Arbitration of Smart Contracts Part 2 – Recommendations for the Future Landscape of Smart Contracts

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Following up on a previous post, this post provides a number of recommendations for the future landscape of smart contracts.

(1) Un-Anonymizing the Identity of the Parties to Smart Contracts: From a purely legal perspective, having a contract entered into by pseudonymous parties raises more than one question. First and foremost, how would one be able to validate the capacity of such parties to the first place? Also, what if both parties wanted to amend their agreement to be in line with the new economic conditions or amend it for any reason; would the parties be able to do so if they do not even know the identity of each other. What if one of the parties thinks there is a force majeure that should allow him to terminate the smart contract? As discussed in Primavera and Wright's *Blockchain and the Law: The Rule of Code* (2018), would such a party be able to proceed with such an argument if he does not even know the identity of his counter party? This party cannot even file a lawsuit; against whom will he file such a lawsuit. Even if such a party were able to obtain a default judgment (against "John Doe"), such a default judgment would not be of much use or effect as long as the identity of John Doe remains unknown.

(2) Enabling the Amendment and Termination of Smart Contracts: Public blockchains are immutable; this makes amending or terminating a smart contract on a public blockchain a far more complicated process than modifying any software code. This could result in (1) yielding higher transaction costs; and (2) increasing the margin of error for effectuating such amendments. Further, smart contracts do not yet offer analogous self-help remedies similar to those available under traditional contracts. For instance, as described here, under a traditional contract, a party can engage in the so-called "efficient breach". This is simply not available under smart contracts. That's why there are currently projects underway to create smart contracts that are amendable and terminable at any time.

(3) The inclusion of Oracles in Complex Smart Contracts: The promise of smart contracts as a decentralized mechanism for contracting is extremely overestimated and overhyped. This promise is true only when all the obligations resulting from the smart contract will take place on the blockchain ("on-the-chain"). If inputs are rather required from the real world ("off-the-chain"), then the promise of decentralization will completely evaporate in the air. In addition, supporting the process of completely "on-the-chain" smart contracts especially concerning dispute resolution would also require a trusted third party. Fortunately, as discussed here, there is a solution; use a trusted third party or what is commonly referred to as an "oracle."

Oracles can be individuals or programs that store and transmit information from "off-the-chain," thereby providing a means for blockchain platforms to interact with real-world persons and potentially react to such external events. For example, oracles can be connected to a data feed from a third party conveying the latest London Interbank Offered Rate (LIBOR). Also, as discussed by Michael del Castillo here, we can make an oracle convey the insights of human beings or support private dispute resolution and private arbitration systems. With oracles, smart contracts can respond to changing conditions in near real time. Parties to a contract can reference an oracle to modify payment flows or alter encoded rights and obligations according to newly received information.

In this regard, oracles could be used to determine or update obligations based on the subjective judgment of certain individuals. In this way, parties can rely on "the deterministic and guaranteed execution of smart contracts for objective promises that are readily translatable into code."[6]At the same time, they can choose a human oracle to assess promises that cannot easily be encoded into a smart

contract, either because they (1) are too ambiguous, or (2) require a subjective assessment of real-world events. Despite the benefit of using oracles, using them introduces a potential "point of failure." For example, as discussed here, an oracle might provide erroneous data or simply go out of business. Therefore, parties to smart contracts should be vigilant when choosing their oracles.

Smart Contract Disputes are Inevitable? Some technologists had proclaimed that smart contracts will avoid disputes altogether on the basis that the parties' bargain is automatically implemented in a decentralized manner, when the conditions agreed between the parties are satisfied. This view is very much overestimated; it does not take into consideration how disputes generally arise in real life. Self-executing smart contracts and blockchain applications might have the potential to increase the efficiency of dispute resolution dramatically. However, disputes will not disappear altogether. On the contrary, as Craig Tevendale and Charlie Morgan have observed here, the nature of the blockchain makes it crucial that any aspects of parties' agreement are anchored within a valid legal framework and that the parties' identify at the outset the applicable dispute resolution mechanism. Further, smart contracts' disputes would most likely take the form of cross-border disputes because trade is a cross-border activity. Therefore, legal advice on the applicability and enforceability of smart contracts based on the legal framework of each participating jurisdiction will be required beforehand. In this regard, we can identify at least five main potential disputes that could arise in the realm of smart contracts as follows:

1. **Is the Smart Contract legally binding?**

In most jurisdictions, as discussed here and here, a contract would only be valid if it is entered into by a person with legal capacity to do so. The fact that pseudonymous parties can enter into smart contracts would make it impossible to validate whether they have the capacity to perform the obligations under such contracts or not. Some civil-law jurisdictions lay down some legal requirements (i.e., writing and signing requirements) for the formation of a legally binding contract.

- **Coding limitations** as mentioned in the previous part might cause unexpected performance issues.
- Parties might want to terminate a smart contract on the grounds of **misrepresentation, mistake or duress or fraud**. Also conflicts

regarding the **definition, interpretation, and general framework**of smart contracts might arise, as discussed by Gauthier Vannieuwenhuyse here.

- **Subsequent changes of law or regulations** might make the performance of smart contracts illegal, as discussed here.
- Smart contracts might perform on the basis of an **inaccurate data feed**.**[15]**

Is Arbitration the Favourable Dispute Resolution Mechanism for Smart Contract Disputes?

As discussed here, the key features that make arbitration the optimal dispute resolution mechanism for smart contract disputes are arguably the flexibility of arbitral proceedings and the straightforward enforcement of arbitral awards under the New York Convention:

(1) Resolving Uncertainty over Jurisdiction &**Governing Law.** As smart contracts operate via distributed nodes, it might be difficult to determine the applicable law and the concerned jurisdiction; especially that most of smart contract disputes will take the form of cross-border disputes.

(2) Protecting Confidential Information. Some smart contract disputes are likely to involve evidence about proprietary software and/or hardware. The fact that parties can agree to arbitration to make their disputes confidential will enable the parties to limit their exposure.

(3) Having a Tribunal with Specialist Technical Knowledge. Some smart contract disputes will be fairly vanilla contract law disputes, but others will be of a highly technical nature, for example, where the code does not operate as expected or a technical bug takes place. The courts in many jurisdictions are experienced at dealing with technical issues quickly, but the parties to a smart contract can agree to an arbitration clause which enables them to appoint someone, for example, with an understanding of coding and smart contracts on a certain blockchain.

(4) Ease of World-Wide Recognition and Enforcement. Arbitration offers parties the potential to agree to flexible procedures that might help overcome the challenges presented by smart contracts. In addition, the fact that 159 jurisdictions have adopted the New York Convention facilities the process of recognition and enforcement of any arbitral award resulting from a smart contract dispute on a

global basis.