



Blockchain Introductory Workshop – Powered by AI



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Schedule

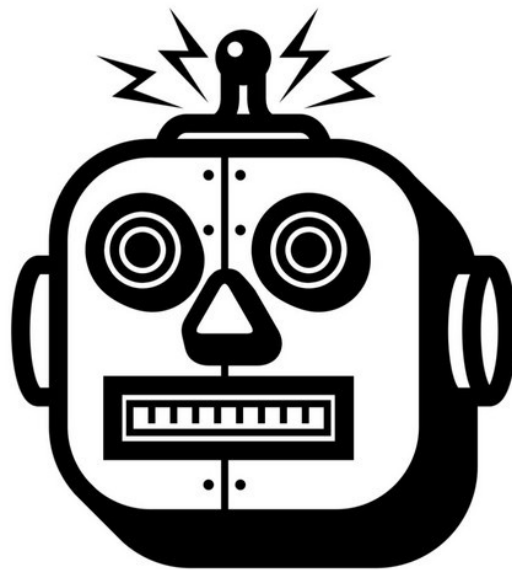
| Time | Activity |
|---|---------------------------------------|
| 5:00 PM - 5:15 PM | Introduction to the workshop |
| 5:15 PM - 5:30 PM | Session 1: What is Blockchain? |
| 5:30 PM - 5:45 PM | Coffee Break (15 minutes) |
| 5:45 PM - 6:15 PM | Session 2: How does Blockchain work? |
| 6:15 PM - 6:30 PM | Coffee Break (15 minutes) |
| 6:30 PM - 7:00 PM | Session 3: Applications of Blockchain |
| 7:00 PM - 7:15 PM | Session 4: Conclusion |
|  Export to Sheets | |

AI – Assistants, Blockchain Tools and Resources

- My GitHub Repo <https://github.com/EdwinLiavaa/TWICT-Blockchain-Powered-by-AI-Workshop>
- ChatGPT <https://openai.com/blog/chatgpt>
- Bing Chat <https://www.bing.com/search>
- FreedomGPT <https://chat.freedomgpt.com>
- Google Bart <https://bard.google.com>
- Anthropic's Claude <https://claude.ai>
- Opera Aria <https://www.opera.com/features/aria>
- Metamask <https://metamask.io>
- Alchemy Sepolia Faucet <https://sepoliafaucet.com>
- Infura Sepolia Faucet <https://www.infura.io/faucet/sepolia>
- Chainlink Faucets <https://faucets.chain.link>
- Chainlink Education <https://chain.link/education>
- Consensus Academy <https://courses.consensus.net>
- Alchemy University <https://university.alchemy.com>
- Web3 University <https://www.web3.university>

Introduction

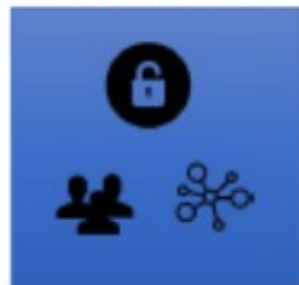
- Blockchain, as a distributed ledger technology (DLT), has an interesting history that spans several decades.
- So, let's ask AI?
 - **Prompt>** Hello AI, what is a Distributed Ledger Technology (DLT)? Step by Step
 - **Prompt>** Thank you AI, can you explain the history of the evolution of Blockchain as a Distributed Ledger Technology (DLT)? Step by Step
 - **Prompt>** Thank you AI, can you give me a definition of Blockchain?



Let's Talk AI

Distributed Ledger Technology

"Blockchain"



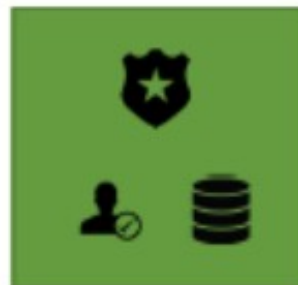
PERMISSIONLESS,
PUBLIC, SHARED
SYSTEMS



PERMISSIONED,
PUBLIC, SHARED
SYSTEMS



PERMISSIONED,
PRIVATE, SHARED
SYSTEMS



DATABASES

Cross Stakeholder Decentralization

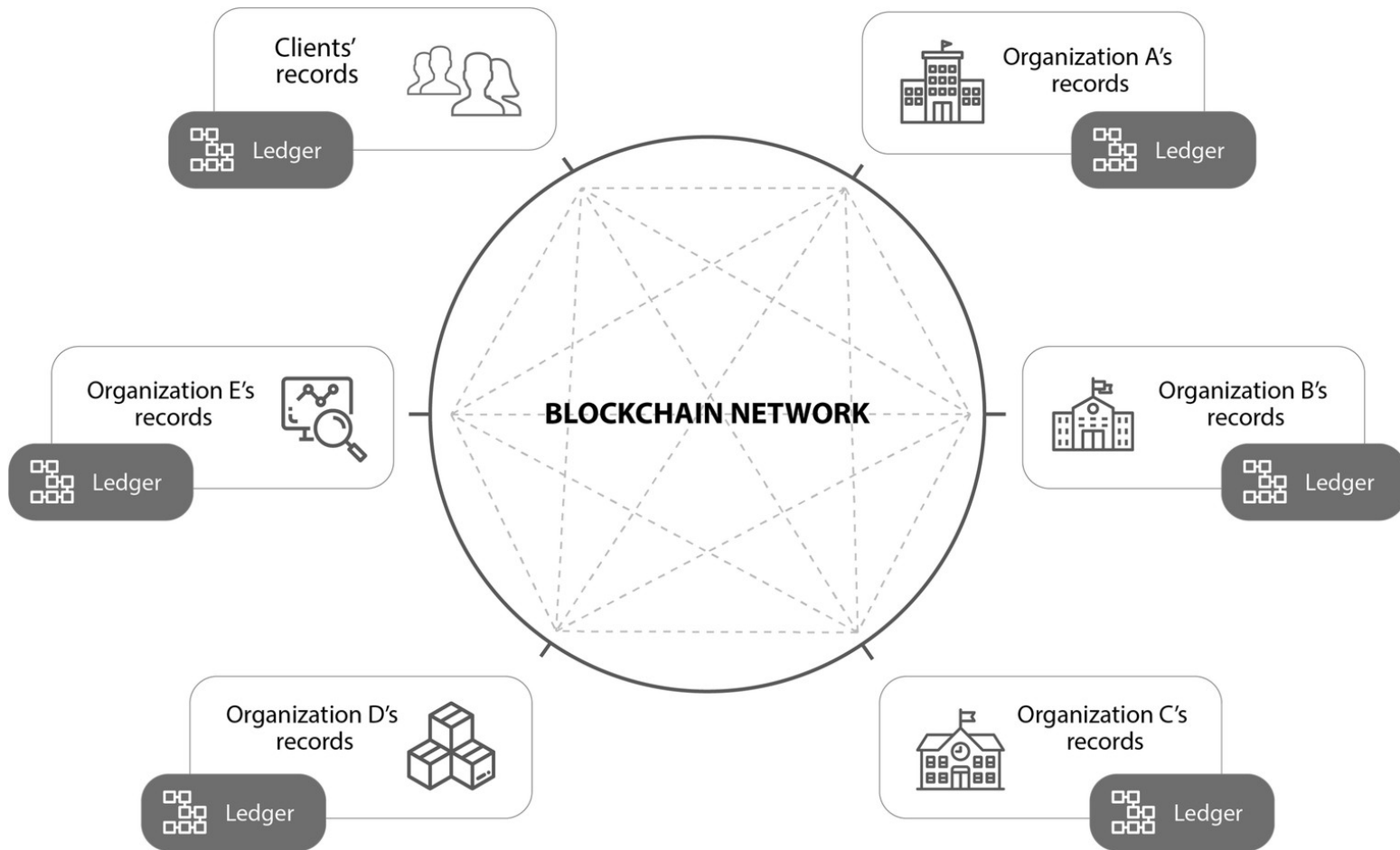
Imperial College
London

What is Blockchain?

DEFINITION

A blockchain is a highly secure and reliable network that records data in a distributed ledger that is not controlled by a central authority.

Source: <https://chain.link/education-hub/blockchain>

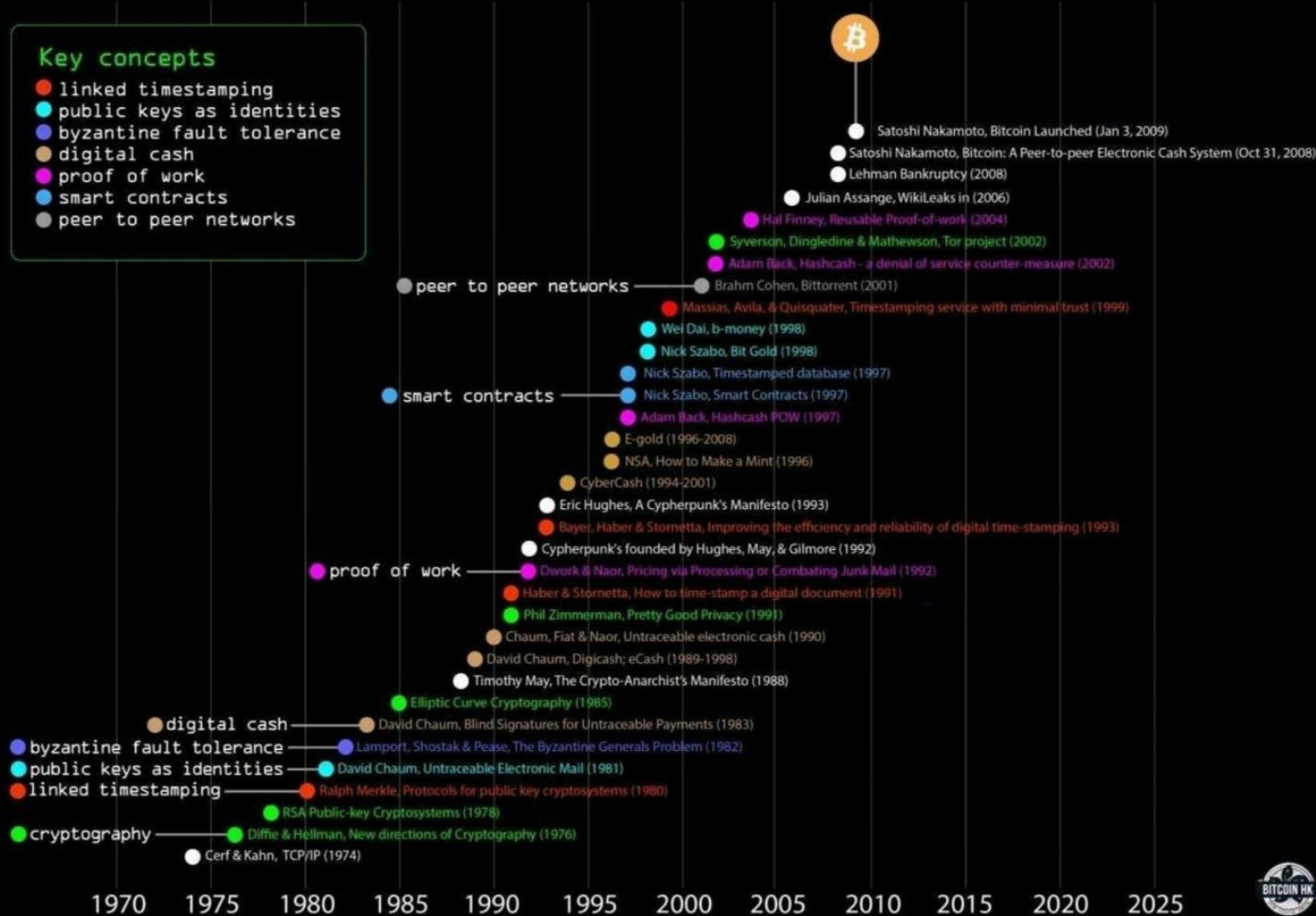


Source: <https://link.springer.com/article/10.1007/s11036-020-01649-6/figures/1>

Bitcoin and the rise of Cypherpunks

Key concepts

- linked timestamping
- public keys as identities
- byzantine fault tolerance
- digital cash
- proof of work
- smart contracts
- peer to peer networks



cliffc2

What is the purpose of Blockchain?

In all our agreements today, we have this issue of trust and promises.

Services, like
an oil change



Lottery



Bank



All these have trust assumptions

Source: <https://patrickalphac.medium.com/why-we-web3-bd21a5570019>

What is the purpose of Blockchain?

- “Unbreakable Promises”
 - Blockchain technology allows us to create agreements and promises that are effectively unbreakable, similar to the childhood ritual of the pinky swear.
 - Just as the pinky swear signified an unbreakable vow between friends, blockchain provides the tools to make trusted, permanent agreements.
 - Blockchain gives us the capability to establish commitments that do not require absolute trust between parties.
 - In a sense, we now have the technology to make pinky swears - symbolic unbreakable promises - actually binding and permanent.
 - Blockchain enables “**trust-minimized agreements**” that were not feasible before.



Source: https://en.wikipedia.org/wiki/Pinky_swear

What is the purpose of Blockchain?

- “Trust. Minimized. Agreements”
 - **Nick Szabo:** The man, the myth the legend.
 - His paper on Bit Gold and his conception of smart contracts. Bit Gold is seen as the precursor to bitcoin, which **Satoshi Nakamoto (pseudonym)** would go on to refine in **his/her/they** bitcoin whitepaper.
 - **Smart contracts**, Szabo first wrote about back in 1996, enable the execution of cryptocurrency transactions and underpin the viability of the entire field.
 - His philosophy as a whole – is the concept of ‘**trust-minimisation.**’ This posits the theory that, as a species which is optimised to best function in groups of no more than 150 individuals, we need to develop ways in which the need to trust strangers is kept to a minimum.
 - Quite simply, there wouldn’t be crypto without Nick Szabo’s work.



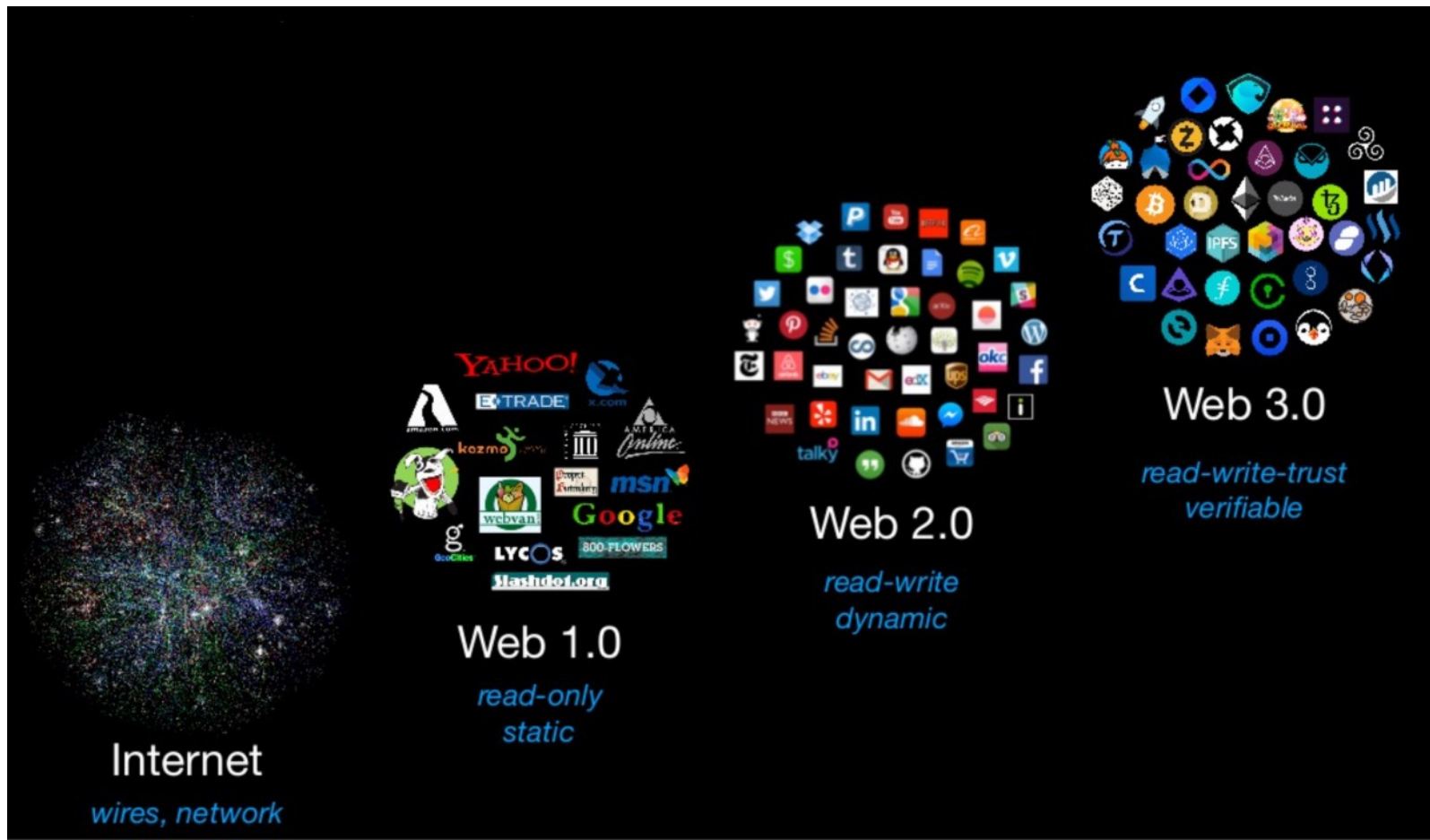
Source: <https://www.coinbureau.com/analysis/who-is-nick-szabo/>

What is the purpose of Blockchain?

- “Cryptographic Truth”
 - **Sergey Nazarov:** co-founder of Chainlink, a leading decentralized oracle network.
 - His thesis: Cryptographic truth will reshape societal agreements.
 - Blockchain technology creates a tamper-proof ledger.
 - Cryptographic truth can revolutionize trust and enforcement of agreements.
 - Benefits: Increased security, efficiency, transparency and accessibility.
 - Applicable to various domains: finance, supply chains, voting systems, legal contracts.
 - The 4 pillars of good governance.
 - Sergey Nazarov and former Google CEO Eric Schmidt discussing the future of **Web3**.



Source: <https://blog.chain.link/smartcon-2022-recap/>



Source: <https://www.linkedin.com/pulse/evolution-web-how-web3-changing-internet-we-know-ryan-kirkley/>

What is a Smart Contract?

DEFINITION

A smart contract is a tamper-proof program that runs on a **blockchain network** when certain predefined conditions are satisfied.

- A smart contract is an agreement that is deployed to a decentralized blockchain, and unlike traditional agreements, once a smart contract is deployed, it:
 - Cannot be altered (is immutable)
 - Automatically executes
 - Everyone can see the terms of agreement



Source: <https://chain.link/education/smart-contracts>

What is SHA-256?

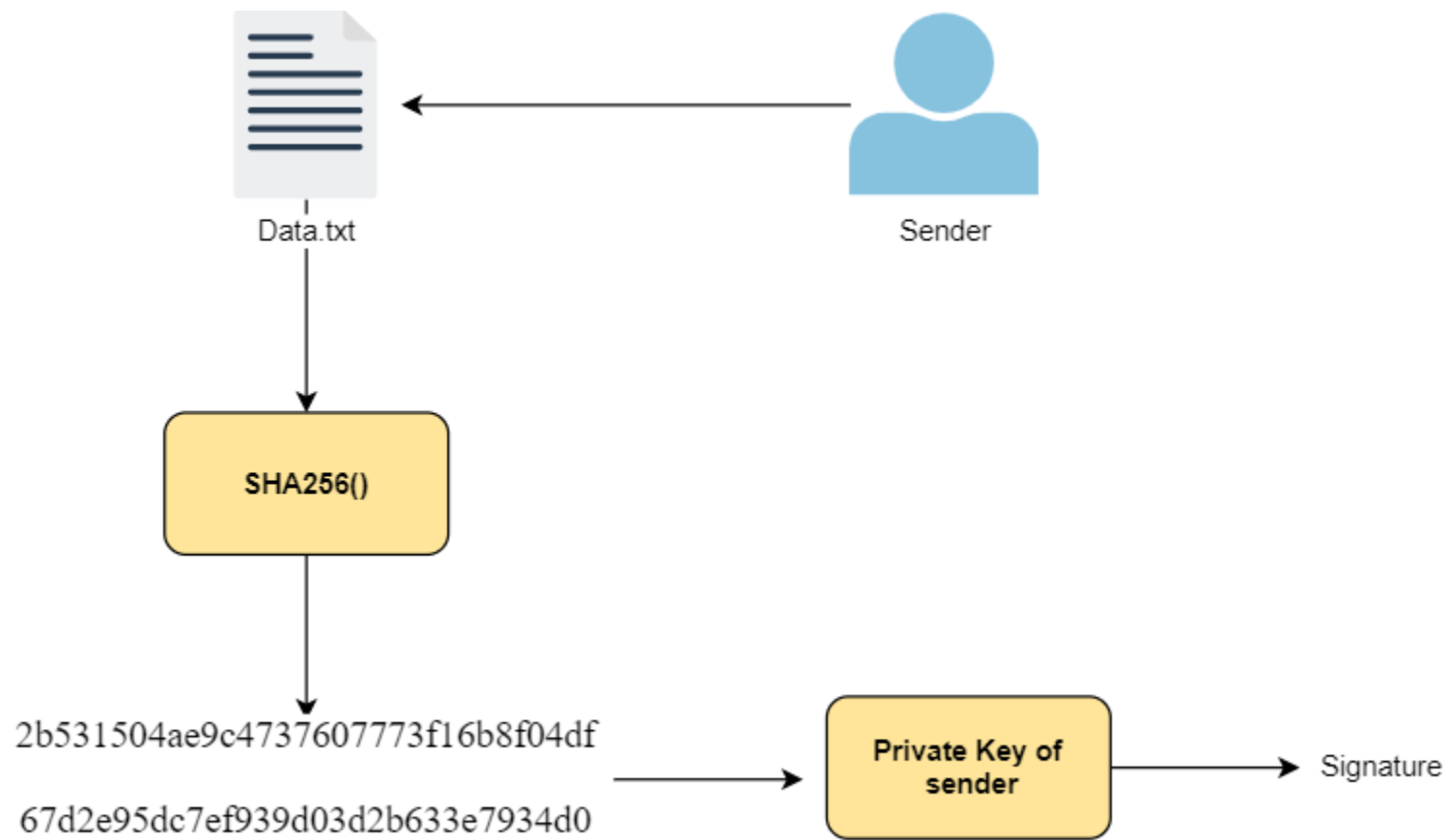
A secure hashing algorithm or commonly referred to as SHA-256, is an unkeyed cryptographic hashing function that takes an input of variable length and produces a 256-bit long hash output.

Uses of SHA-256 in blockchain

SHA-256 is one of the first and most prominently used hashing algorithms in blockchains like Bitcoin, Bitcoin Cash, and Bitcoin SV. SHA-256 is used in various stages in a blockchain, most prominently:

- **Consensus mechanism:** Miners calculate the hash of new blocks to be created using SHA-256 by varying the value of nonce in a bitcoin block until they reach the hash below the threshold. Then that block can be accepted into the ledger.
- **Chains of blocks:** Each block in the ledger contains a hash generated by SHA-256 referring to the preceding block in the chain.
- **Digital signatures:** Transactions use digital signatures to maintain integrity, the information used in the transaction is hashed using SHA-256, and then it is encrypted with the sender's private key to generate a signature. The miner then verifies this signature to validate the transaction.

Source: <https://www.educative.io/>



Cryptographic Truth is Strictly Better than “Just Trust Us”

“Just Trust Us” Paper Promises

- Control is completely given away
- Counterparty risk is high and opaque
- Transparency is purposefully removed

Cryptographic Truth Guarantees

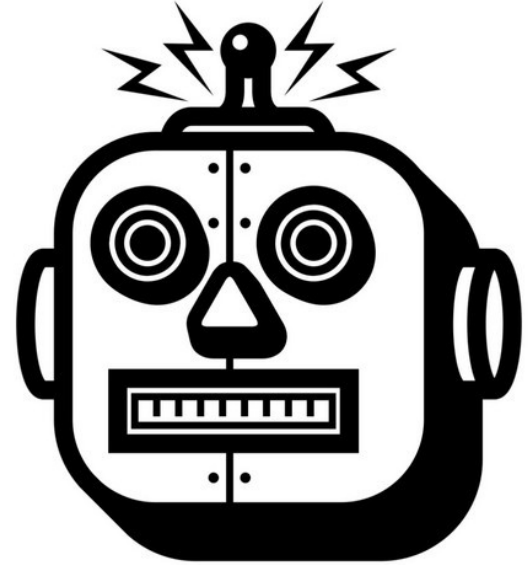
- Control is in the user’s hands
- Counterparty risk is low and transparent
- Transparency is unavoidably built-in



**STOP HERE
TO REFUEL**
(TAKE OUT AVAILABLE)

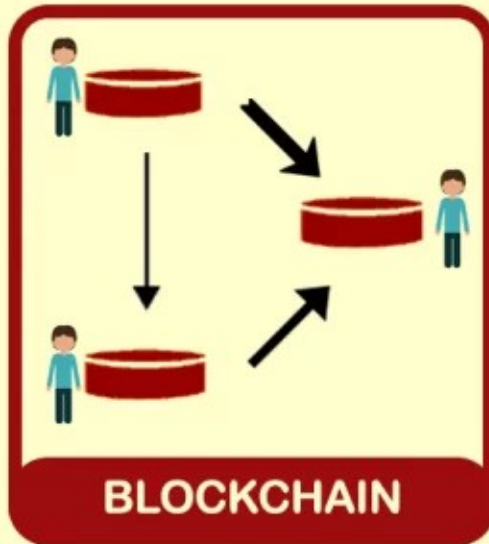
How does Blockchain work?

- The 4 Generals Problem and Byzantine Fault Tolerance are two concepts related to distributed systems and consensus algorithms.
- So, let's ask AI?
 - **Prompt>** Hello AI, can you explain the relativity of the 4 generals problem and Byzantine Fault Tolerance to how Blockchain works? Step by Step
 - **Prompt>** Thank you AI, can you give me a breakdown of how blockchain works? Step by step



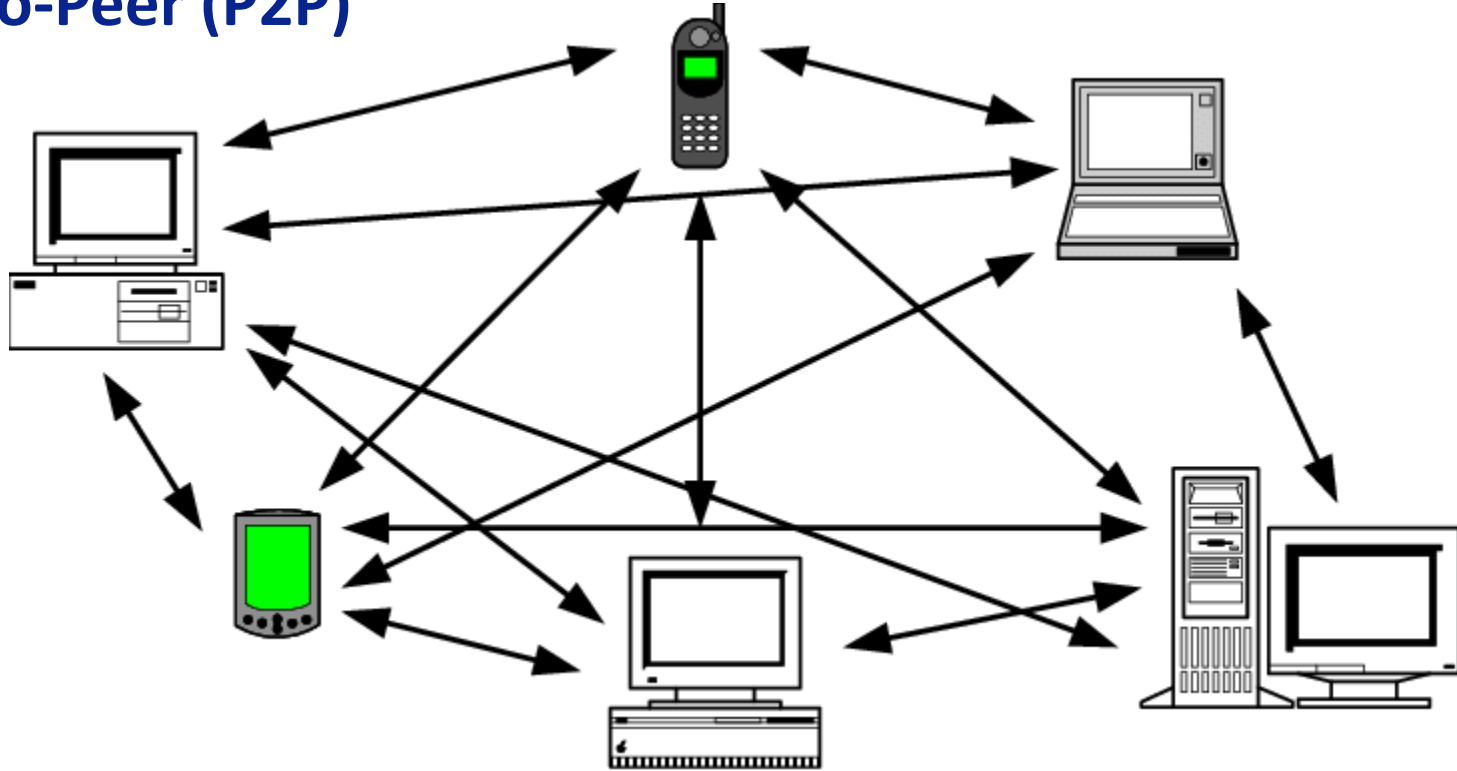
Let's Talk AI

CENTRALIZED DATABASE VS BLOCKCHAIN



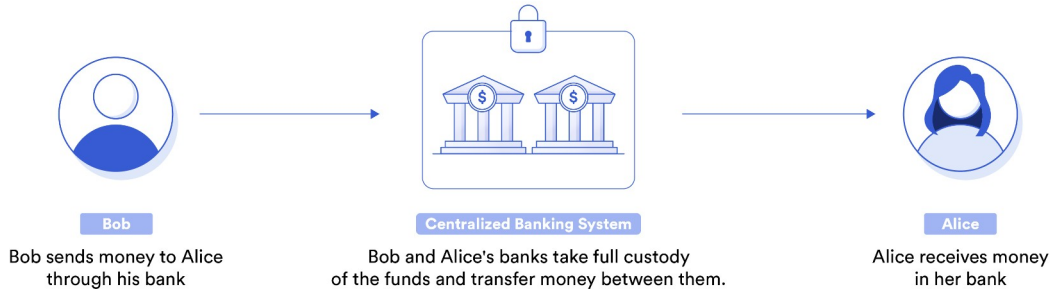
How does Blockchain work?

Peer-to-Peer (P2P)

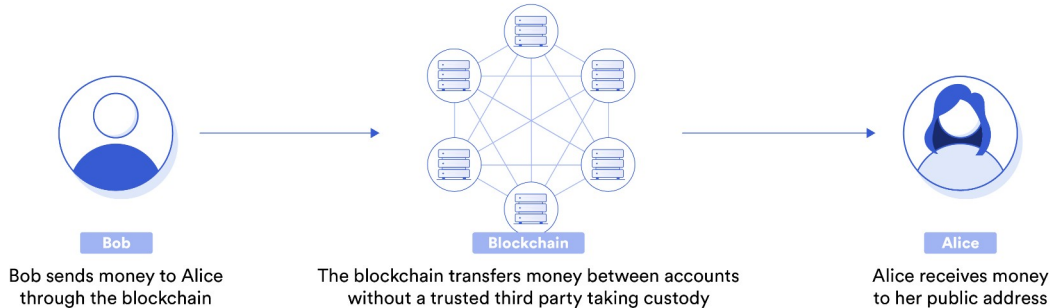


How does Blockchain work?

Centralized transaction

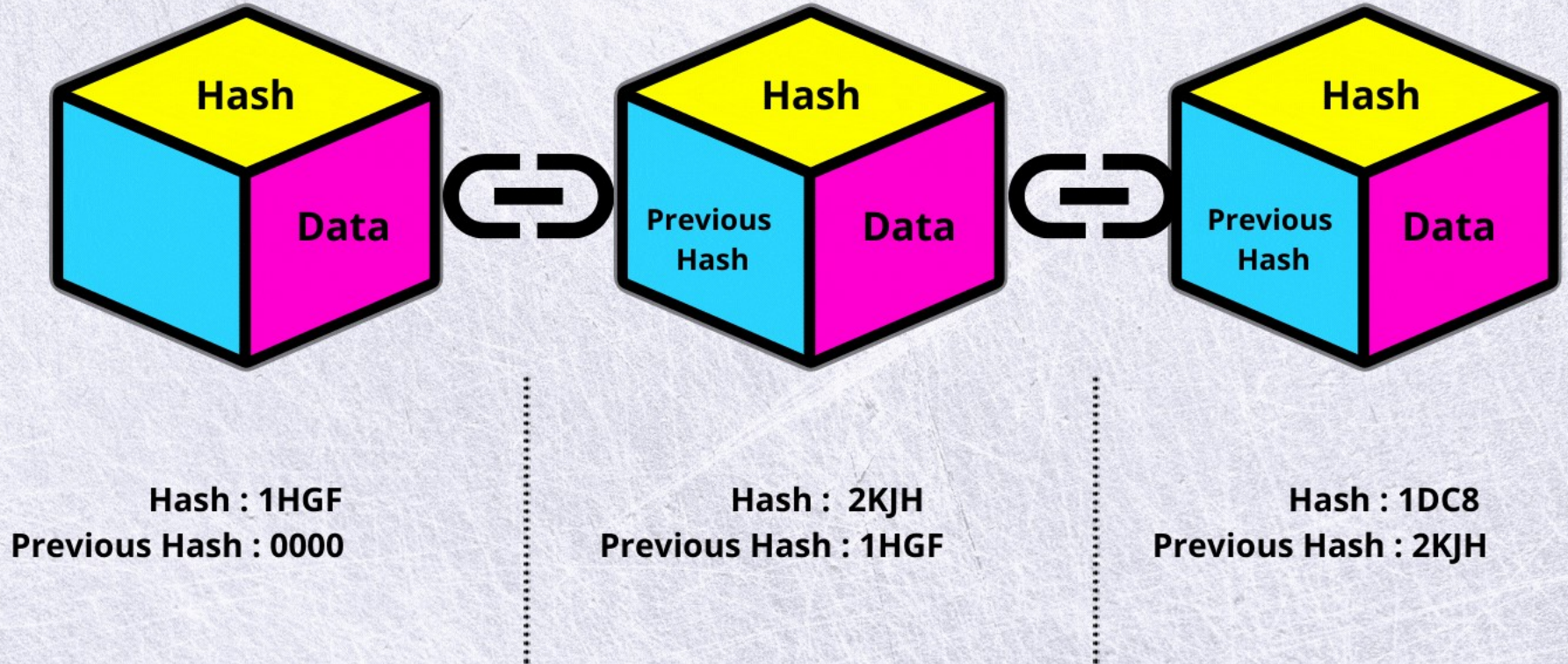


Decentralized transaction



Source: <https://chain.link/education-hub/blockchain>

Genesis Block



Practical Session

- Blockchain Demo - <https://demoblockchain.org/hash>

Blockchain

Block: # 1

Nonce: 11316

Data:

Prev: 00

Hash: 000015783b764259d382017d91a36d206d0600e2

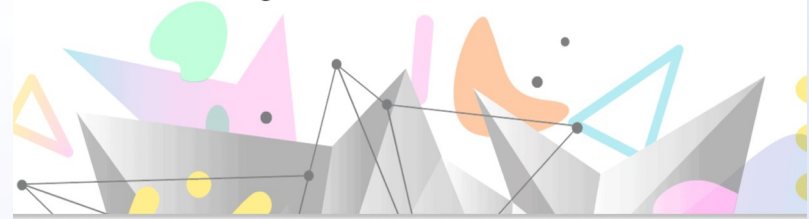
Mine

- MetaMask - <https://metamask.io>



MetaMask

Your bridge to the decentralized web

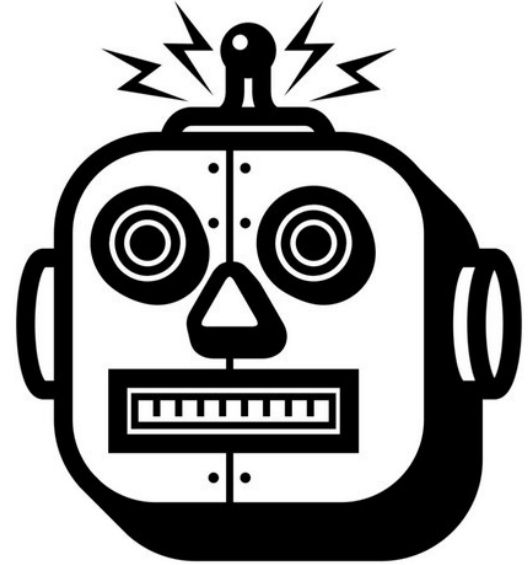




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Applications of Blockchain

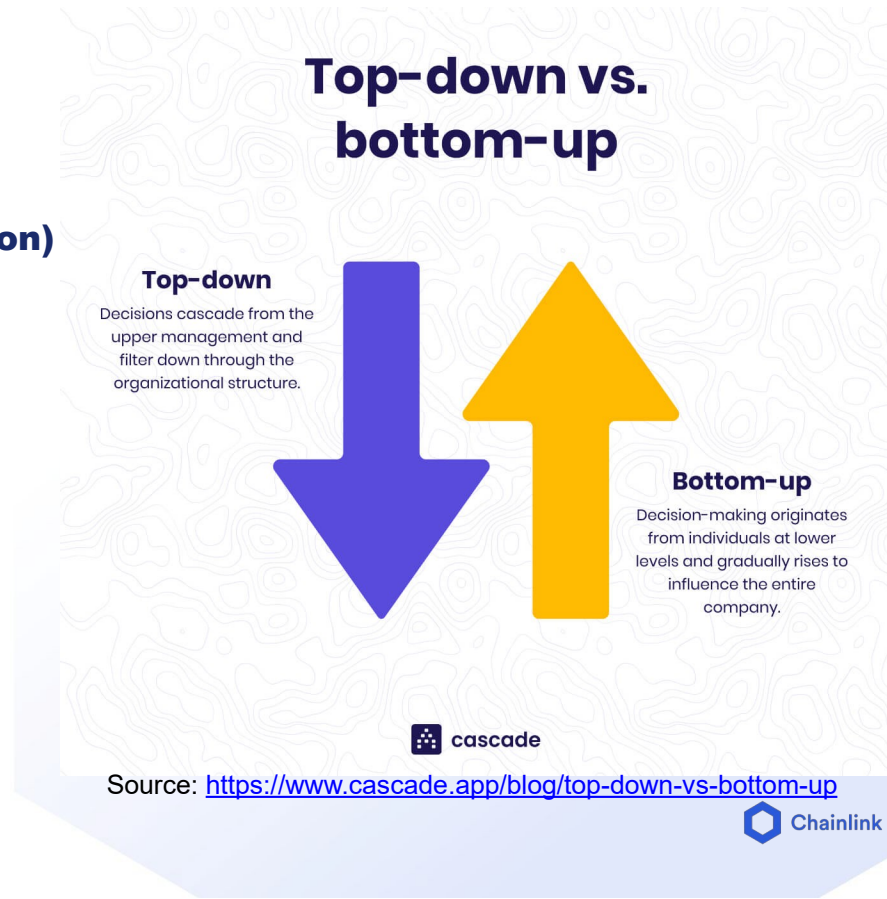
- What is Adoption?
- So, let's ask AI?
 - **Prompt>** Hello AI, can you explain the meaning of "Adoption" in an organisation? Step by Step



Let's Talk AI

Applications of Blockchain

- What is Adoption?
 - **Accepting**
 - **Emracing**
 - **Starting to use something (Ultimate Decision)**



Meaning of Adoption in an Organisation



Meaning of Adoption in an Organisation



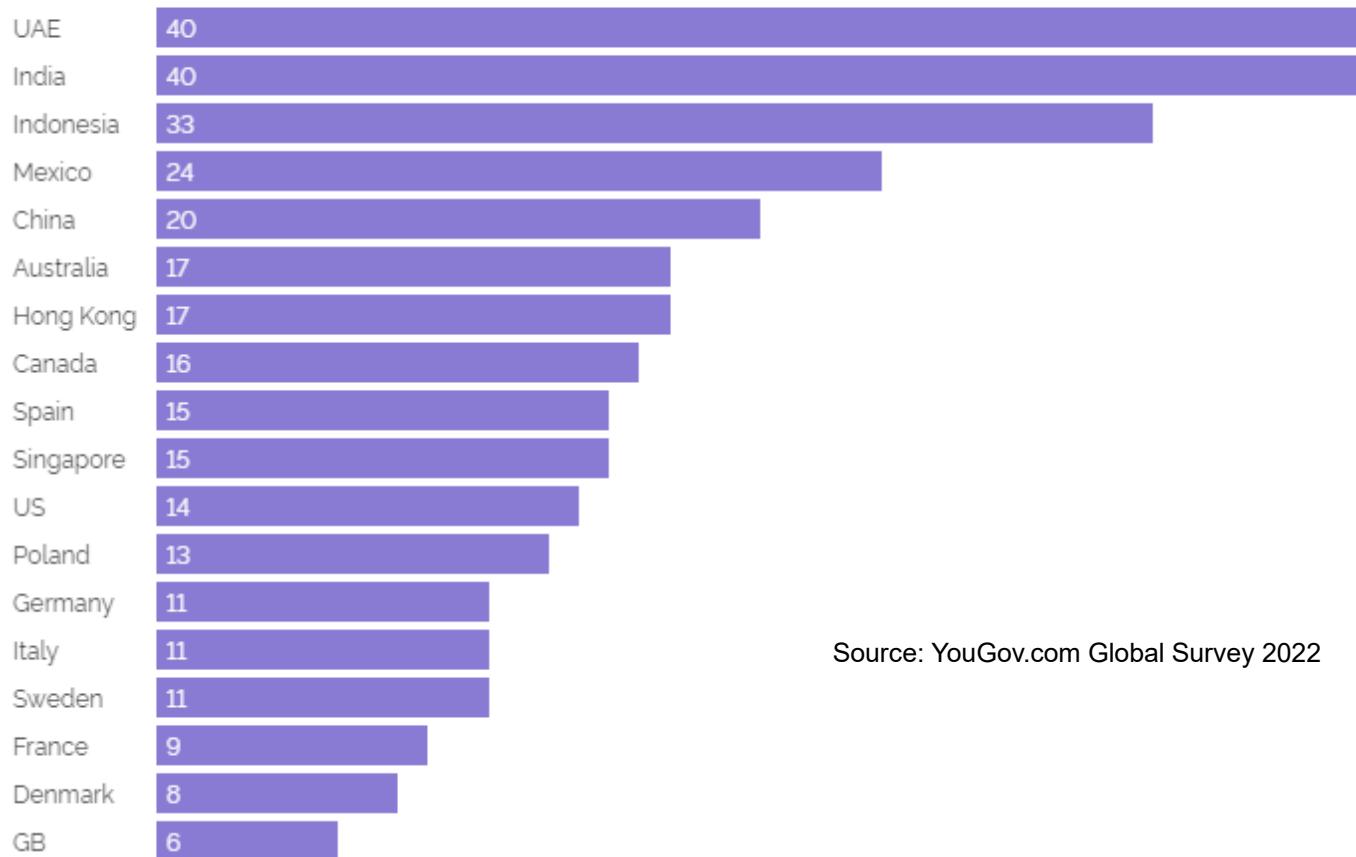
MARCH 30TH, 2022, SONIKA CHOUBEY

Two-thirds of UAE adults are interested in cryptocurrency, with young adults showing most interest

Source: <https://business.yougov.com/content/41850-two-thirds-uae-adults-are-interested-cryptocurrenc>

UAE leads the globe in terms of trust in cryptocurrencies

To what extent would you say you trust each of the following financial services companies?.....% of respondents who said they trust cryptocurrency



Source: YouGov.com Global Survey 2022



About the UAE > Digital UAE > Digital technology > Blockchain in the UAE government

Blockchain in the UAE government

Blockchain is a shared immutable real-time ledger for recording the history of financial transactions, contracts, physical assets, supply chain info, etc. The UAE Government adopted blockchain technology in conducting its transactions. To aid this move, it launched the Emirates Blockchain Strategy 2021 and Dubai Blockchain Strategy. Dubai Future Foundation established the Global Blockchain Council to explore, discuss current and future applications and organise transactions through the blockchain platform.

Source: <https://u.ae/en/about-the-uae/digital-uae/digital-technology/blockchain-in-the-uae-government>

AWARENESS.

"Dubai [will be] the first city fully powered by Blockchain"

3 strategic pillars
Government Efficiency,
Industry Creation,
International Leadership.

دبي الرقمية
DIGITAL DUBAI



Dubai wants to become a global tech hub
– and it's betting on crypto to get it there

Source: Dubai Future Blockchain Summit, 2022. Dubai Future Blockchain Summit is a global event that will bring together industry leaders, government officials, and investors to discuss the future of blockchain technology in Dubai and the UAE. The summit will focus on three main pillars: Government Efficiency, Industry Creation, and International Leadership. The summit will also feature a series of workshops and panels on various blockchain topics, including digital identity, digital assets, and digital governance. The summit is expected to attract a large number of participants from around the world, making it a key event for the blockchain community in the region.

Mena region is 'world's fastest-growing
cryptocurrency market'

Source: PwC Middle East, 2022. PwC Middle East has identified the MENA region as the world's fastest-growing cryptocurrency market, driven by a combination of factors including government support, increasing awareness, and a growing number of blockchain-based businesses.

Dubai's Future Blockchain Summit to create
global business opportunities for Web3
Innovators

20-2000000000

UAE's Future Blockchain Summit to address all
things Blockchain in Dubai from tomorrow

The UAE's first Future Blockchain Summit is set to host an impressive lineup of industry leaders and

Source: PwC

Source: PwC



DUBAI METAVERSE STRATEGY

Objectives

x5

To the number of
blockchain and metaverse
companies in 5 years

40K

Metaverse to support
40,000 virtual jobs and add
\$4 billion to Dubai's
economy in 5 years

#1

Become #1 in the region and one of top
10 cities globally in terms of metaverse
economy

pillars

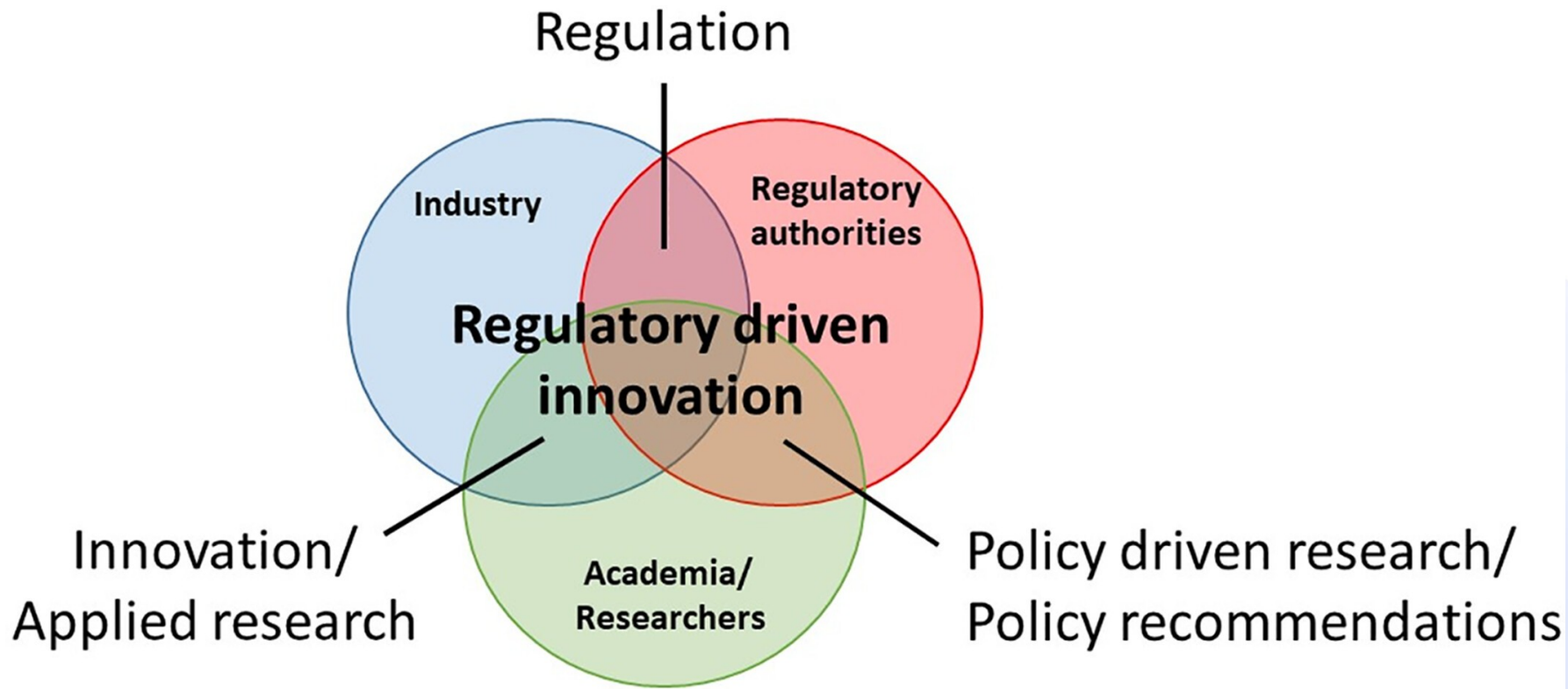
Foster
Metaverse
Innovation
and Economic
Contribution

Cultivate
Metaverse
Talent
Through
Education and
Training

Develop
Metaverse
Use-cases and
Applications
in Dubai
(Sector-led)

Adoption, Scaling and Global Adoption of Web3 Platforms

Infrastructure and Regulation Readiness

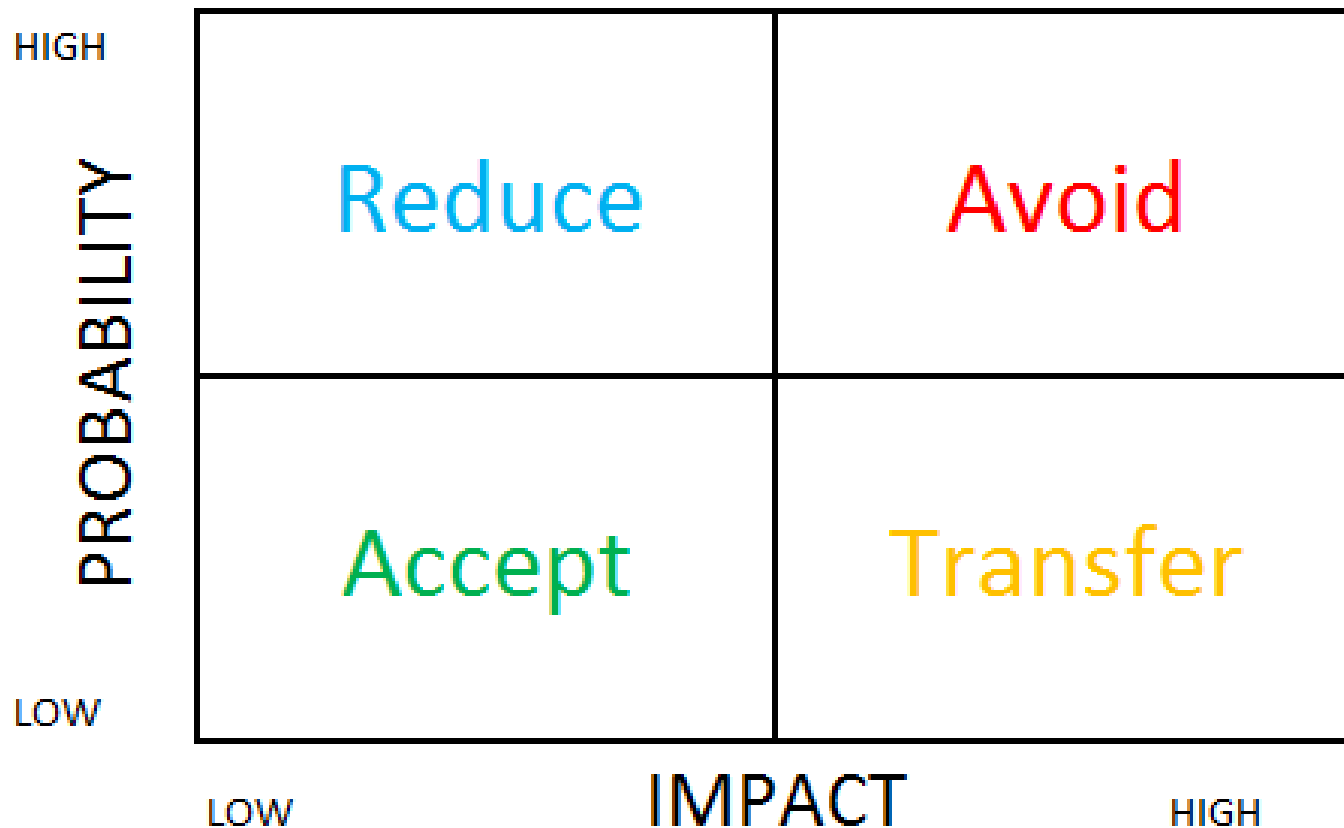


Source: The innovation triple helix depicting the processes of regulatory driven innovation. Modified from Zhou and Etzkowitz (2021)

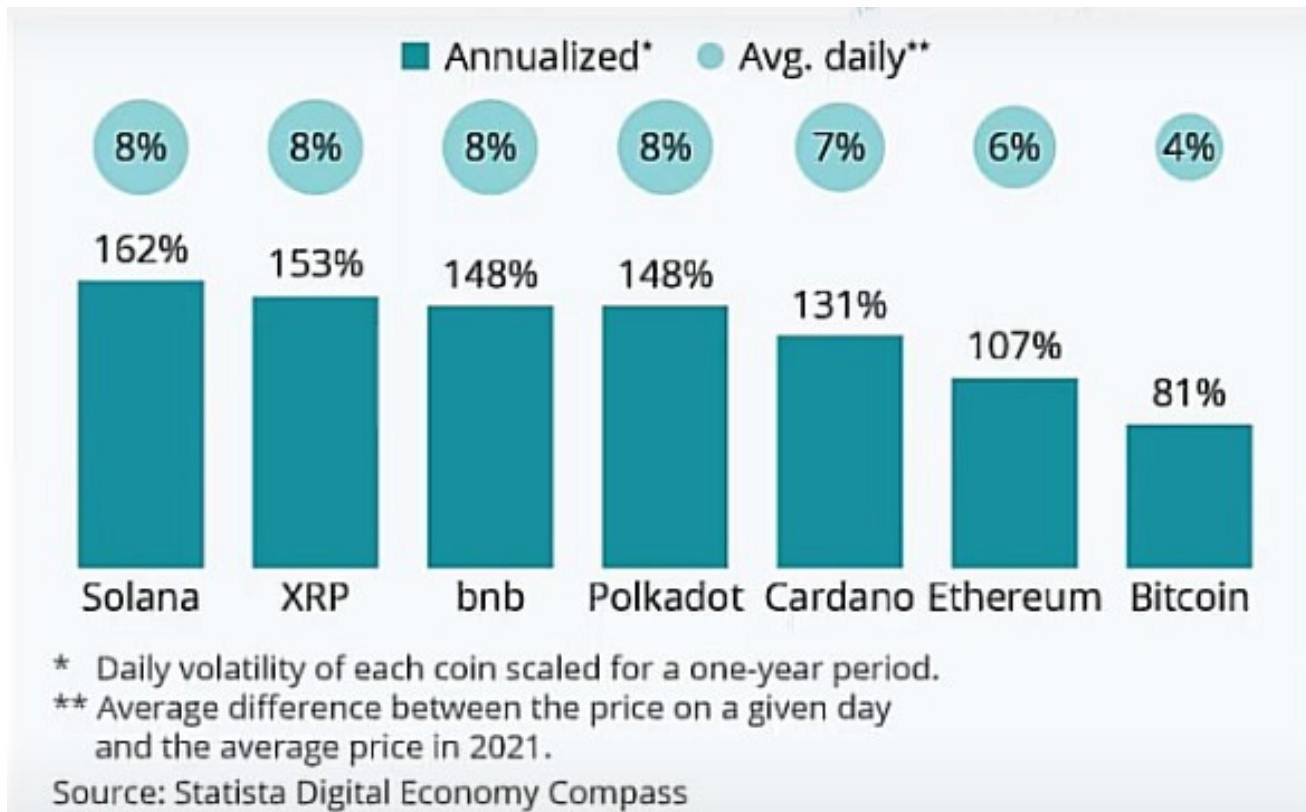
Meaning of Adoption in an Organisation



The TARA framework is a tool that can be used to assess and manage risk



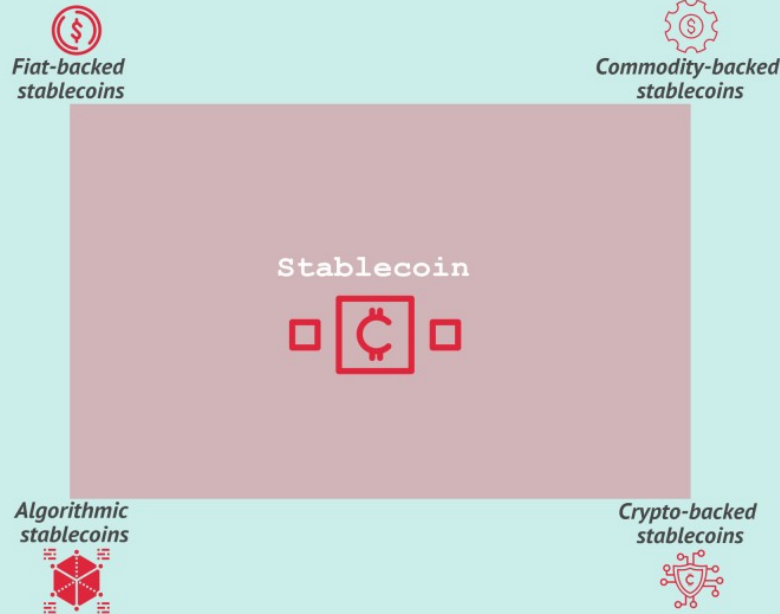
Volatility is the enemy of any business



Volatility is the enemy of any business

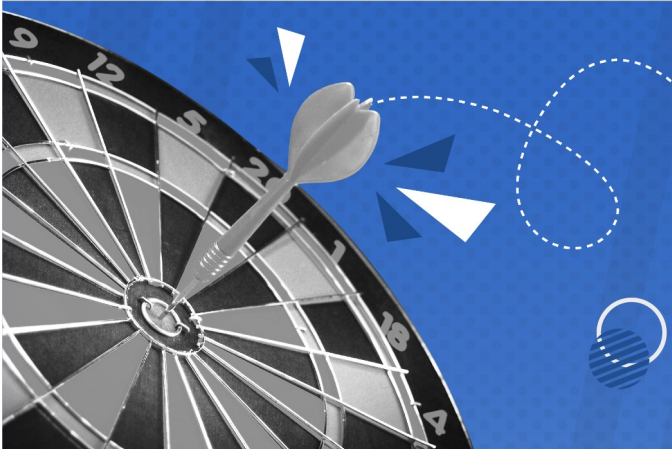
What Are Stablecoins?

Stablecoins are a type of cryptocurrency whose value is tied to an external asset to reduce volatility. Therefore, the value of a stablecoin is linked to the much more stable value of fiat currency – or government-issued currency such as dollars or euros. Thus, reducing the price volatility of the cryptocurrency to make it more appealing for transactions.



Avoid High Risky Projects

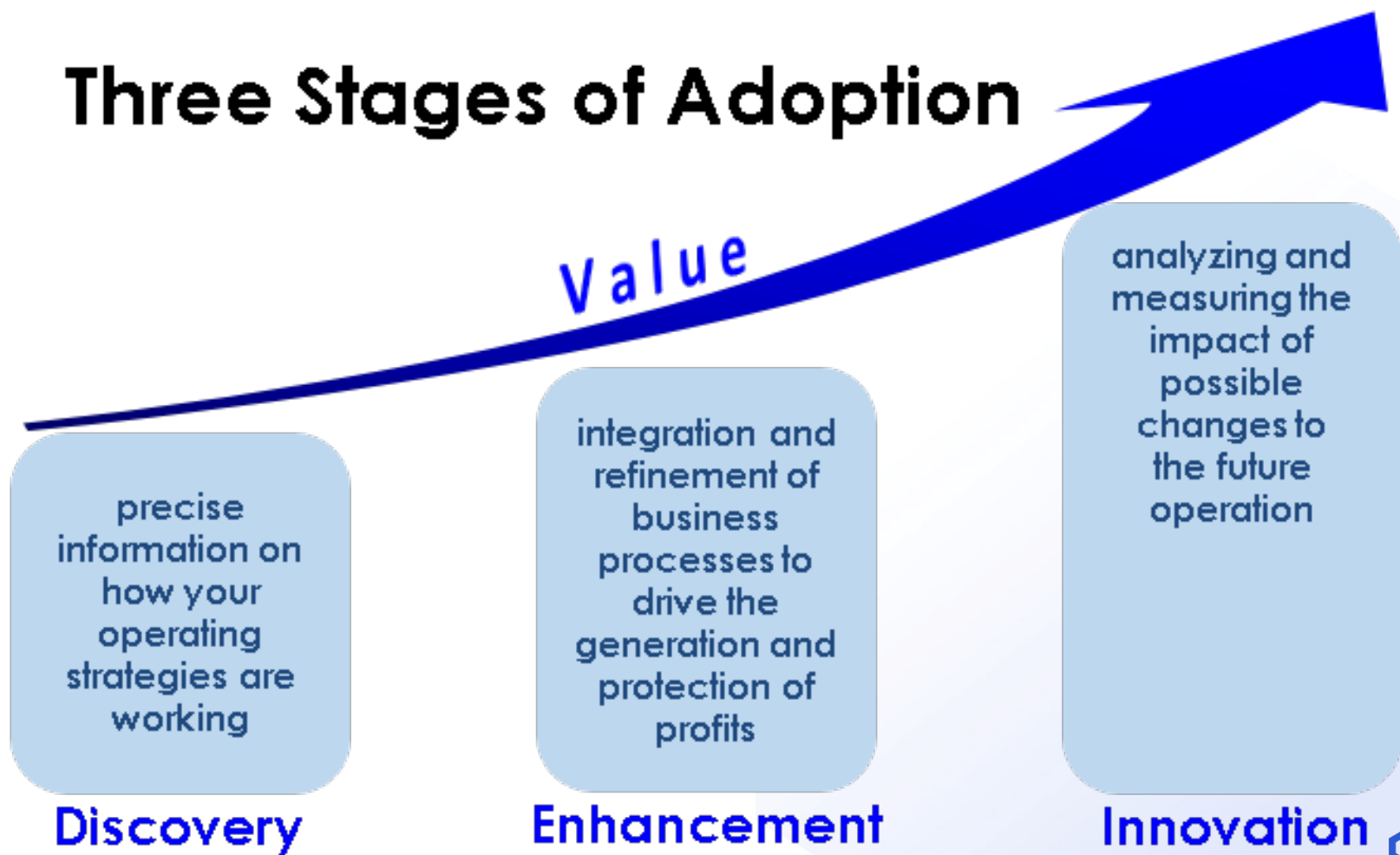
- Organisations will adopt Blockchain Projects that are:
 - **Low Risk**
 - **Closer to the Core**



Meaning of Adoption in an Organisation



Three Stages of Adoption



Applications of Blockchain in the Pacific Islands



[ID](#) | [Voyager Pass](#) | [Docs](#)

Palau ID

Digital Residency Program

- Identity verifications
- KYC for \Rightarrow of \$ € £ / ₮ ₪ ₪...
- + 180 days stay per entry
- 0% tax imposed for outside-of-Palau income

[Apply Now for \\$248](#)

[Palau ID Guide](#)

[FAQs](#) | [Voyager Pass redemption guide](#)

A digital representation of a Republic of Palau Identification Card. It features the Palau flag (yellow and blue with a white sun) and the text 'Republic of Palau Identification Card'. Below this is a photo of a man with a beard and a blue shirt, and a series of horizontal lines representing a digital ID or passport data.

Source: <https://rns.id>

Applications of Blockchain in the Pacific Islands



Reimagine

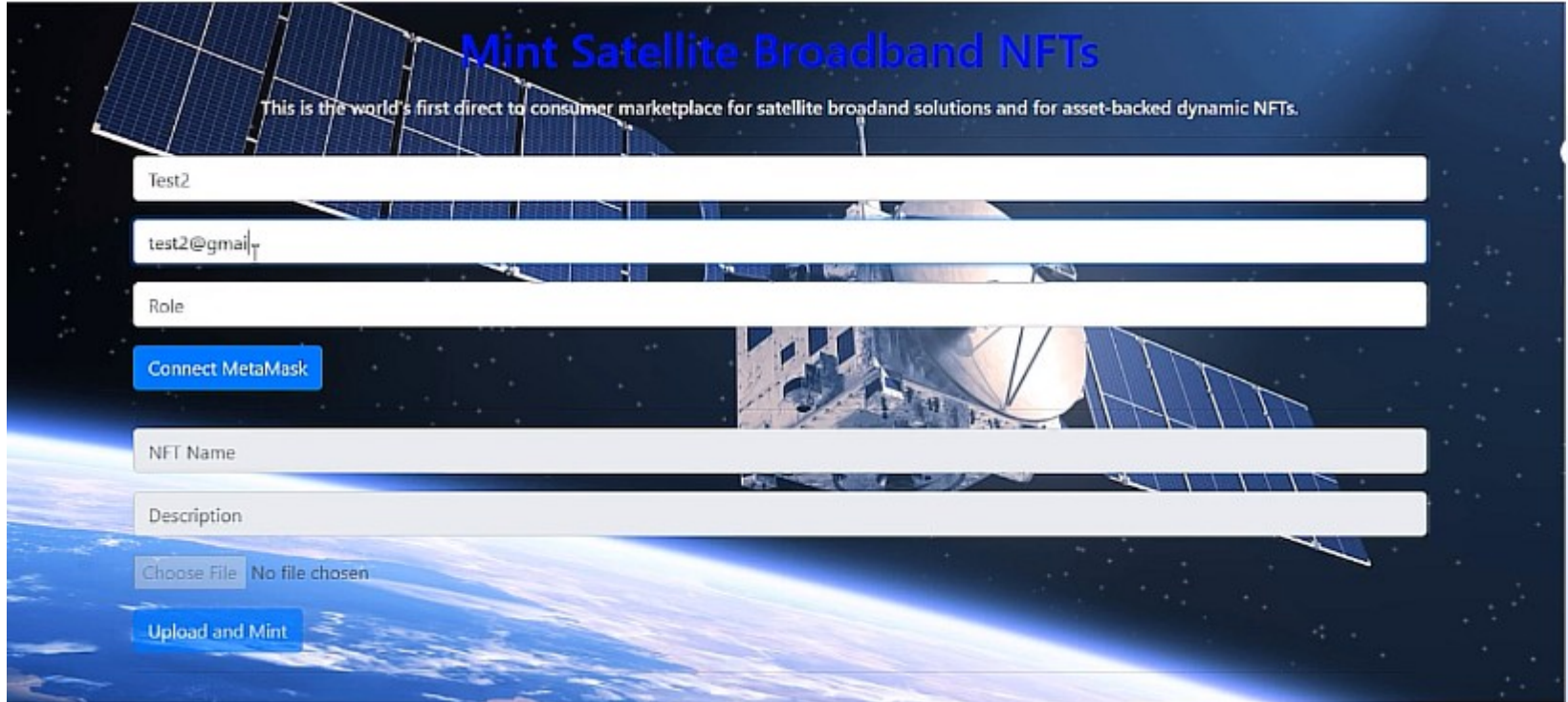
Transforming Pacific Fisheries & Agriculture through Collaborative, Transparent, Traceability.

Our approach

Our solutions

Source: <https://www.traseable.com>

Applications of Blockchain in the Pacific Islands



Mint Satellite Broadband NFTs

This is the world's first direct to consumer marketplace for satellite broadband solutions and for asset-backed dynamic NFTs.

Test2

test2@gmail

Role

Connect MetaMask

NFT Name

Description

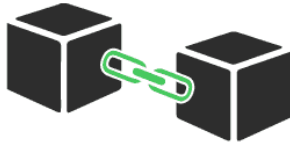
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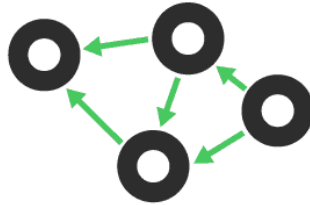
Source: <https://devpost.com/software/blockchain-chainlink-satellite-broadband-supply-chain>

Conclusion

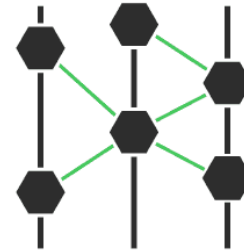
Types Of Distributed Ledger Technologies



Blockchain






Directed Acyclic
Graph



Hashgraph

Distributed Ledger Technologies Compared

| |  Blockchain |  DAG |  Hashgraph |
|-------------------------------------|---|---|--|
| Transactions per second | 7 | Potentially unlimited | 250,000+ |
| dApps support | Yes | No | No |
| Tested under real market conditions | Yes | Yes | No |
| Patented | No | No | Yes |

The Properties of Distributed Ledger Technology (DLT)

Programmable

A blockchain is programmable (i.e. Smart Contracts)

Secure

All records are individually encrypted

Anonymous

The identity of participants is either anonymous or pseudonymous

Unanimous

All network participants agree to the validity of each of the records

Distributed

All network participants have a copy of the ledger for complete transparency

Immutable

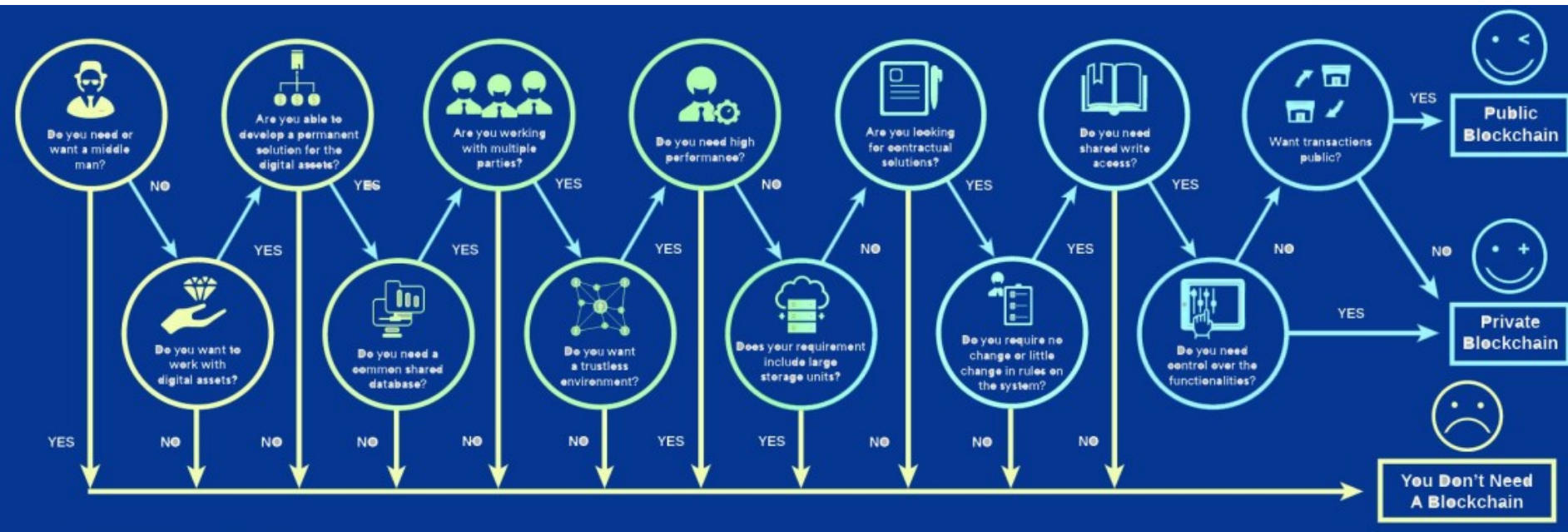
Any validated records are irreversible and cannot be changed

Time-stamped

A transaction timestamp is recorded on a block

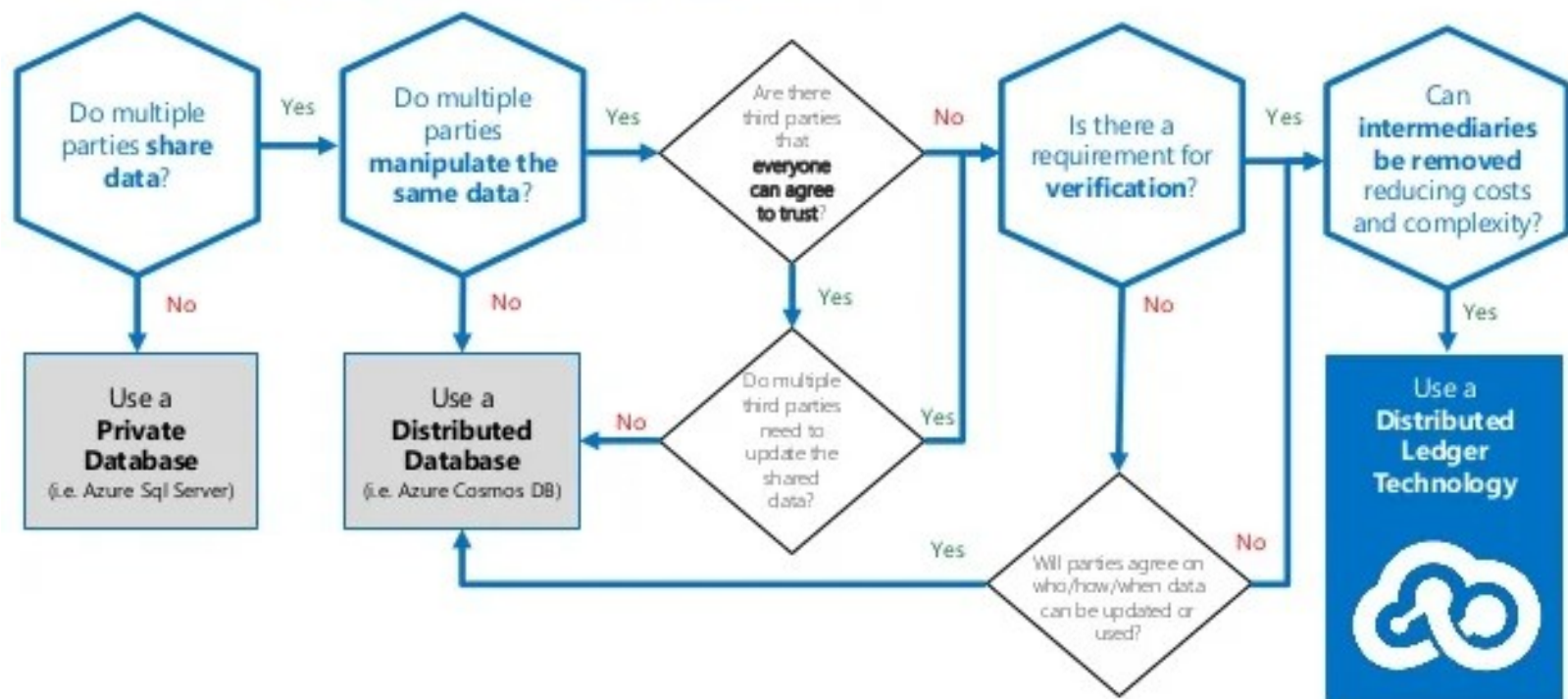


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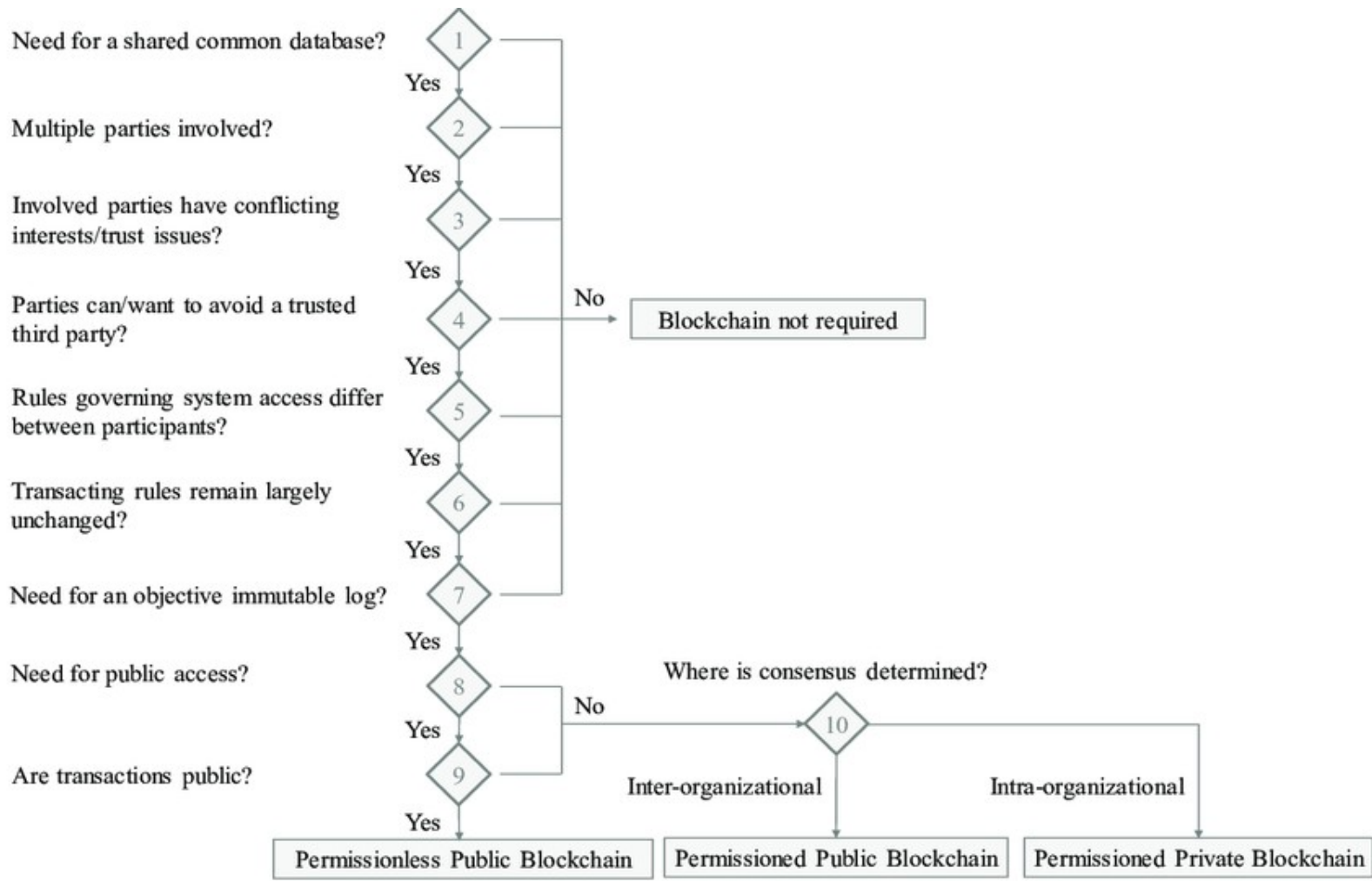


Source: Blockchain Council <https://www.blockchain-council.org>

When to use blockchain?



Source: <https://www.slideshare.net>



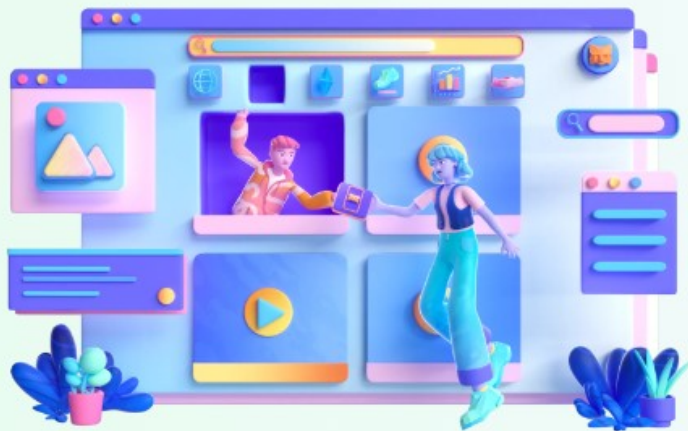
Source: https://www.researchgate.net/figure/Overview-of-the-Blockchain-Decision-Path_fig5_333545589

Homework Practical Session – Web3 101

- <https://learn.metamask.io/overview>

The Web3 101 Course

Our world is increasingly digital and interconnected. It's taking place on devices: our screens are our windows, our data is our identity, and more and more of our lives take place online.



The Genie is out of the bottle



- **Any Web3 Wishes?**

- **Would you like to learn more about Smart Contracts?**
- **Would you like to learn more about Chainlink?**
- **Would you like to learn more about Crypto?**

