Chapter 9
Applications of Data Security and Blockchain in Smart City Identity Management

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ABSTRACT

Applications of blockchain might be related to healthcare and commercial sector. Need of such application is growing in smart cities. It has been observed that its implication are quite complex. The goal of the blockchain technology is to make it possible to store and distribute digital data without the risk of it being altered in transit. A blockchain provides the basis for immutable ledgers or transaction records that cannot be edited, erased, or destroyed. The term "blockchain" is often used to refer to DLT. Hashing is a sophisticated procedure that cannot be modified or reversed. When it comes to data security, it's all about safeguarding your information against unwanted access and corruption at every stage of its lifespan. Encryption, hashing, tokenization, and key management methods are all part of the data security process. The term "identity and access management" refers to all of the methods and technologies used inside a business to identify, authenticate, and authorize users to access services and systems within that business or other associated businesses.

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INTRODUCTION

Blockchain technology aims to store and distribute digital data without alteration in transit. A blockchain creates immutable ledgers that cannot be changed, erased, or destroyed. Blockchain are also called DLT. Identity and access management refers to any methods and technologies used inside a corporation to identify, authenticate, and approve access to services or systems. Due of its immutability, distributed ledgers shouldn't contain personal data. Using a distributed ledger for identity management is crucial (Zhu & Badr, 2018).

Blockchain

Unlike traditional databases, the data in a blockchain is kept in blocks, which are subsequently linked together using cryptography to form a chain. A new block is created for each new piece of information that comes in. A chronological chain of data is formed when a block is filled with data and chained to the preceding block (Nuss et al., 2018).

For yet, the most common use case for a blockchain has been as a transaction ledger. Rather than a single individual or organization wielding authority, all Bitcoin users act as a single unit under the direction of the blockchain (Yu et al., 2018).

The goal of the blockchain technology is to make it possible to store and distribute digital data without the risk of it being altered in transit. Immutable ledgers or transaction records that cannot be altered, deleted, or destroyed are built on the foundation of a blockchain. Distributed ledger technology (DLT) is another name for blockchain.

Features of Blockchain Technology

- Immutability: It is impossible to edit or change an immutable object. One of the most fundamental aspects of blockchain is the fact that it is a permanent, immutable network.

Figure 1. Features of Blockchain