Survey Report on Types of Blockchains and Their Real-Time Use Cases

1. Introduction

Blockchain technology provides a decentralized and secure way of recording transactions. Initially developed for Bitcoin, it now extends to various sectors like finance, healthcare, and supply chain. This report explores different blockchain types and their real-world applications.

2. Types of Blockchains

2.1 Public Blockchain

A fully open and decentralized network where anyone can participate.

Examples: Bitcoin, Ethereum.

2.2 Private Blockchain

A restricted network controlled by one organization for better privacy.

Examples: Hyperledger Fabric, R3 Corda.

2.3 Consortium Blockchain

A semi-decentralized blockchain governed by multiple organizations.

Examples: Quorum, Ripple, IBM Food Trust.

2.4 Hybrid Blockchain

A combination of public and private blockchains for controlled transparency.

Examples: Dragonchain, XinFin Network.

3. Real-Time Use Cases

3.1 Finance and Banking

Use: Cross-border payments.

Example: Ripple - enables fast and low-cost transactions.

3.2 Supply Chain Management

Use: Product tracking and authenticity.

Example: IBM Food Trust - improves traceability and reduces fraud.

3.3 Healthcare

Use: Secure storage of medical records.

Example: Medicalchain - ensures data privacy and access control.

3.4 Government and Public Sector

Use: Digital identity and e-voting.

Example: Estonia's e-Government blockchain.

3.5 Real Estate

Use: Property transactions via smart contracts.

Example: Propy - simplifies property transfers.

3.6 Education

Use: Blockchain-based certificate verification.

Example: MIT Digital Diploma.

3.7 Energy

Use: Peer-to-peer energy trading.

Example: Power Ledger.

4. Comparative Summary

Type | Access | Decentralization | Transparency | Use Case

Public | Open | High | High | Cryptocurrency

Private | Restricted | Low | Low | Enterprises

Consortium | Shared | Medium | Medium | Supply Chain

Hybrid | Controlled | Variable | Flexible | Healthcare, Govt

5. Conclusion

Blockchain is transforming digital systems with its transparency and security. The type of blockchain used depends on privacy, scalability, and governance needs. Its adoption continues to grow across industries.

6. References

1. Nakamoto, S. Bitcoin Whitepaper, 2008.

2. Hyperledger Foundation - https://www.hyperledger.org

3. IBM Blockchain - https://www.ibm.com/blockchain

4. Ripple Labs - https://ripple.com

5. Power Ledger - https://powerledger.io