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With this thought, we hereby present to you

# "LEGAL EXAMINATION OF SMART CONTRACTS UNDER INDIAN LAW"

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## Abstract

*Smart contracts have swiftly emerged as a groundbreaking technological innovation, revolutionizing the landscape of contractual agreements by offering a digitalized alternative to conventional contracts. Termed briefly as self-executing digital contracts, smart contracts introduce marked improvements in efficiency and transparency, garnering widespread acceptance across various legal jurisdictions. India, too, recognizes the transformative potential of smart contracts in enhancing contract enforcement and stimulating economic advancement. Given this context, it becomes crucial to determine the stance of the Indian Contract Act, 1872, on smart contracts, particularly as they navigate the novel domain of automated and anonymous digital agreements within the Indian legal framework. The notion of 'self-regulation' often advocated for smart contracts and proposes a nuanced approach that seeks to integrate smart contracts within the ambit of the Indian Contract Act by adopting a broad interpretation of the principles of contract law, reflective of common law's adaptability. It asserts that smart contracts are fundamentally aligned with the principles underpinning traditional contracts in common law, further elaborating this viewpoint through an analysis of Indian law and relevant judicial precedents. By drawing parallels with similar regulatory approaches in international contexts, the paper argues against the necessity for bespoke legislation specifically targeting smart contracts. Instead, it highlights the importance of addressing potential legal challenges through existing legal frameworks, offering solutions to overcome obstacles identified in integrating smart contracts within the Indian legal system.*

**Keywords:** *Smart Contracts, Blockchain, Crypto Currency, Contract law*

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# 1. Introduction

The field of contract law is always changing and dynamic in all legal systems. It is the first form of private law that has been formed in modern civilization. In rural economies, contracts were mostly negotiated on an individual basis. Industrialisation led to the development of a standardised type of contracting, in which the terms of the contract were more uniform and there was limited negotiation with individual parties. This significantly reduced the expense of contracting. As a result of advancements in technology, particularly in the field of information technology, electronic contracts, commonly referred to as e-contracts, emerged as a more convenient alternative to traditional paper contracts. E-contracts are contracts that are formed electronically, either entirely or partially. E-contracts are essentially electronic versions of conventional contracts, eliminating the need for physical paper. In recent times, the notion of smart contract has surfaced in this domain, enabling the autonomous execution of contractual obligations while minimising human interaction. A smart contract is not a revolutionary form of contract, but rather a fresh approach to negotiating between parties.

Prior to comprehending the nature and attributes of smart contracts, it is crucial to grasp the concept of blockchain technology. While it is possible for a smart contract to exist independently of any Distributed Ledger Technology, such as blockchain, the advancement of this technology has greatly expanded the range of applications for smart contracts.

## **BLOCKCHAIN-**

Blockchain is a decentralised system that records transactions on a public platform without relying on a central authority. It can be understood as a distributed ledger, connected through various network of computers wherein data is stored in the way of blocks and updated by using a consensus mechanism<sup>3</sup>. The platform allows various participants or computers in the ledger, known as nodes, to verify the legitimacy of each transaction on the ledger via a 'proof of work' technique<sup>4</sup>. Before a

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<sup>3</sup>Michèle Finck, *Blockchain Regulation and Governance in Europe* (Cambridge University Press 2018) <[http://books.google.ie/books?id=pMd6DwAAQBAJ&printsec=frontcover&dq=Blockchain+Regulation+and+Governance+in+Europe&hl=&cd=1&source=gbs\\_api](http://books.google.ie/books?id=pMd6DwAAQBAJ&printsec=frontcover&dq=Blockchain+Regulation+and+Governance+in+Europe&hl=&cd=1&source=gbs_api)>

<sup>4</sup>“Nick Szabo -- Smart Contracts: Building Blocks for Digital Markets” <[https://www.fon.hum.uva.nl/rob/Courses/InformationInSpeech/CDROM/Literature/LOTwinterschool2006/szabo.best.vwh.net/smart\\_contracts\\_2.html](https://www.fon.hum.uva.nl/rob/Courses/InformationInSpeech/CDROM/Literature/LOTwinterschool2006/szabo.best.vwh.net/smart_contracts_2.html)> accessed on 06 April 2024



single block is added to the entire chain, it is authenticated by every member in the ledger<sup>5</sup>. An inherent feature of the chain is that each new block is linked to the previous block using a 'hash' function, which transfers specific attributes of the preceding block to the subsequent block<sup>6</sup>. As a result, it guarantees that no one block within the chain may be altered without modifying the entire chain. Due of the need for exponential computer power, it becomes physically unfeasible to make a change in the chain<sup>7</sup>. An inherent benefit of Distributed Ledger Technology (DLT) is its ability to prevent the issue of double-spending in transactions, wherein a transaction is duplicated several times without any restrictions<sup>8</sup>. The connection between each block in the chain is established by a hash function, guaranteeing the preservation of transaction order. The utilisation of 'Proof of work' and authentication by each individual node guarantees that power over the ledger is not centralised but rather dispersed among multiple participants. Each new block of transactions is added to the chain, increasing its depth and making it more resistant to modification. This decreases the danger of both external and internal manipulation. Consequently, reversing a transaction in a DLT is a laborious and intricate procedure, as it necessitates executing a precisely opposite transaction on the blockchain to negate the impact of the initial transaction.

### **SMART CONTRACTS-**

The concept of Smart Contracts was initially introduced by Nick Szabo in his paper titled 'Smart Contracts: Building Blocks for Digital Market'<sup>9</sup>. In this paper, Szabo proposed the idea of 'contracts embedded in the world', suggesting that contracts can be integrated into hardware and software in a way that makes it extremely difficult and costly to breach them. Smart Contracts are contracts that are capable of self-execution without human involvement. Max Raskin defines smart contracts as computer codes that function as conditional statements<sup>10</sup>. The contractual terms were written in 'if' and 'then' expressions and performed mechanically without any human participation. Smart Contracts

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<sup>5</sup>Pierluigi Cuccuru, "Beyond Bitcoin: An Early Overview on Smart Contracts" (2017) 25 International Journal of Law and Information Technology 179

<<http://dx.doi.org/10.1093/ijlit/eax003>> accessed on 06 April 2024

<sup>6</sup> Satoshi Nakamoto, Bitcoin: A Peer-to-Peer Electronic Cash System, Satoshi Nakamoto Institute, Oct. 31, 2008, <<https://nakamotoinstitute.org/bitcoin/>> accessed on 06 April 2024.

<sup>7</sup> Nishith Desai Associates, "The Blockchain: Industry Applications and Legal Perspectives" Nishith Desai Associates, Nov. 2018

<[http://www.nishithdesai.com/fileadmin/user\\_upload/pdfs/Research%20Papers/The\\_Blockchain.pdf](http://www.nishithdesai.com/fileadmin/user_upload/pdfs/Research%20Papers/The_Blockchain.pdf)>> accessed on 06 April 2024

<sup>8</sup> Max Raskin, "The Law and Legality of Smart Contracts"1 Georgetown Law Technology Review 305, 317 (2017).

<sup>9</sup> Supra note 2.

<sup>10</sup> Max Raskin, "The Law of Smart Contracts" (Social Science Research Network, January 1, 2016) <<https://ssrn.com/abstract=2959166>> accessed on 06 April 2024

can be simplified as conditional statements, where 'If a then b'. For instance, a contract that mandates the transfer of a digital asset upon the payment of a specific sum of USD 100 is represented using binary operations in the form of 'if a then b'. Smart contracts are software programmes that can execute themselves, providing a self-executable method of contracting. The concept of smart contract technology was initiated in mid-1990s. Subsequently, several legal scholars, coders and programmers investigated the potential of this technology in several sectors of the economy. Nevertheless, the absence of enough technological infrastructure to efficiently implement the ingenious concept of smart contracts has caused them to be delayed for a significant duration. The introduction of blockchain technology in the late 2000s marked a significant advancement in the exploration of the wide-ranging potential of smart contract technology.

The term "smart" in reference of smart contracts conditions to the inherent ability of these contracts to execute and enforce themselves without the need for external intervention<sup>11</sup>. Primarily, a smart contract operates based on a conditional statement that follows an if-then structure. The terms and conditions of the smart contract will be programmed into a computer software. Upon the happening of the trigger event, the contract will be performed automatically. This minimises the requirement for human involvement in the execution of such contracts.

## **2. Smart Contracts: Concept and Characteristics**

Smart contracts are those software programmes that can be automatically executed and enforced as agreements. The concept of smart contract technology originated in the mid-1990s. Subsequently, several programmers and legal specialists examined its possibilities in different sectors of the business. Nevertheless, the absence of enough technological infrastructure to efficiently implement the innovative concept of smart contracts has caused them to be delayed for a significant period of time. The introduction of blockchain technology in the late 2000s marked a significant advancement in the exploration of the wide-ranging potential of smart contract technology<sup>12</sup>. Blockchain is a decentralised and distributed ledger that is organised in the form of blocks. They are both publicly

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<sup>11</sup> DiMatteo L A, Cannarsa M and Poncibo C., 'Smart Contracts and Contract Law' in Larry A DiMatteo, Michael Cannarsa and Cristina Poncibo (eds), *The Cambridge Handbook of Smart Contracts, Blockchain Technology and Digital Platforms* (Cambridge University Press 2019)

<sup>12</sup> *Supra* note 2

available and unchanging, guaranteeing that they are tamper-proof<sup>13</sup>.

The term "smart" refers to the inherent ability of smart contracts to execute and enforce themselves without the need for external intervention. Primarily, a smart contract operates based on a conditional statement that follows the pattern of "if-then". The terms and conditions of the contract will be programmed into the computer software. Upon the happening of the trigger event, the contract will be performed automatically. This minimises the requirement for human involvement in the execution of such contracts.

Currently, there is no widely recognised and agreed-upon meaning for the word smart contract. The unique and intricate technological feature of the notion has made it challenging to formulate a comprehensive and universally accepted description. When conducting a search for the term "smart contract," one will find numerous definitions. According to Nick Szabo, the precise terms of a contract are involved. Following that, numerous endeavours were undertaken by diverse legal experts and computer programmers in order to establish a widely acknowledged definition for the notion of smart contracts. The term "agreement" refers to a computer code that has the ability to observe, carry out, and enforce a contract.

To provide a more comprehensive definition, it was described as a "software that connects computer code with multiple components to achieve predetermined outcomes, and is stored on a distributed ledger." The parties' duties under the contract provisions are executed automatically by the software that encodes the contract terms. The smart contract code is specifically designed to carry out the duties encoded inside it, but only if the predetermined circumstances are satisfied. Automatic performance refers to the fulfilment of contractual duties, either in their entirety or in part, by a party to the contract. The terms that can be executed automatically may encompass payment terms, responsibilities of confidentiality, and other provisions that might diminish the involvement of intermediaries in a contract. The aforementioned attempts to establish a thorough definition of the word smart contract were primarily conducted by numerous professors and researchers. Since 2017, numerous governmental and inter-governmental entities have implemented new legislations and

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<sup>13</sup>Don Tapscott and Alex Tapscott, Blockchain Revolution (Penguin 2018) <[http://books.google.ie/books?id=8qlPEAAAQBAJ&dq=Blockchain+Revolution:+How+the+Technology+Behind+Bit+coin+Is+Changing+Money,+Business,+and+the+World&hl=&cd=1&source=gbs\\_api](http://books.google.ie/books?id=8qlPEAAAQBAJ&dq=Blockchain+Revolution:+How+the+Technology+Behind+Bit+coin+Is+Changing+Money,+Business,+and+the+World&hl=&cd=1&source=gbs_api)>.

policy decisions to facilitate and oversee smart contract implementations.

In 2017, Belarus became the first country to legalise the utilisation of smart contracts by a Presidential Decree. The Decree provides a definition of smart contracts as "a computer programme designed to operate on a distributed ledger in order to automatically carry out transactions or perform other legal actions". The State of Arizona in the United States of America defines a smart contract as an event-driven programme that operates on a distributed, decentralised, shared, and replicated ledger. This programme has the ability to control and facilitate the transfer of assets on that ledger. The State of Tennessee later broadened the definition in the Arizonan statute, specifying that a smart contract is a computer programme that operates on an electronic, distributed, decentralised, shared, and replicated ledger. Its purpose is to automate transactions, encompassing various types of transactions.

(A) Assume control and direct the transfer of assets on that ledger, (B) Generate and distribute digital assets; (C) Coordinate information; or (D) Administer identification and user access to software programmes.

The Maltese government, in the Malta Digital Innovation Authority Act of 2018, provided a broader definition of a smart contract. According to this definition, a smart contract is considered as an innovative technological arrangement that comprises of either a computer protocol or an arrangement that is concluded, either wholly or partly, in an electronic form. This arrangement is automatable and enforceable through the execution of computer code, although certain aspects may necessitate human input and control. Additionally, a smart contract may be enforceable through ordinary legal methods or a combination of both legal and technological means.

The Maltese law has taken a comprehensive approach by implementing a broad definition that encompasses potential future advancements in the field. This definition also includes the crucial characteristics of automatability and self-enforceability.

Smart contracts are computer software programmes that encapsulate agreements and can be performed automatically, with minimal or no human input. By incorporating these contracts into a blockchain platform, the verification and accuracy of the information they contain can be guaranteed, which is crucial in automated systems.

The question of whether a smart contract can exist independently of a distributed ledger technology, such as blockchain, is a subject that is continuously discussed and debated. There are conflicting perspectives on the subject. One perspective posits that smart contracts can function autonomously from blockchain technology, with the use of blockchain technology just expanding their potential. Conversely, some experts assert that blockchain technology is a fundamental aspect of smart contracts. This research assumes that a smart contract can exist without using a distributed ledger technology like blockchain.

Various researchers ascribe varying interpretations to the phrase smart contract. The phrase is often defined narrowly as a self-executable computer code that relies on blockchain technology. Many researchers contend that incorporating blockchain technology is an essential characteristic of a smart contract. However, it is crucial to understand that smart contracts can exist even without blockchain technology. The utilisation of Blockchain technology in a startup context significantly enhances its scope and reach. Vending machines can be considered as a rudimentary precursor to smart contracts, predating the usage of blockchain technology. A vending machine is an autonomous automated device that dispenses commodities upon receiving payment, either by inputting money or through alternative electronic methods. Vending machines operate as smart contracts based on an if-then condition. Specifically, if the payment is received, the product will be dispensed.

Indeed, the arrival of Blockchain technology has revolutionised contractual processes by allowing the automation of performance and fulfilment of responsibilities outlined in the conditions. Vending machines alone automate the execution of the contractual duties of one party. The automation of obligations for both parties is transforming traditional contracting methods. Smart contracts have the potential to bring about significant advancements in current operational methods by reducing the need for a centralised control system.

### **3. Smart Contract and Contract law in India**

Section 10 of the Indian Contract Act of 1872, also known as the 'ICA', primarily regulates contracts in India. Section 10 of the Act stipulates that, all agreements are legally binding contracts, as long as they are entered into willingly by all parties involved, for a legally accepted payment, and with the intention of achieving a legal goal.

The fundamental characteristics of a conventional contract include: a valid offer; clear and explicit acceptance; lawful and relevant consideration; and the voluntary agreement of all capable parties involved, encompassing all aspects of the contract. Therefore, based on its definition, it appears that a smart contract is legally permissible under the ICA, since it satisfies the aforementioned requirements of a contract. Nevertheless, due to the lack of legal recognition in India, making such a declaration would be excessively audacious and premature. This is because there are other criteria that need to be considered when assessing the legality and enforceability of smart contracts. The aspect of 'consideration' is troublesome, particularly if it is in the form of cryptocurrency. This raises the question of whether cryptocurrency is recognised as a genuine form of consideration under Indian law. The uncertainty over the legality of cryptocurrencies presents itself as one of the several obstacles to the adoption of smart contracts in India.

In March 2020, the Supreme Court overturned the ban placed by the RBI on cryptocurrencies<sup>14</sup>. The prohibition prohibited banks and other financial institutions from offering banking services to people and businesses involved in cryptocurrency transactions. Previously, trading was limited to exchanging cryptocurrencies with other cryptocurrencies and not with the Indian Rupee. Nevertheless, the Indian Government's position on cryptocurrencies is not particularly open or cooperative, because to worries around consumer safety, market integrity, and white-collar crimes like money laundering. Several significant media outlets have recently claimed that the Government intends to enact legislation that prohibits the trade of cryptocurrency. If put into effect, it has the potential to significantly impede the operation of smart contracts.

Moreover, there is no regulatory body to assess the legality of the object.

Smart contracts serve as a framework for entering into contracts with individuals who may or may not be familiar with one other and who may face potential dangers. While smart contracts may be legally enforceable in India, it is important to take caution when entering into contracts with other parties. In the event of a failed transaction, you will be alone responsible for dealing with the consequences, as the legal system does not have a sophisticated framework to regulate smart contracts. If the consideration of the deal was not reciprocal, a smart contract may not be legally binding according to Indian law. If the contract is unilateral, this possibility can occur. Contracts

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<sup>14</sup>Internet and Mobile Association of India v RBI [2020] Writ Petition (Civil) No.373 of 2018.

lacking mutual consideration are deemed invalid in Indian courts. Nevertheless, smart contracts lacking mutual consideration can still be enforced through code. However, if such a contract is breached, it would not be considered a breach in Indian courts since there was no contract to begin with due to the absence of mutual consideration, a crucial element of a contract. Smart contracts are considered legal in India, but they do not offer legal protection to the parties involved if they face liability or damages. This is because there is no regulatory structure in place to control smart contracts. Nevertheless, if the smart contract adheres to the principles and regulations of contract law, the legal system will provide support to the fullest extent possible.

## **4. Regulatory Considerations and Legal Challenges**

### **I. Traditional Use-**

Conventional use of smart contracts has not been thoroughly evaluated by courts and legislators, resulting in a lack of understanding on their complete capabilities. Consequently, it is challenging to determine how they should be regulated<sup>15</sup>. There is currently no legal precedent or established market norms for enforcing smart contracts. The lack of authority and guidance leads to divergent opinions regarding the enforceability of smart contracts. While popular belief is that smart contracts may be seamlessly incorporated into current contract law, others anticipate that it will mark the extinction of traditional contract law. Smart contracts are sometimes described by analysts as a potential substitute for contracts that can be legally enforced. Traditional contracts involve future performance by establishing a duty for one or more parties. Smart contracts do not generate future obligations as the activation of the contract limits the parties' entitlements to only what is explicitly stated in the code. The code operates automatically without taking into account any other factors. Advocates of this analysis contend that the smart contract does not establish any contractual liability.<sup>16</sup> A smart contract does not establish a legally binding agreement between the parties involved. Although there may be a "bond" between the parties involved, it specifically pertains to the technical connection between a party and the blockchain platform of a smart contract. Thus, this hypothesis asserts that smart contracts are evolving within a technological domain that has not yet been influenced by the legal sphere. Some argue that smart contracts can be easily included into the current legal principles that

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<sup>15</sup> Akub J. Szczerbowski, Place of Smart Contracts in Civil Law. A Few Comments on Form and Interpretation, in Proceedings of the 12th Annual International Scientific Conference: New Trends, 335 (2017)

<sup>16</sup> Alexander Savelyev, Contract Law 2.0: Smart Contracts as the Beginning of the End of Classic Contract Law, 26 Info. & Comm. L. 116, 128 (2017).

regulate conventional contract law. Acceptance and consideration are both established by the act of performing the self-executing smart contract. If the contract is executed, it fulfils the necessary requirements of offer, acceptance, and consideration. If the contract is not executed, there is no legally enforceable contract, simply an offer. Thus, smart contracts eliminate the need for external interpretation and involvement in fulfilling contractual obligations. Nevertheless, this theory imposes restrictions on the future applicability of smart contracts by presupposing that all smart contracts should function in the same manner as conventional contracts<sup>17</sup>. Due to the inconsistent treatment and legal status of smart contracts, they necessitate more comprehensive technical regulation than the existing regulations in force. Software developers should include regulations into the code they write, gradually transforming legal rules into programming language. Programmers have the ability to include legal provisions in a smart contract as parameters, which would mandate that the smart contract must adhere to established laws in order to be executed. The coding rules do not consider the potential for legal safeguards to render the contract unlawful due to non-compliance with particular requirements<sup>18</sup>. The concept of "regulatory coding" offers increased regulatory certainty and reduces the expenses associated with supervision and enforcement<sup>19</sup>.

## **II. Question of Liability:**

Optimally, programmers compose the smart contract in a manner that ensures flawless execution of the parties' intents. However, users of smart contracts should not presume that the coders responsible for writing the contract are unfailing. A programmer may introduce an error, or an operator may intentionally infect the code with a virus that provides false information to the smart contract. This scenario previously occurred when the initial Decentralised Autonomous Organisation, established by the Ethereum founder as an investment fund, garnered \$150 million in funding before hackers exploited a software weakness, enabling them to seize \$55 million worth of cryptocurrencies<sup>20</sup>. In order to prevent the incorrect assignment of responsibility in a smart contract, it is advisable for the parties involved to assign risk either in a pre-existing agreement or directly within the smart

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<sup>17</sup> Kevin Werbach & Nicolas Cornell, *Contracts Ex Machina*, 67 *Duke L.J.* 348 (2017).

<sup>18</sup> Primavera De Filippi & Samer Hassan, *Blockchain Technology as a Regulatory Technology: From Code Is Law to Law Is Code*, *First Monday* (Dec. 5, 2016), <https://firstmonday.org/ojs/index.php/fm/article/view/7113/5657>

<sup>19</sup> Wulf A. Kaal & Craig Calcaterra, *Crypto Transaction Dispute Resolution*, 73 *Bus. Law.* 109, 140 (2017)

<sup>20</sup> *Not-So-Clever Contracts*, *The Economist* (July 30, 2016), <http://www.economist.com/news/business/21702758-time-being-least-human-judgmentstillbetter-bet-cold-hearted>



contract<sup>21</sup>.

The allocation of risk between the parties will be determined by whether the contractual parties themselves or a third-party assign responsibility for the coding error. This previous agreement would enable the parties to present additional evidence to establish the intention in case there is a disagreement on the intended purpose of the code, assuming there is no error<sup>22</sup>. This argument is similar to the principles of classical contract law, where the court might take into account evidence of the surrounding circumstances in order to ascertain the parties' intention. This measure would reduce the necessity of resolving issues through legal proceedings and could aid in promoting creative solutions given the intricacy of a nascent market.

### **III. Challenges in Financial Crimes:**

Smart contracts may also provide unique difficulties in ensuring compliance with anti-terrorism legislation and regulations against money laundering.<sup>33</sup> These regulations generally mandate that those involved in financial transactions must have knowledge of and confirm the identities of the other parties involved. They are also required to report any suspicious activities to law enforcement or prevent the flow of funds to individuals who are prohibited by law.<sup>35</sup> Given that smart contracts are programmed to execute automatically without the need for human involvement, users of these contracts must create a mechanism that enables them to adhere to legal requirements by authenticating identities and preventing illegal transfers and transactions.

### **IV. Data Protection:**

As the smart contracts and blockchain platforms market expands globally, legal systems will need to address emerging challenges, such as data protection. Resolving the issue of identifying the individual responsible for processing personal and sensitive data in smart contracts is essential. Additionally, addressing the potential risks of unintentionally making international data transfers through blockchain platform nodes without meeting legal requirements is crucial<sup>23</sup>.

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<sup>21</sup> Eliza Mik, Smart Contracts: Terminology, Technical Limitations and Real-World Complexity, 9 L., Innovation & Tech. 269, 279 (2017).

<sup>22</sup> Dickson C. Chin, Smart Code and Smart Contracts, in Blockchain for Business Lawyer, 110 (2018)

<sup>23</sup> Pablo Sanz Bayón, Key Legal Issues Surrounding Smart Contract Applications, KLRI Journal of Law and Legislation, Vol. 9, Issue No. 1, p.86 (2019)

## 5. Conclusion

The emergence of the data-driven economy has resulted in the rise of cutting-edge technology such as Blockchain technology and smart contracts, which has the capacity to revolutionise financial markets. Nevertheless, smart contracts in the commercial domain are now in an early and developing stage. If the technology becomes generally accepted, smart contracts will be required to adhere to the same legal requirements as conventional paper agreements. Implementing effective technical regulations will provide the essential clarity to develop a legislative strategy that can effectively address the legal challenges posed by the emergence of smart contracts in the near future. While Smart Contracts may not fully consider the intricacies of Traditional Contract law, its use and legitimacy cannot be entirely dismissed. governance and decrease government involvement.

