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Blockchain for Beginners

Navigating the Decentralized World

EBRIC Educator Program (EEP)

by EBRIC (Malaysia)

What is Blockchain?

A publicly-accessible digital ledger used for storing and transferring information between two parties in a verifiable and permanent way without a central authority.

- Open
- Distributed
- P2P
- Permanent

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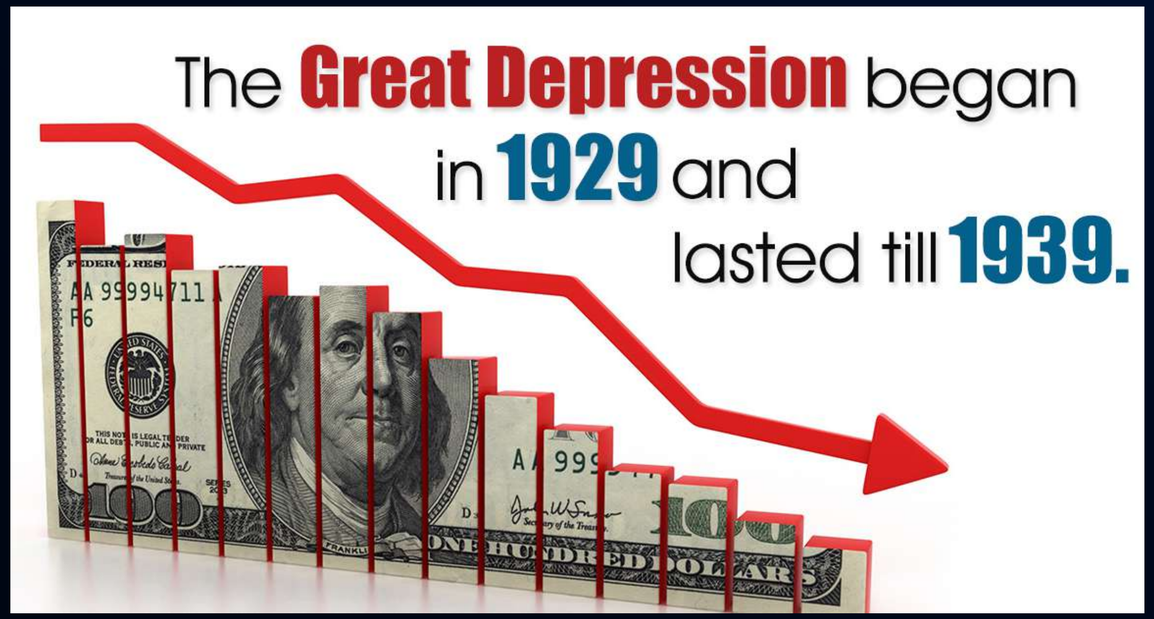
Why Blockchain?

History has proven that people ***can't*** and ***shouldn't*** trust a brand, name or a conventional decentralized system.



> The Great Depression :
9000 banks failed; 7 billion dollars worth of assets was wiped out.

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*[People **trusted** the banks to keep their money, lifetime savings and investments safe]*

Why Blockchain?

History has proven that people *can't* and *shouldn't* trust a brand, name or a conventional decentralized system.

> McDonald's Monopoly fraud :
Jerome Jacobson stole game pieces from Monopoly and other McD promotions and sold to his cronies

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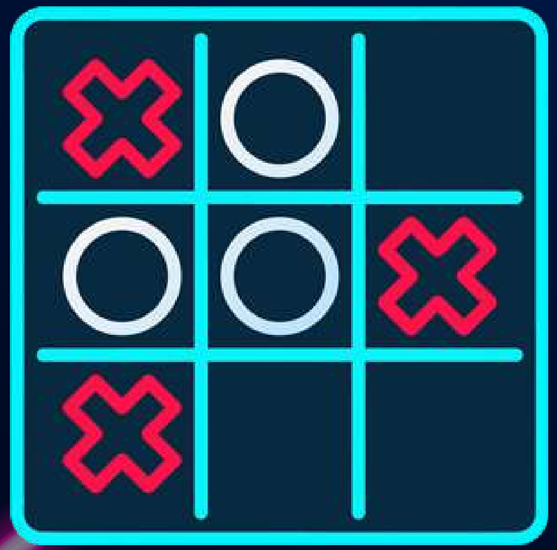
*[People **trusted** McDonald's to give everyone an equal opportunity to win a million dollars if they purchased their fast food*

Blockchain is more trustworthy

How playing tic-tac-toe on blockchain works :

- Both players input ‘X’ and ‘O’ in the smart contract
- Each move done by a player gets recorded on blockchain (each movement will be digitally signed)
- Smart contract logic will verify a player's move every time
- In the end, the smart contract will decide the winner
- The winner can rightfully claim his reward



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By using a distributed concensus system

- **No one** controls your game
- There is **no way** to cheat
- **No frauds**, the winner always gets a reward

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How Blockchain Works

STEP 1

User requests a transaction

STEP 2

Transaction is broadcasted to all nodes in the blockchain network

STEP 3

Miners validate transactions and add them to the blockchain

STEP 4

The block of transactions is successfully added to the blockchain

STEP 5

Every node in the network update their copies of the blockchain

STEP 6

The transaction is completed

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Types of Blockchain

PUBLIC BLOCKCHAINS

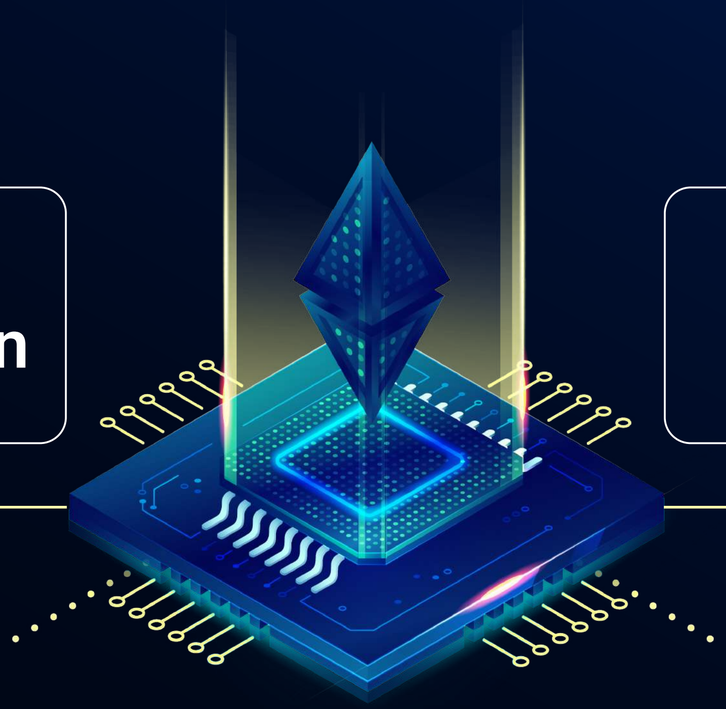
- Unrestricted access
- Very transparent

PRIVATE BLOCKCHAINS

- Restricted access
- Selective Transparency

Blockchain and Cryptocurrency

Cryptocurrencies backed by blockchain



Mining cryptocurrencies

Benefits of Blockchain

BENEFITS

- Decentralization & Immutability
- Accurate Traceability
- Cost-Effective
- Increased Transparency

RESTRICTIONS

- Governance Challenges
- Security Vulnerabilities
- Lack of Standardization
- Technology Complexity

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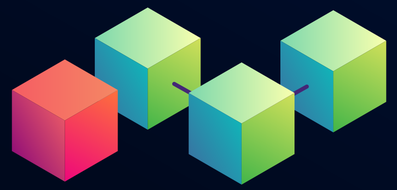
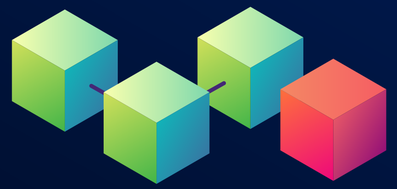
Limitations of Blockchain



Blockchain Trilemma

A situation where only 2/3 options are possible to achieve at the same time

The three options are :
Security, Scalability, Decentralization



Regulatory Challenges

Blockchain poses novel risks related to :

Security, confidentiality, regulation, taxation, data protection, immutability, automation and decentralization

Applications of Blockchain

Understand what are the potential, current and future applications of the blockchain technology

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Finance

- Cross-Border Payments
- Trade Finance
- Digital Identity Verification

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Healthcare

Secure Patient Data

Medical chain is a blockchain-based platform that enables secure and decentralized storage and sharing of patient data.

Clinical Trials

Pfizer and other pharmaceutical companies are using blockchain technology to streamline the clinical trial process, including patient recruitment, consent, and data management.

Drug Supply Chain Management

The FDA is exploring the use of blockchain to improve the transparency and traceability of the drug supply chain.

Real Estate

- Property Title Registration
- Land Registration
- Smart Contracts

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Supply Chain Management

Tracking Goods and Materials

Fraud Prevention

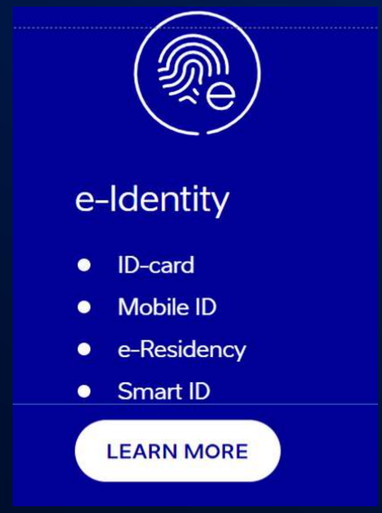
Blockchain Application in the Government

Identity Verification

Estonia is using blockchain technology to enable secure and decentralized identity verification for its citizens.

Digital ID benefits

- legal travel ID for Estonian citizens travelling within the EU
- national health insurance card
- proof of identification when logging into bank accounts
- for digital signatures
- for i-Voting
- to check medical records
- to use e-Prescriptions



Source: https://e-estonia.com/solutions/e-identity/id-card/

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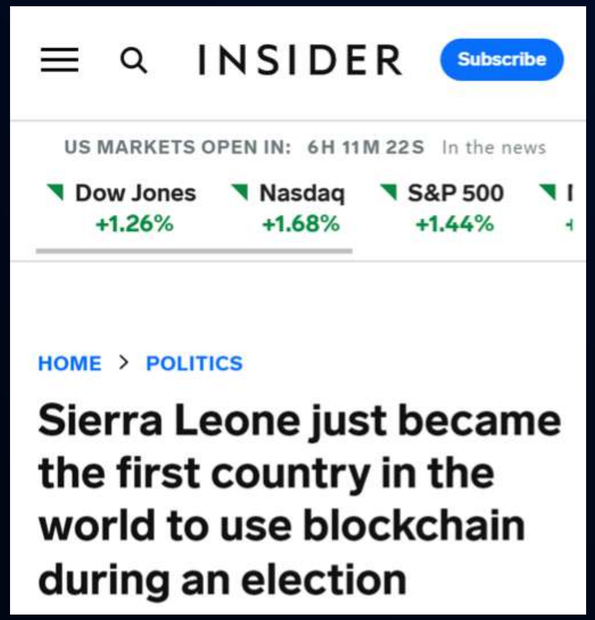
Voting Systems

Sierra Leone used blockchain-based voting platform that enables secure, transparent and efficient online voting.



- **Sierra Leone became the first country in the world to use blockchain technology to verify votes in its most recent election.**
- **Swiss-based company Agora logged and verified paper ballots digitally using specialized blockchain technology.**
- **Sierra Leone's elections could pave the way for blockchain technology to shape elections around the world.**

Source:https://www.businessinsider.com/sierra-leone-blockchain-elections-2018-3

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Future of Blockchain Technology

New Developments in the Blockchain Industry

- Decentralized Identity
- Attestation
- ZKP (Zero Knowledge Proof)

Let’s Take A Break!

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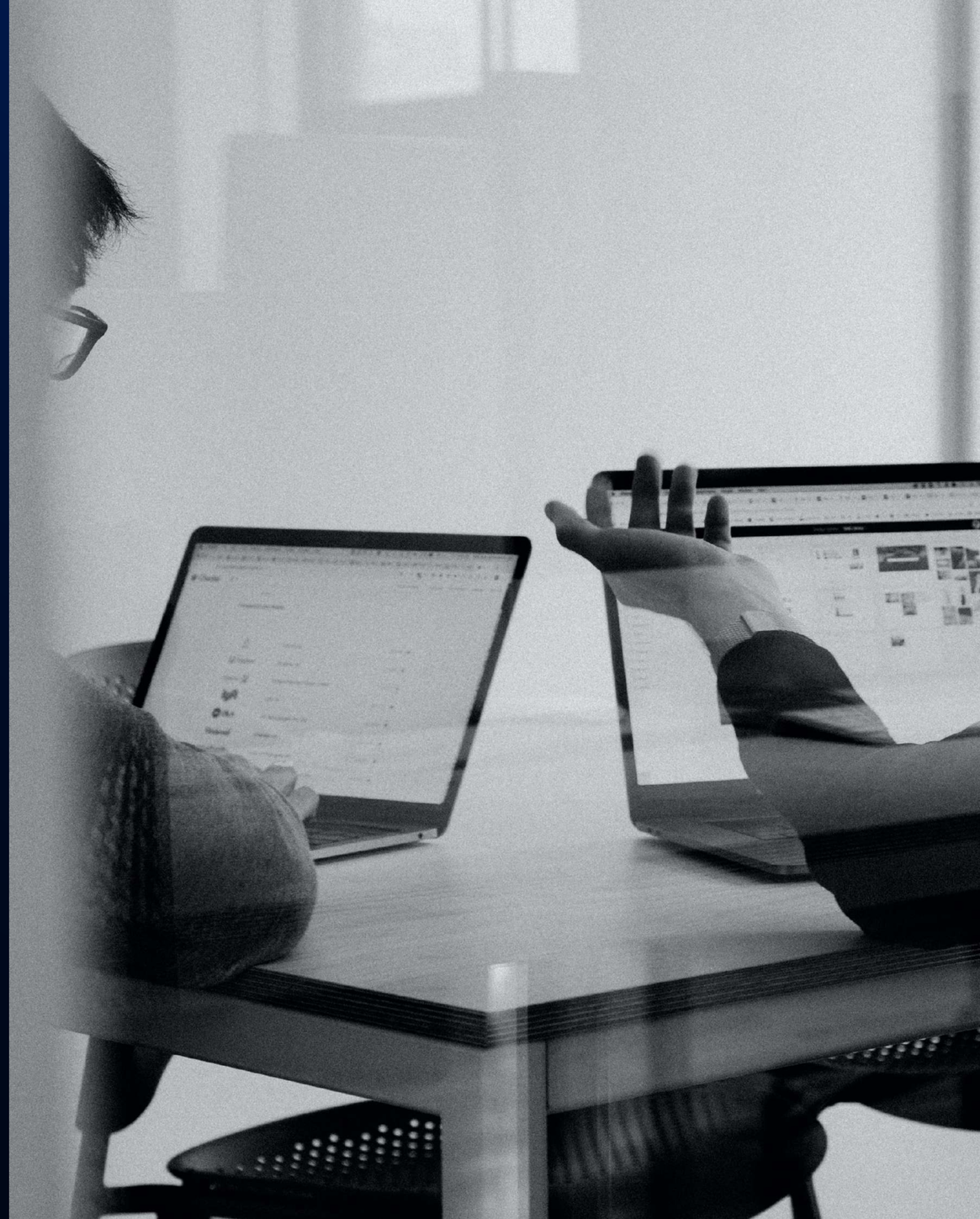
Career Paths in the Blockchain Industry



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Career Opportunities in Blockchain

- Blockchain Developer
- Blockchain Project Manager
- Blockchain Analyst
- Blockchain Consultant
- Blockchain Quality Engineer

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	Blockchain Developer	Project Manager	Blockchain Analyst
Role	Build, design, and maintain blockchain-based applications & smart contracts	Manage blockchain-based projects, oversee teams, and ensure project goals are met	Analyze and evaluate blockchain technologies and their potential impact on industries, and provide recommendations for implementation
Preferred Background	Software development experience, familiarity with blockchain platforms like Ethereum, and knowledge of programming languages like Solidity	Experience in project management, knowledge of blockchain technology and its applications, and strong communication skills	Experience in data analysis, understanding of blockchain technology, and knowledge of industry-specific trends and challenges
Estimated Salary	$100,000 - $150,000 per year	$80,000 - $120,000 per year	$80,000 - $120,000 per year
Demand	● ● ●	● ● ●	● ● ○

	Blockchain Consultant	Blockchain Quality Engineer
Role	Provide strategic advice and guidance to companies on how to incorporate blockchain technology into their operations	Test and ensure the quality of blockchain-based applications and systems
Preferred Background	Experience in consulting, understanding of blockchain technology and its applications, and strong communication skills	Experience in quality assurance, knowledge of blockchain technology and its applications, and understanding of programming languages like Solidity
Estimated Salary	$80,000 - $150,000 per year	$80,000 - $120,000 per year
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Thank You

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