

# Chapter 13

## Blockchain in Healthcare

### Department: Blockchain in Healthcare Data Management

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#### **ABSTRACT**

*Blockchain technology is revolutionizing healthcare data management by introducing unprecedented levels of security, privacy, and interoperability. It provides a tamper-resistant, decentralized ledger for storing patient records and enables secure, transparent sharing of medical data among healthcare providers and patients. With blockchain, patients have more control over their data, ensuring their privacy while enhancing data accuracy. Moreover, healthcare institutions can streamline administrative processes and reduce fraud. This innovative approach promises to improve patient care, reduce costs, and reshape the healthcare industry's data management landscape. The Department of Health and Human Services keeps track of and posts the data breaches. The battle against the COVID-19 pandemic highlighted the importance of the blockchain technology.*

DOI: 10.4018/979-8-3693-2268-0.ch013

## **INTRODUCTION TO BLOCKCHAIN**

The development of information and communication technology (ICT) has ushered in a new era where every necessity can be fulfilled just by a single click. Every area of human life, including agriculture, smart cities, industrial automation, smart homes, healthcare, etc., depends on these new technologies and control systems. The most significant of these applications is healthcare, which is one of a person's basic needs. Electronic health records (EHRs) and control systems are the main components of Internet of Things (IoT) applications in healthcare. Control systems aid in supplying control techniques, and electronic health records (EHRs) play a big part in offering medical services that are quick, affordable, and easy to use.

Blockchain technology is one of the innovation that falls under information and communication technology (ICT) which is a broad term that encompasses technologies used for data manipulation, storage, retrieval, transmission, and exchange of information. It relies on networks of computers (nodes) to maintain and update the blockchain ledger, uses cryptographic techniques to secure data and transactions, and involves the storage and retrieval of information in a distributed manner. (Sharma, 2022)

Blockchain is a revolutionary technology that has transformed the way we think about data, transactions, and trust in the digital age. It was originally introduced as the underlying technology behind the digital cryptocurrency Bitcoin, but its applications have since expanded far beyond just cryptocurrencies. Imagine a digital ledger or record book that is duplicated and distributed across a network of computers, also known as nodes. Each new transaction or piece of data is grouped into a block. Once a block is filled with transactions, it is linked to the previous block in chronological order, forming a chain of blocks - hence the name “**blockchain.**”

Blockchain is recasting the technology worldwide providing the stable data integrity and security. Countries such as Saudi Arabia is one such example, former correspondent to healthcare executives' perception and the internet connection, Saudi Arabia's pharmaceutical businesses are being prevented from using blockchain technology due to economic imbalance and lack of cooperation. blockchain technology in the pharmaceutical industries, Saudi Arabia were found as system robustness, increased data safety and decentralization, need for enhanced supply chain management and interoperability, and government laws and policies. (Kumar, 2020)

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