Will smart contracts change legal practices?

Our civilization, as we know it, is currently standing at the brink of a new, far-reaching technological revolution. As lawyers, we are very often asked to draft agreements for our clients. Back in the days, drafting was done using pen and paper. Nowadays, with the development of new technologies such as smart contracts, lawyers have witnessed a rapid change in some aspects of the works they do.

Smart contract explained in simple words:

A smart contract is an agreement whose execution is automated. This automatic execution is effected through a computer running code that has translated legal prose into an executable program.[1] This program has control over the physical and digital objects needed to effect execution.[2]

Smart contracts are digitally signed, computable agreements made between two or more parties with one set of trade terms, predefined as code and self-executing upon a trigger event. A well-known example of a smart contract is a vending machine that dispenses a bag of chips once the correct currency has been inserted.

What are the advantages of a smart contract?

The reason behind the smart contract technology is for its practical advantages over traditional 'paper' contracts. Unlike the potentially ambiguous natural language used in traditional contracts, smart contracts provide certainty simply because they are implemented in computer code. As such the level of formalisation required to make it work means that the outcome of the performance of a smart contract should at the very outset be clearly determined and also easy to verify.[3]

Furthermore, smart contracts have the advantage of being autonomous, thus the software developer who created them need not actively maintain, monitor or even be in contact with them while they operate. [4]

[1] Christopher D. Clack et al., Smart Contracts Templates: Foundations, Design Landscape and Research Directions 2 (Aug. 4, 2016)
[2] Raskin, M., The Law of Smart Contracts, (September 22, 2016), Georgetown Technology Review
[3] Clifford Chance LLP, Smart Contracts: Legal Agreements for the Digital Age (November 2017)
[4] Melanie Swan, Blockchain: Blueprint For A New Economy 16 (2015)

Disadvantages of smart contracts?

Despite the fact that smart contracts have shown great prospect, the system is not without any flaws. In 2016, Mr. Larry D. Wall Executive Director of the Center for Financial Innovation and Stability of the Federal Reserve Bank of Atlanta in his paper entitled *'Smart Contracts in a Complex World'*, explored the vulnerabilities of smart contracts. He took the example of the attack on the Distributed Autonomous Organization (DAO) which drained USD 53 millions before changes were made to a computer code to restore the funds.

The DAO at that time was a new sort of early-stage investment fund that did not require a manager. Instead, investors voted on which projects to be funded and the computer code did the rest. The DAO advertised itself as a smart contract that is born from immutable, unstoppable and irrefutable computer code, operated entirely by its members.

The appropriate response to the attack on the DAO created a dilemma. On one hand, investors felt their funds had been stolen and allowing the attack to stand would discourage investors from participating in the future. On the other hand, the transfers were not in violation of the smart contract but rather exploited weaknesses in the computer code. Subsequently, the organisation running the code voted to restore the funds to the original investors.[5]

Are smart contracts legally binding?

Presently, there is little or no literature and/or legislations in Mauritius on the legal status of smart contracts. Much of the laws that the Mauritian courts might need to consider in analysing the legal status of smart contracts were developed in an analogue context and may not be well adapted to cater for the digital environment within which smart contracts operate. It would thus be wrong to conclude that just because the appellation 'smart contract' includes the word contract that it means that there is a legally binding contract as a matter of law. [6]

As provided by article 1108 of the Mauritian Civil Code; for a contract to be valid, four essential conditions need to be present i.e. (1) free and informed consent of the parties, (2) the parties' capacity to contract, (3) a certain and determined object and (4) a lawful cause. However some of the abovementioned conditions might not be present for the formation of a smart contract.

[5] Larry D. Wall, Smart Contracts in a Complex World (2016)
[6] Norton Rose Fullbright, Smart contracts: Coding the fine print (March 2016)

With traditional contract, there is always a possibility to challenge the validity of the contractual relationship before a court of law for a defect of consent such as error, violence or fraud. The consequences of such defects will result in the contract being declared null and void and thus re-establishing the status quo ante. With smart contracts using blockchain technology, this is not possible as it relies on the idea that once a transaction has taken place, it cannot be cancelled.

Since smart contracts carry out what it is programmed to do, it does not think independently nor does it provide for any reasoned analysis. So what happens when the outcomes of the smart contract diverge from the outcomes that the law demands?[7] According to Max Raskin Research Fellow at the Institute for Judicial Administration at the NYU, courts are likely to enforce smart contracts because the courts will have more certainty as to the parties' intention because the parties explicitly laid it out in their terms.

This is what some may term as the "oracle problem". This simply means that it is very difficult to take human reasoning out of the equation. [8] Thus despite the fact that smart contracts were designed to be (1) self-executory, (2) self-automatable and (3) a new form of self-help measures; in the event that there are legal questions arising from smart contracts, these must be dealt with by the competent judge under the applicable law.[9]

Thus in the absence of clear precedent, one can argue that when faced with a smart contract, a court could come to one of number of potential conclusions such as:

1. there is no legally binding contract,
2. there is a legally binding contract and it is constituted by the smart contract,
3. there is a legally binding contract and it is constituted partly by the smart contract and partly by other terms and conditions (some of which may be implied or construed from the conduct of the parties), and
4. there is a legally binding contract and it is constituted entirely from matters extraneous to the smart contract such as implied terms. The smart contract simply performs certain outcomes of the contract when conditions are satisfied.[10]

[7] Raskin, M., The Law of Smart Contracts, (22 September 2016), Georgetown Technology Review.
[8] Gary J. Ross, Why lawyers won't be replaced by smart contracts (October 5, 2017), Above the Law, Technology.
[9] Riccardo de Caria , A Digital Revolution in International Trade? The International Legal Framework for Blockchain Technologies, Virtual Currencies and Smart Contracts: Challenges and Opportunities
[10] Norton Rose Fullbright, Smart Contracts: coding the fine print, A legal and regulatory guide p. 11

As a matter of conclusion, it can be said that smart contracts have considerable potential for simplifying the digital handling of mass transactions but they are not yet an autonomous solution for reasons mentioned earlier.[11] Furthermore, the immutability of smart contracts is also a double-edge sword. When written correctly, it ensures a contract is successfully carried through regardless of the circumstances. When done poorly, it can open up the contract to exploitation.

Despite the fact that smart contracts can streamline and be self-executory, they are however not going to replace lawyers. In fact, smart contracts need lawyers to help lay out their terms and conditions. It is more likely that smart contracts will bring developers and lawyers together to collaborate and provide progressive solutions for the legal industry.[12] Last year in the United States, ten law firms and four legal institutions joined the Ethereum Enterprise Alliance. It is clear that on the international scenery smart contract is certainly a viable option for law firms and legal institutions. However, it remains to be seen whether lawyers are ready to accept the changes that smart contracts may bring to their legal practices.

[11] Dr. Nils Rauer, Europe: Blockchain- How "smart" are Smart Contracts? (24 October 2017), Hogan Lovells International LLP

[12] How the legal industry is adopting ethereum-based smart contracts