DIGITAL TRANSFORMATION - SMART CONTRACTS FOR TRANSACTIONS EXECUTED IN BLOCKCHAIN PLATFORMS

CMA (Dr.) Paritosh Basu
Senior Professor
NMIMS School of Business Management
Mumbai

Different viewpoints and misgivings are there about Smart Contracts which are embedded in Blockchain platforms and used for execution of transactions. Doubts have been expressed about the efficacy and legal enforceability of Smart Contracts particularly due to reported frauds in dealings of cryptocurrencies, which is the very first use case of Blockchain technology. Therefore, there is a definite need to demystify those hazy understandings so that this powerful technology can best serve interests of commercial, governmental and non-governmental organisations who are using Blockchain for digital transformation.

A Blockchain platform can facilitate economical and speedy execution of very many activities. Readers can refer the author's published paper[1] to know more about these. Just to quote a few random examples, Blockchain facilitates executing varieties of business transactions; identity management of citizens, delivering services to them, and conducting elections by governments, running an old age home, protecting IPR of an artist, and even charities and donations through crowd funding.

There is absolutely no scope of doubt that all these transactions must have to be executed in compliance with the related laws, regulations and / or laid down code of governance. Execution of those transactions must also comply with similar requirements of more than one country when the transacting parties transcend more than one sovereign boundary. Again, offer, acceptance and terms and conditions for the contract are to be duly pre-accepted and signed by and between parties to ensure legal enforceability.

Such a digitally executed agreement is called a Smart Contract. Those are to be processed using the Blockchain platform for offer, negotiation, acceptance and sign-off through a series of digitally self-initiated events. All related documentary evidences are stored in a chronologically sequenced digital library of the platform, which can be used for reference and retrieved in case any litigation is dragged to a Court for judicial remediation.

One can take, for more clarifications, the specific example of an Indian entity exporting manufactured goods to say Germany which will involve a series of legally binding transactions between the importer and exporter, their bankers, shipping line, insurer, quality control agency, ports,

transport agents, etc. If such an end to end export-import activity, involving multiple transactions, is to be handled through a self-administered blockchain platform, there must be many digitally executed contracts for each sub-activity, a combination of which is called as Super Smart Contract. The system should enable users to self-initiate and close the process.

Exception to the legal condition for a binding contract, viz., 'No consideration No contract' may be there in cases of services by a government, e. g., issuing a birth certificate of a newborn baby or hosting convicted criminals for correction processes in a jail, or a University issuing a credential to a graduating student. But such types of transactions also have to be executed in compliance with some pre-informed governing principles and regulations, by virtue of which both the service provider and the recipient must agree to abide by certain regulatory conditions, violation of which will call for remediation through a legal process.

Keeping in view the above, a Smart Contract can be defined as a duly coded and embedded digital framework to enter a legally binding contract by and between two or more parties, subject to agreement of pre-negotiated and agreed terms and conditions. The Head Geek of Solar Winds said, "Smart Contracts are where the rubber meets the road for businesses and blockchain". Valerie Szczepanik, senior adviser for digital assets and innovation of the Security Exchange Commission, USA[2] said in June 2018 that "*Smart Contracts can help regulation.*" Her interactions with concerned people revealed a rising level of sophistication in management of cryptocurrency through Blockchain platforms.

She also suggested that, regulatory challenges can be solved in part by using a key feature of blockchain technology and added that *"It will be relatively easy to program these rules into smart contracts and DLT [distributed ledger] technology - but technologists need to talk to regulatory attorneys."* Readers may be aware that the other name of Blockchain technology is Distributed Ledger Technology (DLT) with distributed data storage management system (DDSM).

All features of Blockchain technology are also extended to the Smart Contract embedded in the platform. The following are some of the salient features of a Smart Contract:

- Pre-compliant with the concerned Laws and Regulations of related country(ies);
- Speed, reliability cost effectiveness, safety, security, immutability and transparency;
- Every agreement is digitally date and time stamped, verified, asserted and signed to ensure enforceability;
- Limited scope of conflicts, ambiguity, uncertainty, and leaving gaps which can otherwise lead to litigations;
- Built-in flexibility to modify the pre-coded terms and conditions after negotiation and agreement between parties, which can be captured as an amendment(s) to be hosted along with the main contract;
- Can be executed fast with concretised understanding without intermediation of one or more physical lawyers, yet leaving limited scope for ambiguity, uncertainty and conflicts; and
- In a multi-transactional environment, there can be a super set of several Smart Contracts.

The humanity is one and the world is its home. If Blockchain technology has to serve the ultimate cause of humanity, it should be developed and implemented following the principles of universal altruism. The definite need, therefore, is a set of global standards. Meanwhile monolithic MNCs such as IBM and Microsoft are developing 'Smart Contract Libraries' any unit of which can be adopted after needful modifications while developing an enterprise Blockchain platforms.

Such a functional Smart Contract serves as the backbone of Blockchain binding all parties in a transaction. One of the earliest examples of a Smart Contract was a collaboration between the blockchain startup called Wave and Barclays. They executed the first such contract in 2016. It was for a trade finance transaction for Ornua, an Irish agri-food entity of Seychelles[3]. But the payment had to be remitted through the traditional banking system, which should have been through the digital currency of the same platform, or any other digital currency of any other platform having interoperability. But that was not developed at that time.

Legal recognition of such Smart Contracts is essential for more and more successful commercial applications. South China Morning Post[4] reported about an announcement by the Supreme People's Court around September 2018, which stated the following: "*Internet courts shall recognize digital data that are submitted as evidence if relevant parties collected and stored these data via blockchain with digital signatures, reliable timestamps and hash value verification or via a digital deposition platform, and can prove the authenticity of such technology used.*" Because of this acceptance 'Internet Courts' of China, which have been set up for handling internet related legal disputes, will be in a position to recognizing digital data as evidences upon verification by methods that include among others blockchain, time and date stamps and digital signatures. Let us hope that similar recognitions will come soon from more and more countries. MA

Webliography

1. *Dr. Paritosh Basu, Emerging Dimensions of Blockchain Technology, AIMA Journal of Management Research, Article No. 3, Volume 13, Issue 1/4, February 2019 pp 1 – 21. https://docs.google.com/viewerng/viewer?url=http://www.innoventionians.com/wp-content/uploads/2019/05/Blockchain-Paper-3-published-by-AIMA.pdf*
2. *https://fortune.com/2018/06/07/valerie-szczepanik-sec/*
3. *http://ilp.mit.edu/media/news_articles/smr/2019/60250.pdf*
4. *https://www.ccn.com/blockchain-records-will-now-be-accepted-as-legal-evidence-chinas-supreme-court-rules/*

Paritosh.Basu@sbm.nmims.edu