Chapter 58
Blockchain Technology: A Review of the Contemporary Disruptive Business Applications

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ABSTRACT

Blockchain technology starts to reconfigure all aspects of society to make it clear and beneficial for the legal system. The chapter introduces "The Blockchain Revolution" in categories 1.0, 2.0, and 3.0; in the form of analyzing the use of the technology that is being applied in new innovative business models, Blockchain 1.0 starts with the creation of the first blockchain and the introduction of the technology in the "Bitcoin Whitepaper," the crypto-currency model, via Bitcoin's application in services related to cash, payments, and transfers. Blockchain 2.0 starts with the indication that using smart contracts on blockchains will be available via the development of syntax (i.e., "solidity" that would enable developers to create solutions with blockchain technology at the backend). The chapter explores the feature of the new disruptive business models-based blockchain technology as a new approach in delivering business products and services. In the chapter, the authors explore the new technologies raised in different fields of business.

INTRODUCTION

Many scholars use "disruptive innovation" broadly to refer to any situation in which an industry is shaken up due to a dramatic competition and process whereby smaller companies (entrants) using fewer resources, empowered by internet technology via clouds and artificial intelligence, are able to challenge

DOI: 10.4018/978-1-7998-5351-0.ch058

previous incumbents stumble. There is no choice for the blockchain incumbents, but not to lose ground against new entrants and to find their way to disruptive FINTECH (Christidis and Devetsikiotis,2016).

On the other hand, the smaller disruptive companies confront the dilemma of gaining the support of the disrupted incumbent companies. Christensen (2006) asserted that the blockchain incumbents' products and services are disrupted by the entrants' innovations and yet are reluctant to relinquish the incumbents' advantage (Christidis and Devetsikiotis, 2016). Such changes in the business environment and the associated drivers for competition considering both the disrupted incumbents and the disruptive entrants open the door for business scholars and practitioners to revisit the IT business models in the disruptive FINTECH contest to understand how companies can create, deliver and capture business values (Mendling et al., 2018)

This new digital disruption revolution started in 2009 with a new fringe economy on the internet using cryptography, creating a crypto-currency as an alternative coin called "Bitcoin" issued by automated consensus among blocked networked users (Dijkstra, 2017). Bitcoin is a digital cash protocol that is transacted through peer-to-peer (P2P) file sharing system via the Internet in a tasteless system (Swan, 2015; Tayeb, 2018). It uses a disruptive public ledger called blockchain (Swan, 2015). Melanie Swan, Founder of the Institute for Blockchain Studies (IBS), reveals that blockchain is essentially a public ledger with potential as a worldwide, decentralized record for the registration, inventory, and transfer of all assets—not just finances, but property and intangible assets such as votes, software, health data, and ideas." (Swan, 2015) p.2. As the world is being disrupted by technological innovation, people are rapidly embracing the Internet of Things (Christidis and Devetsikiotis,2016) gadgets in their day-to-day lives (Mendling et al., 2018)

Disruptive technology of blockchain is made possible because the new entrants use the disruptive technology to create two types of markets (Christidis and Devetsikiotis,2016):

1. **Low-End Footholds (Of Less-Demanding Customers) Market:** Where incumbents pay less attention comparing most profitable and demanding customers market, that provides a great opportunity for the new entrants to focus on satisfying those low-end market with a "disrupted" product and services (Zook and Blankenship, 2018). For example; In 2009, 'Uber Cab' which started as Tech Company by Travis Kalanick and Garrett Camp, released the Uber Cap application to torn consumers of big taxi companies with some requests into their potential consumer's pool, and crowd-sourced taxi drivers who are not owned by Uber (Singhal, Dhameja and Panda, 2018). In considering the disruptive Uber mobile-application-based transportation network, the Uber business model has applied by other taxi companies to leverage the trend globally in 55 countries (200+ cities) (Singhal et al., 2018).
2. **New-Market Footholds Of Non-Consumers:** The new entrants use blockchain disruptive technology to create a new-market foothold where customers are none existed since they use such technology to turn non-consumers into consumers (Christidis and Devetsikiotis, 2016)

Blockchain technology reconfigures all aspects of society and its applications which are associated with economic, political, humanitarian, and legal system. According to Swan (2015), the blockchain and potential blockchain revolution are broken down into three categories: Blockchain 1.0, 2.0, and 3.0. Blockchain 1.0 is all about the crypto-currency, the deployment of cryptography in application related to cash, payments and exchange (Swan, 2015), Blockchain 2.0 is about the benefit of the smart contracts, the entire slate of economic, trading market, and financial technology (FINTECH) industry application