Chapter 3
A Contextual Study of Regulatory Framework for Blockchain

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ABSTRACT

This study seeks to understand and explain the technological and regulatory challenges of blockchain technology particularly in execution mechanism of smart contracts as compared to regular contracts and to explore legal implication attached the blockchain technology. While evaluating the early days of regulatory framework of blockchain, the current study provides a focused review of relevant studies to identify the legal challenges arising from the application of AI in smart contracts and to find solutions to overcome these challenges. The study has emphasized certain areas related to the blockchain such as AI application and execution of smart contracts and finds that that there is currently a lack of legal certainty as to how various requirements of a valid contract would be satisfied. Hence, it highlights the need of regulation without disrupting the key yet essential features of blockchain. Keywords: Blockchain, Smart contract, AI, Framework, Legislation, Cryptocurrency

INTRODUCTION

Since its beginning, an interest in regulatory framework of blockchain technology has been found among the experts and stakeholders. In order to inquire the regulation of blockchain technology within the areas of law, this chapter provides a literature review of blockchain based applications in a wider spectrum as it pertains to law. The objective is to explore the existing state of rules and regulations of blockchain and their implications. Therefore, this study is structured as follows: It starts with the examination of regulatory and legal challenges to blockchain and identifies areas where legal and regulatory intervention is required through a focused review of the most significant studies on the subject. For this, first, it provides a cursory overview on technological aspects of the issue and identifies the features of 'decentralised' nature and functionality of blockchain while highlighting the considerable regulatory

DOI: 10.4018/978-1-7998-7927-5.ch003

implications attached to it. Second, it discusses blockchain-AI convergence and the existing and proposed legal framework along with the challenges to determine whether those regulations fit with nature and objectives of blockchain technology. Lastly, while discussing the features of a smart contract, this study, report the results emphasizing the need for regulation and governance of blockchain transections to mitigate the risk and increase the security features for the parties involved. For this, the regulatory framework should be drafted to support blockchain's innovative potential rather limiting it. With this, the proposed regulations should target to disrupt the criminal and fraudulent transactions without killing the innovation of blockchain. In conclusion, while focusing on the intersection between the technology and the law, study has identified several vulnerabilities particularly related to legal execution of smart contracts such as lacking formal legal requirements of a contract, lack of jurisdiction and scalability etc. Hence, the proposed paradigms for the new technology, its untraceable nature of applications and agreements are not of easy to converge with the conventional legal or regulatory parameters that arises biggest concern pertaining to reliability of blockchain technology and hinders its large-scale acceptability as a trusted medium of trade.

BACKGROUND

Blockchain: A Primer

The blockchain technology prompted much attention in 2009, first decentralized digital currency emerged in the form of Bitcoin (Nakamoto, 2008). A new technology was introduced to utilize a database to keep record of all transactions in a distributed ledger. This new technology has become known as blockchain. With blockchain, people can buy and sell commoditize without a third-party or centralized intermediary. This peer-to-peer payment system allow participants to transfer cryptocurrency anywhere in the world without involving any bank or central financial institute. Blockchain based distributed system challenges the supervisory role of the central banks and the regulatory structure of different jurisdictions. For instance, Bitcoin, a blockchain based payment product doesn't require a person's identity to be disclosed while performing a transection (Lee and L'heureux, 2019). Now, because of its smartness and usefulness, industries have seen its potential in many other fields beyond the purpose of its creation. Due to its great potential, over 4.5 billion USD funds have been invested and over 2500 blockchain related patents were flied until 2017 (Jesse, McWaters, et. al., 2016).

Here, according to Finck, it is pertinent to differentiate between cryptocurrency and blockchain. As stated earlier, blockchain technology emerged as an enabling technology that provides peer-to-peer digital payment. Due to its initial application, cryptocurrency and blockchain are often considered as the same although they are not. Apart from Bitcoin, since its beginning innovators have enabled many other blockchain based applications (Finck, 2018). The vary common feature of all of these applications is their reliance on central feature of blockchain technology, that provides distributive yet accurate record of data. The blockchain technology decentralizes the information and data storing that makes it unique. This decentralization feature alone opens a wide range of technological and financial opportunities which makes it a far-reaching innovation. Before this, an intermediary was inevitable, hence, it was not possible to coordinate any internet activity. However, blockchain technology enabled transections and payments to be made between any two or more anonymous parties without involving any third party or central authority (Finck, 2018). Thus, it by passes the monitoring and approval requirements prior to