SMART CONTRACTS: ROADWAY TO GLOBAL VILLAGE

by

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ABSTRACT

In the 21st Century in the world of computers everything is digitalized. This is an era of smart phones, smart classes and smart contracts. The world is being held in our palms. Contracts are being entered into across the globe day in a day out. Smart contract solves the issue of physical distance. This paper throws light on origin of smart contracts, its progression, its usage, its merits and demerits. The paper throws light on the Indian laws which revolve around smart contracts. The author has incorporated suggestions for the better execution of smart contracts.

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I. INTRODUCTION:

The omnipresent and omnipotent digital technology is racing to replacing the snail pace judicial paper architecture into an efficient smart and a reliable one. Contract law the edifice on which the judiciary breathes is the merry precise branch of law to test with. Hence "Smart Contract" has been the front runner. Smart contracts are embedded software program that can execute the terms of the parties into a contract that is for performance/ execution and in case of default its legal enforceability. The nuances of skillful drafting with 360 degree legal acumen are the hallmark. The uniqueness of the "Smart Contract" is beyond logical perverse.

II. ORIGIN OF SMART CONTRACTS:

An American scientist and legal scholar Nick Szabo though the concept of "Smart Contracts". He had programmed a generic contract- the premises for the performance. The universal nature of this did not capture the varying requirements of spectrum of contract world. A Swiss computer scientist Prof Roger Watten defined smart contracts as "an agreement between two or more parties encoded in such a way that the execution is guaranteed by the Block chain"[1]. A block chain technology provides accuracy and security. The term smart contract may refer to a software program setting out the set of promises in a digitalized form the premises on which the parties perform. In a smart contract program no individual can interfere. Execution/ performance are automotive. Evaluation of performance using the external data feed is done. Parties sign the contract digitally.

III. PROGRESS OF SMART CONTRACTS:

Wide and varied smart contracts are in existence for decades. Prior to block chain technology smart contracts were computer program that facilitated negotiation, verification and enforcement with a centralized server. Before the advent of smart contracts telecom providers and computer manufactures used computer coded .The era of Bit coin has heralded the usage of block chain technology. This has led to the usage of decentralized ledgers which forms the very basis of smart contracts. This has resulted in performance and no room for recourse.

[1] Roger Wattenhofer, The science of the Block chain, 1st ed. Inverted Forest, p.87 (2016).

New companies and protocols have aggregated to white smart contracts. They are trying to build an eco system for experimentation and implementation. The first block chain technology to enable the creation and deployment of sophisticated smart contracts was the Ethereum Blockchain[2] - the father being Vitalik Buterin. The system has the ability to work autonomously. It is decentralized in nature.

The Telecom Commercial Communications Customer Preference Regulations, 2018 [3]defines smart contract "functionality of intelligent and programmable code which can execute pre-determined commands or business rules set to pre-check regulatory compliance without further human intervention and suitable for DLT system to create a digital agreement, with cryptographic certainty that the agreement has been honored in the ledgers, databases or accounts of all parties to the agreement".

IV. EMPLOYMENT OF SMART CONTRACTS:

It is used in the following areas for automatic services-

- Government operation
  a. Direct and Indirect taxation
  b. Customs and Excise Duty
  c. Income and Expenditure for consolidated fund audit
  d. CAG audit purposes

- Service sector

a. Insurance claims
b. Clinical trial

- Financial sector
  a. Banking- Domestic and International
  b. Mortgage
  c. Escrow

[2] Massimo Bartoletti and Livio Pompianu. An Empirical Analysis of Smart Contracts: Platforms, Applications and Design Patterns (2017), https://arxiv.org/pdf/1703.06322.pdf .
[3] https://trai.gov.in/sites/default/files/RegulationUcc19072018.pdf

d. International Trade Payments

- Financial security
  a. Financial Data Recording, Data Mining, Data Analytics
  b. Digital identity

- Marketing
  a. Supply Chain management
  b. Logistics

- International commerce
  a. Trade

V. REGULATORY FRAMEWORK FOR SMART CONTRACTS:

There is no legislation in India that deals with smart contracts. But there are provisions in certain Acts which deals with the same.

1. Section 10-A of the Information Technology Act, 2000 deals with it. It states as follows-

"Where in a contract formation, the communication of proposals, the acceptance of proposals, the revocation of proposals and acceptances, as the case may be, are expressed in electronic form or by means of an electronic record, such contract shall not be deemed to be unenforceable solely on the ground that such electronic form or means was used for that purpose".[4]

Thus notwithstanding the fact that electronic form is used for contract formation, the contract stands good in law.

2. The Indian Contract Act recognizes Smart Contracts impliedly. Section 10 of the Act reads as

[4] Section 10-A, Information Technology Act, 2000.

"*All agreements are contracts if they are made by the free consent of parties competent to contract, for a lawful consideration and with a lawful object, and are not hereby expressly declared to be void.*"

Thus smart contracts also should fulfill the following

1. Valid offer
2. Valid acceptance
3. Legality of matter
4. Consideration
5. Lawful consent
6. Competency of parties

Self executing code forms the intention to contract, publishing/communicating the terms amounts to offer and the terms being agreed upon by the other party amounts to acceptance.[5] However consideration remains a problem since the law on crypto currency isn't in India. Hence crypto currency as a consideration isn't valid.

3. Section 85- A of the Evidence Act, 1872 deals with it-

"Presumption as to electronic agreements. — The Court shall presume that every electronic record purporting to be an agreement containing the [electronic signature] of the parties was so concluded by affixing the [electronic signature] of the parties.]"

Thus the electronic signature in an agreement is presumed to be have been affixed by the parties so concerned. This speaks of valid acceptance in smart contracts.

4. Section 85-B of the Indian Evidence Act requires contracts to be authenticated by digital signature. This is to ensure acceptance.

Thus it can be inferred that digital signature amounts to consent in a smart contract. But problem arises if digital signature isn't affixed as per IT Act, 2000. In such cases the record wouldn't be admissible as evidence.

[5] Section 2(b) of the Contract Act.

5. Section 65B(1) of the Evidence Act ,1872 deals with it-

"Notwithstanding anything contained in this Act, any information contained in an electronic record which is printed on a paper, stored, recorded or copied in optical or magnetic media produced by a computer (hereinafter referred to as the computer output) shall be deemed to be also a document, if the conditions mentioned in this section are satisfied in relation to the information and computer in question and shall be admissible in any proceedings, without further proof or production of the original, as evidence of any contents of the original or of any fact stated therein of which direct evidence would be admissible."

Digitally signed documents are admissible as evidence in court of law. As already stated it amounts to admissible evidence if signed as per IT Act.

VI. JUDICIAL OVERVIEW:

There aren't any precedents in India which specifically deals with smart contract. But in general there are few judgments. *In International Fze. Limited v. Vedanta Aluminium Limited*[6] the honorable court observed that *"Unconditional acceptance of contract concluded orally or in writing [or by email] ...Mere absence of a signed formal contract, would not affect either unconditional acceptance of contract or implementation thereof."*

Thus if the conditions under IT Act and Contract Act are met with then smart contracts have legal recognition.[7]

VII. MERITS OF SMART CONTRACTS:

- Error free contract
- Use of crypto currency in transaction(requires regulation in India) – no need to link bank accounts
- Speedy transaction across globe
- The terms of the contract are transparent to both the parties
- Less cost since it doesn't involve intermediaries
- Trustable since terms can't be changed

[6] Trimex International Fze. Limited Dubai v. Vedanta Aluminium Limited India (2010) 3 SCC
[7] 'Enforceability of electronically executed contracts in India' (Ikigai Law, 1 April 2020) accessed 27 October 2020.

- Decentralized system
- Self enforcement ensures better execution
- Privacy of the party is protected since such contracts merely require contact details and not personal data.

VIII. ISSUES IN ITS EMPLOYMENT:

The term "Smart Contract" is a misnomer since it isn't smart actually.[8] It has so many flaws in it that it cannot be called smart.

- The terms of the contract are non readable in nature to humans. Thus dispute might arise with respect to *consensus ad idem.*
- Smart contracts are self executing in nature. In case of subsequent impossibility of performance also the contract can't be altered. Since the contract has to be taken as it is it isn't flexible in nature.[9] It doesn't give scope for negotiation.
- It doesn't have any framework to decide if the contract so entered is legal or not.
- Further the nature of the language is such that it is half coded and half in human language which might give rise to confusion.
- Since such contracts are globally enforceable jurisdictional issues might also arise.
- The digital signatures so affixed in smart contracts might not be as per Central Government rules under the IT Act. Section 35 of the Act requires digital signature to be obtained by an authority from government who has been designated for the same. But hash-key is generally used in block chains. Thus it wouldn't be enforceable.
- The RBI's notification on crptocurrency in the year 2018 prohibited dealing with virtual currencies. [10]Smart contracts aids in making payment via crypto currencies. No law has been passed on its status till now.

[8] 4 Buchleitner and Rabl (n 15) 6; Söbbing (n 41) 46; Durovic and Janssen (n 8) 19.
[9] Karen E. C. Levy, Book-Smart, Not Street-Smart: Blockchain-Based Smart Contracts and the Social Workings of Law, 3 ENGAGING SCI., TECH., SOC'Y 1(2017).
[10] https://www.rbi.org.in/Scripts/NotificationUser.aspx?Id=11243&Mode=0

- Under Section 88A of the Indian Evidence Act the electronic record so produced is presumed to be genuine without getting into its source.

IX. CONCLUSION:

- It is necessary to bring in comprehensive laws globally to deal with Smart Contracts. Position of cyptocurrency should be addressed since it is the mode of payment for smart contracts.
- The laws so enacted globally should be in harmony with each other.
- Questions regarding its legality should be incorporated.
- Jurisdictional aspects have to be addressed.
- Existing laws should be amended accordingly.
- Jurisdictional issues can be solved by letting the party choose their forum.
- Public should be educated on the same.

Regulating it will pave way for a better global market. Government operations would become much transparent via block chains thereby leading to people's governance.

Everything is changing, change is also getting change. The advanced countries are lead runners in digital transformation. Right from transportation, surgeries, defense etc or getting the transformed technology to aid and assist. Hence the use of technology in digital mode in international trade and commerce, payments, judicial administration, conventions and treaties for better global compliance is an inescapable imperative. Digitalization has transformed the nature of ever day life. Hence smart contracts will be the front runner in transforming the digital technology to a more secured and convenient platform to perform. Particularly in international banking where international branded credit cards, smart cards, investments by foreign countries, movement of data and usage thereon. Also the shipping industry, aviation would immensely benefit in case of emergency (cargo contracts).

In health service sector medical negligence is being interpreted widely and variedly. Incorporation of smart contracts would greatly reduce ambiguous interpretation so that the victim is given a firsthand knowledge of what would happen and without being in dark. India's e-Sanjeevini portal is an example for this.

Alternative Dispute Mechanism can easily work if the templates of smart contracts are published for every sphere. However smart contracts cannot be the panacea for all. It can address more issues, clarity to the maximum level, precise to the requirement and for performance .All cannot have the legal acumen yet we invisibly intertwine ourselves with the legal framework as ignorance of law is no excuse. With regard to smart contracts private international law should also be harmonized. Technology is the blood now, hence transformation cannot be negated.