

# Workshop Technology

# Blockchain

# What is it?

Blockchain is a public ledger that records transactions in a chain of blocks, and is a way to share information transparently within a network.

# How does it work?

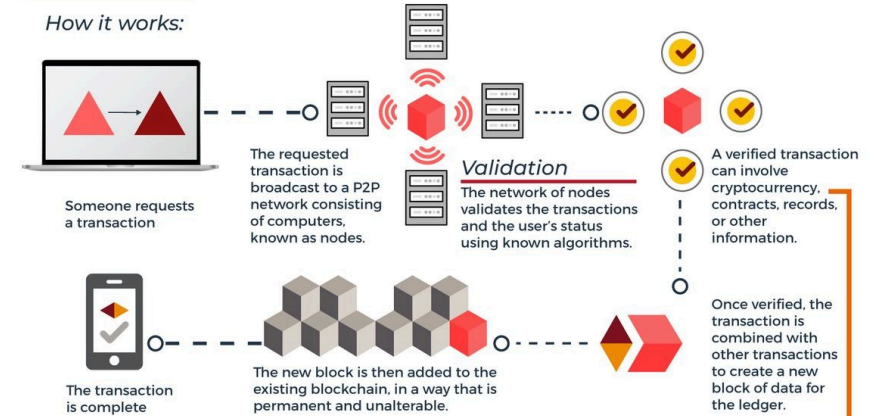
Source

## A look at Blockchain Technology

### What is it?

The blockchain is a decentralized ledger of all transactions across a peer-to-peer network. Using this technology, participants can confirm transactions without the need for a central certifying authority. Potential applications include fund transfer, settings trades, voting and many other uses.

### How it works:



### Benefits

- Increased transparency
- Accurate tracking
- Permanent ledger
- Cost reduction

### Unknowns

- Complex technology
- Regulatory Implications
- Implementation Challenges
- Competing platforms

### Cryptocurrency

Cryptocurrency is a medium of exchange, created and stored electronically in the blockchain, using encryption techniques to control the creation of monetary units and to verify the transfer of funds. Bitcoin is the best known example.



Has no physical form and exists only in the network



Its supply is not determined by a central bank and the network is completely decentralized

### Potential Applications



#### Automotive

Consumers could use the blockchain to manage fractional ownership in autonomous cars.



#### Financial Services

Faster, cheaper settlements could save billions of dollars from transaction costs while improving transparency.



#### Voting

Using a blockchain code, constituents could cast votes via smartphone, tablets or computers, resulting in immediately verifiable results.



#### Healthcare

Patient's encrypted health information could be shared with multiple providers without the risk of privacy breaches.

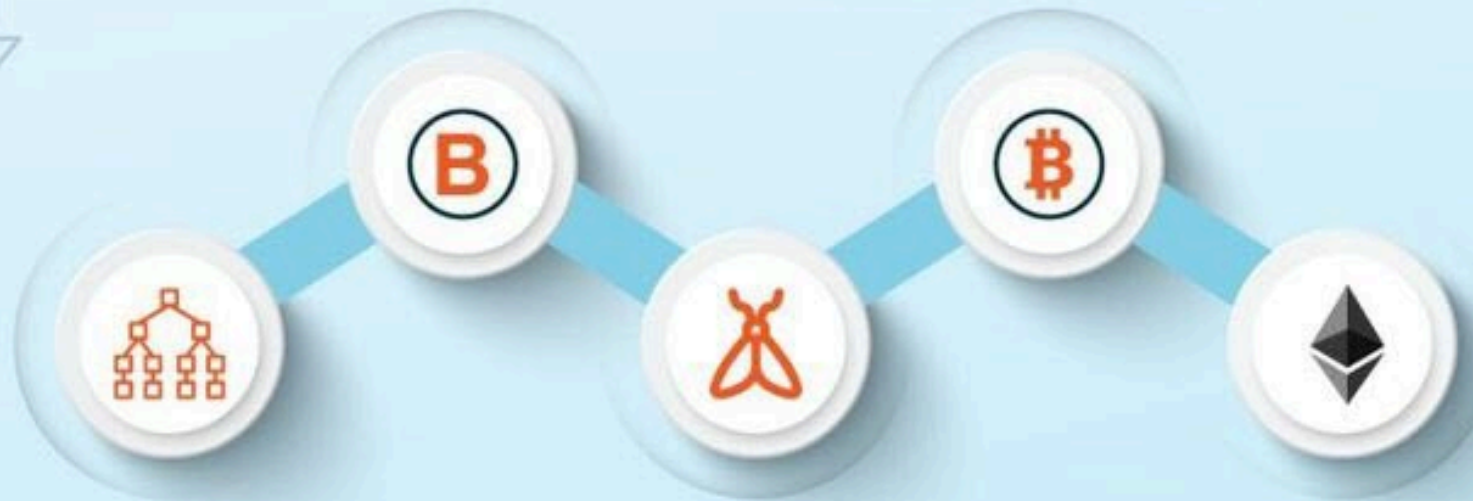
# History of Blockchain

**Year 1998:**

b-money-- Wei Dai-- first ever cryptocurrency which has several similarities to modern-day Bitcoin

**Year 2009:**

Bitcoin-- Satoshi Nakamoto-- First large-scale cryptocurrency which defines the architecture of blockchain



**Year 1991:**

Merkle Tree cryptographic chain of blocks-- Stuart Haber and W. Scott Stornetta-- First known blockchain forerunner

**Year 2005:**

Reusable Proofs of Work-- Hal Finney-- Combination of pros of b-money with Hashcash puzzles

**Year 2015:**

Ethereum-- Vitalik Buterin-- Called Blockchain 2.0 as it allows more applications other than cryptocurrency

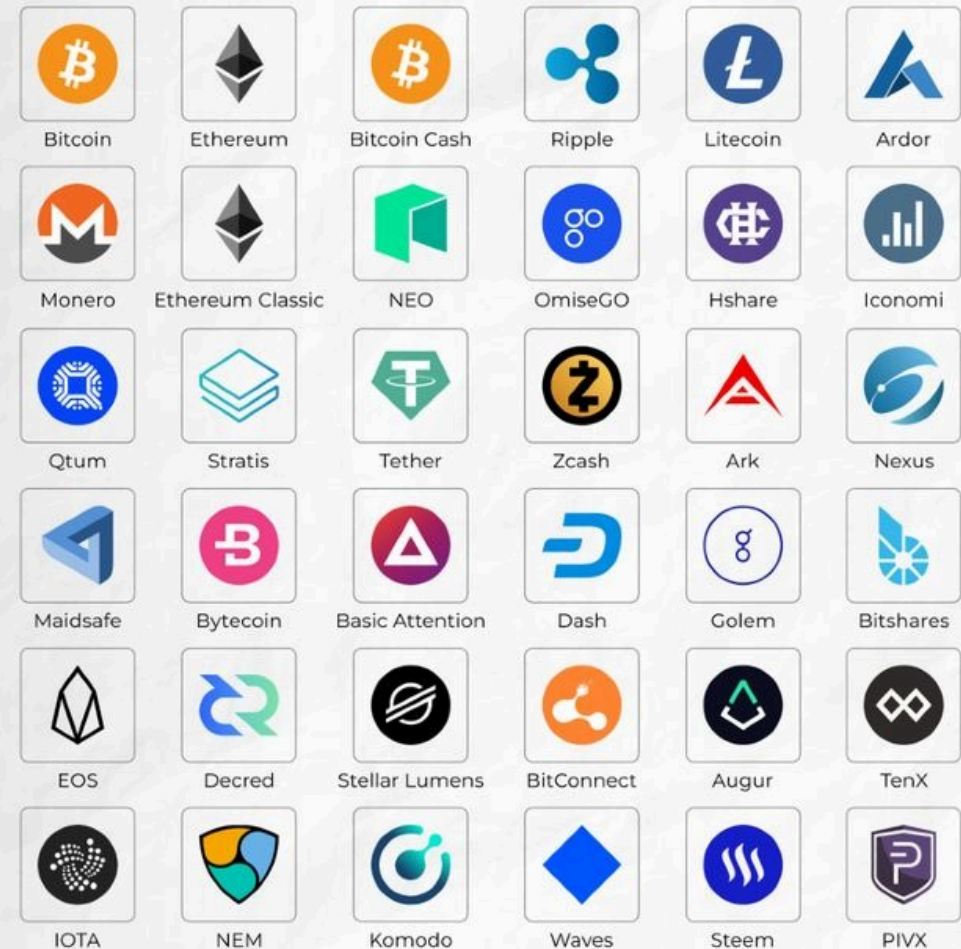
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# Applications

↑ We help beginners  
earn with crypto

## 36 TOP CRYPTO COINS

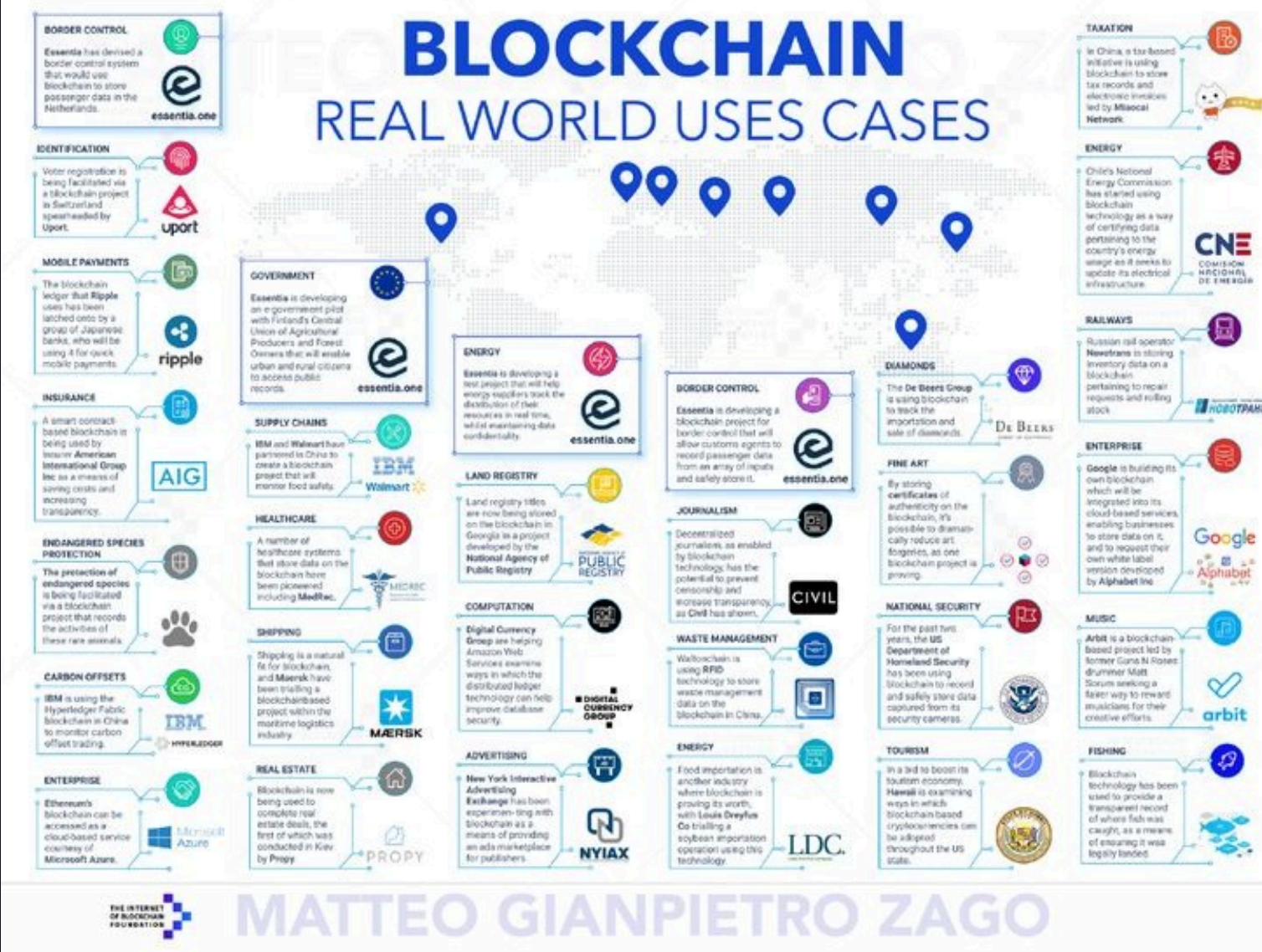
That Every Beginner Investor Needs to Know





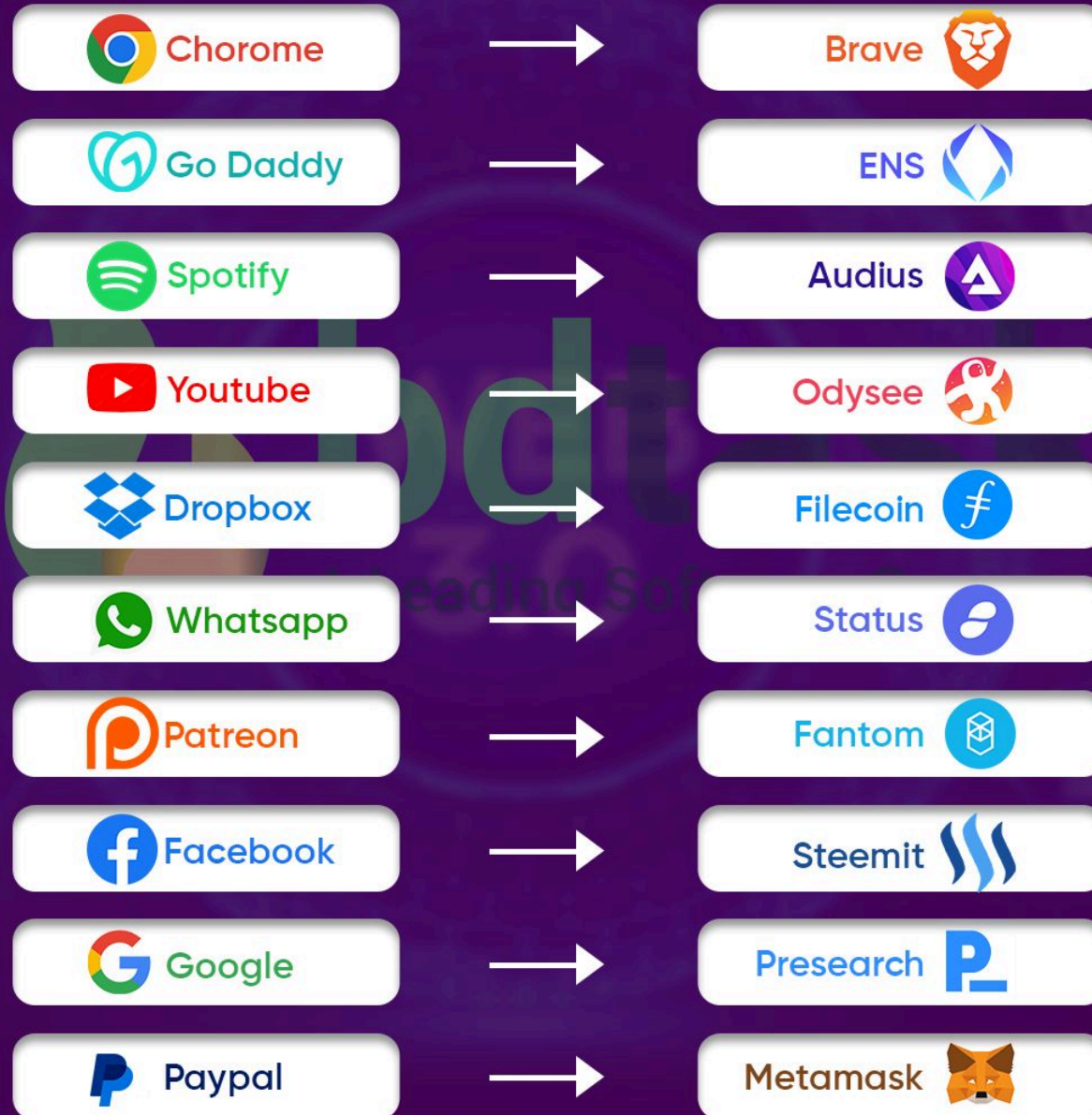
# Applications

Source



# WEB 2.0 TO WEB 3.0

The Transition to a Decentralized web





# Blockchain

| Digital trust

# Task 1: Get your hands dirty

- Setup MetaMask
- Get some ETH!
  - <https://cloud.google.com/application/web3/faucet/ethereum/sepolia>
- Send others some eth.
- Add some LINK!
  - `0x779877A7B0D9E8603169DdbD7836e478b4624789`

## **Task 2: Love letter**

# Smart contract

- A smart contract is a computer program that automatically executes an agreement between two parties.
- Smart contracts are built on a blockchain.

# Write and deploy smart contract

- <https://remix.ethereum.org/>



# Love Letter

```
// SPDX-License-Identifier: GPL-3.0

pragma solidity >=0.8.2 <0.9.0;

/**
 * @title LoveLetter
 * @dev Store love confession
 */
contract LoveLetter {

    string public secret;

    /**
     * @dev Initialize
     * @param _secret to initialize
     */
    constructor(string memory _secret) {
        secret = _secret;
    }

    /**
     * @dev Store value in variable
     * @param _secret to store
     */
    function changeSecret(string memory _secret) public {
        secret = _secret;
    }
}
```

# **Task 3: Blockchain-powered application**

# Steps

- [Code](#)
- Make `.env` from `.env.example`
- Fill in information
- `pnpm install`
- `pnpm run dev`
- `pnpm run build`

# Deploy

<https://pages.cloudflare.com/>