Blockchain technology and its applications are filtering into mainstream industries. This technology has the potential to create widespread efficiency savings, including in the context of contract execution and dispute resolution.

As a result, we should expect to see changes in how disputes arise and how they are resolved. However, arbitration is well-placed to cater for a new breed of disputes, as long as its practitioners are prepared to evolve rapidly to meet their clients' developing needs. New dispute resolution procedures must seek to preserve the efficiency gains made through the use of blockchain, even when disputes arise. This may require arbitration procedures that narrow the scope of disputes at an early stage (e.g. to focus on a particular failed step in the blockchain), permit the gathering of evidence on the blockchain and, subsequently, full resolution of digital world disputes – and enforcement of their outcome – through virtual platforms.

However, in developing protocols and smart contracts for 'blockchain arbitration', it is important to remember that a smart contract is merely a piece of software code. In order for parties operating on the blockchain to be able to enforce their arbitration agreements, the relevant smart contracts must be anchored within a valid legal framework.

Parties who disregard these questions due to the so-called self-executing nature of these digital 'contracts' will increase their legal risk, and likely encounter the very real world problems of increased uncertainty and exacerbated cost in determining how and by whom disputes will be resolved. This in turn could delay the global adoption of blockchain applications more widely.

The solution, at this stage at least, may be for parties to enter into smart agreements, entered into in compliance with traditional principles of contract formation, which provide for all those clauses which are capable of self-enforcement to be implemented on the blockchain but ensure that the underlying rights and obligations are nonetheless enforceable in the real world too, if anything goes wrong.

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