


Chapter 10

Technologically Driven Legal Framework of Blockchain and Cryptocurrencies

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ABSTRACT

Blockchain technology refers to a digital, immutable, distributed ledger that registers completed transactions in a well-ordered manner and near real time. Blockchain security creates a decentralized environment that bars any third-party organization from controlling the cryptographically validated transactions and data. Blockchain technology fosters business innovation by creating a peer-to-peer networking that prevents one central server from accessing as well as processing data belonging to all companies in the network. Cryptocurrency can be defined as a digital asset built to facilitate completed transactions using cryptography. It helps in providing protection to the completed transactions and controlling the creation of additional units of the currency. In the recent years, the application of blockchain technology has been associated with governance. Blockchain governance has been applied in different fields; for example, it can be used to create permanent laws that cannot be violated by any third party.

INTRODUCTION

In the contemporary society, the internet has created a virtual community where billions of people from across the globe interact; hence, it is an excellent platform for the business world. Generally, blockchain is the newly trending technology used for the purpose of verifying as well as storing of transaction records for online cryptocurrencies such as Bitcoin (Getso & Johari, 2017). According to Holotescu (2018), blockchain technology can be used in the creation of a decentralized environment that prohibits

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any third-party organization from controlling the cryptographically validated transactions and data. It records any transaction that has been completed in a ledger, to ensure that it can neither be changed nor invalidated. Similarly, Zheng, Xie, Dai, Chen, and Wang (2017) refer to blockchain as a public ledger where all transaction that has been completed are stored in a list of blocks.

A term that is closely associated with blockchain technology is the Cryptocurrency can be defined as a digital asset built to facilitate completed transactions using cryptography. It helps in providing protection to the completed transactions and controlling the creation of additional units of the currency (Okhueuse, 2017). Cryptocurrency benefits significantly from the blockchain technology. For example, blockchain technology users utilize public and private keys to develop digital signatures as well as transactions within the cryptography in a secure way (Yaga, Robi, & Scarfone, 2018). Similarly, blockchain network which utilizes mining has the capacity of deciphering intricate puzzles when using cryptographic hash functions (Yaga et al., 2018). Therefore, cryptocurrency is strengthened by the blockchain technology due to its heavy utilization of cryptographic services.

The implementation of the blockchain technology allows the development of new models of economies and marketplaces, governance, identification, and more. Blockchain infrastructure can be used to adopt decentralized sharing economy business models as an alternative to the centralized business models by eliminating the intermediaries and substitute them with a peer-to-peer network, making it possible to carry out direct transactions between two parties (Tumasjan & Beutel, n.d). Additionally, blockchain economy can appear in a new form known as decentralized autonomous organization characterized by rules of governance specified in the blockchain. As a result, completed transactions would be enforced autonomously with strict adherence to rules defined by intricate contracts (Beck, Muller-Bloch, & King, 2018). The new models of business make governance easier than before since no third party will be consulted in order to identify customers and access market places.

BACKGROUND

The existence of cryptocurrencies is based on blockchain technology. Blockchain technology refers to a distributed ledger that records completed transactions through digital means in a way that cannot be mutated (Shah & Jani, 2018). On the other hand, cryptocurrency is a digital asset designed for the purpose of acting as a medium of exchange by applying cryptography to not only provide protection to the completed transactions but also regulate the production of more cryptocurrency (Okhueuse, 2017). The two technologies in conjunction can be implemented in different sectors such as the government, education, banking, healthcare, finance, and private sector. Governments benefit from the application of blockchain technology in numerous ways including in the issuance electronic identity cards (e-ID) to its citizens, developing electronic voting systems, managing land registers, recording and sharing medical information (Jun, 2018). These benefits are an evidence that there are numerous blockchain projects in many countries. As of 2017, majority of powerful actors on global scene have either planned, announced, or integrated the adoption of blockchain technology Figure 1.

The concept of blockchain technology has been applied extensively in the field of education for various purposes. First, to issue certificates known as blockcerts, which have four essential components: issuer, certificates, verifier, and wallet (Bartolome, Bellver, Castaneda, & Adell, 2017). Second, schools use blockchain technology to curb degree fraud. In this case, the users from different parts of the world can check if the student's ID are in alignment with the data stored in blockchain to confirm the credibility

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