Chapter 12
Barriers and Potential of Blockchain Technology in FinTech

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ABSTRACT

This chapter explores the barriers and potential of blockchain technology in the FinTech sector. It begins by highlighting the fundamental characteristics of blockchains, emphasizing their ability to securely store and transfer data without the involvement of intermediaries. The transparency provided by blockchain's transaction visibility is contrasted with traditional banking systems. The decentralized nature of blockchain is discussed, along with its applicability in various industries such as cryptocurrencies, financial services, risk management, IoT, and public and social services. The chapter acknowledges the extensive research conducted to analyze blockchain technology and its applications, leading to a need for a comprehensive examination. It addresses blockchain taxonomy, consensus techniques, applications, technological challenges, and recent developments, offering insights into the future possibilities of this technology. By identifying both the barriers and potential, this chapter aims to contribute to the understanding of blockchain technology's role in the FinTech industry.

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INTRODUCTION

Industry and academics have recently focused on cryptocurrencies. In the year 2016, the market capitalization of bitcoin topped over $10 billion (Hileman, 2016). Bitcoin relies on blockchain. Blockchain was first suggested in the year of 2008 and its execution started in the year of 2009 (Nakamoto, 2008). In lay man terms blockchain is a type of public ledger that stores transactions in the form of blocks. New blocks add to this chain. Blockchain technology is decentralized, persistent, anonymous, and auditable. Blockchain allows decentralized transactions. Blockchain reduces costs and boosts efficiency.

Blockchain technology is not limited to the Bitcoin network. Peters et al. (2015) state that blockchain technology may find use in online payment systems and digital asset services (Foroglou and Tsilidou, 2015). Smart contracts, public services, the Internet of Things, reputation management systems, and security services are a few examples of the conceivable internet interactions that might be enabled by blockchain technology. The technology behind blockchain makes all of these things feasible (Noyes, 2016).

Despite the great promise it holds for the development of future internet services, the blockchain technology provides a number of critical problems that must be overcome. The capacity to scale is a big obstacle to overcome. At this time, a Bitcoin block is 1 megabyte in size and is mined every 10 minutes. Thus, high-frequency trading is impossible on the Bitcoin network, which can only process 7 transactions per second. However, bigger blocks need more storage and slower network propagation. Users will want to maintain such a massive blockchain, which will centralize it. As a result, striking a balance between the size of the blocks and their level of protection is challenging. Second, certain miners may earn much more their share if they are too greedy (Eyal and Sirer, 2018). Miners bury their blocks with the hopes of making more money in the future. As a result, the expansion of the blockchain is limited by the multiple branches. As a result of this, many solutions are required to address this problem. The true IP address of a user can be determined if one so chooses. Both Proof-of-Work (PoW) and Proof-of-Stake (PoS), two of the most used approaches for reaching agreement today, are riddled with severe faults. PoW consumes an excessive amount of power, but PoS consensus may lead to the wealthy becoming even wealthier. In order to further develop blockchain technology, these problems need to be overcome.

Blogs, wikis, forums, code, conference papers, and journal papers are all examples of different types of blockchain-related writing. In 2016, Tschorsch and Scheuermann carried out a comprehensive analysis of the technological aspects of decentralized digital currencies such as Bitcoin. Our study emphasises blockchain technology rather than digital currency (Tschorsch and Scheuermann, 2016). Blockchain technical paper from Nomura Research Institute (Zheng et al., 2017). Unlike the study which was carried out by Nomura Research Institute, our study covers current blockchain research and future prospects (Zheng et al., 2018). This study extends by covering blockchain technological specifics, consensus techniques, applications, research problems, and future prospects (Zheng et al., 2017).

BLOCKCHAIN ARCHITECTURE

Like a public ledger, blockchain blocks include all transaction records (Chuen, 2015). Figure 1 depicts a blockchain system. In most cases, a hash value is utilized in order to guarantee that each block precisely copies its parent block. The hashes of uncle blocks, which are blocks that are the offspring of the blocks that are ancestors of the current block, would likewise be preserved on the Ethereum blockchain (Buterin, 2014). Genesis blocks have no parents.