Blockchain Technology

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Chapter 12
Blockchain Technology: Principles, Applications, and Advantages of Blockchain Technology in the Digital Era

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ABSTRACT

The objective of this chapter is to identify the applications of blockchain technology, to discuss the advantages of blockchain technology, and to identify the principles of blockchain technology. It was found from studies that in today's digital era, there are several applications of blockchain technology in the area of finance, voting, real estate, taxation, media, healthcare, food safety, data backup, data storage, and money transfer. Blockchain technology works on principles such as distribution database, transparency, peer-to-peer transmission, computational logic, etc. Moreover, blockchain technology provides several benefits over traditional technologies such as high speed, automation, reduced cost, innovation, enhancement of speed, and building trust, transparency, accuracy, traceability, etc.

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INTRODUCTION OF STUDY

In this digital era, with the advent of modernization of today's lives, Technology is the need of the hour. Now there is an addition to the list of technology as the blockchain technology that came into existence in 2009. First-time blockchain technology was introduced in the form of Bitcoin. Blockchain Technology is the recording of the digital recording of transactions in the public ledger that is transparent and authenticated to everyone through blocks arranged in chronological order. There is no single authority to control the transactions. Every transaction is secured with a digital signature to provide authenticity to transactions (Bogart & Rice 2015). There is also no extra fee for doing transactions through blockchain technology. Blockchain transactions cannot be altered or deleted by anyone unless with the consensus of the parties (Fanning & Centers 2016). There are several types of blockchains such as private, public, and consortium blockchains (He et al., 2016). Public blockchain ledgers can be assessed by anyone everywhere. Private blockchains can be assessed by trusted participants. Consortium blockchains are used by multiple organizations instead of single organizations.

WORKING OF BLOCKCHAIN TECHNOLOGY

The working of block comprises of the following procedure. For example, A wants to send money to B. The transaction between A and B is represented as a block. The block is broadcast to other parties for approval of the transaction. The block added the transaction in the chain if it is a valid transaction and then Money moves from A to B. The working of blockchain technology is shown in Fig: 1.

REVIEW OF LITERATURE

Kitsantas et al. (2019) conducted a study on applications of blockchain technology and found that blockchain technology had applications in the area of Finance, Government, Banking, Business process management. Rawat et al. (2020) had done a study on Emerging Applications and Use Cases for Secure and Trustworthy Smart Systems and found that blockchain Technology had applications in the area of finance, banking, real estate, cyber security, and smart contacts. Kibet et al. (2019) conducted a study on applications and principles and unforeseen issues and found that blockchain technology had applications in the area of finance, cryptocurrency, private data storage, education, banking, taxation, health care, voting, internet of things, and blockchain technology works on principles such as decentralization,

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