

Status of Smart Contract in India: Legal challenges and future trends

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ABSTRACT

India is projected through a progressive era, both as regards its constitution as well as its legislative jurisprudence. It will be absurd, at the moment of this accelerating transcendental, not to take into consideration the technological advancement and digital revolution that has erupted into the legal amphitheatre. Presently, the “Indian Contract Act” in tandem with the “Information Technology Act”, plus “Indian Evidence Act”, except as otherwise specified so, govern and reflects the signal for a lawfully enforceability of e-contracts in India. This paper outlines the necessity for legal development of the interpretation of contract law to keep up with the technology evolution, as well as the legal complexities correlated with Smart contracts based on blockchain.

Introduction

Developing contract law in India is a tale of sprawling fragmented changes before an established colonial empire consolidated the hodgepodge into a given assortment of codified legislation “The Indian Contracts Act 1872”. Since its codification, it has accomplished its intent by enlightening contractual jurisprudence. It has passed more than fifteen decades; the Indian Contract Act has indeed guided the Indians to uphold the legitimate contractual rights. Nevertheless, Indian contract law has frequently been criticized for its procedural process, intervention by third parties as well as susceptibility to anonymous modification. Up till now, advancement in technology requires plenty to keep in it, a new testament of the kind that might resurrect contract interpretation. To understand what Smart Contract is we have to first understand the concept of blockchain. In simplistic terms, Block chain, like any other technology innovations, is developed with the goal of tumbling the contribution of a person and escalating the part of technology to magnify the effectiveness for the concerned work. It vestige its roots back to the year 1991. Stuart Haber and W.Scott Stornetta were the first to dream about designing a platform that would use cryptography to imbed details in small digital blocks made up of codes, securing the details for future use not just for security reasons but also time stamp the records. Therefore, it is not just the data that is preserved but also the span, date as well as chronological facet of the data that may be double-checked. Blockchain works on a “peer to peer distributed ledger-based system”. It's quite impossible that anybody would be able to tamper with the protected data. Additional, because data is stored in such digital blocks, any data that needs to be changed will necessitate the person not only to modify one specific block connected to that piece of data, but also to amend all the blocks linked to that chain. For understanding the technological aspect in a better manner it is crucial to figure out a basic concept named “Hash Function”.

Hash Function relates to a function that generates an output when an input is fed which is unique for each input in the form of code. The blocks generated under Blockchain Technology implement this specific feature. Therefore, modifying a block which has its individual hash function and altering the hash function relating to several additional blocks of the chain at the same time is quite a distinct ball game.

What is Smart contract?

In 1994, a law scholar and cryptographer, Nick Szabo, discovered that the decentralized structure of cryptography may be utilized in smart contracts, which are effectively self-executing contracts that guarantee the integrity of virtual contracts by blockchain technologies to provide a trouble-free execution of the contract. The emphasizing nature of blockchain technology has been its decentralized structure because it avoids intermediaries' and that, in effect, saves time from any dispute that might take place due to a third party. A smart contract is a peer-performing contract where each contract term between a purchaser and a seller are directly mentioned into the code lines. A distributed, decentralized blockchain network encloses the code, comprising of all the terms of the agreement. Additionally to the contracts, the code frequently contains details implementing the transactions and ensuring all such transactions that are carried out can be tracked and are irreversible. Thus, it may be assumed that a smart contract is basically a kind of computer protocol to execute the facilitation, authentication and enforcement function, i.e. contract performance digitally. The key components underlying a smart contract are:

- When a smart contract is created, no one can alter its terms including the developer or the owner;
- Execution and performance of the contract doesn't include the tangible documents or submission;
- Though its client may be anonymous, the transaction information are registered plus recorded;

- Smart contract's transactions are irreversible.

How do Smart Contracts Work?

The contract code itself is comprised of the terms of the related contract. Smart contracts interpret, authenticate plus automatically carry out any transaction in digression with the terms. Smart contracts barely classify the terms and responsibilities related to a contract in the same manner as a traditional contract but further immediately enforce such requirements. Such contracts are performed using platforms named "Ethereum," which comprises of two components: currency as well as contract. Smart contracts are basically agreements where the contract channel is shifting from paper to an online interface.

Secured Transactions:

Smart contracts provide for the enforcement of a secure agreement between the parties involved. The idea of a smart contract is that when one individual earns any interest for collateral from the second party, the second party is guaranteed to be the only priority party to that collateral. Implementation of this type of technology in the modern world would be complicated because many other variables might come into play, such as third or external parties coming into the contract. "Ethereum" has rendered this achievable as the ethereum platform is transparent as well as able to decide and develop who has precedence over the collateral in dispute and can thus without difficulty approve or deny the collateral in dispute and can easily accept or refuse the collateral and therefore facilitate faster and more effective execution of the contracts.

"Ethereum" The agent:

"An Ethereum contract is essentially an automated agent that lives on the Ethereum network, has an Ethereum address and balance and can stand and receive transactions." Smart contracts are paperless because of the decentralized network which has this intelligent agent that lives without end. An agent can shape a legitimate contract on the behalf of his principal. Although an agent's definition implies he/ she ought to be a person, but we assume it may fulfill the status of legal fiction. Thus, such 'agents' may be regarded as people staying within this database who have just one task, serving as an agent for the identities of the cryptography. So basically, Ethereum are not designed to suppress the statutes but are designed with a brilliant protocol to render the transactions very quick and secure. And so they have a quite important legitimate scope. Furthermore, every user is allocated a unique cryptographic identification code, the core element plus technology on which the blockchain works. Agent/platform Ethereum carry out the contract among the parties who generally don't know each other. But be cautious regarding adhering to the Caveat Emptor principle. When you purchase something from an anonymous party across the network, you

wouldn't be allowed to prosecute them even though the contract you agreed was legitimate and valid.

Merits of Smart Contracts:

- **Trustworthy-** Smart Contract is based on predefined directives that are executed at each juncture of a contract automatically. Further, the database of each such transaction is fed directly through the network into each participant's system concurrently. Hence, it prevents the risk of exploiting or tempering such a contract.
- **Prompts Process-** They have the merit of executing transactions promptly and efficiently. They seek to minimize human interference, thus eliminating human errors such as time spent on paperwork processing, document error correction, and so on. Many errors are prevented by electronic codes.
- **Secure-** each block holds information and one would have to hack each of the blocks in that chain because it refers to each other to alter it. Data encrypted by means of cryptography as well as distributive ledger system function guarantees data security.
- **Reduce Operational Cost-** The additional costs including expenses, fines, administrative costs, costs relating to different formalities and documentation are often reduced with the advantage of eliminating human errors. The burden of these intermediaries often extinguishes when the task of an intermediaries are leave behind.

Amid the benefits of smart contracts, there are several domains of application wherein smart contracts are relevant. These incorporate Contracts Related to the "financial and insurance sectors areas such as Sharing Economy, Energy, Supply Chain or Identity Control."

Precincts of Smart Contracts:

- It will be inadmissible to conclude that Smart Contracts would at once have approaches to all problems. They're only at an embryonic period and will be undergoing a ton of improvement over the coming years. Smart Contracts have several advantages also they have numerous drawbacks.
- It may lessen both transaction costs plus drafting expenses, but resorting to high-tech technology blockchain implies expenses on its own. By the fact, a computer code can be incredibly complicated and not every individual is trained with the expertise and skills to comprehend and execute the same. It may contribute to parties levying completely separate costs of recruiting a professional to operate on such Software.
- The assurance that the code stored on a device is a valid one is of utmost significance because an erroneous one may have substantial repercussions.

- Another issue which might occur is the expert's obligation in case the coding doesn't function correctly and prevents the implementation of the smart contract. Therefore, the abilities and importance of human labourers are being placed to the test with the emergence of Artificial Intelligence, and unemployment may turn into a rising concern.
- Smart Contracts' next drawback has a very concrete basis, with Artificial Intelligence restrictions. In a Smart Contract, the device (that applies the Code) is allowed to determine how the applicable terms of the agreement are being implemented.
- This poses the question on artificial obligation which may be elucidated as "the ability of machines to control important matters with limited opportunities for humans to veto decisions or revoke control". How if the computer misinterprets a specific scenario as well as the implementation has a quite considerable repercussion for both the parties and the environment?
- Smart contracts are not presently deemed legitimate contracts in many jurisdictions, which raises further question about who would be the defendant in a particular case.

Simultaneously, with the advancement of digitization, it's fair to assume that smart contracts would become an essential business weapon within the approaching years and hence it is significant to classify smart contracts with caution, because they may become part of daily life in the coming years.

Traditional Contracts V/S Smart Contracts:

To grasp Smart Contracts further, one has to consider the distinction stuck between Traditional Contracts and Smart Contracts. In which the parties enter a legitimate contract on the conditions of the agreement, emphasizing the purpose and ultimate aim of the entire transaction.

The primary distinctions among the two are stated below:

- Traditional Contracts works on the execution of lawful terms decided between the parties while Smart Contracts are computer Program that is Self-executing.
- Traditional Contracts may be amended anytime with the both parties consent but Smart Contracts can't be amended as per the will of the parties.
- Traditional Contracts hold the likelihood of being manipulated as well as corrupted with whereas Smart Contracts endeavor to confine human partaking to the nominal.
- Traditional Contracts apply easy codification of the terms decided upon conversely Smart Contracts apply multifaceted "distributed ledger" based technology.

E-Contracts vs. Smart Contracts:

While e-contracts are described along with the black amount of electronics accompanying the contract, an e-contract typically applies to any contract created in the course e-commerce. E-contracts are merely paperless contracts formed via a computer. The implementation of e-contracts will vary from easy click-wrap agreements to highly complex digital signature agreements. Smart contracts differ significantly from e-contracts on the basis that it is a contract built on a software system that the participants have committed to execute. In the words of Nolo, Smart Contract is "a combination of a noun (contract) and a verb (the automatic execution)." Disparate from an e-contract, a smart contract is implemented within a distributed ledger network focused on blockchain. This functions as a living corporeal entity by implementing the concrete transfers required to satisfy a contract's conditions, rather than providing a static presence of a stored document. In addition, digital signatures are what make authentic an e-contracts entered into via e-commerce. Under section 35 of the IT Act, digital signatures may only be generated from certifying authorities approved by the government, while smart contracts use the hash key as both a person authenticator and an identifier for authorization. However, section 85-B of the Indian Evidence Act confirms the aforesaid provision of the IT Act by applying the evidentiary meaning only to certain documents that have been authenticated by a digital signature. These differences have a substantial impact on the evidence-based value of smart contracts, as they vitiate and despot its evidence-based value. So, considering smart contracts perpendicular to e-contracts may not be an appropriate alternative for these purposes.

Smart Contract's position in IPR:

IPR management encompass of many exchanges in a standard form which can be brought into consideration of the smart contracts as well as the related blockchain is centered on the essence of the Intellectual Property. One approach blockchain is seeking to build in the IPR space is by creating IP databases plus granting rights and licenses to be operated through the blockchain, because they may be accessed directly through the customer, minimizing time as well as effort to the utter minimum. Smart contracts and blockchain enter into the picture as database of information about IP which don't require official registration procedure for them to be accepted, particularly copyright. The copyright in India not come into subsistence when the work is registered but when it is produced. It presents the authorities with an extremely complicated and tedious job of figuring out when the work in question come into being also there is still doubt over their evidence of existence at any point of time. The existence of a blockchain, where any form of proof of IP can be preserved in the blockchain, can serve as a perpetual record for the property and enable the bargaining parties to have appropriate information of the creatorship and nature plus time of development of the work which solves several conflicts at the

very initial phase. In fact, a ledger of all the records from the creators and all the licensees for everybody in the supply chain will enable everybody in the supply chain to be sure of the genuineness of the item and thus secure the IP rights. As smart contract is able to manage standard contractual terms, smart contract plus the blockchain platform do have capacity of becoming the proven way for addressing procedures such as licensing or access authorization or other arrangement of reasonably specified parameters. A characteristic of smart contract is that it is self-executor; the duties are automatically enforced whenever the prerequisite provided is fulfilled. This characteristic can be used in a licensing agreement and will guarantee that all the requisite royalties are received in compliance with the agreement also on this basis on whatever computation must be there in the contract code. However all these frameworks come with certain disadvantage because smart contracts must be confined to precipitation regime and can't be applied to situations where it may be necessary to interpret or analyze the contractual terms. For Smart Contract to operate, the criteria and benchmarks alluded to in the above paragraph ought to be quite objective in nature. Something that isn't binary in nature will render complicated for the smart contracts to be adopted as an intermediate of transaction.

Smart Contracts regulation across the World:

Smart contracts must satisfy the elementary features of a traditional contract to classify as valid contracts are:-

- A lawful offer and acceptance;
- legitimate consideration related to the subject matter;
- parties must be competent to enter into Contract
- Consent of parties in regards to facet of the contract.

Having satisfied these criteria, the issues that crop up are:

(i) Whether an e-signature generated utilizing blockchain is regarded as legitimate authentication for an e-contract; (ii) another issue is that if in case any dispute arises whether a smart contract would have evidentiary value to be presented as evidence in court or not. In the year 1999, the Uniform Electronic Transactions Act (UETA) was enforced in about 47 US states. The UETA introduced legislation on e-contracts, documents and signatures furthermore clarified that electronic contracts would be legitimate, and the usage of e-signatures was a legitimate means to obtain legal consent. Rome I Regulation is the regulation within the European Union that governs the legitimacy of all EU civil as well as commercial contracts. In the year 2017, fortunately, many US states had seen the necessities to enforce specific laws for the large-scale implementation of smart contracts. In addition, states such as Vermont as well as Nevada have enforced laws recognizing the status of contracts performed on the blockchain, thus giving special status to smart contracts. Statutes were also enacted to grant evidentiary value to smart contracts if a controversy ever cropped up. The law enacted by some of the US state are discussed in brief below-State of Arizona- It is the first State in the USA to initiate a legal support to the smart

contracts. The bill defines smart contract plus Distributed ledger technology and additional states that:

1. The agreements made into via blockchain would not be deprived legitimacy solely as it was implemented through blockchain system.
2. A person affecting international trade using blockchain has the equal right on the details as before.
3. The bill amends the "Arizona Electronic Transactions Act" and provides the like prominence to smart contracts as that of e-records, and e-signatures stated in UCC article 2, 2A and 7. Conversely, the Act- HB 2216, passed in 2017, forbids the utilization of blockchain as an equipment for "tracking firearm technology."

State of Delaware -It enacted the Act that aims to provide definite legislative authority for Delaware companies to use e-databases such as "distributed ledgers" or a "blockchain" for the formation and preservation of business records that consist of the company's stock ledger. The amendment in section 219(c) provides the definition of "stock ledger" and states its functions. The amendments help to enhance the consolidation of Delaware companies with non- Delaware companies. State of Nevada- It enacted legislation relating to the introduction of blockchain, and granted legitimacy to smart contracts. This proposed law had been an initiative on the part of lawmakers as well as entrepreneurs to accomplish technology advancement by migrating businesses to Nevada. This act amended the Uniform Digital Transaction Act of Nevada which adds a block chain in the scope of e-signature as per NRS 719.100, which thereby specifies that the submission of a block chain including e-documents will prohibit any subsequent submission of documents in writing. The law has rendered Nevada the very first US State to forbid the municipal government from demanding the utilization of blockchain. State of Vermont-It passed a bill. This Act mandate the re-examine of blockchain for the public recording also amended the definition of blockchain. It facilitates formation as well as regulation of private information safeguarding company and additional, facilitates the formation of blockchain-based Ltd. Company; also produce a research for the prospective utilization of blockchain in administration records. Italy- Italy's law on smart contracts provides a specific meaning of Distributed ledger technology, additionally, states smart contract as a program depended on Distributed ledger technology, which binds the parties legally with regard to effects previously decided. The law is in harmonious to the article 41 of the European Union Regulation. The law prescribes that documents encrypted using the Distributed ledger technology has the similar consequence like the time stamp in the European Regulation. The United Kingdom is also inclined to incorporate smart contracts into its legislation, the UK Law Commission, that is an autonomous law commission established by parliament

under its 1965 Law Commissions Act to analyze and suggest amendments in England and Wales Law, has initiated a reform research project which would make use of smart contracts premised on blockchain legitimately acceptable. The Law Commission argues smart contracts have the potential of improving “confidence and certainty” and improving the performance of business-to-business transactions. As such, consecutively to make the present UK legal systems acclimatize to rising technology and enhance business. Estonia utilizes a “BITNATION” network for its entire public notary services allied from certificate of live birth to various contracts. Nations such as Switzerland and Germany invest profoundly in “blockchain-based commercial registers” while Canada has invested profoundly in “blockchain-based identification management systems”.

Smart Contracts: The Indian Framework:

While addressing the Indian framework of Smart Contracts one has to acknowledge that Blockchain’s recognition as a type of technology on the other hand implementation Smart Contract is two distinct issues. Whether a nation has a constructive outlook en route for Blockchain technologies doesn’t ipso facto imply that it must endorse extreme prejudice to Smart Contracts as well. As a developing nation, India is indeed not falling behind in acknowledging the proficiency of blockchain. Multiple institutions of Government have begun to incorporate Blockchain as component of its research development programmes. There are certain cases in addition to the programs that emphasizes on the significance of Blockchain moreover are vaguely parallel to the concept of patenting it. A writ petition was filed in the High Court of Delhi for registration of a patent. The patent application was previously dismissed by the Patent Authority on the basis that it comes within the class of products not deemed to be innovations. As software pursuant to section-3(k) of The Patents Act, 1970 are not patentable by itself and Blockchain is a type of software. This petition therefore brings up that merely because an innovation is a type of software, it doesn’t propose that it isn’t patentable apparently. Perhaps, in the era of technology where our regular works are predicated on advancements in software over years this is quite traditional and counterproductive not to acknowledge Blockchain based technology advances, Artificial Intelligence and so on.

The Indian Contract Act, 1872

The Indian Contract Act, 1872, for a legal contract throws out certain key features. Essentially, these basics are the golden standard or the descriptor that any agreement must align to become a legally binding contract. Essentials specified in compliance with section 10 of the Contract Act shows that an agreement formed by the “free consent of competent parties for a lawful consideration with a lawful object is a valid contract”.

Scrutinizing Smart Contract with reference to the Indian Contract Act, 1872

Smart Contracts needs to satisfy all requirements laid down in section 10 of the Contract Act. Any agreement, if it consists of a proposal, acceptance and consideration, will become enforceable by law as contract. By interpretation it seems smart contracts may be legitimate under the Indian Contract Act but an agreement to be a legally binding contract shall have valid plus valuable consideration in the view of the parties and also of the statute. By enforcing a Smart contract it is very convenient to manipulate this provision of law. In addition, there is also a legal clause which lay down that a contract shouldn’t contain an unlawful object. Because there is no administrative agency to scrutinize whether or not the pertinent provisions of law are being accompanied, Smart Contracts may not be recognized as legal Contracts. Also, smart contract contains of a proposal, acceptance and consideration in form of crypto-currency, which leads to the question of whether crypto-currency is acceptable as a consideration or not.

Information Technology Act, 2000

The Act sets out various rules on the significance, implementation, authorization and formation of “Digital Signatures”. IT Act validates that authentication through affixing signatures is considered to have been accomplished under any statute where a record or information received is authenticated through means of a digital signature. Therefore Digital signatures are often used as a tool for verification. Basically if the parties’ digital signatures are affixed to it, consent to an e-document can easily recognized in a court of law. The individual is required to get a Digital signature Certificate from the Certifying Authorities.

Scrutinizing Smart Contract with reference to the Information Technology Act, 2000:

According to section 5 and 10 of the Act, digital signatures are legally accepted and declare a contract to be legitimate and enforceable via electronic means. In addition, section 65B of the Indian Evidence Act 1872 states that contracts signed digitally may be permissible in the courts. Therefore the government is enabled to take legal action to resolve the disputes between the parties. Smart Contracts use cryptography to encode into the ledger based system. It also, uses digital signatures for validation, with protected restricted access. The apprehension only is that, according to the Block chain technology, digital signatures aren’t the kind approved under the IT Act, 2000. Under Block chain digital signatures are self-generated. This implies that all those reasons for which any document is submitted, details are needed, authentication by affixing signature may be done by Smart Contracts, however aren’t licensed under the regulatory statute. Its consequence is null. Also, as section 88A of the Indian Evidence Act provides that the court supposes that electronic evidence produced in court is authentic, nevertheless doesn’t make any assumptions about the dispatcher of the contract. Thus, if a signature acquired via the

use of blockchain technology, it will barely construct the admissibility of a smart contract complex because the signature wasn't acquired under the IT Act, 2000. This not merely nullifies the encryption system present in the blockchain technology for smart contracts but besides forbid the evidentiary value of smart contracts before the tribunal.

Internet and Mobile Association of India and others vs Reserve Bank of India:

In this case Apex Court scrutinized the function of RBI in the economy as a "central bank" to control money and its supply and also interest rates on it and acknowledged that the price stability maintenance is the objective of RBI. The Court held that crypto-currency is competent of being accepted as legitimate payment for purchasing goods as well as services, and RBI can regulate this mode of payment. The judgment has grants temporarily relief; the conclusive regulation on the crypto-currency industry is still absent. Further, the large scale usage of cryptocurrency remains contentious, as the "Banning of Cryptocurrency.

Conclusion:

The functionality, significance, and position of Smart Contracts within Block chain Technologies are stated quite clearly above whereas the Smart Contracts' legal status in India is quite questionable. The reasons for this vagueness is the concern of cryptocurrency's legitimacy, as well as the assumed prohibition on uncertified digital signatures, tends to make it a very tricky affair for all intended users of such technology. It just seems that government is taking a long time

to implement legal frameworks that accurately describe words like Smart Contracts, virtual currency forms and the legal facet affixed to it, while in contrast government institutions are concurrently upholding plus accepting the use of Block chain. Now, the big concern is what regarding the virtual currencies that may be needed for the execution of smart contracts. There are certain doubts that we intend to tackle as early as possible. There is no doubt that the adoption and development of smart contracts is the next breakthrough phase that will contribute significantly to the minimization of billions of overhead costs, thus rendering the whole network more effective. However, regulatory hurdles do prevail, particularly in India where there is hardly any legislation on the technical aspects of a smart contract. Unless special legislation isn't enforced, a comprehensive technological adoption would require the government to amend the Indian Evidence At, 1872 and the IT Act, 2000. Accordingly, while there is a certain advancement of the statute and also the corporate sector evolving into the concept of smart contracts, the law still operates in a murky zone; enthusiastic commitment is necessary to create a complicated web for monitoring the operation of smart contracts in India. But before accelerating the scope of Smart Contracts, we need to take into consideration the numerous drawbacks and complications assigned to Artificial Intelligence. It is very necessary that the usage of Smart Contracts can only be rendered in certain areas where it is simpler to evaluate the potential risks; the language of the Code is not extremely complicated to assume that it can be interpreted from traditional forms of language using a minimal vocabulary of the language of the Computer Code.

References:

1. Indian Contract Act, 1872, s.182.
2. The Potential of smart contracts in banking", Live Mint (Nov.23, 2017),
3. Gayle.M.Hyman & Mathew P Digesti, "New Nevada Legislation recognizes block chain and smart contract technologies", NV Bar, pg. 13, (Aug. 2017)
4. Andrew D. Mitchell (2001); towards comp ability: The future of e-commerce within the global trading system; Journal of International Economic law; 2001; pp.683-723.
5. Elizabeth Goldsmith and Sue L.T. McGregor (2000); E-commerce: consumer protection issues and implications for research and education; J Consumer Studies & Home Economics; Vol.24, No.2, June 2000, pp.124-127.
6. Jackie Gilbert Bette Ann Stead (2001); Ethical Issues in Electronic Commerce; Journal of Business Ethics; Vol.34, 2001; pp.75-85.
7. Kempson,E,Whyley,C, Caskey,J.andCollard, S. (2000) In or out? Financial Exclusion: A Literature and Research Review.London:FSA Kempson, E. and Whyley, C. (1999a) Kept out or Opted out? Understanding and Combating Financial Exclusion. Bristol: Policy Press.
8. Kempson, E. and Whyley, C.(1999b)'Understanding and combating financial exclusion, Insurance Trends,Vol.21,pp.18-22.Mckinsey Report (2010),Global Financial Inclusion. RBI Annual Report (2011)