Tokenomics

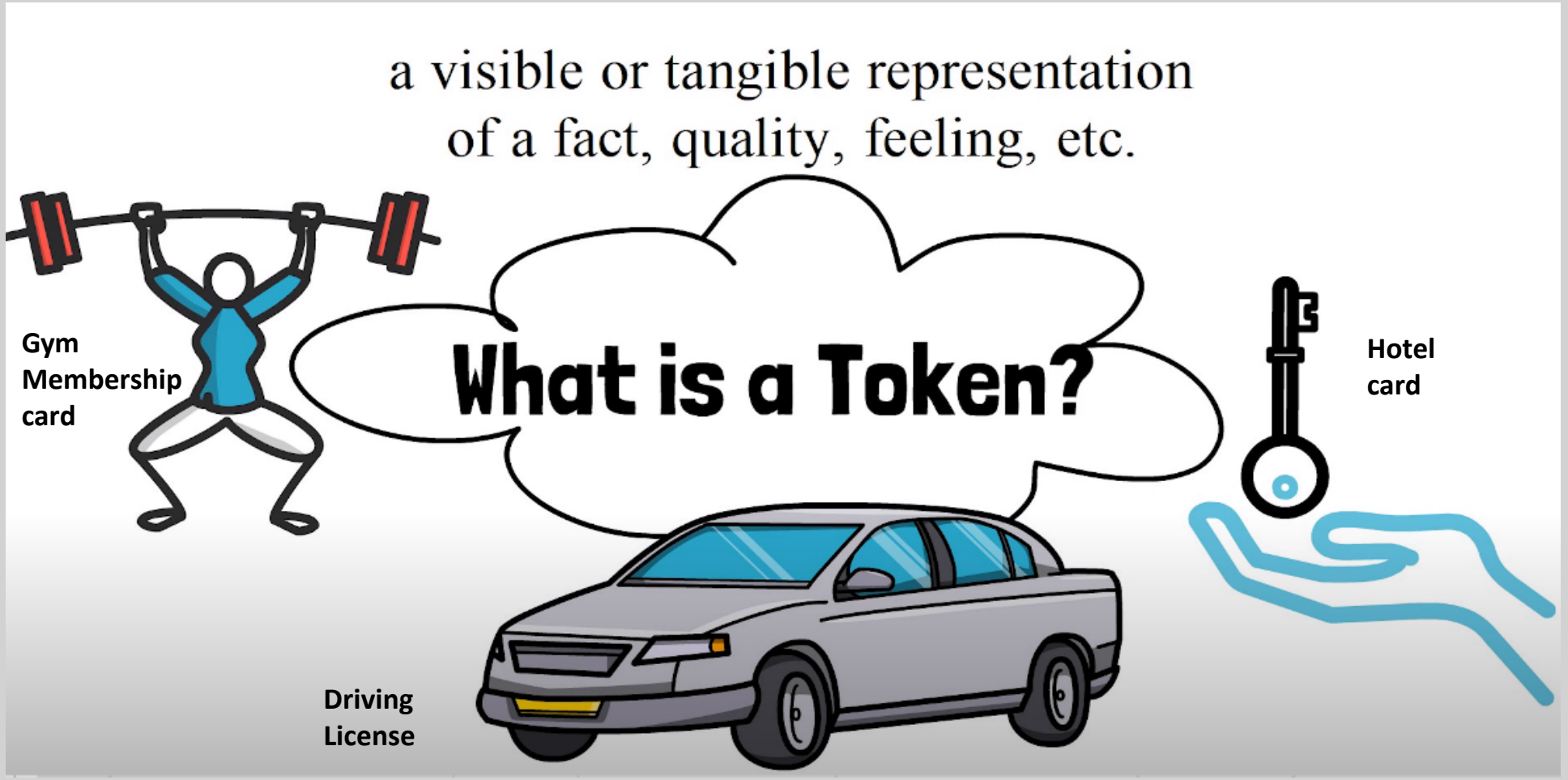
Understanding Token Economics

What is a Token?

- A Token is a digital asset built on an existing blockchain.
- They are commonly used as incentive tools in applications and help create more user-centric business model
- Token incentives are used to manage behavior and reward positive actions

“A unit of value that an organization creates to self-govern its Business Model and empowers its users to interact with its product while facilitating the distribution and sharing of rewards and benefits to all its stakeholders.”

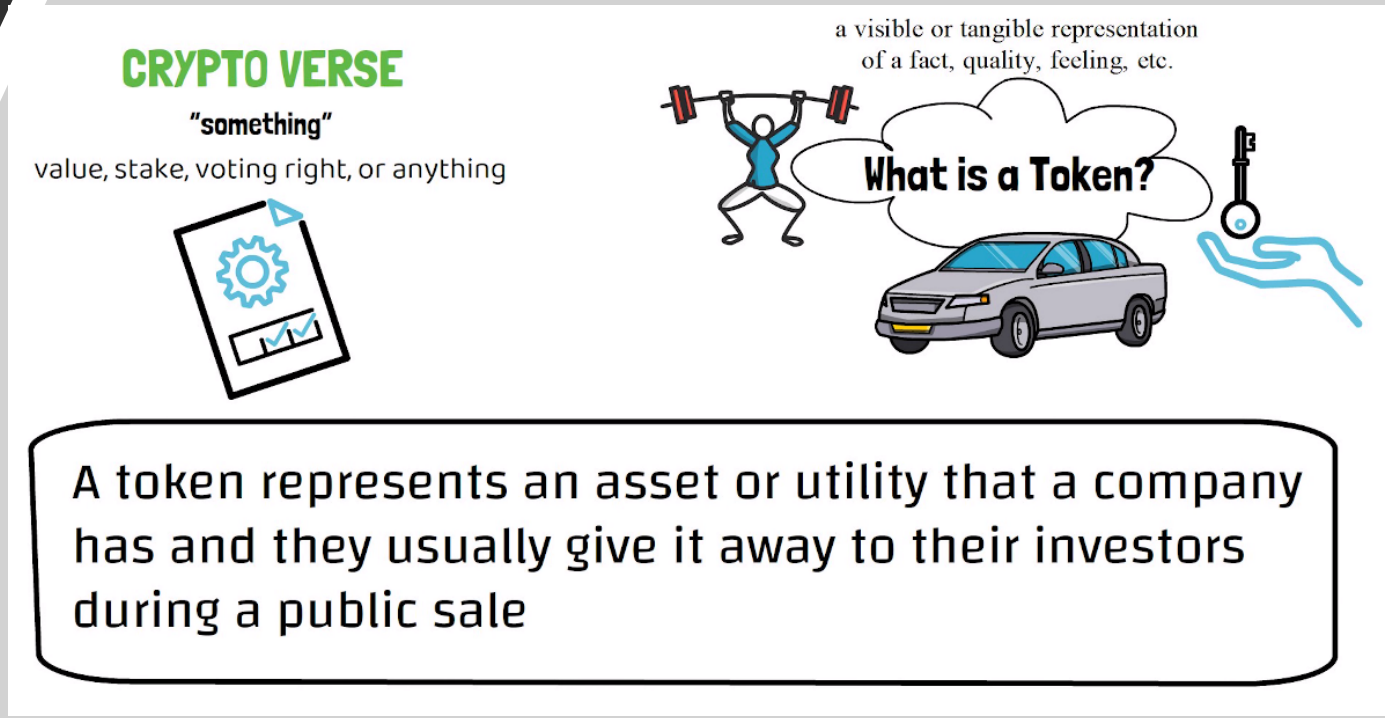
What is Token?



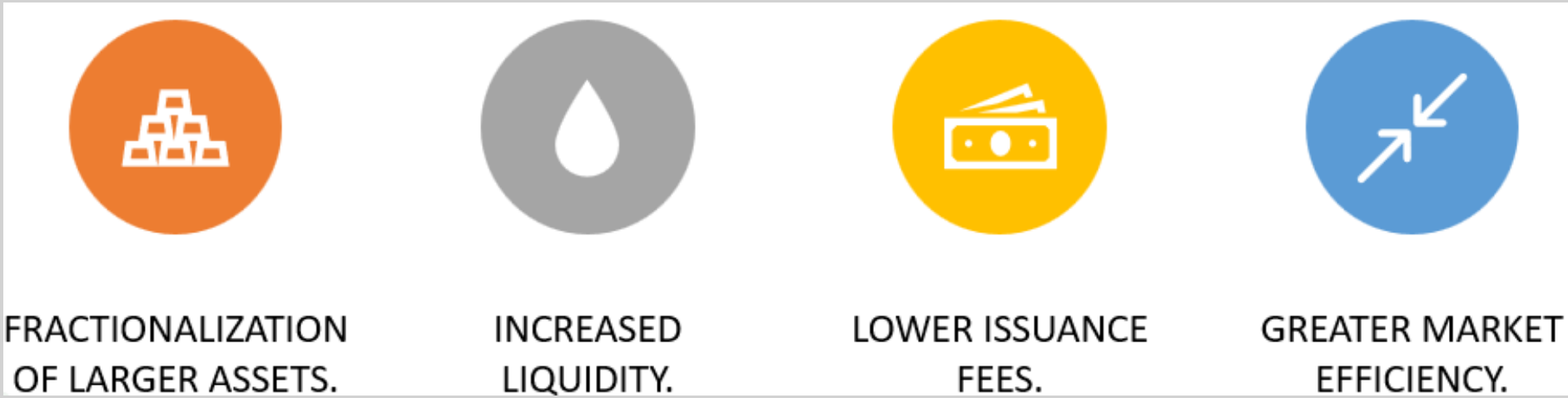
What are Tokenomics?

Token gives access to an ecosystem, i.e. bus pass (Utility, Tickets, Equity, Asset tokens etc)

Coin is used to pay transaction fees in a system (cryptocurrencies)



Why Tokenize



Token usage in Company / DAO

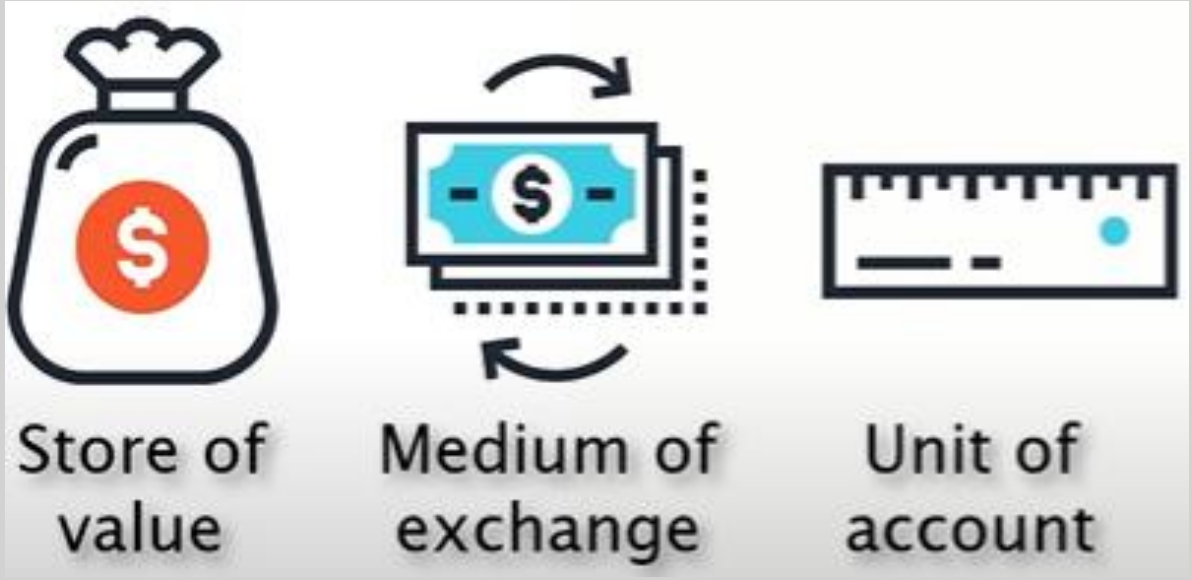
- Unlike centralized apps where there is more active governance

  i.e. a manager telling you to do something, in decentralized systems

  all you have are passive Tokenomics incentives.
- In an application like Facebook every eyeball is monetized but the earnings are fully controlled by a centralized company. On the other hand, inventized Social media like Steemit used tokens to give back the value of their time and likes using a token
- Essentially creating an internal user economy based on their use case.
- The idea is when you reward users your business will grow exponentially

Function as Money

Both Token & Coin can function as Money



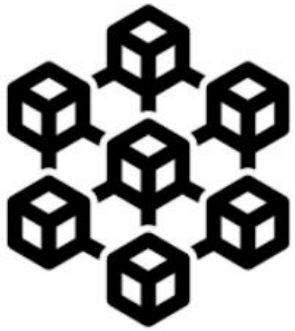
Tokenomics

"Token" & "Economics"

CRYPTO-ECONOMICS

quality of a token which will convince users/investors to adopt it & help build the ecosystem around underlying project of that token

ANYTHING THAT IMPACTS TOKEN'S VALUE



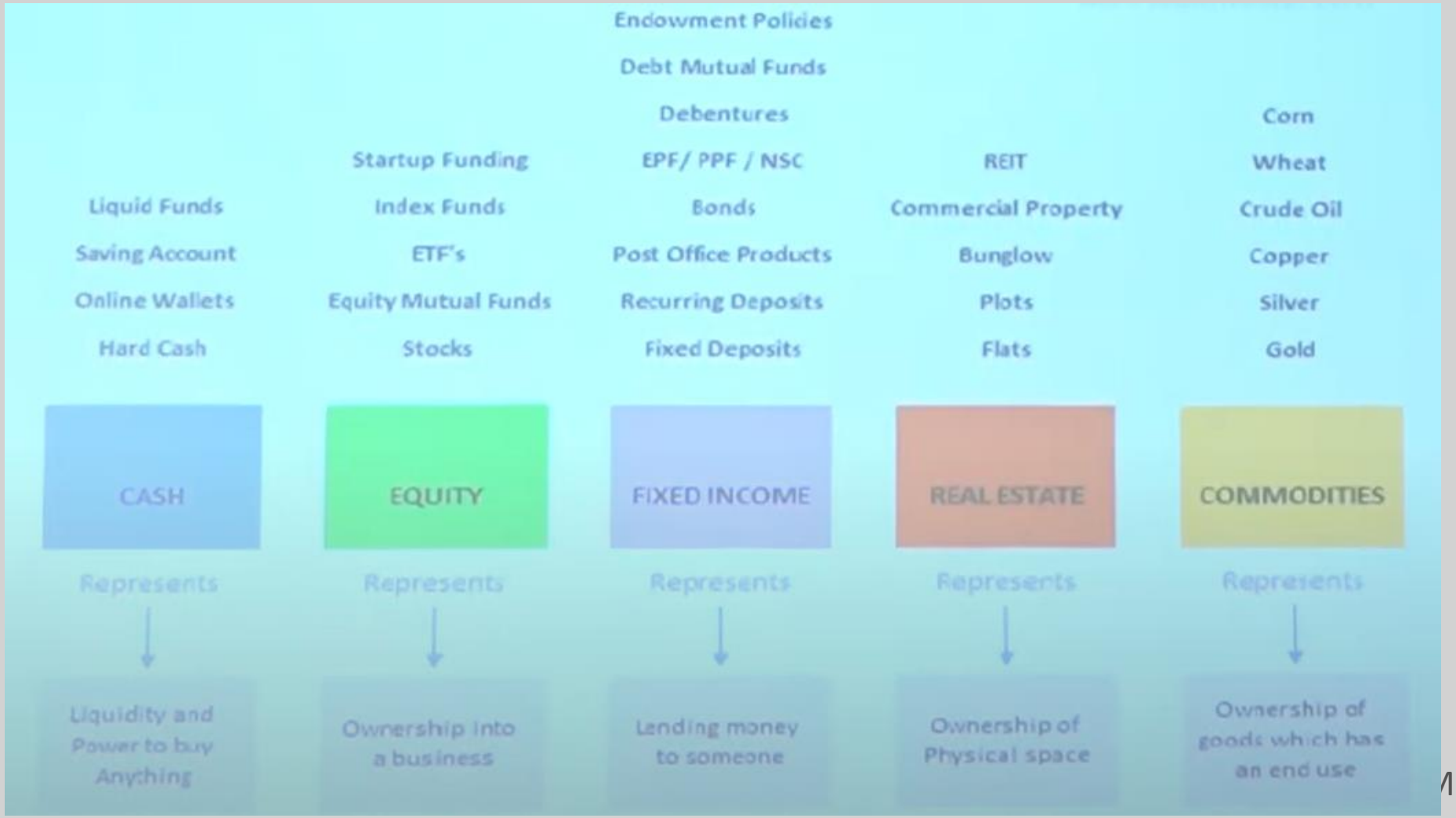
decentralized, requiring very little capital to scale, & offering significant security of transactions

https://www.youtube.com/watch?v=38CQ6l5bxEI

Token always has

- An issuer
- A substrate (carrier)
- A system it is meaningful in
- A value of someone
- Someway to use them

Types of asset classes



Building a New Token Economy

	Transferable	Non-Transferable
Fungible	Cash, bus ticket, coupon, cryptocurrency, gift card, poker chip, commodity	Gym membership, club membership, app with associated account
Non-Fungible (Unique)	Lottery, ticket, ownership of a car, house key, title deed	Driver's license, boarding pass, Prescription, voting token

Physical aspect: Token, Tickets, Passes & Coupon

Token: is a unit of value in a system. It carries its value for its entire lifetime, the same as dolar or a poker chip. When you spend the token, someone else get it and can then spend it again or take it to an exchange to trade for something else.

Ticket: pays for access to a system and then expires worthless. Tickets are unlimited in supply and generally fixed in price, though there are times when a ticket can be sold at a premium or dumped at a loss. A ticket flows from source to sink.

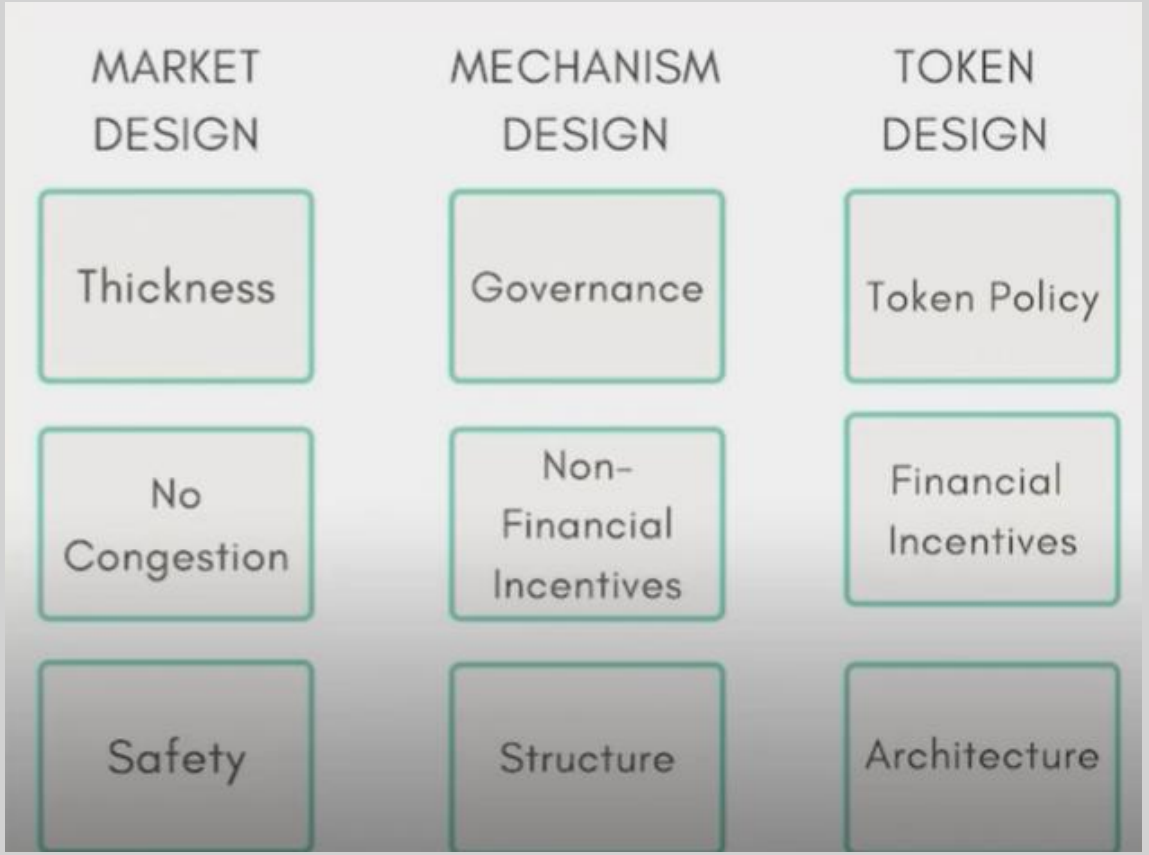
Pass: gives the holder unlimited (or possibly restricted) use of the system. A pass can give direct access (let you on the bus) or it can enable something (like a half fare card), but it can be used over and over again with the only limitation being the rules set by the system.

Coupon: entitles its owners to a rebate or a discount on the price of a product or service. It's used in conjunction with another form of payment. You can imagine a coupon that entitles the owner to one free cupcake when you buy a full dinner.

What are Tokenomics?

TOKEN ECONOMICS FRAMEWORK

Understanding the demand and supply characteristics of cryptocurrency in relation to the technical design.



Tokenomics Framework

- **Thickness / Scalability** (how many people on network)
- **Congestion** - Transaction per second
- **Safety -** Consensus protocol
- **Governance** & Voting structure - Non-Financial incentive
- **Token Policy** - Financial Incentive
- **Token Architecture** - Way reward will be distributed

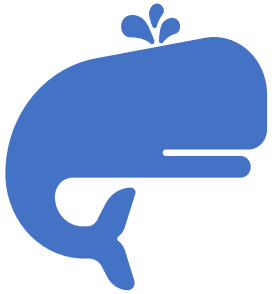
Tokenomics – Token Design

- Supply & Market Cap & Number of holders,
- Allocation and distribution –
  - Fair launch - Mining
  - Pre Mined – ICO, airdrop and allocation to developer and investors (Vesting scheduled to release over period of time)
- Inflation & deflation (reduction in supply, increase the price)
- Bitcoin is deflationary in practice, because of accidental loss
- Some intentially reduce supply by burning, fee burn eth more than generation
- Staking and utility

Economics Vs Tokenomics

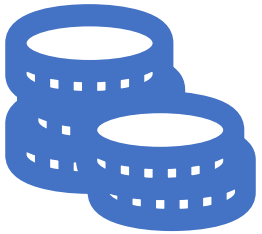
Understanding Stakeholder

Users



Contributors (Investors & workers)

Miners, Major investors (Whales), community developers & users



Initial developers (Founders)

Obtain cash from investors by issuing tokens

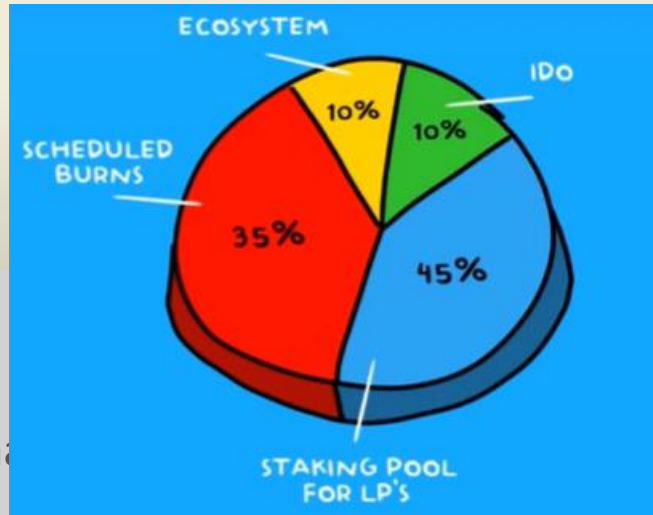
Typically hold a fraction of token supply which appreciates with the adoption of platform

Basic Questions to look in white paper

- Total Supply?
  - Infinite/ finite
- Burning/ Minting
  - Dev team can mint at will
  - Anyone can burn
- How is allocation of monetary supply determined?
  - Newly minted coin are distributed to major whales, who has significant stake in the system
- What is the governance system
- Context of its creation. i.e.
  - US Dollar: back by Gold previously, not now
  - US PetroDollar : backed by Oil Trade, now world is moving toward renewable energy

Tokenomics Questions to Consider

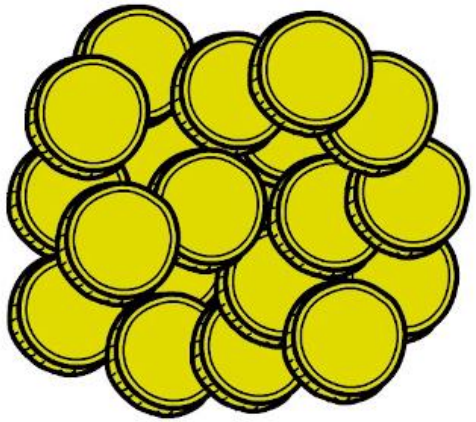
- How many coins or tokens currently exist?
- How many will exist in the future and when will they be created?
- Who owns the coins? Are there some set aside to be released in the future to developers? How will you incentivize the engagement in an ecosystem?
- Is there any information to suggest that a large number of coins has been lost, burned, or are somehow unusable?
- What is the utility of the token? What does it do?
- …



Tokens Vs Cryptocurrency

cryptocurrencies have their own blockchains

crypto tokens are built on an existing blockchain



Understanding Token Economics

The world runs on incentives

- You go to school because it will lead to a **higher paying job**.
- You brush your teeth because it will keep them clean and reduce the risk of cavities.
- You even pay your taxes because you don't want the government to come knocking at your door.
- This incentive structure can be found everywhere you look, and cryptocurrencies are no different.
- On the surface, cryptocurrencies are just strings of numbers and mathematical rules that can transfer value or trigger computer code.
- But behind it all are economic incentive structures that are creating an entirely new, and growing asset class

Let’s Talk About Value

- Why does the US Dollar have value?
- The United States government backs the value of the US Dollar, which is enough for most people to believe it has value in and of itself. And because the world trusts the United States, its economy, and long-term viability, the US Dollar is a relatively stable currency (unlike that of Venezuela or Turkey).
- But what would happen if tomorrow everyone in the country decided to no longer use the Dollar? Would it still have value? The answer is no.
- While cryptocurrencies also hold their value in the trust of blockchain networks — as opposed to governments — they also hold value in their **Utility.**
- This potentially makes them even more valuable than global fiat currencies.

Token Incentives + Distribution

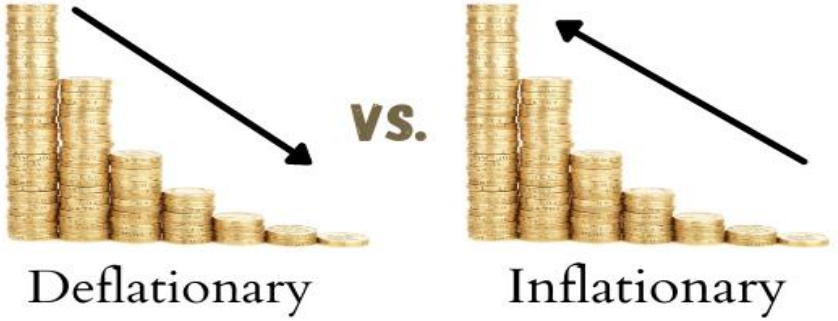
- This study of **economic incentive models** and **token distribution** within cryptocurrencies has come to be known as **token economics**, or, **tokenomics** for short.
- In order for a token to have any sort of value there needs to be an incentive to use or hold that token.
- This incentive creates demand for the token, which then dictates the token's price.
- Many tokens will hold their incentives within their utility. For instance, Siacoin (SC) uses a token to store and access files on a distributed network, thereby giving it value.
- This is also where **network effects** come into play. Imagine there is a new currency in the world but only a few select people have access to this currency. Is it useful? Not really. That's because the currency only has value to those who have access to it.
- More users who participate in the use of the currency, the more value the currency has.
- This phenomenon is known as the network effect, and it makes token distribution extremely important.
- **Network effects** are already playing out in real-time via Bitcoin. As Bitcoin has grown, it is now accepted in many retail establishments like Mc Donald, increasing its usefulness, and in turn value on the market.

Top Token Economic Models

Top Token Economic Models

- Token economic models are vastly superior to that of government-controlled economic models.
- That's because these **models** are built in code with mathematical rules and governed by a decentralized network who collectively make decisions as a community.
- Contrast this with central banks who have the power to print money on a whim and make monetary decisions without the input of currency-holders.
- Yet, no economic model is perfect, especially those that are brand new and haven't been proven.
- Let's look at a few different types of token economic models, how they benefit cryptocurrencies, and where they might fall short.

Deflationary model



- **Bitcoin** has set the industry standard for a **deflationary token model**.
- In this model, there is a
  - set number of tokens to be created,
  - with that limit never being adjusted upward.
- This creates a **deflationary currency** where even as demand increases, supply does not.

Pros: A limited supply of tokens generates natural demand as the supply dwindles. It also completely eliminates the worry of inflation that plague fiat currencies.

Cons: Some wonder if the incentive structure in a deflationary model will ultimately lead to its downfall. Because there is a limit to the number of tokens produced, users are incentivized to hoard tokens, not spend them. Without enough spending, most tokens will fall out of circulation and the token itself will become less valuable.

Examples: Bitcoin (BTC), Cardano (ADA)

Inflationary model

- An inflationary token will continuously be printed over time, with no capped limit of tokens that can ever be created.
- There are variations on the **inflationary token model**, with some tokens limiting token creation yearly, and others going based on a set schedule in perpetuity.
- This model most closely resembles fiat currencies,
- Yet, because code and a decentralized community dictate the token model and not a centralized entity, it is more efficient and transparent.

  Pros: This economic model is the most known and studied since it closely resembles fiat currency. Therefore, there are less questions around the viability of this model since it has been shown to (mostly) work with fiat currencies.

  Cons: Money printer go brrrr! Just like fiat currencies, inflationary tokens can continue printing their currency until the end of time. This can lead to runaway inflation and token devaluation.


20€
20€
20€
20€
2002
2005
2014
2021
stefanomonzo.com
1 Bitcoin
1 Bitcoin
1 Bitcoin
1 Bitcoin
2012
2013
2014
2021

Duel-token model

In the **duel-token model**, two distinct tokens are used on a single blockchain to create a better economic structure. Many projects in this model opt to have one token function as a store-of-value which generates a secondary, utility token to fuel actions on the blockchain network. This gives investors incentive to hold the store-of-value token as it generates returns in the form of the utility token.

Pros: Creating two tokens for two distinct uses may be the best economic incentive model for cryptocurrencies as it separates financial incentive from utility.

Cons: The complex nature of this model makes it hard for the average Joe to understand. Which token should I hold? Which token is a better investment? I can barely understand one token, now I have to choose between two!

Examples: VeChain (VET/VTHO), Ontology (ONT/ONG)

Duel-token model - Example

- A great example is Axie Infinity, an **NFT gaming project that offers two tokens, SLP and AXS**, both of which are offered as incentives to users for playing the game.
- In this case, the ***"Small Love Potion"*** or SLP is a **utility token** with an **unlimited supply** that can be used by Axie Infinity players to perform in-game tasks like **paying a breeding fee for their Axies (game characters)** and purchasing Axies from the built-in marketplace.
- Meanwhile, AXS is an **ERC-20 governance token** for the Axie universe with a maximum supply of **27 million**.
- AXS provides value to the Axie Infinity ecosystem where players can **buy the token directly from crypto exchanges** and the holders of AXS tokens can take part in in-game governance activities and stake their tokens on the platform to gain passive rewards.
- Apart from Axie Infinity, there are many other projects that function on the dual-economy mechanism like **VeChainThor, MakerDAO, Anchor, and Filmio**.

Three Formats of Dual Token Projects https://phemex.com/academy/what-is-the-dual-token-model

Asset-backed model

Some cryptocurrencies have chosen to back their tokens to another asset. In this **asset-backed model**, users can derive the value from the token based on the value of the token's underlying assets. The most well-known (and highly controversial) asset-backed token is Tether, which purports to be backed by the US Dollar.

Pros: With the right transparency, asset-backed tokens can create stable digital assets which remove unwanted volatility in cryptocurrencies.

Cons: Is this model really transparent? Just ask Tether, which claims to hold US Dollar reserves equivalent to the outstanding supply of tokens. This has been repeatedly called into question many times by skeptics (not to mention the US Department of Justice).

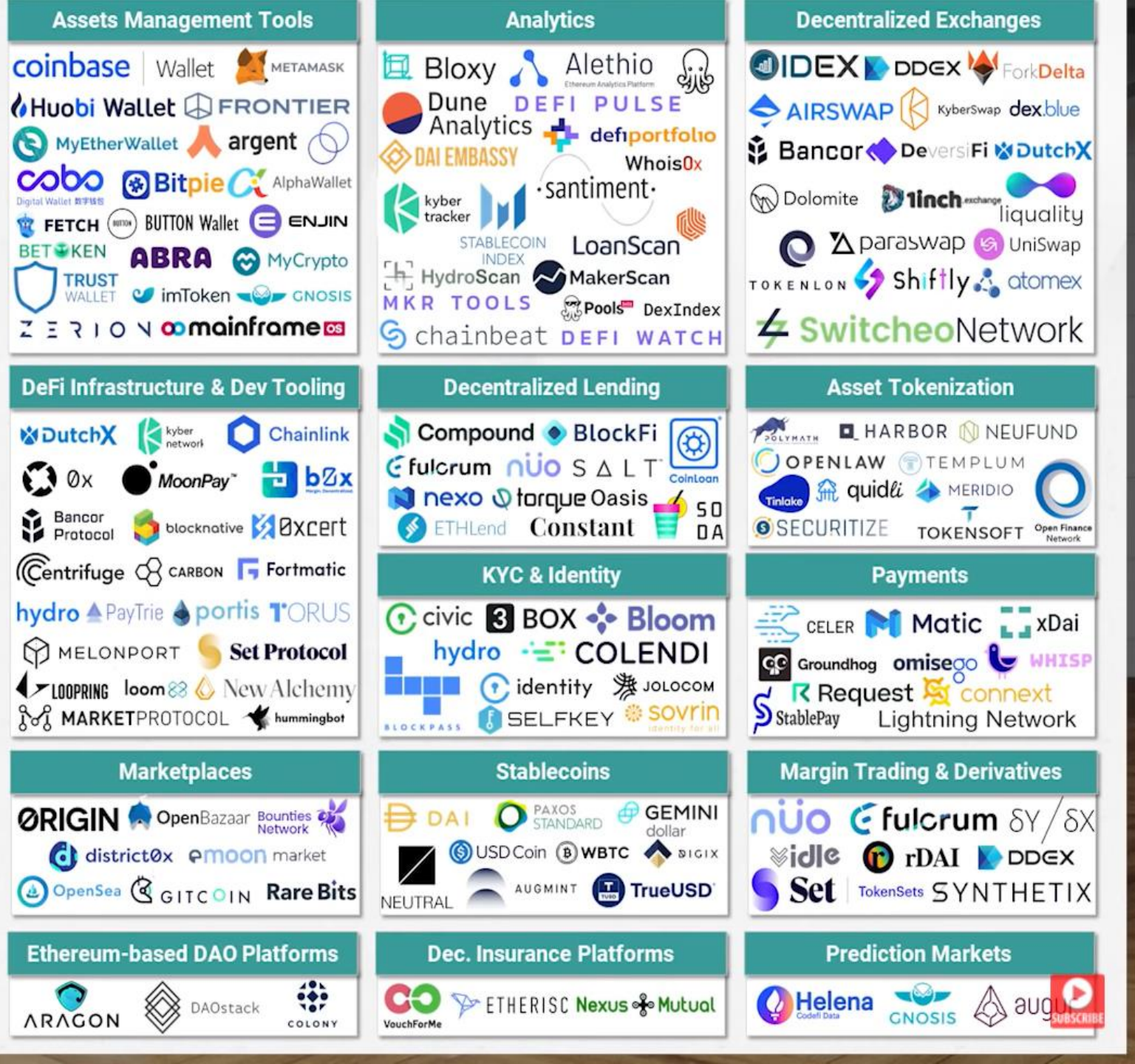
Example: Tether (USDT), Dai (DAI)

Building a New Token Economy

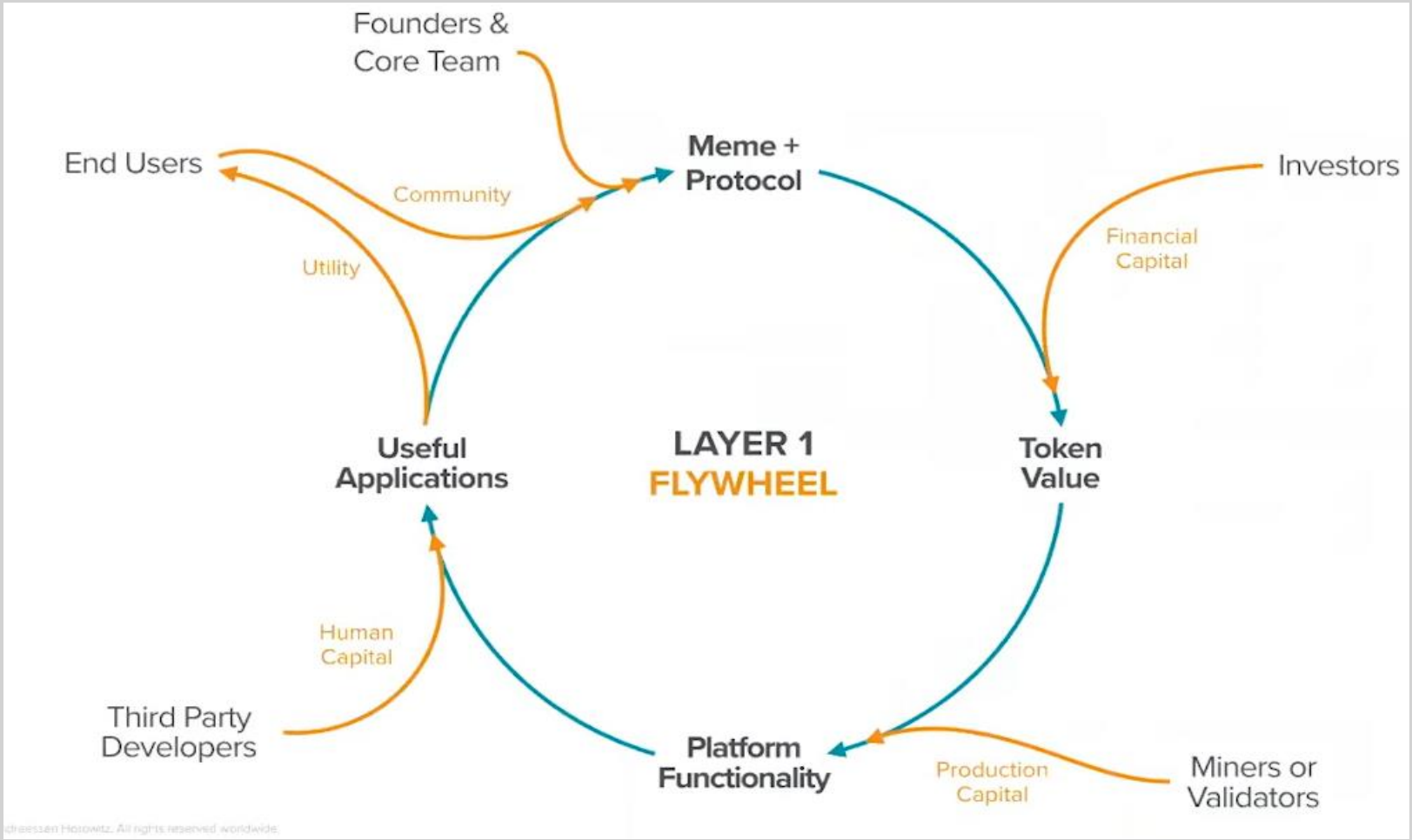
- If technology is the backbone of cryptocurrencies then token economics is the heart, pumping blood to blockchain networks and digital asset markets.
- With proper incentivization, cryptocurrencies can increase their value to token holders and create an economic model which benefits all stakeholders in the system.
- As the world begins to see the inefficiencies and collusion of government-controlled central banks,
- it will be Tokenomics models that emerge as the new paradigm for the global economy.

Ethereum DeFI Ecosystem

- 2nd most valuation cryptocurrency
- Ethereum has climbed over 500% in 2021 significantly outperforming Bitcoin.
- The attraction is the ecosystem of applications across DeFi and NFTs on the blockchain that support a positive long-term outlook.



Crypto Business Models



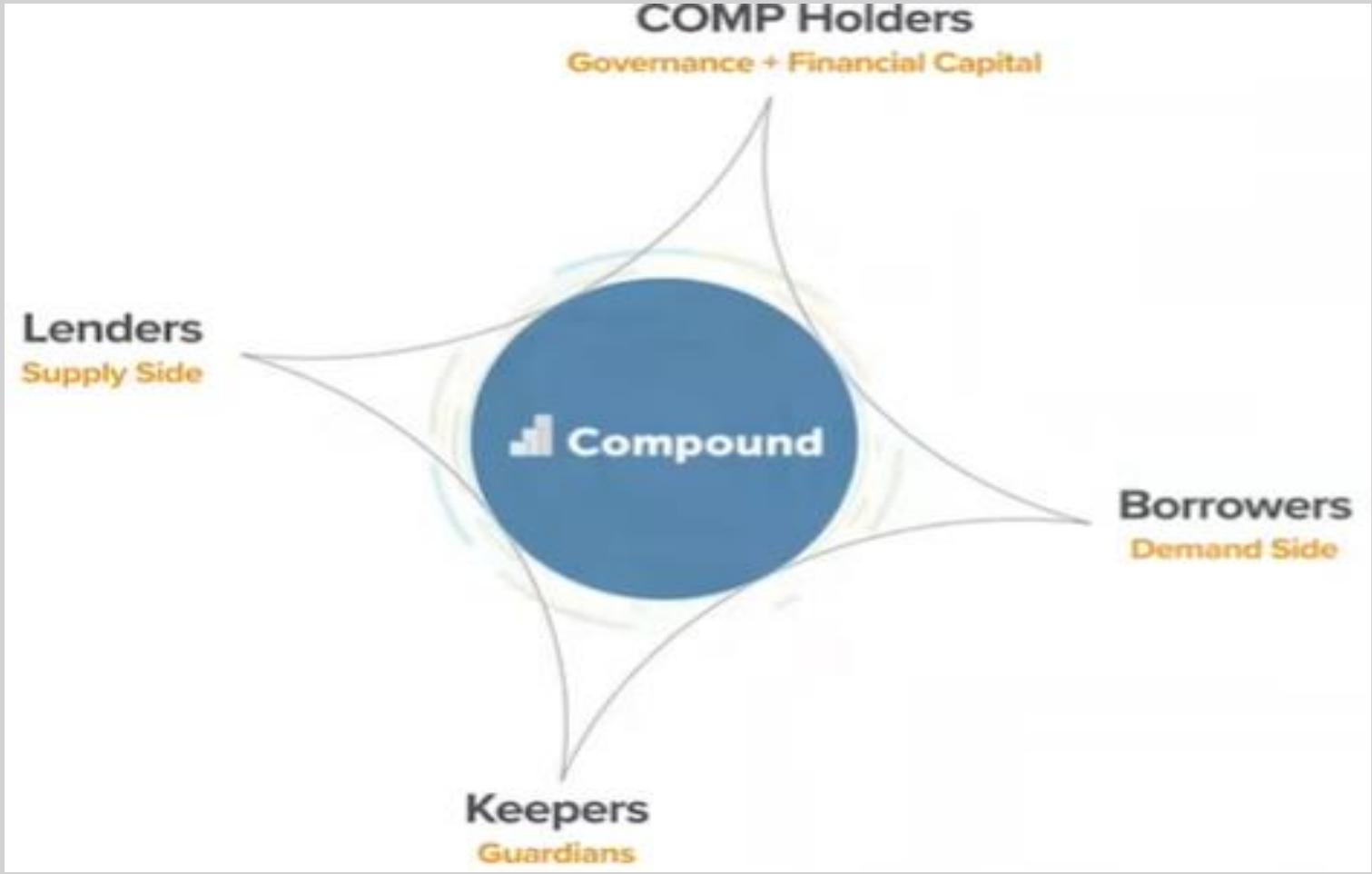
https://www.youtube.com/watch?v=AI1N6dY8ySQ

Crypto Business Models - Maker

https://www.youtube.com/watch?v=AI1N6dY8vSQ

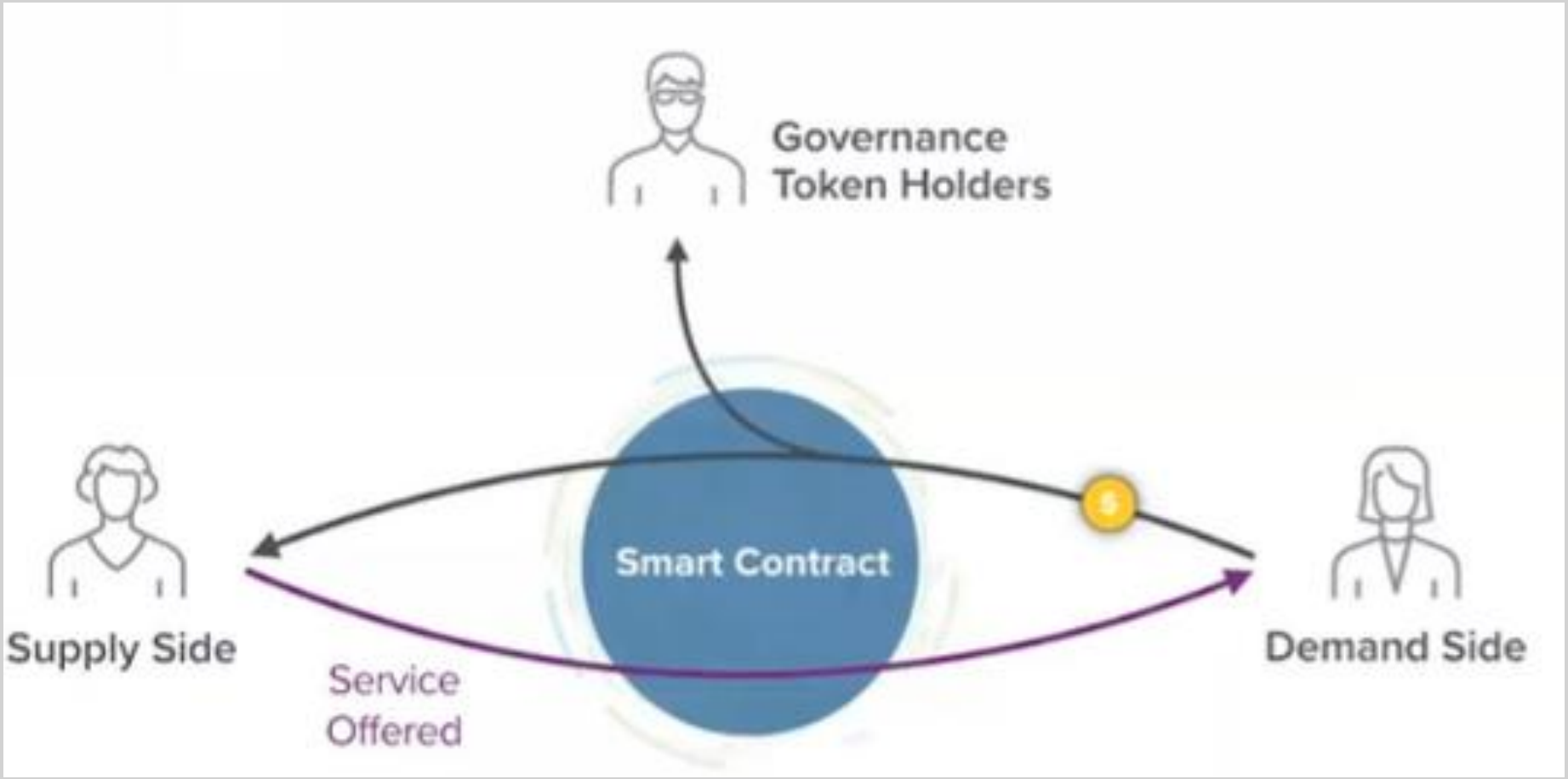
Crypto Business Models - Uniswap

Crypto Business Models - Compound

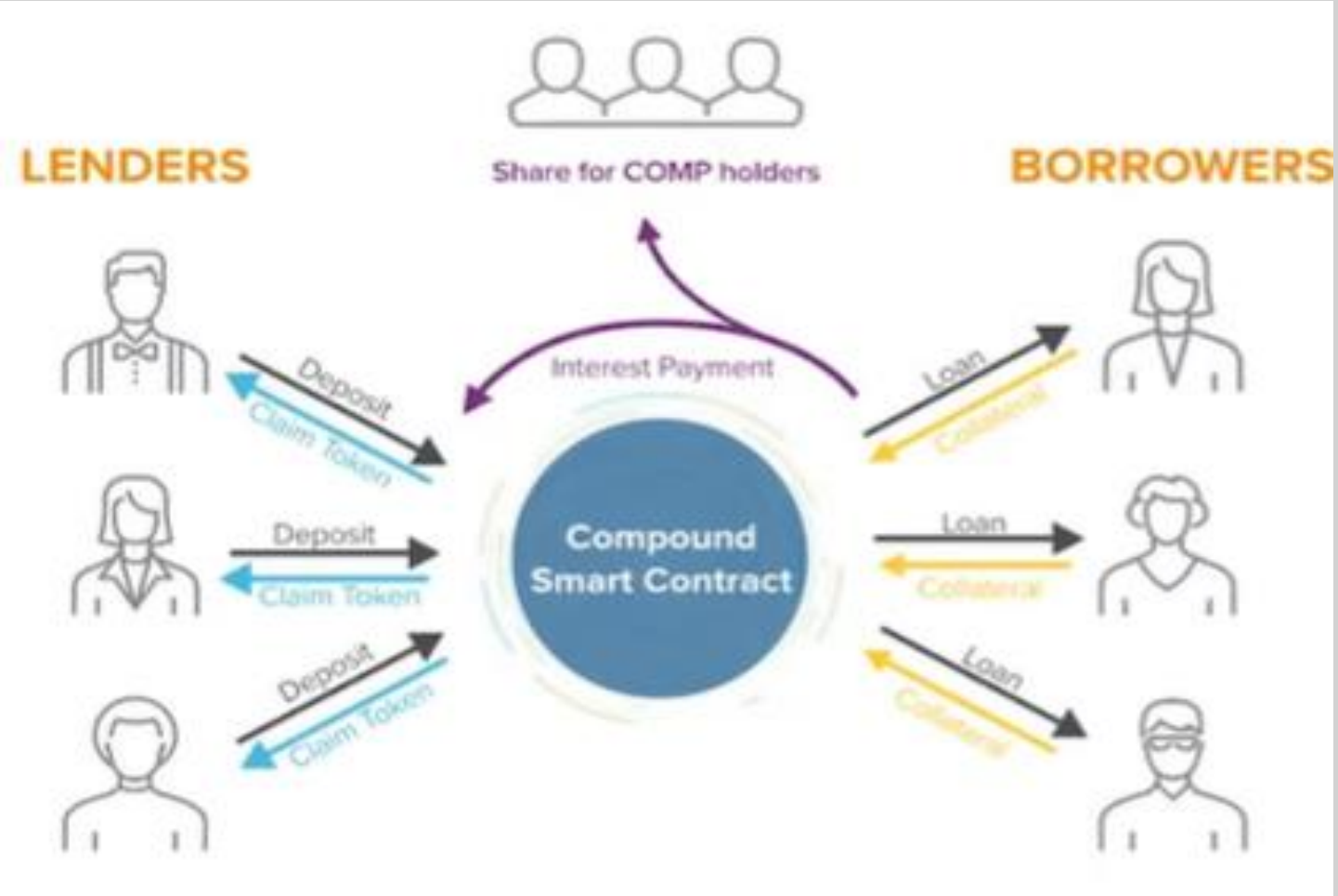


Core layer2 Business Model

Capture a Revenue Stream

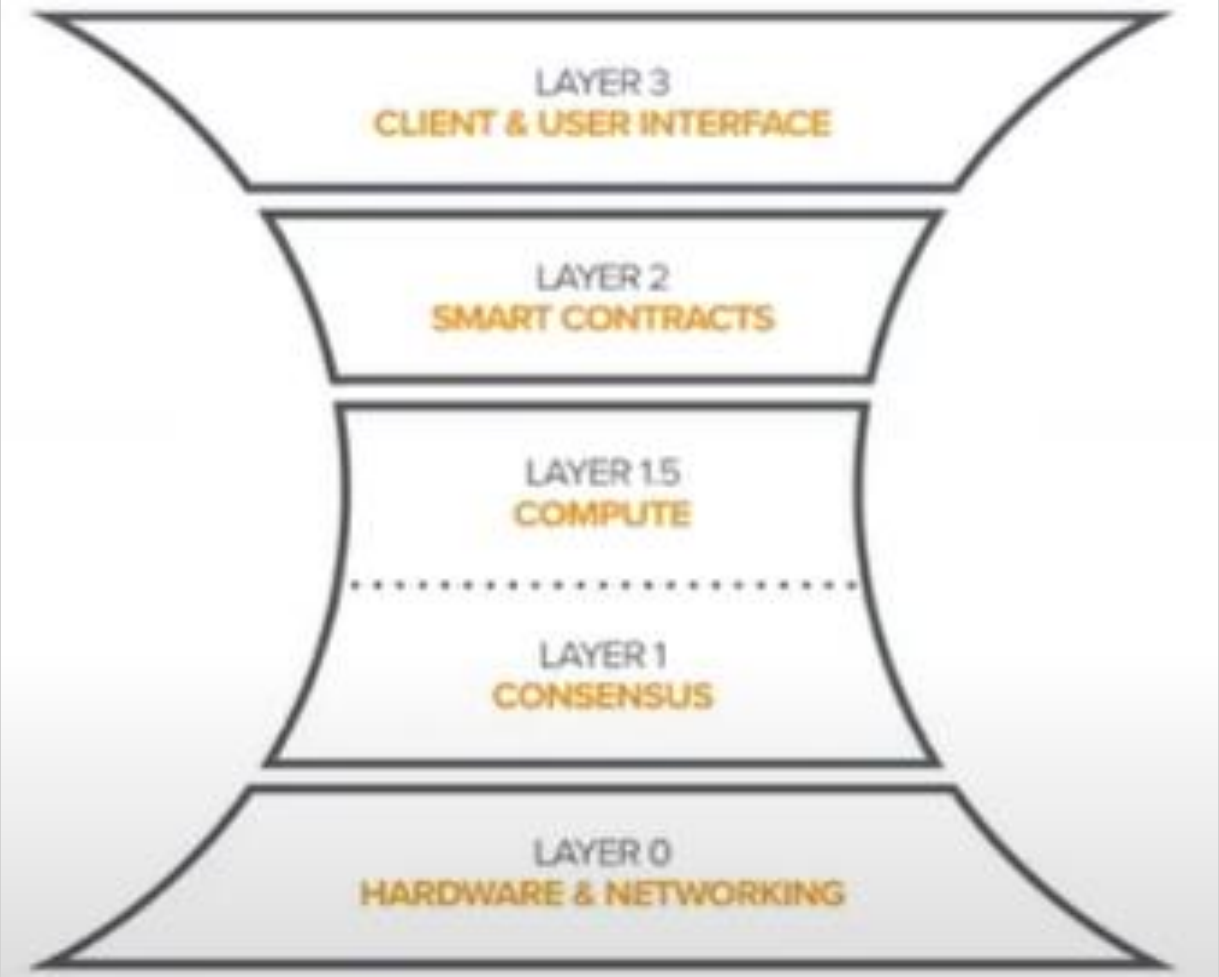


Compound Smart Contract



Blockchains Are Ecosystems

A Walk up the Stack



Physical Aspects : Flow

- Goes in a circle (currency)
- Goes in a straight line and back to the exchange
- Goes from source to sink

Token Monetary Policy

- Monetary policy establishes the supply and availability of tokens, There could be a fixed number of forever, which is very popular, starting with Bitcoin.
- This is called an inflationary token, because the supply is not only fixed but it goes down over time?
- How does it go down?
  - Token can be destroyed through burning,
  - losing the private key,
  - People die without giving anyone their private key,
  - people send real money to the bad addresses.
  - Some people estimate that at 1-2 million of the 16+ million bitcoins issued to date have been lost forever.

Managing Monetary Policy

- Factor 1: Token supply
- Factor 2: Token release
- Factor 3: Maximum issuance of token

(Maximum token issuance in combination with controlled token supply releases can result in small increase in demand driving token prices higher.)

- Token Supply Management:
  - Release mechanisms for tokens help manage the supply of tokens in circulation
  - Escrow accounts can hold token that were not issued in the ICO. Such escrowed tokens may be released for future issuance to finance future projects for the issuer or support operational financing.

- Avoid a token price crash
  - Token escrow accounts need to provide usage and access controls that assure investors that escrowed tokens will not be issued at a discount.
  - Lockup of escrowed token for a specified time period or phased releases.

Token Fiscal Policy

- Fiscal policy is what you do with your tokens to encourage market demand or affect the price for your own tokens.
- Selling your own token inventory, i.e.
  - Buying back tokens
  - Selling tokens
  - Market making
  - Paying in tokens
  - Granting tokens
  - Burning tokens

Valuing Tokens

- Not an Equity!
- How do we interpret this token capitalization?
- How should we think about valuing crypto-tokens?
- If tokens were like stocks, then should be worth the Present Value (PV) of the associated flow of dividends.

- Token, however are not like stocks
- When you buy a token you are not buying a share of the company that issued it.
- In almost every case you are not even buying the right to share in the company's profits or vote on its board of directors
- By this measure, the value of most crypto-tokens should be very close to zero

Valuations as a factor of Expectations

- Bitcoin has increased in value from $900 to $40,000 over the last few years and reached a high of around $60,000.
- You should buy it now before it goes up more. Right?
- Efficient market theory (EMT) says that the best predictor of tomorrow's price is today's price.
- Put another way, today's price is tomorrow's expected price.
- Otherwise, there would be an arbitrage opportunity
- This means that prices are heavily dependent on expectations and the arrival of new information
- By this measure, the value of most crypto-tokens could be anything. All that is needed is the right set of expectations

Token Allocation

- Founder 10%
- Presale 10%
- Reserve 10%
- Initial Offering (ICO) 25%
- Second Round 15%
- Third Round 15%
- Fourth Round 15%

Required a clear monetary policy

Token Allocation

- Air drops
- Marketing
- Founder
- “Cash” sale
- Presale
- Mainsale
- Future sales

} 100%

Unsold tokens get burned or frozen

Principles of Market Design

Market Thickness: a healthy market must have enough participants willing to transact and create benefits through trade and to further attract more participants.

- We need enough actors from both sides. Sellers need to meet buyers and buyers need to meet sellers

Avoid Congestion: The market must mitigate traffic jams to enable the free flow of transactions. Too much thickness can create problems, like too much traffic can create traffic jams.

Make the market safe: Participants must feel safe to transact on the marketplace and to reveal their true preferences. Without proper safety, participants may wish to transact outside of the market.

Market Design applied to tokens

Increasing Thickness:

- Mining, Partnerships, Referral Bonuses

Reducing Congestion:

- Transaction Fees, Membership Deposits

Providing safety:

- Governance, Smart Contracts, Attestations, Staking

Through the pillars of market thickness, congestion and safety, we can orient tokes, smart contracts, and game-theoretic mechanisms towards higher goals.

STOs

Security tokens, tokenized securities or investment tokens are financial securities compliant with regulations.

Provide an array of financial rights to investors such as;

- Equity,
- Dividends,
- Profit share right,
- Voting right,
- Buy-back rights etc

Often these tokens represent a right to an underlying asset such as a pool of real estate, cash flow or holdings in another fund. These rights are written into a smart contract and the tokens are traded on a blockchain-powered exchange.

Security Vs Utility Token

Ownership of asset	Access to protocol
Regulated Offering - KYC	Purchasers
Regulated Offering - KYC	Unregulated crowd sale

Security Vs Utility Token

"Howey test"

securities

- Derive their value from an external, tradable asset
- Subject to federal securities & regulations
- If ICO doesn't follow regulations, then they could be subject to penalties.

utility

- Right to use the network
- Right to use Voting
- Value of tokens may go up because of supply-demand equation

Token Characteristics - Summary

- Rights: tokens may give the holder property rights or give the holder access rights
- Durability: tokens can remain stable in the face of censorship and attacks
- Regulatory: tokens are easy to classify and regulate (if required)
- Purpose: tokens are created to serve as proof of behavior (value creation) or represent existing assets/access rights
- Supply: there may be a fixed supply of token or unlimited
- Token-flow: tokens can be generated linearly (destroyed after use) or remain in circulation
- Temporal: tokens may or may not have an expiration date