

## Chapter 3

# Demystifying the Role of Blockchain Technology in Healthcare and Transaction

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## ABSTRACT

*In this chapter, blockchain technology and its applications in healthcare and transaction are studied, along with how certain features of this cutting-edge technology might disrupt established business practices. The authors have discovered several studies and open exploratory areas that will be valuable to both academics and practitioners. Recent developments in cryptocurrency systems like bitcoin have increased interest in building robust distributed networks. Various DLTs are presently involved in a furious battle to display their superior skills and how they can overcome the flaws of their rivals. There are two main approaches to the distributed ledger problem: one uses cryptographic hashes and the other uses an open, distributed peer-to-peer network. However, the usage of the system of data structure, error tolerance, and consensus mechanisms differs significantly. This distinction has an impact on the cost, security, latency, and efficiency of any DLT situation. This chapter is a detailed review of blockchain usage in healthcare and transaction.*

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## **1. INTRODUCTION**

Transactions may be made safely and decentralized without a central authority using blockchain technology. Ever since Bitcoin's introduction in 2009, other blockchain-based technologies have sprung up. A global ledger of all payments was initially distributed via electronic money systems. Asymmetric key pairs confirm and verify the encrypted payments using cryptographic hashes. If you want to change something about a previous payment, you'll have to go back and recalculate everything in the payment history. Although it has just recently begun employing blockchain technology, it is based on tried-and-true cryptographic principles and procedures. This technique is generating a lot of buzzes right now because of the numerous applications it may have. Despite the fact that blockchain technology is still in its infancy, the hype will die down and it will be used in a new way in the near future.

### **1.1 Blocks**

Users require software in order to pay funds to blockchain candidates (desktop applications, smartphone applications, digital wallets, web services, etc.). Blockchain nodes receive payments from software that makes these payments and delivers them to the appropriate recipients. Non-publication has its own complete nodes, while publishing has a few as well. But this doesn't mean your transaction has been added to the blockchain yet! Payments to the rest of the network are produced from the uploaded funds. In many blockchain systems, a publishing node must first disperse an overdue payment to all nodes before the transaction can be carried out.

Payments are added to the blockchain each time a publishing node publishes a block. There are two elements to a block: a block header and the block data itself. The block header contains the metadata for this particular block. In the block data, a collection of verified payments has been stored on the blockchain network. If you want legitimacy and authenticity, make sure that the payment is well-designed, as well as having each supplier (mentioned under the transaction's "input" values) cryptographically validate it. So, vendors of online payment services have access to passwords that could sign over the valid online services, as this demonstrates. Other full nodes will verify the legality and validity of every payment in a released block, and a block that contains unlawful payments will be rejected.

### **1.2 Blockchain Technology**

Through the use of blockchain technology, decentralised peer-to-peer networks enable people who are sceptical of one another to connect in a verifiable manner without the participation of a central mediator. Consider a blockchain as a network of

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