



Token Engineering in Practice: Ecosystem sustainability & data markets

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Feb 7, 2022
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trent.st/content/uofm.pdf

Outline

- Introduction to Token Engineering (TE)
- TE applied to ecosystem sustainability
- TE applied to data markets



Engineering



is the creative application of science,
mathematical methods, and empirical evidence

to the innovation, design, construction,
operation and maintenance

of structures, machines, materials, devices,
systems, processes, and organizations.



Intro to Token Engineering (TE)

Science ↔ Engineering

- **Engineering** is about building things that work.
- **Science** is about contributing new knowledge.
- They're complementary.

Therefore Token Engineering is complementary to the science of Cryptoeconomics / Token Economics.





Electrons : Electrical Engineering

Tokens : Token Engineering

First introduction of “Token Engineering” (Mar 2018)

Towards a Practice of Token Engineering

Methodology, Patterns & Tools. TE Series Part II.

In my previous article, I described *why* we need to get incentives right when we build tokenized ecosystems. Here, I ask: *how* do we design incentives for these tokenized ecosystems? And actually since incentives are the heart of tokenized ecosystems, it's really: *how do we design tokenized ecosystems?* And, how do we *analyze* and *verify* them?

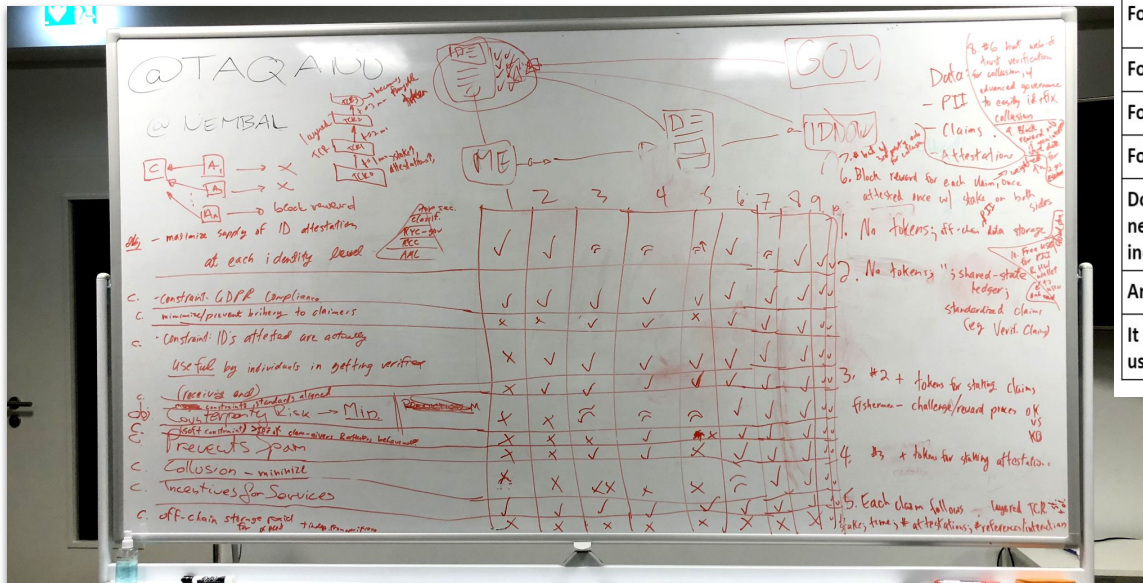
This article is a first stake in the ground towards a practice of **token engineering**: the theory, practice and tools to analyze, design, and verify tokenized ecosystems.

The first section of this article relates token designs to other fields and explains why “engineering”. The rest of this article is an attempt to draw us closer to this goal, by leveraging existing fields in three main ways:

- We can frame **token design as optimization design**, then use optimization design methodology.
- Inspired by **software engineering patterns**, we can document emerging patterns for token design.
- **Simulation, verification, and design space exploration (CAD tools)** for circuit design have helped engineers analyze, design, and verify

A TE Design Process

- 1. Formulate the problem.** Stakeholders -> objectives, constraints, design space.
- 2. Try existing building blocks.** If needed, try different formulations or blocks.
- 3. Design new block? Only if needed!**



Worked example

Key Question	1	2	3	4	5	6
For priced data: incentive for supplying more? Referring?	X	≈	✓	≈	≈	✓
For priced data: good spam prevention?	≈	✓	✓	✓	✓	✓
For free data: incentive for supplying more? Referring?	X	≈	X	✓	✓	✓
For free data: good spam prevention?	≈	✓	≈	✓	≈	✓
Does token give higher marginal value to users of the network, vs external investors? Eg Does return on capital increase as stake increases?	✓	✓	✓	✓	✓	✓
Are people incentivized to run keepers?						
It simple? Is onboarding low-friction? Where possible, do use incentives/crypto rather than legal recourse?						

Criterion	Status Quo	1SS	LB	1SS + LB	1SS + LB + Dutch:Pub	1SS + LB + Dutch:Pub + HCO	1SS + Dutch:Pub
Simple -easy to understand. Mental model plays well with existing -smart contract SW simple: to implement, understand, maintain -GUI SW simple: to implement, understand, maintain	✓	✓	✓	✓	≈✓	×	✓
Avoids large price swings when people just want to stake OCEAN	×	✓	×	✓	✓	✓	✓
Solves price spikes at beginning	×	×	×	×	✓	✓	✓
Solves price spikes in market equilibrium	×	✓	✓	✓	✓	✓	✓
No risk of exit scam after IDO	xx	✓	×	×	×	✓	×

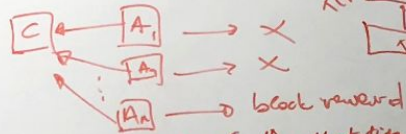
TE Example 1: Ocean V1 (2017)

Key Question	1	2	3	4	5	6
For priced data: incentive for supplying more? Referring?	✗	≈	✓	≈	≈	✓
For priced data: good spam prevention?	≈	✓	✓	✓	✓	✓
For free data: incentive for supplying more? Referring?	✗	≈	✗	✓	✓	✓
For free data: good spam prevention?	≈	✓	≈	✓	≈	✓
Does token give higher marginal value to users of the network, vs external investors? Eg Does return on capital increase as stake increases?	✓	✓	✓	✓	✓	✓
Are people incentivized to run keepers?	≈	≈	✓	✓	✓	✓
It simple? Is onboarding low-friction? Where possible, do we use incentives/crypto rather than legal recourse?	✓	✓	≈	≈	✓	✓

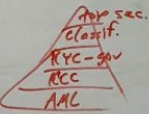
TE Example 2: Identity (2018)

@TAQAIDU

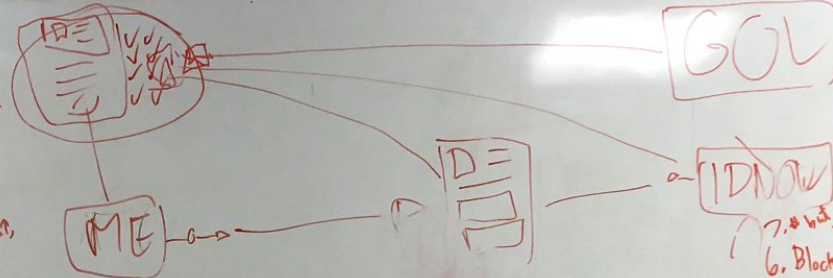
@NEMBAL



Obj - maximize supply of ID attestation at each identity level



- c. -Constraint: GDPR Compliance
- c. minimize/prevent bribery to claimers
- c. -Constraint: ID's attested are actually useful by individuals in getting verifier
- c. (receives and) ~~constraints~~ standards aligned
- Obj: ~~constraints~~ counterparty Risk → Min.
- E: (soft constraints) ~~obj of~~ claim-givers behavior
- c. Prevents spam
- c. Collusion - minimize
- c. Incentives for Services
- c. off-chain storage period for ~~of best~~ + ~~high~~ ~~compliance~~



	1	2	3	4	5	6	7	8	9
1. No tokens; off-chain data storage	✓	✓	≈	≈	≈	✓	≈	✓	✓
2. No tokens; "i" shared-state ledger; standardized claims (eg Verif. Claim)	✓	✓	✓	✓	✓	✓	✓	✓	✓
3. #2 + tokens for staking claims	x	✓	✓	✓	✓	✓	✓	✓	✓
4. #3 + tokens for staking attestation	x	x	≈	≈	✓	✓	✓	✓	✓
5. Each claim follows	x	x	x	x	x	✓	✓	✓	✓

Data: for collusion, advanced governance to easily id+fix collusion

- PII
- Claims
- Attestations

8. #6 but w/o of trust verification

7. #6 but w/o of trust verification

6. Block reward for each claim, once attested once w/ stake on both sides

10. Free used for PII

5. Each claim follows layered TCR w/ stakes, time, # attestations, # references/intentions

[Reference](#)

TE Example 3: Ocean V4 (2021)

Criterion	Ocean V3	LBP	1SS	LBP + 1SS	1SS + Dutch: Pub	1SS + Dutch: Pool	1SS + Dutch: Pool + Vesting	1SS + Vesting
Simple to understand, build, maintain	✓	✓	✓	✓	≈	✓	≈	✓✓
Avoids large price swings / IL when people just want to stake OCEAN	✗	✗	✓	✓	✓	✓	✓	✓
Solves price spikes at beginning	✗	✗	✓	✓	✓	✓	✓	✓
Solves price spikes in market equilibrium	✗	✓	✓	✓	✓	✓	✓	✓
Solve rug pulls	✗✗	✗	✓	✓	✓	✓	✓	✓
Good incentive for publisher to publish initially	✓✓	✗	✗	✗	✓	✗	✓	✓

TE Community - Start

**1st TE event
Berlin, Apr 2018**

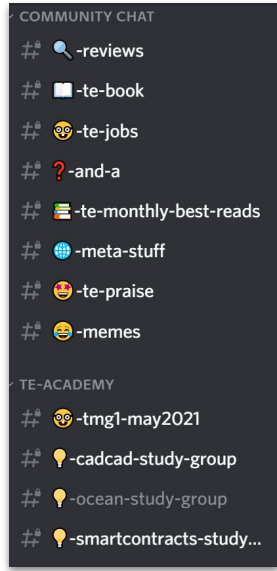
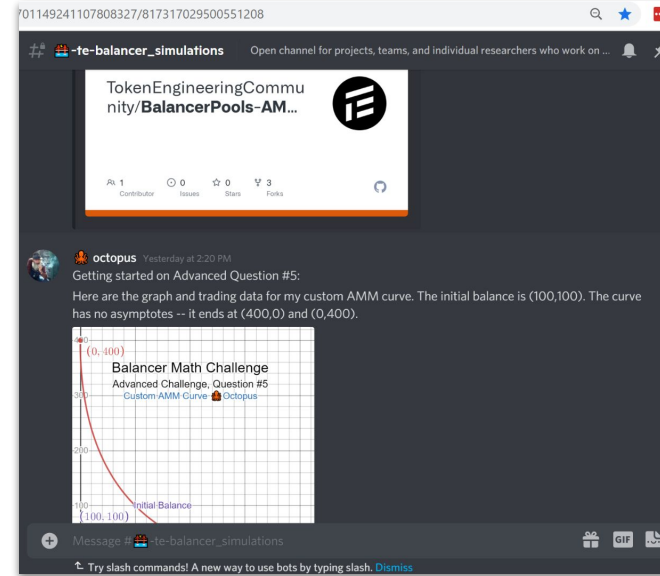
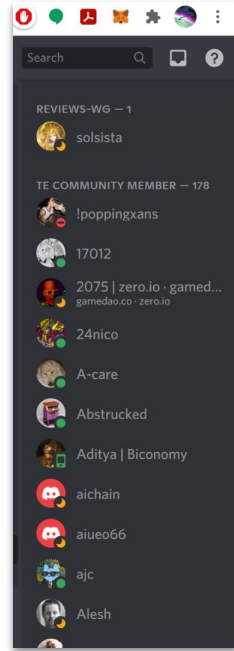


TE Community Now

1st TE event
Berlin, Apr 2018



Discord - primary gathering point



Global gatherings



Learning - via tokenengineering.org, more

Welcome to the Token Engineering library!

This is a growing list of resources and applications of token engineering technology, that you can learn from.

Intro Materials

- Cryptoeconomics 101 - A high-level overview around the token engineering space.
- Glossary of systems concepts - terminology used in token engineering.
- Token engineering in practice - a collection of articles and resources.
- Towards a diversity of DAOs - an exploration of different DAO models.
- Differential Specification Syntax - a new way to represent diagrams in the CadCAD ecosystem.

TokenEngineering Academy

About

The TokenEngineering Academy (TE Academy) offers lectures, workshops, and seminars for anyone interested in this new, emerging field. We invite individuals and project teams to learn, collaborate, and put token engineering into practice. Please get in touch if you'd like to bring your team to TE Academy: contact@tokenengineering.net.

Simulation Tools

cadCAD

An open-source Python package that assists in the processes of designing, testing and validating complex systems through simulation.

[TRY IT OUT](#) [JOIN OUR COMMUNITY](#)


TokenSPICE: EVM Agent-Based Token Simulator

TokenSPICE can be used to help design, tune, and verify tokenized ecosystems in an overall Token Engineering (TE) flow.

TokenSPICE simulates tokenized ecosystems using an agent-based approach.

Each "agent" is a class. Has a wallet, and does work to earn \$. One models the system by wiring up agents, and tracking metrics (kpis). Agents may be written in pure Python, or with an EVM-based backend. (The original version was pure Python. This repo supersedes the original.)





**Token Engineering
applied to ecosystem sustainability**

Goals

Find a design to enable...

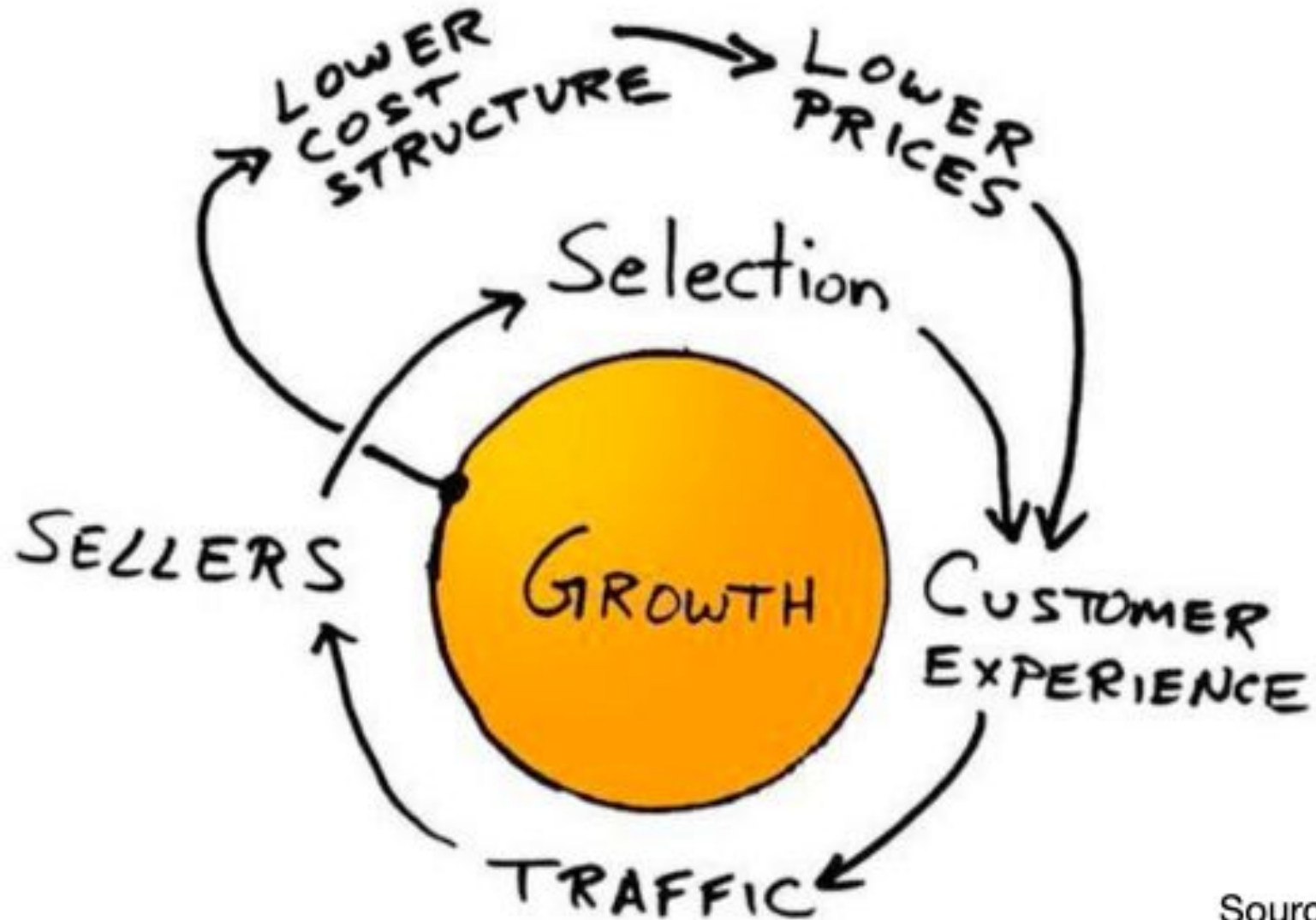
- Ecosystem sustainable and growing, towards ubiquity
- Funding goes to teams improving L1-L3 etc, over the long term (10+ years)
- \$TOKEN grows as usage of network grows

Including:

- Basic design is simple to understand and communicate
- Can be implemented in a pragmatic fashion, over time
- Get people to do “work”,
- Encourage skin-in-the-game by users

A choice of system-level design will lead to goals of sub-blocks in the system.

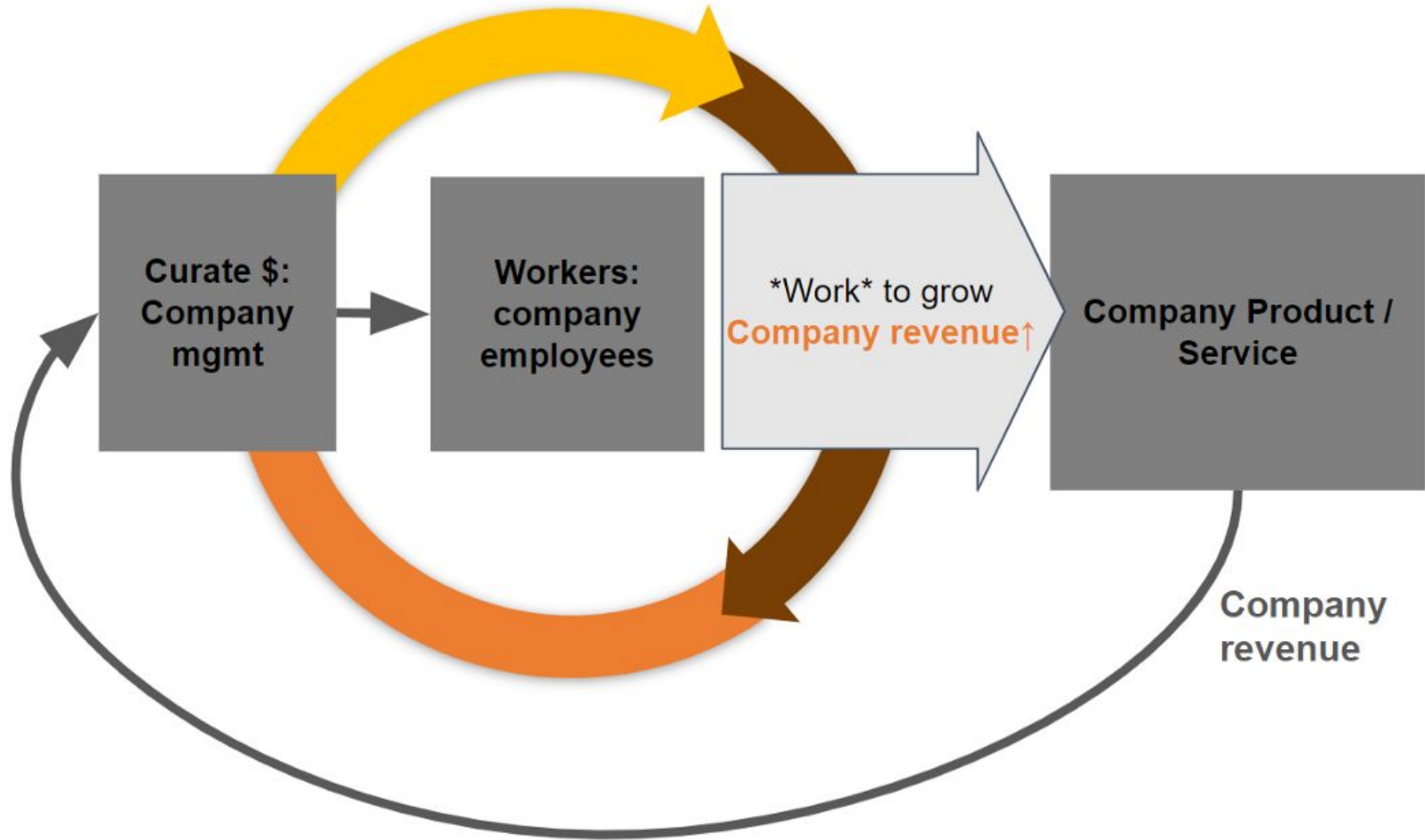
How does Amazon work?



Source: Amazon

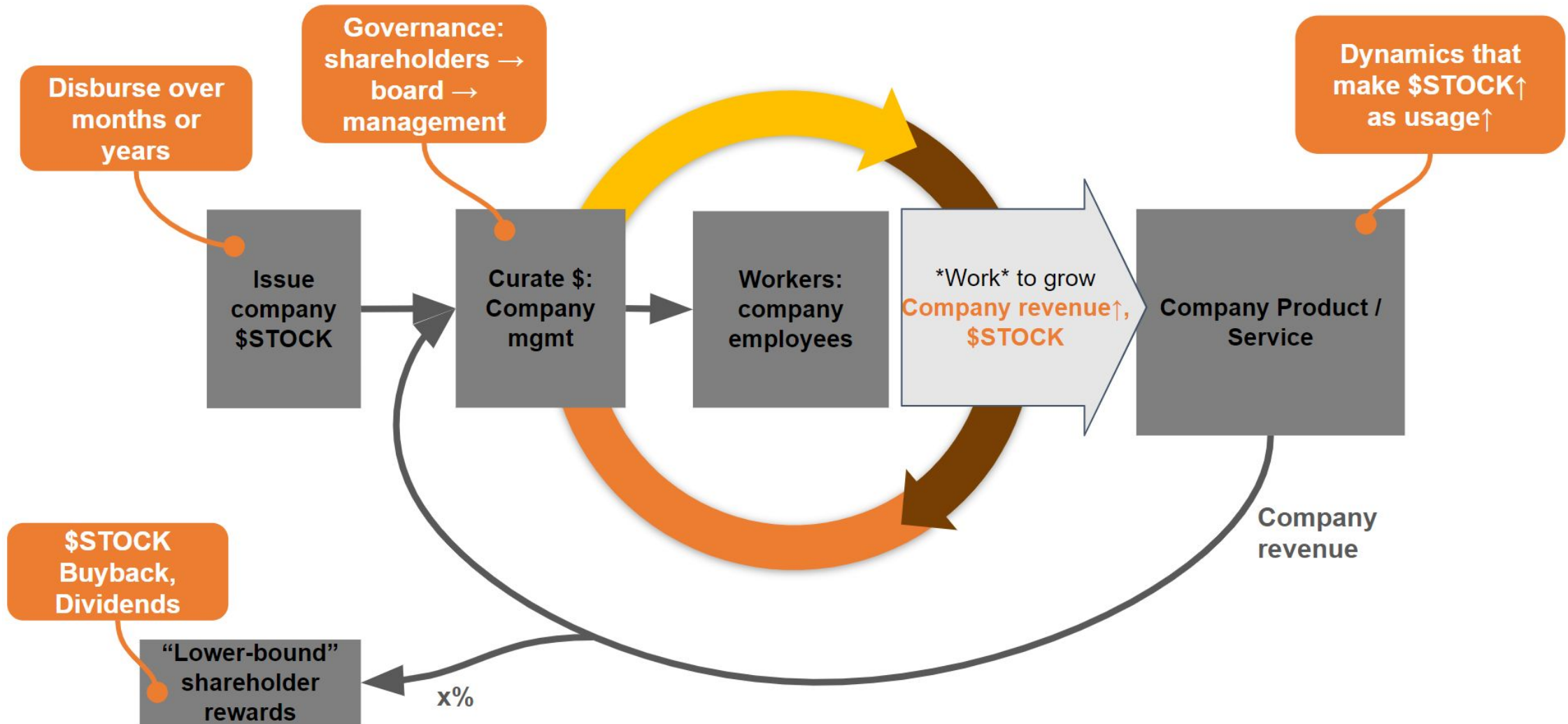
Company business model with a focus on revenue

Challenges: how to kickstart the company, how to grow fast enough to beat the competition



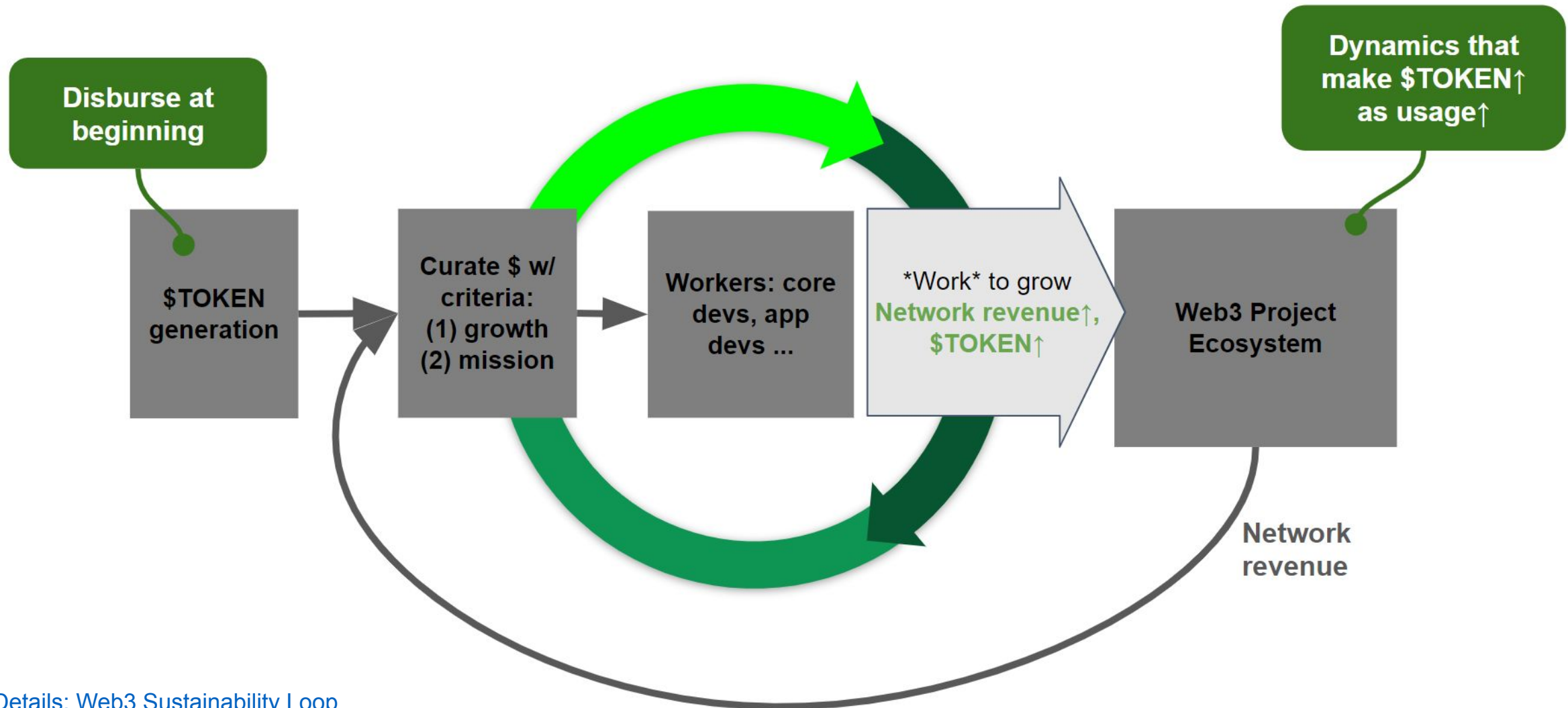
Company business model - full picture

Has an “outer wrapper” that uses stock as a tool, in addition to revenue.



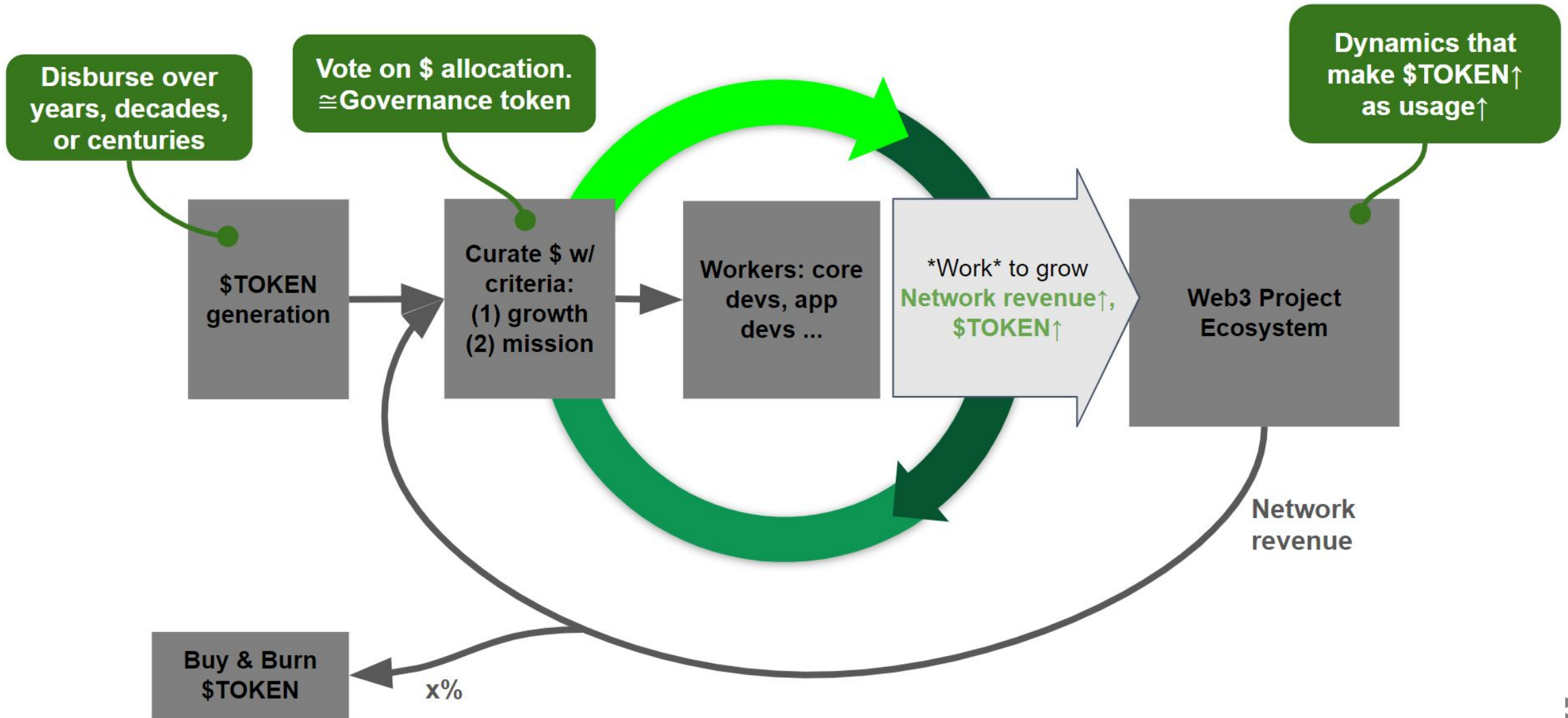
Web3 Sustainability Model with a focus on revenue

Challenges: how to kickstart the project, how to catalyze growth



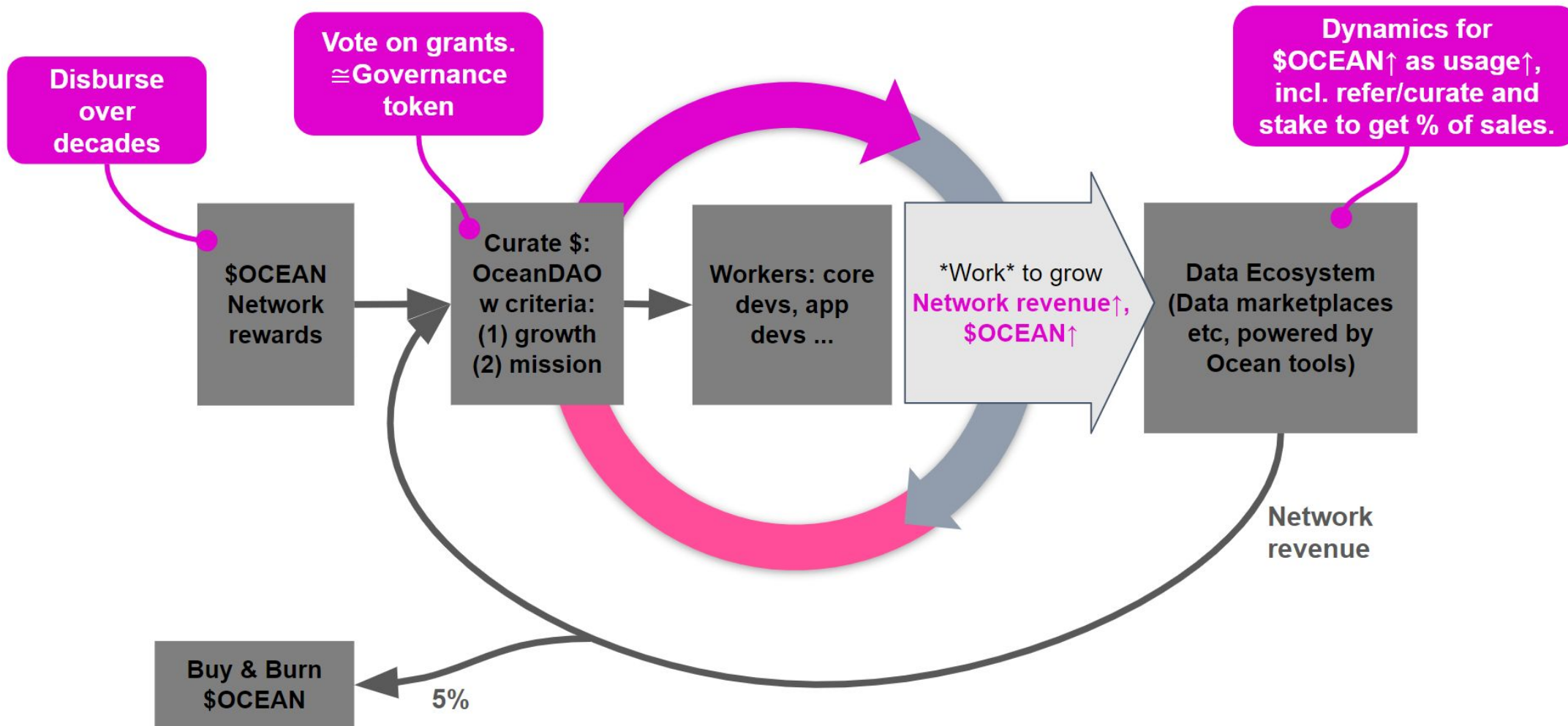
Web3 Sustainability Loop - full picture

Has an "outer wrapper" that uses tokens as a tool, in addition to revenue



Ocean's Web3 Sustainability Loop

Revenue for long-term sustainability, OCEAN to catalyze it



On Verifying Token-Based Systems

A Token Engineering perspective



Trent McConaghy

Jul 14 · 11 min read



| *“Trust, but verify” — Russian proverb*

Defining the Problem

TE Verification is about evaluating the token-based system to find out whether it meets the specified requirements. The system could be a simple tool or a full tokenized ecosystem, instantiated as one or more smart contracts or even L1 blockchain networks.

<https://blog.oceanprotocol.com/on-verifying-token-based-systems-c33eca757ecf>

On TE Verification

It's pragmatic to do verification in **phases** of increasing fidelity:

1. **Humans.** Subjective discussions, with increasing # people. 1 → 2 → key stakeholders
2. **Software modeling,** with increasing fidelity. Spreadsheet → agent-based sim → high-fid sim
3. **Economic (live).** Can ratchet value-at-risk over time. People can choose risk/reward tradeoff.
Phased approach.

Software-based Verification: TokenSPICE

<https://github.com/tokenspice/tokenspice>



TokenSPICE: EVM Agent-Based Token Simulator

Unit Testing and Code Coverage passing MyPy Static Typechecking passing
coverage 92% code quality A

TokenSPICE simulates tokenized ecosystems via an agent-based approach, with EVM in-the-loop.

It can help in [Token Engineering](#) flows, to design, tune, and verify tokenized ecosystems. It's young but promising. We welcome you to contribute! 🙌

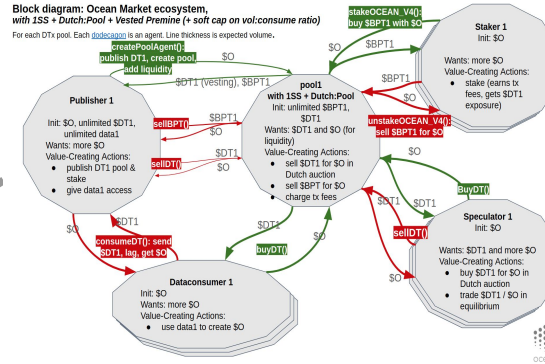
- TokenSPICE simulates by simply running a loop. At each iteration, each *agent* in the *netlist* takes a step. That's it! [Simple is good](#).
- A netlist wires up a collection of agents to interact in a given way. Each agent is a class. It has an Ethereum wallet, and does work to earn money. Agents may be written in pure Python, or with an EVM-based backend.
- One models a system by writing a netlist and tracking metrics (KPIs). One can write their own netlists and agents to simulate whatever they like. The [netlists](#) directory has examples.

TokenSPICE Flow

Develop smart contract

Verify with TokenSPICE simulator

Deploy smart contract (as tx)

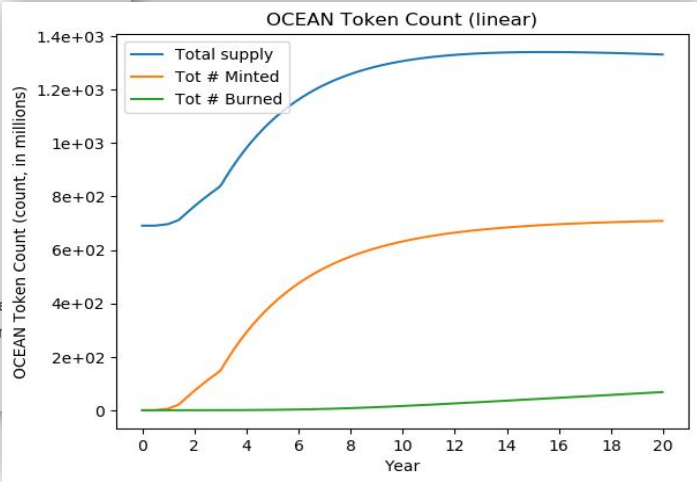


```
uint spotPriceBefore = calcSpotPrice(
    inRecord.balance,
    inRecord.denorm,
    outRecord.balance,
    outRecord.denorm,
    _swapFee
);
require(spotPriceBefore <= maxPrice, 'ERR_BAD_LIMIT_PRICE');

tokenAmountOut = calcOutGivenIn(
    inRecord.balance,
    inRecord.denorm,
    outRecord.balance,
    outRecord.denorm,
    tokenAmountIn
```

```
new_agents.add(
    PublisherAgent(
        name="publisher",
        USD=0.0,
        OCEAN=self.ss.publisher_init_OCEAN,
        pub_ss=pub_ss,
    )
)

new_agents.add(
    DataconsumerAgent(
        name="consumer",
        USD=0.0,
        OCEAN=self.ss.consumer_init_OCEAN,
        s_between_buys=self.ss.consumer_s_bt,
        profit_margin_on_consume=self.ss.co
    )
)
```





**Data markets 1/2:
Quick Intro to Ocean**

What is Ocean?

Ocean is...

1. A **community** of individuals and orgs driving to the mission
2. A **token** (OCEAN) with incentives to grow & sustain the ecosystem
3. A **set of tools** as public infrastructure to facilitate the mission



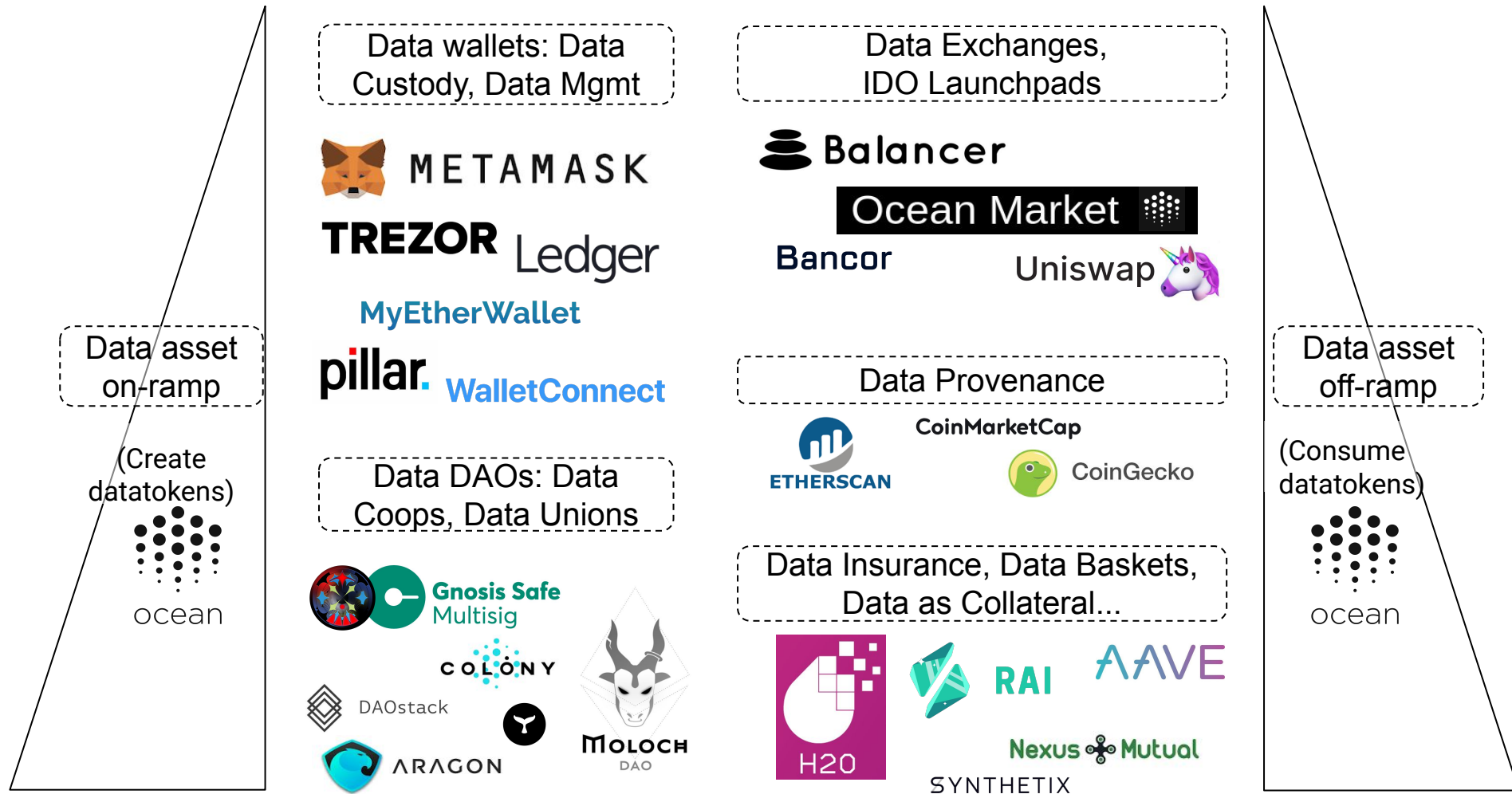
Ocean Tools

- **Key principle:** datatokens
- **Ocean backend:** smart contracts + Py + JS. On Eth, Polygon, ..
- **Ocean Market:** dapp
- **OceanDAO:** grants program



Key principle: Ocean Datatokens

Ocean makes it easy to publish data services (deploy and mint ERC20 datatokens), and to consume data services (spend datatokens). Crypto wallets, exchanges, and DAOs become *data* wallets, exchanges, and DAOs.



Ocean.py, js

Programmatically publish datatokens, data DEXes ..

<https://github.com/oceanprotocol/ocean.py/blob/main/READMEs/datatokens-flow.md>

```
import os
from ocean_lib.example_config import ExampleConfig
from ocean_lib.ocean.ocean import Ocean
from ocean_lib.web3_internal.wallet import Wallet

private_key = os.getenv('TEST_PRIVATE_KEY1')
config = ExampleConfig.get_config()
ocean = Ocean(config)

print("create wallet: begin")
wallet = Wallet(ocean.web3, private_key, config.block_confirmations, config.transaction_timeout)
print(f"create wallet: done. Its address is {wallet.address}")

print("create datatoken: begin.")
datatoken = ocean.create_data_token("Dataset name", "dtsymbol", from_wallet=wallet)
print(f"created datatoken: done. Its address is {datatoken.address}")
```



Congrats, you've created your first Ocean datatoken! 🐙

Ocean Market

market.oceanprotocol.com

- Data on-ramp (publish)
- Data off-ramp (consume)
- DEX, for data

The screenshot shows the Ocean Market website interface. At the top, there is a navigation bar with the Ocean Market logo, a 'PUBLISH' button, a 'HISTORY' button, a 'Get MetaMask' button, and a settings icon. A beta notice is displayed below the navigation bar. The main heading is 'Ocean Market', followed by the tagline 'A marketplace to find, publish and trade data sets in the Ocean Network'. A search bar with the placeholder text 'What are you looking for?' and a 'SEARCH' button is prominently featured. Below the search bar, there is a 'Data Partners' section. Three data listings are visible:

ID	Data Title	Group	Price (OCEAN POOL)
WONKRI-42	Leading retail brands and consumer preferences - over 36,000,000 points of data	Building Block Group	3,447.227
CHACOD-81	Bitcoin Sentiment Data	Building Block Group	2,011.976
STROCT-64	Bitcoin Sentiment Analysis	Building Block Group	4,098.248



OceanDAO Grants

\$100K+ available per month. Anyone can apply

<https://oceanprotocol.com/dao>

OCEANDAO

OceanDAO Grants

OceanDAO offers community grants curated by OCEAN holders, towards growing the Ocean ecosystem. Funding is available for building software that uses Ocean, unleashing data, outreach, and improving OceanDAO itself.

[SUBMIT PROPOSAL](#) [VIEW PROPOSALS](#) [VOTE](#)

Grant Proposal Template

Part 1 - Proposal Submission (*Mandatory)

Name of Project:

____ (>=1 words)____

Proposal in one sentence:

____ (1 sentence)____

Description of the project and what problem is it solving: (You can give more details in "proposal details" section farther down.)

____ (1 paragraph)____

Grant Deliverables: (Target deliverables for the funding provided.)

- __ (Grant Deliverable 1) __
- __ (Grant Deliverable 2) __
- __ (Grant Deliverable 3) __
- ...

A transparent shrimp is shown swimming in a tank, with a small camera attached to its back. The background is filled with purple coral. The text "Data markets 2/2" and "TE for data markets" is overlaid on the image.

Data markets 2/2

TE for data markets

Data Markets TE: Process

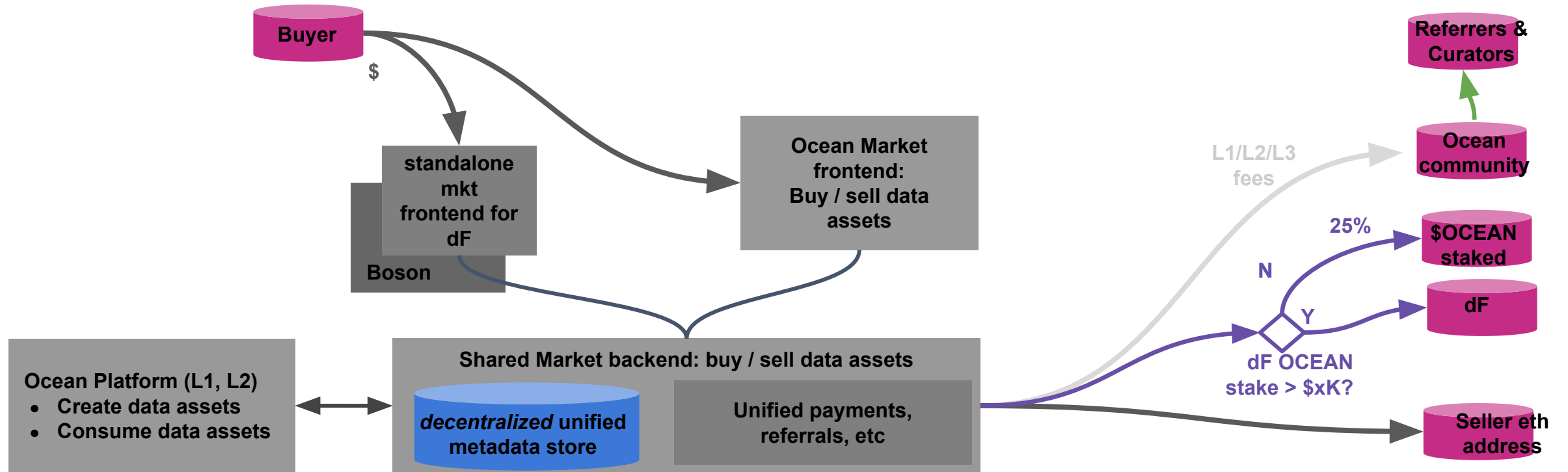
- Goals
- Design
- Implementation
- Verification

We'll use our experience with Ocean Protocol.

TE for Ocean Data Markets: Goals

- Drives health of \$OCEAN: as mkt \$ vol goes up, \$OCEAN goes up
- Incentivizes people to “do work”, aka add value (more datasets, curation)
- Drives virality, i.e. incentivizes people to refer others to Ocean
- Basic design is simple to understand & communicate
- Each 3rd-party market can also get all the characteristics here. E.g. virality

TE for Ocean Data Markets: Chosen design



- As \$ volume goes up, it drives \$OCEAN.
- Gets “work” and skin-in-the-game by curators, referrers, third-party marketplace owners
 - If you’re doing referrals and you drive volume↑, for more rewards you need stake↑
 - Same for curation

TE for Ocean Data Markets: Implementation

A realization: AMMs implements the “Chosen TE design”, and meets “TE Goals”.

Details:

- Datatoken-OCEAN AMMs. LPing = staking = curating. LPs get a % of swap volume.
- Store metadata on-chain
- Deploy to Ethereum mainnet
- Datatoken consume() sends a % to marketplace runner, and to Ocean community



TE for Ocean Data Markets: Verification

1. **Humans.** Subjective discussions, with increasing # people. 1 → 2 → key stakeholders
 - Discussions among team
 - Discussions with close collaborators (Fabric.vc, Balancer)
2. **Software.** Spreadsheet → agent-based sim
 - Built Py & JS drivers for Balancer, and make extensive unit tests
 - Did not do high-fidelity simulations of token dynamics. Why: (a) AMMs are already live (b) given the first point it wasn't worth the time commitment.
3. **Economic (live).** Can ratchet value-at-risk over time. People can choose risk/reward tradeoff.
 - Launched Ocean Market with lots of writings & caveats (e.g. "beta"). "Test in prod" ;)
 - People did choose risk/reward tradeoff. Some made \$, some lost, some simply tested.
 - Observed community response to Ocean Market, and token dynamics.
 - Made adjustments accordingly. Being live was key to rapid improvements in what mattered.
 - Most notable TE adjustment: 10/90 OCEAN/DT → 50/50 → 70/30. It helped a lot.
 - Further TE improvements identified around "Safer Staking / Better IDOs". (Built in next version)

TE For Data Markets: Result: Ocean Market

<https://market.oceanprotocol.com>


- It's a decentralized exchange (DEX), tuned for data.
- Webapp + datatokens + AMMs (Balancer)
- Actions: publish data, buy, sell, consume, stake

The screenshot shows the Ocean Market web application interface. At the top, there is a navigation bar with the Ocean Market logo, a 'PUBLISH' button, a 'HISTORY' button, and a 'Get MetaMask' button. A warning banner states: 'We are in beta. Please familiarize yourself with [the market](#), [the risks](#), and the [Terms of Use](#).' Below this, the main heading is 'Ocean Market' with the subtitle 'A marketplace to find, publish and trade data sets in the Ocean Network.' A search bar with the placeholder text 'What are you looking for?' and a 'SEARCH' button is prominently displayed. Below the search bar, there is a 'Data Partners' section. The main content area features three data listings:

ID	Data Title	Provider	Value
WONKRI-42	Leading retail brands and consumer preferences - over 36,000,000 points of data	Building Block Group	3,447.227 OCEAN POOL
CHACOD-81	Altcoin Sentiment Data	Building Block Group	2,011.976 OCEAN POOL
STROCT-64	Bitcoin Sentiment Analysis	Building Block Group	4,098.248 OCEAN POOL

Live Example: Ocean Market: Dataset Publish Flow

<https://market.oceanprotocol.com/publish>

PUBLISH

Publish

Highlight the important features of your data set to make it more discoverable and catch the interest of data consumers.

Given the beta status, publishing on Rinkeby first is strongly recommended. Please familiarize yourself with [the market](#), [the risks](#), and the [Terms of Use](#).

Title*

Enter a concise title.

Description*

Add a thorough description with as much detail as possible. You can use [Markdown](#).

File*

 ADD FILE

Please provide a URL to your data set file. This URL will be stored encrypted after publishing.

Sample file

 ADD FILE

Please provide a URL to a sample of your data set file. This file should reveal the data structure of your data set, e.g. by including the header and one line of a CSV file. This file URL will be publicly available after publishing.

Access Type*

Please provide a URL to a sample of your data set file. This file should reveal the data structure of your data set, e.g. by including the header and one line of a CSV file. This file URL will be publicly available after publishing.

Access Type*

 ▼

Choose how you want your files to be accessible for the specified price.

Datatoken Name & Symbol*

The datatoken for this data set will be created with this name & symbol.

Author*

Give proper attribution for your data set.

Tags

Separate tags with comma.

Terms & Conditions*

Ocean Marketplace Terms and Conditions (this "Agreement") is made and entered into by and between Ocean Protocol Foundation Ltd., with office at The Commerze @ Irving, 1 Irving Place, #08-11, Singapore, 369546 Singapore ("Ocean") and the legal entity set forth in the Account Information ("Customer"). It governs Customer's access to and use of the Ocean Marketplace (as defined below) and takes effect on the date of its acceptance by Customer (the "Effective Date"). Customer represents being lawfully able to enter into contracts and having legal authority to bind Customer's entity.

DEFINITIONS

"Service"*** means all websites, software and services offered and operated by

I agree to these Terms and Conditions

SUBMIT RESET FORM

Live Example Data Asset: Fixed Pricing (eBay data)


Ocean Market BETA

PUBLISH HISTORY [Get MetaMask](#)

eBay DATASET - 10 Million Data Points (1,000,000 Product Listings)

Data Reservoir

Exceptional Whale Token – EXCWHA-70 ↗
Published by [0x98EA...16E4](#) – Etherscan ↗



DATA RESERVOIR

This dataset has a massive total of over 10 million data points from over 1,000,000 product listings on eBay using the electronics category. This dataset is from the first week of November 2020.

- Updated monthly

What's included in the dataset?

The dataset is in xlsx format and each line shows 10 data points with the date & time scraped. The following is included in this dataset:

- *Seller name
- *Seller rating
- *Item category
- *Item ID

USE POOL TRADE

html

2,639.166 OCEAN POOL
= €1,211.94

BUY

For using this data set, you will buy 1 EXCWHA-70 and immediately spend it back to the publisher and pool.

No account connected
Please connect your Web3 wallet.

Live Example Data Asset: Dynamic Pricing (Consumer Data Streams)

The screenshot displays the Ocean Market interface. At the top left is the Ocean Market logo with a 'BETA' tag. Navigation links for 'PUBLISH' and 'HISTORY' are visible, along with a 'Get MetaMask' button and a settings icon. The main heading reads 'AtlantisStream.io - Realtime Consumer Data Streams'. The asset listing on the left includes the title 'Atlantis Streams', the token 'Meretricious Manatee Token - MERMAN-13', and the publisher '0x4f40...50B3'. A description states it is a crowdsourced dataset of real-time consumer data streams. A notice dated 11/17/2020 mentions the project is in pre-alpha and will migrate to compute-to-data. Social media links for Website, Newsletter, Telegram, Twitter, Discord, and Github are provided. Business contact information includes 'Contact our founder' and 'Email us at team@atlantisstream.io'. A 'How it works' section is partially visible at the bottom.

On the right, a dynamic pricing modal is open. It features tabs for 'USE', 'POOL', and 'TRADE'. The 'POOL' tab is selected, showing a price of '289.698 OCEAN POOL' which is equivalent to '€132.88'. A 'BUY' button is present. Below the price, a note explains: 'For using this data set, you will buy 1 MERMAN-13 and immediately spend it back to the publisher and pool.' At the bottom of the modal, a red error message states 'No account connected' and prompts the user to 'Please connect your Web3 wallet.'

Example Data Asset: A Data Union (Swash)

The screenshot shows the Ocean Market interface. At the top left is the Ocean Market logo with a 'BETA' badge. Navigation links for 'PUBLISH', 'HISTORY', and 'Connect Wallet' are visible. The main heading is 'Swash - Consumer Browsing Data'. The asset listing includes the publisher 'SwashData Tech Oy', the asset name 'Tasty Lobster Token - TASLOB-45', and a description of the data union. A modal window is open, showing a 'zip' file of 68.85 MB for sale at 31,958.954 OCEAN (€14,448.80). The modal has 'USE', 'POOL', and 'TRADE' tabs, and a 'BUY' button. A message at the bottom of the modal states 'No account connected' and prompts the user to connect their Web3 wallet.

SwashData Tech Oy

Tasty Lobster Token – TASLOB-45 ↗
Published by SwashData Tech Oy — Home ↗ Twitter ↗ Etherscan ↗

Swash is creating the world's first **Data Union**. It crowdsources users' surfing data through a browser plugin (available on Chrome, Firefox, Brave, Edge, and more) and shares profits with users. This lets Swash provide data buyers with unrivaled zero-party consumer data at scale, from all over the web, guaranteeing data quality and user consent. The increasing number of users will grow the value of Swash data assets over time.

Use cases

Market intelligence, Consumer insights, E-commerce analytics, AI/ML, and Advertising optimisation

UPDATE: November 21th 2020:

- Number of data points: 800K (+100k since last update)
- Data Union members: 1600 (+100 since last update)
- Geo-coverage: Worldwide

USE POOL TRADE

zip
68.85 MB

31,958.954 OCEAN POOL
= €14,448.80

BUY

For using this data set, you will buy 1 TASLOB-45 and immediately spend it back to the publisher and pool.


No account connected
Please connect your Web3 wallet.

Live Example Data Indexes for Ocean Market

Quality Metrics from the Community, Free & For Sale

Tokens: 524 OCEAN Price: \$0.42 OCEAN Market Cap: \$148,650,190.67 Tokens Volume (24h): \$49,836,028.19 (49,836,028.193 OCEAN) To

Data Market Cap

powered by 

Today's Token Prices by Market Cap

The global OCEAN market cap is \$30,449,817.34, a ^9.8% change over the last day.

< Page 1 >

Name	Price	Market Cap	Volume (24h)	Circulating Supply	Tags
Intransigent Fugu Token INTFUG-26	\$9,998.00	\$9,998,000.00	\$9,998,000.00 1,000 INTFUG-26	1,000 INTFUG-26	location-data-uk-driving
Sclerotic Eel Token SCLEEL-38	\$3,115.00	\$3,115,000.00	\$0.00 0 SCLEEL-38		
Jocular Clam Token JOCCLA-51	\$2,100.00	\$2,100,000.00	\$0.00 0 JOCCLA-51		

rugpullindex.com

The first decentralized data set index in the world.

Last updated on 2020/12/11 (updated every day at midnight)

# (1d Δ)	Symbol	Score	Gini	Liquidity (OCEAN)	Price (OCEAN)	
1 o	QUICRA-0	16.60	0.93	554,838	498.85	LP
2 o	TREPEL-36	5.73	0.70	44,219	91.03	LP
3 o	MERMAN-13	5.11	0.86	82,213	187.29	LP
4 o	TASLOB-45	3.01	0.88	57,053	33,500.49	LP
5 o	LUMSTA-42	2.13	0.97	150,159	33,270.58	LPs Trade



Check out this datatoken overview of our datapool:
Ocean Market  Pool trends and charts 

Price to buy increased to 29 \$ocean because in the last 2 days around 30 'WONPEL-82' were traded out (not bought).



Live Example Data Ecosystem

Several startups launched in first mo. Now, >25 teams



datapplications
 @DataReservoir Follows you
 Joined November 2020
 27 Followers

datapplications we strive to provide businesses & researchers with high quality, data that facilitates new market insights, & drives innovation.

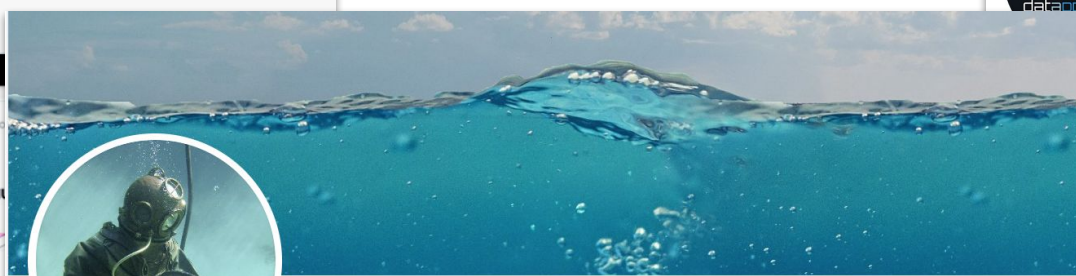
DataUnion.App @DataunionA · Nov 15
 There is a first review on YouTube about the dataset:
youtu.be/CtETKKnX1fk
 Thank you for that @profit_ai

#OceanProtocol

DataUnion.app - Image & Annotation Valt

Notice

This dataset and the software stack behind it are under constant development. Check our website for updates. This dataset will also be migrated to compute-to-data when that will be available in the marketplace. This version is pre alpha so staking is possible but contributions are still not possible. This is due to the time restrictions during Odyssey Momentum where this step will be shown as part of the competition. The initial data contained in the dataset is open source data.



|opendata| Data Brokers
 @databrokers1 Follows you

datawhale @realdatawhale · Nov 25
 Our proprietary staking rating formula for "Directory" will be based on metrics that don't lie: numbers.

The highest weightage for the rating will be based on number of sales, number of transactions & decentralization.

Our TREPEL-36 sold more than all top pools combined 🐳

Dataset/Title	Datatoke	Datatoke-Supply	Average 7-Day Liquidity	Number of Sales	Number of Contract Txn	Number of Token Transfers	Total Token Holders	GINI Index (via rugpullindex.com)
Ocean Marketplace Directories & Pool Settings	TREPEL-36	500	146,894	255	2,216	854	854	0.72
Search - Consumer Browsing Data	TASLOB-45	20	151,348	10	8,432	1,182	1,182	0.87
Product Pages of 1,044,709 Products on Amazon.com (processed data)	LUMATA-42	50	138,994	-	2,027	45	325	0.97
Leading retail brands and consumer preferences >= 36,000,000 pairs of data	WOCOR-42	20	83,931	-	2,106	34	345	0.80
PLIACE 858 Mafia Merely Compositions / Samples	IRCCOR-52	60	35,330	2	851	19	230	0.98
Villy DATASET - 10 Billion Data Points (1,000,000 Product Listings)	ENCORNA-10	9	43,085	1	498	8	152	0.94
Bitcoin Sentiment Data	CHOCOD-81	20	28,508	-	3,705	30	467	0.84
Bitcoin Sentiment Analysis	STRQCT-44	9	33,020	-	830	5	242	0.83
DataUnion.app - Image & Annotation Vault	QUICRA-0	1,000	642,298	-	595	68	272	0.90
AtlantisStream.io - Realtime Consumer Data Streams	MERMAN-13	857	148,550	4	743	235	154	0.88
OceanMap - Dataset Evaluation and Charting	ADANTA-60	997	81,781	13	1,187	322	350	0.96
OceanMarket - Pool trends and charts (2)	WOWPEL-82	525	35,882	3	299	19	66	0.81

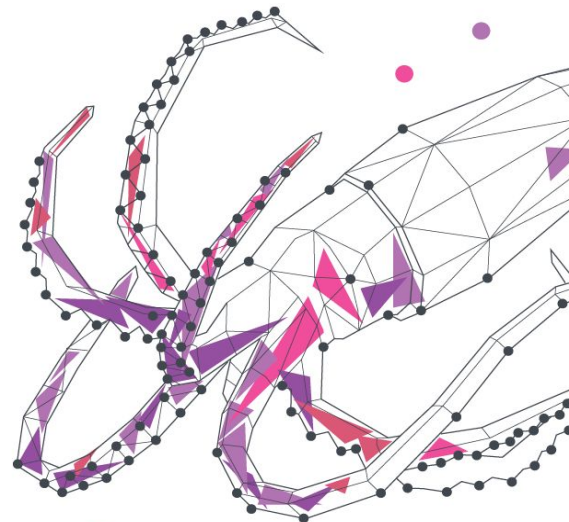
DATA RESERVOIR

Data Reservoir
 @DataReservoir Follows you
 Provider of valuable datasets on the Ocean Marketplace.
 Joined November 2020
 70 Following 329 Followers



Live Example: Ocean Market Stats After First Month

(Six months later, it's about 3x the numbers shown)



Data Services: “Static Uri” Service

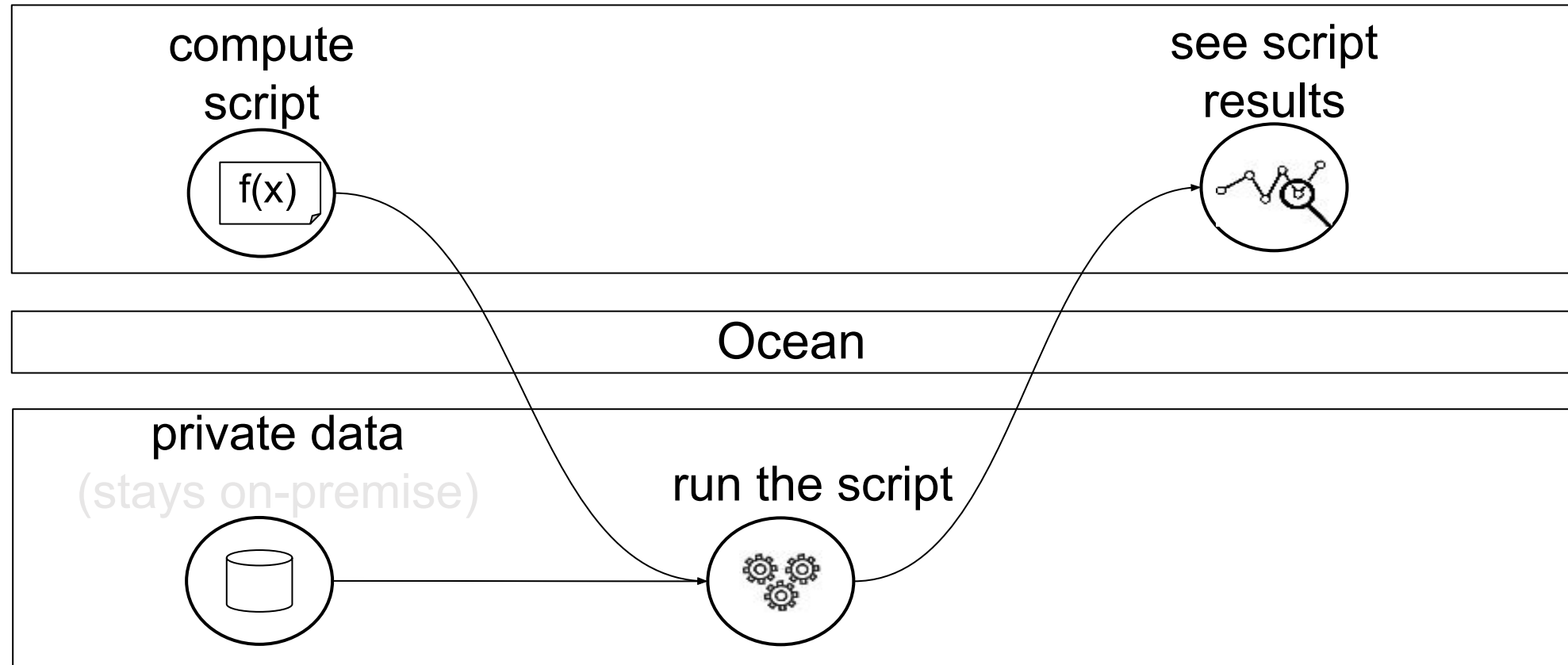
- Publisher encrypts the uri
- Uri gets decrypted upon ‘consume’
- Available in backend and frontend (Ocean Market)

- Works for...
 - static files
 - dynamically-updated files
 - http & Web2 REST APIs
 - IPFS uris
 - and more. Super-flexible.



Data Services: Compute-to-Data Data Service

Buy & sell private data, while preserving privacy

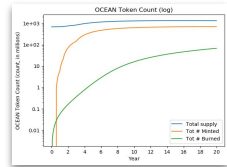
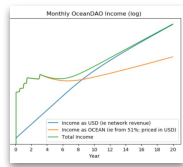
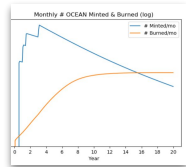
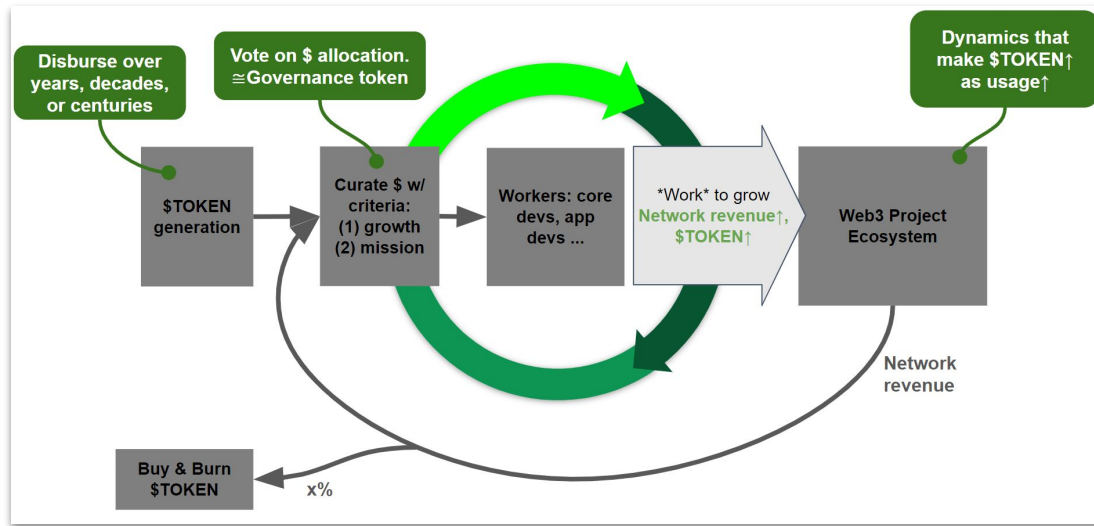




Conclusion

Conclusion

- Intro to TE
- TE for ecosystem sustainability – Web3 Sustainability Loop
- TE for data markets – with live example Ocean Market



market.oceanprotocol.com

Ocean Market **BETA**

PUBLISH HISTORY Get MetaMask

We are in beta. Please familiarize yourself with [the market](#), [the risks](#), and the [Terms of Use](#).

Ocean Market

A marketplace to find, publish and trade data sets in the Ocean Network.

What are you looking for? **SEARCH**

Data Partners ⓘ

WONKRI-42

Leading retail brands and consumer preferences - over 36,000,000 points of data

Building Block Group

Insight into consumer brand preferences and trends based on big data is highly valuable to crypto institutional and retail investors be...

3,447.227 OCEAN **POOL**

CHACOD-B1

Altcoin Sentiment Data

Building Block Group

Sentiment data is highly valuable to crypto institutional and retail investors be...

2,011.976 OCEAN **POOL**

STROCT-64

Bitcoin Sentiment Analysis

Building Block Group

Sentiment data is highly valuable to crypto institutional and retail investors be...

4,098.248 OCEAN **POOL**