Workshop Technology

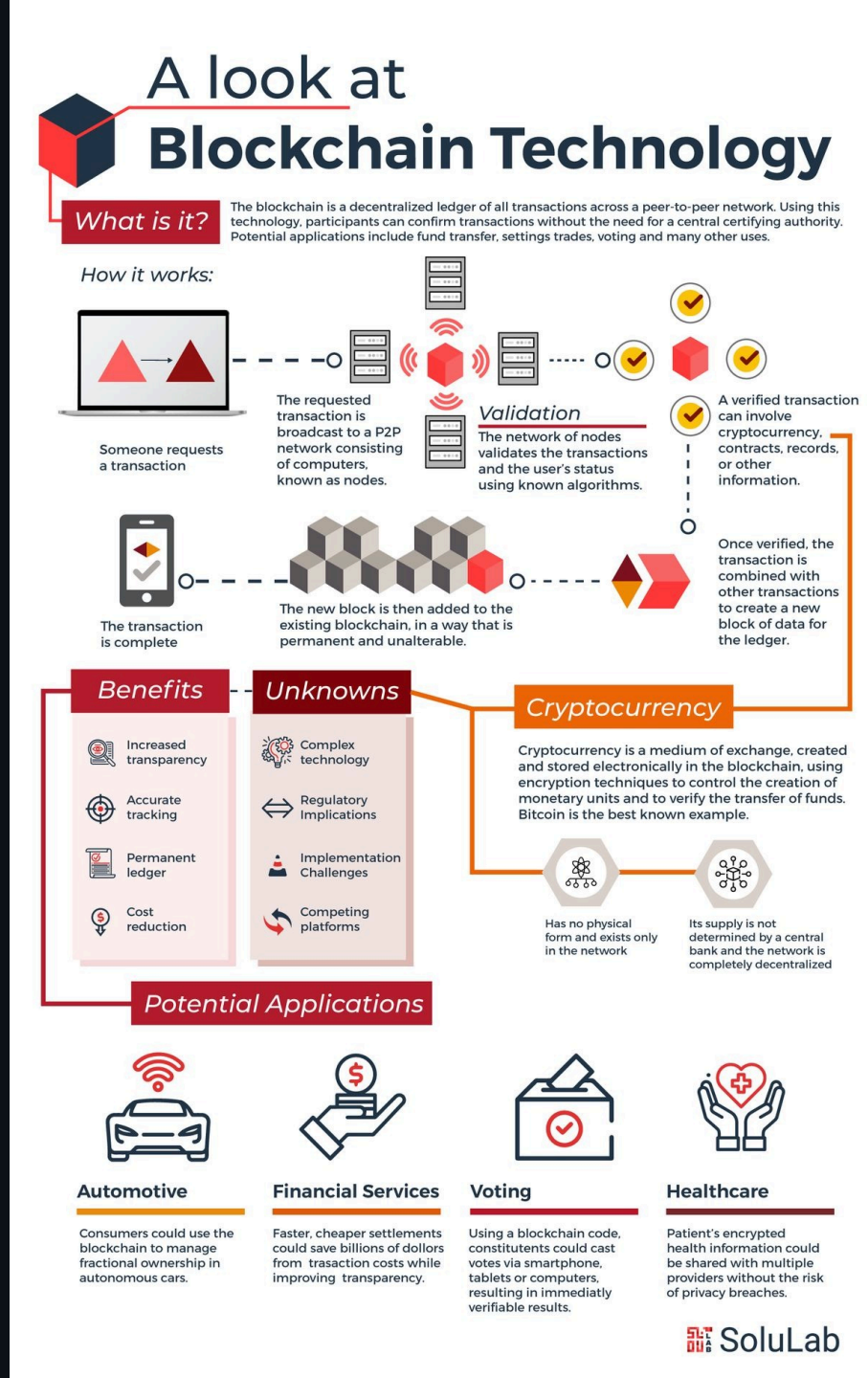
Blockchain

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?

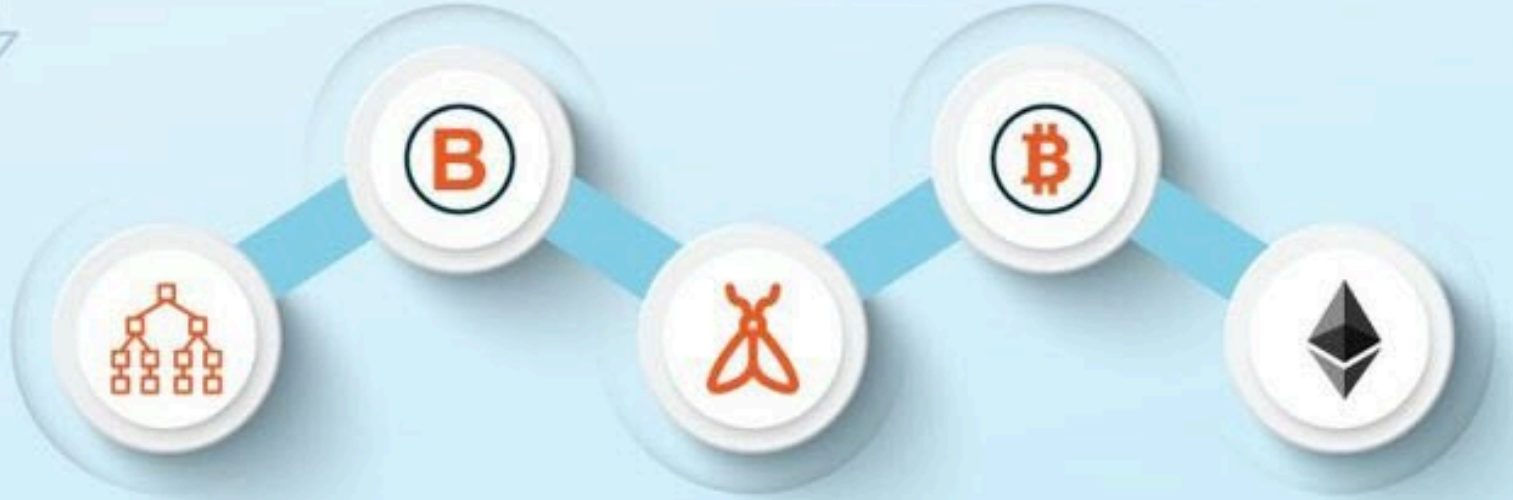
Source



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

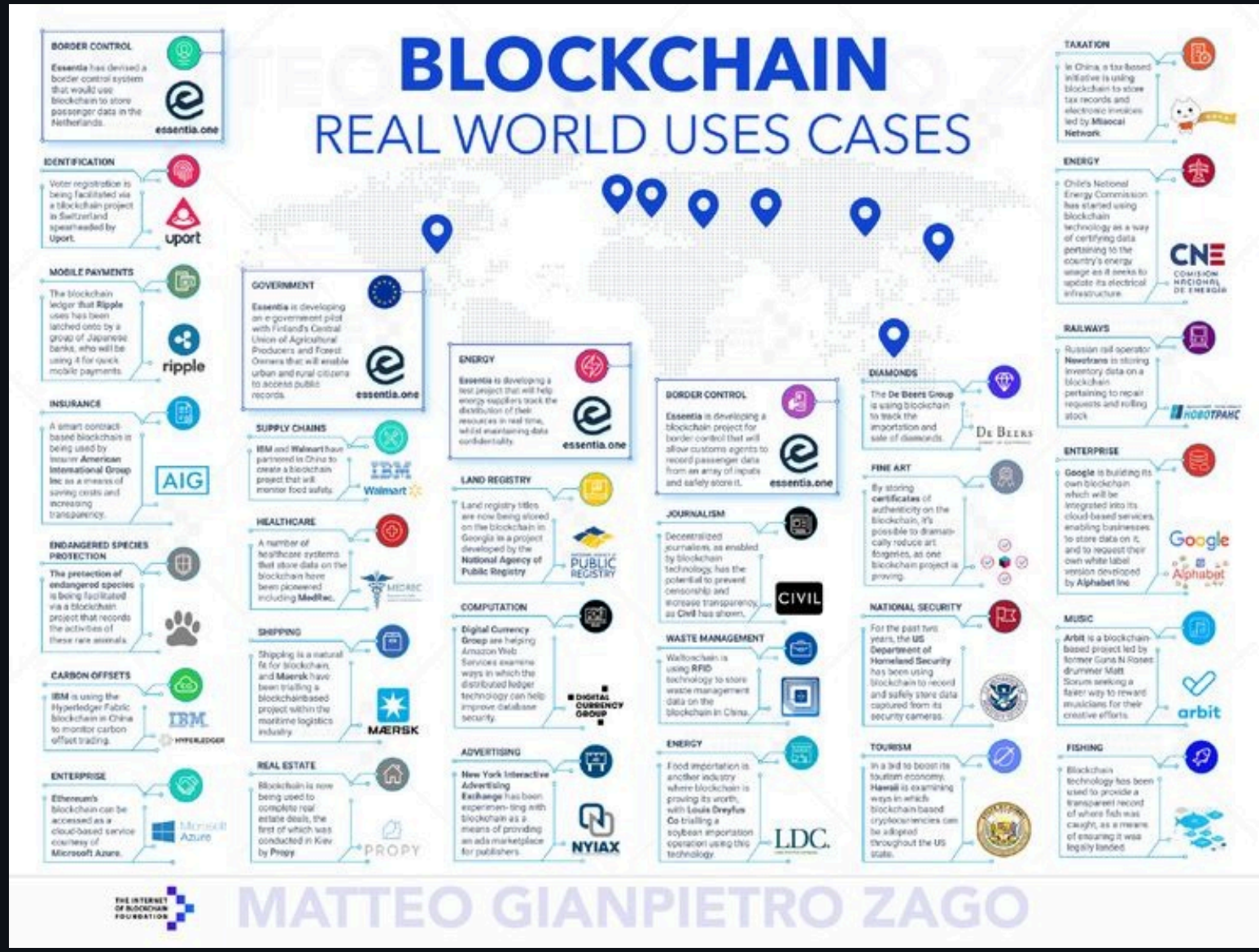
Year 2015:
Ethereum-- Vitalik Buterin-- Called Blockchain 2.0 as it allows more applications other than cryptocurrency

Source

Applications

Applications

Source




WEB 2.0 TO WEB 3.0
The Transition to a Decentralized web
Chorome
Brave
Go Daddy
ENS
Spotify
Audius
Youtube
Odysee
Dropbox
Filecoin
Whatsapp
Status
Patreon
Fantom
Facebook
Steemit
Google
Presearch
Paypal
Metamask

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

```solidity
// 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/