

Micro Lecture - Decentralized Autonomous Organizations

Öz, B., Hoops, F., Ziegler, C., & Matthes, F. (2022). "Blockchain-based Systems Engineering". Lecture Slides. TU Munich.

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1. Overview

- What is a DAO?
- DAO vs Traditional Organisation

2. Core Parts of a DAO

- Community
- Governance
- Treasury

3. How DAOs become DAOs

- BitDAO
- Investing in a Startup
- Token Vesting
- Liquidation of Investments

4. Taxonomy of DAOs

- There is no real consensus yet what how a Decentralized Autonomous Organization (DAO) is defined but the following definitions can be used as a starting point.
 - Decentralized Autonomous Organizations are trustless organizations that automate transactions, operations, and decisions without a trusted third party [Wang].
 - A DAO is a system in which storage and transaction of value and notary (voting) functions can be designed, organized, recorded, and archived and where data and actions are recorded and autonomously executed in a decentralized way [Rikken].
 - DAOs are non-hierarchical organizations that perform and record routine tasks on a peer-to-peer, cryptographically secure, public network, and rely on the voluntary contributions of their internal stakeholders to operate, manage, and evolve the organization through a democratic consultation process [Hsieh].

Wang, Shuai, et al. "Decentralized autonomous organizations: concept, model, and applications." *IEEE Transactions on Computational Social Systems* 6.5 (2019): 870-878.
Rikken, Olivier, Marijn Janssen, and Zenlin Kwee. "The Ins and Outs of Decentralized Autonomous Organizations (Daos)." *Available at SSRN 3989559*.
Hsieh, Ying-Ying, et al. "Bitcoin and the rise of decentralized autonomous organizations." *Journal of Organization Design* 7.1 (2018): 1-16.

DAO vs. Traditional Organization

DAO

Usually flat, and fully democratized.

Voting required by members for any changes to be implemented.

Votes tallied, and outcome implemented automatically without trusted intermediary.

Services offered are handled automatically in a decentralized manner (for example distribution of philanthropic funds).

All activity is transparent and fully public.

A traditional organization

Usually hierarchical.

Depending on structure, changes can be demanded from a sole party, or voting may be offered.

If voting allowed, votes are tallied internally, and outcome of voting must be handled manually.

Requires human handling, or centrally controlled automation, prone to manipulation.

Activity is typically private, and limited to the public.

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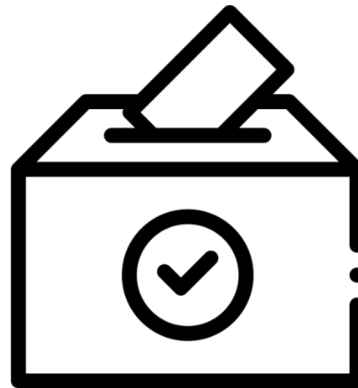
4. Taxonomy of DAOs

What constitutes a DAO?

Core Parts of a DAO



Community



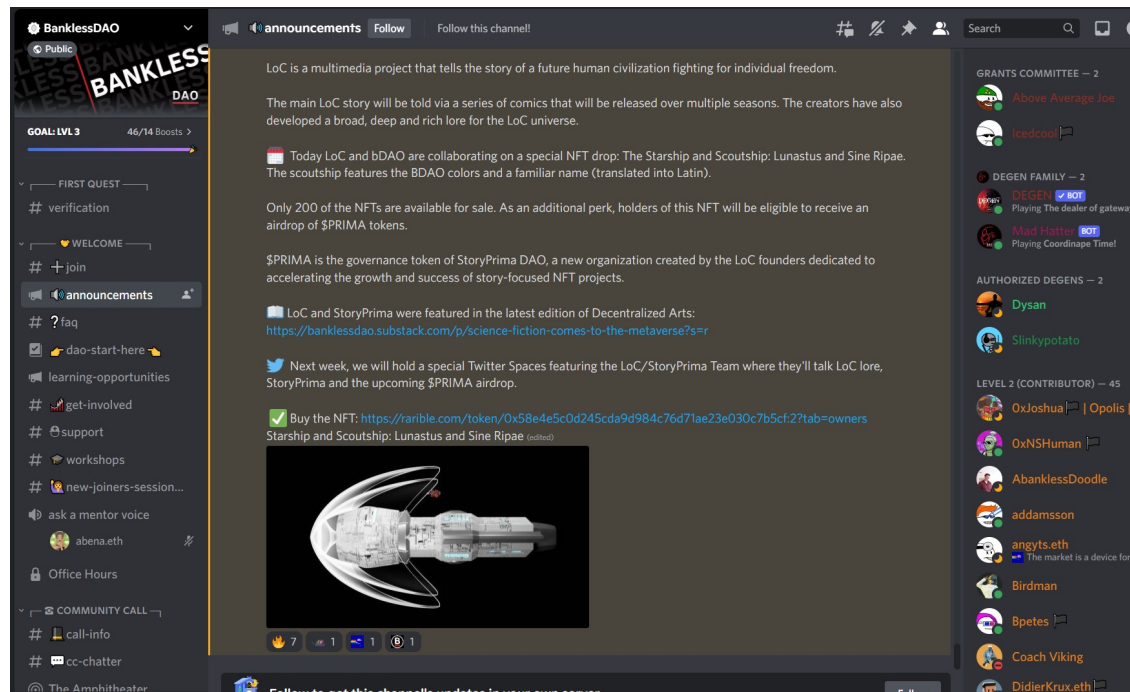
Governance



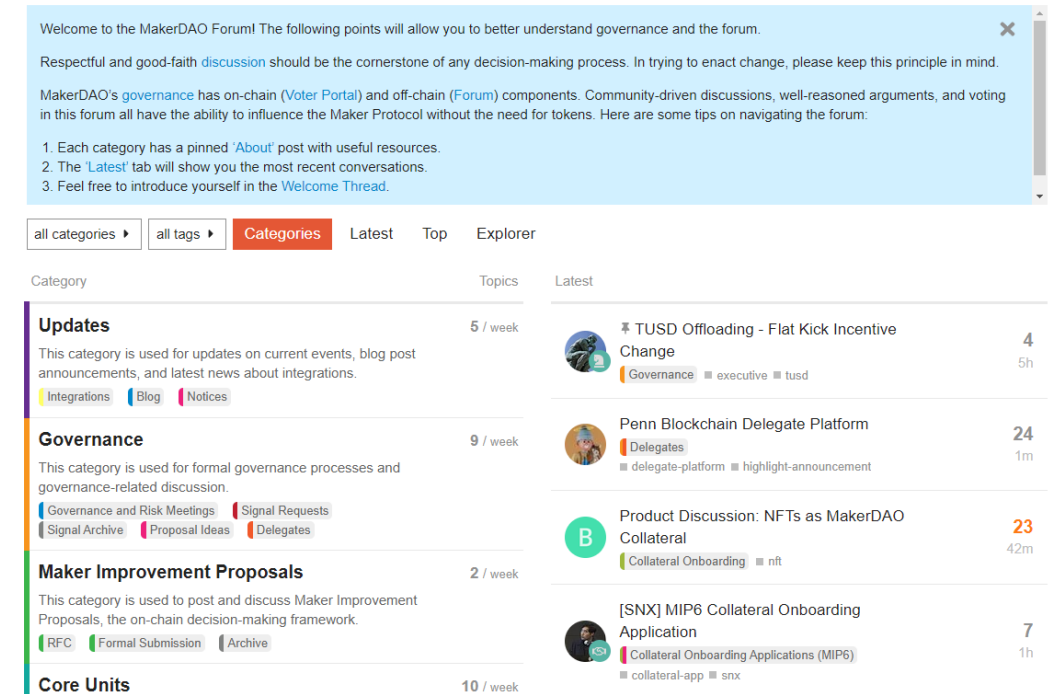
Treasury

- Most, if not all, communication in DAOs is done on Discord channels or forums.
- People are the core of every DAO

Bankless DAO Discord




MakerDAO Forum




- The Members of the DAOs decide what to do next
 - Vote for new projects
 - Vote for compensation of contributors
 - Vote for investment possibilities
 - etc..
- Members can bring up proposals that contain a call to action for the DAO
- Members vote via Tokens (ERC20, ERC721, ERC1155)
- Voting can be off-chain or fully on-chain.
- Execution of governance proposals can be done manually by the members or automatic by smart contracts

DAO Governance: Off-Chain Snapshot Voting

- A snapshot of the token distribution is taken on proposal creation.
- Token holders can vote for a specific time with their tokens by signing a vote and uploading it to IPFS.
- The vote is cryptographically secure but has to be executed manually by the treasury multi-signature holders.



ENS 
51K members


Join

Proposals

New proposal


Delegate

About



Proposals


All ▾

 ENS by 0x0904...9859 Core Closed

[EP10] [Executable] Fund a DAO-Governed Identity Server

Authors: Gregory Rocco, Wayne Chang Description This proposal is for the funding and establishment of a community-run OIDC Identity Provide...


✓ For - 3.1M ENS

 ENS by 0x0904...9859 Core Closed

[EP9] [Executable] Change to Exponential Premium Price Oracle

Summary Proposes to deploy Exponential Price Oracle Contract to replace the current Linear Price Oracle Contract. Abstract In the past we...

✓ For - 3.2M ENS

 ENS by 0x0904...9859 Core Closed


[EP8] [Executable] Reimburse True Names for expenses and tax obligations incurred on behalf of the DAO

Summary Proposes to reimburse True Names Limited for expenses incurred on behalf of ENS and the DAO. Abstract Since ENS started allowing re...

✓ For - 3.2M ENS

← Back

[EP10] [Executable] Fund a DAO-Governed Identity Server

Closed  ENS by 0x0904...9859 Core Share ...

Authors: Gregory Rocco, Wayne Chang

Description





This proposal is for the funding and establishment of a community-run OIDC Identity Provider Server for Sign-In with Ethereum, maintained by Spruce.

Temperature check originally from this post



Abstract


Show more

Votes 445

 brantl... Core	For	352K ENS 
 coinbase.eth	For	289K ENS 

Information


Strategie(s)  

IPFS #Qme6unq 

Voting system Basic voting

Start date Mar 16, 2022, 12:00 AM

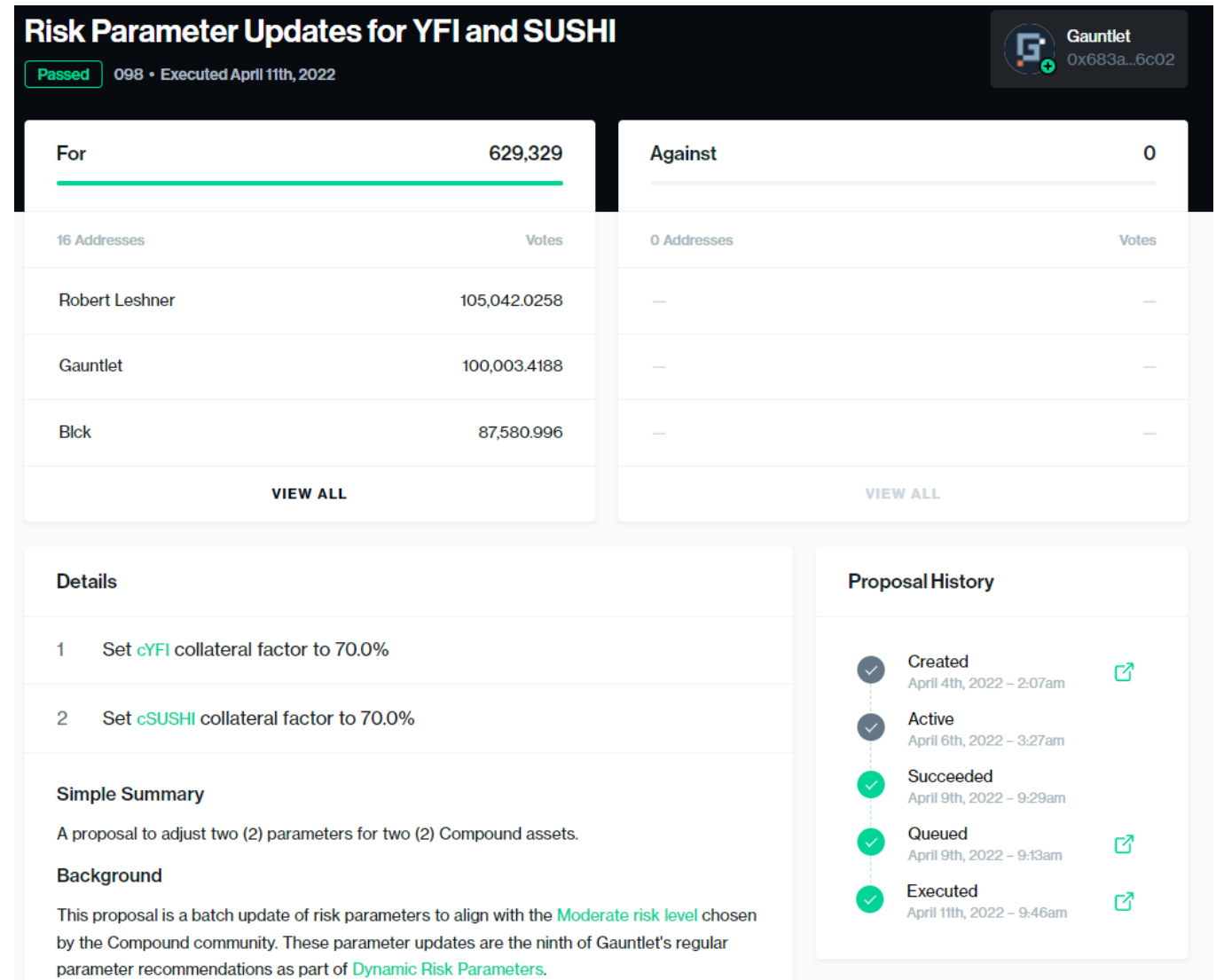
End date Mar 21, 2022, 12:00 AM

Snapshot 14,394,206 

Results

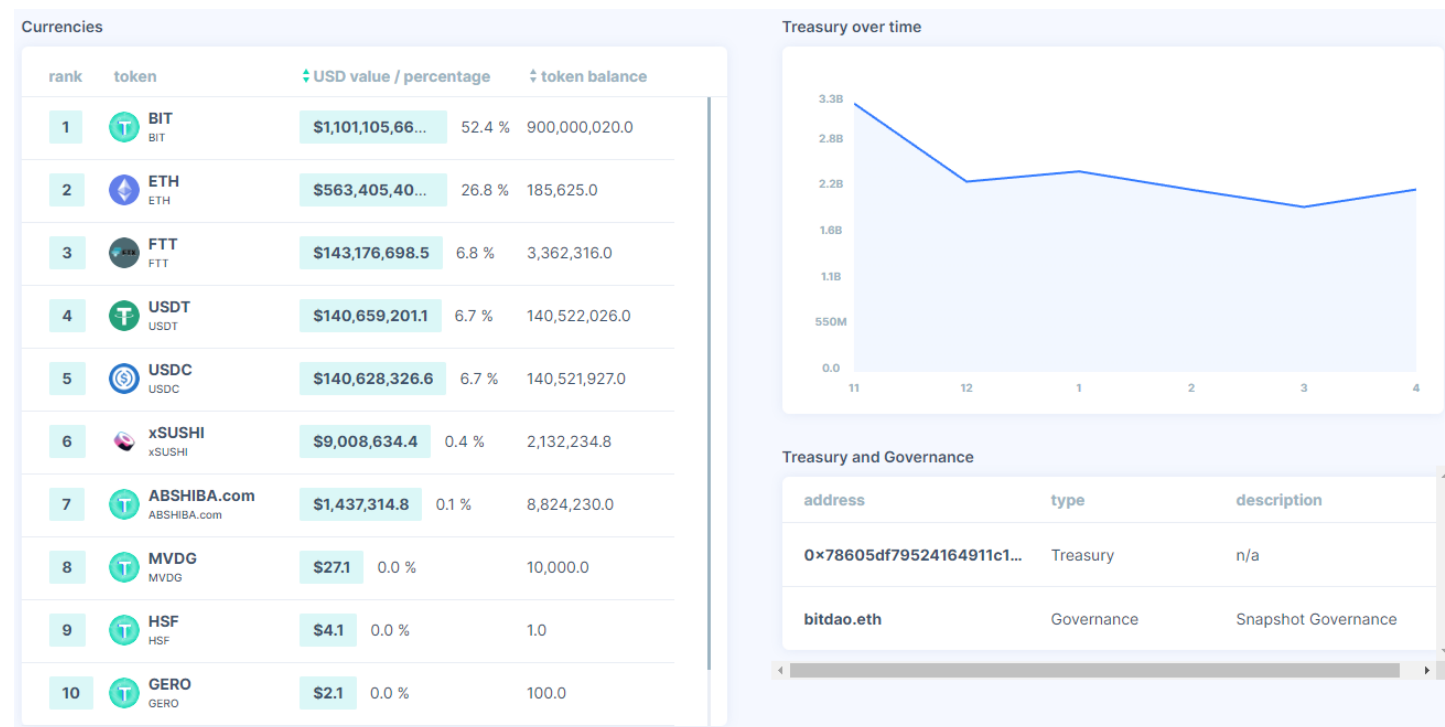
For	3.1M ENS	98.88%
Against	19K ENS	0.62%
Abstain	16K ENS	0.5%

- Everything is On-Chain:
 - Proposals
 - Votes
 - Execution
- Directly after the vote has concluded, the given code is executed (or not) by the voting/controller contract.



DAO Treasury

- Multi-Signature (e.g., [Gnosis Safe](#))
- Can be filled up through Initial Token sales (IEO, IDO, ICO, etc.).
- Although some DAOs may prefer to lock all their assets in a single token (e.g., the native token of a DEX), [this may not always be the smartest move](#).
- Contributors are paid from the treasury through governance proposals.



Treasury of BitDAO: <https://deepdao.io/organization/30d12da9-5fd5-411a-8ca8-1422a4ce1373/finance>

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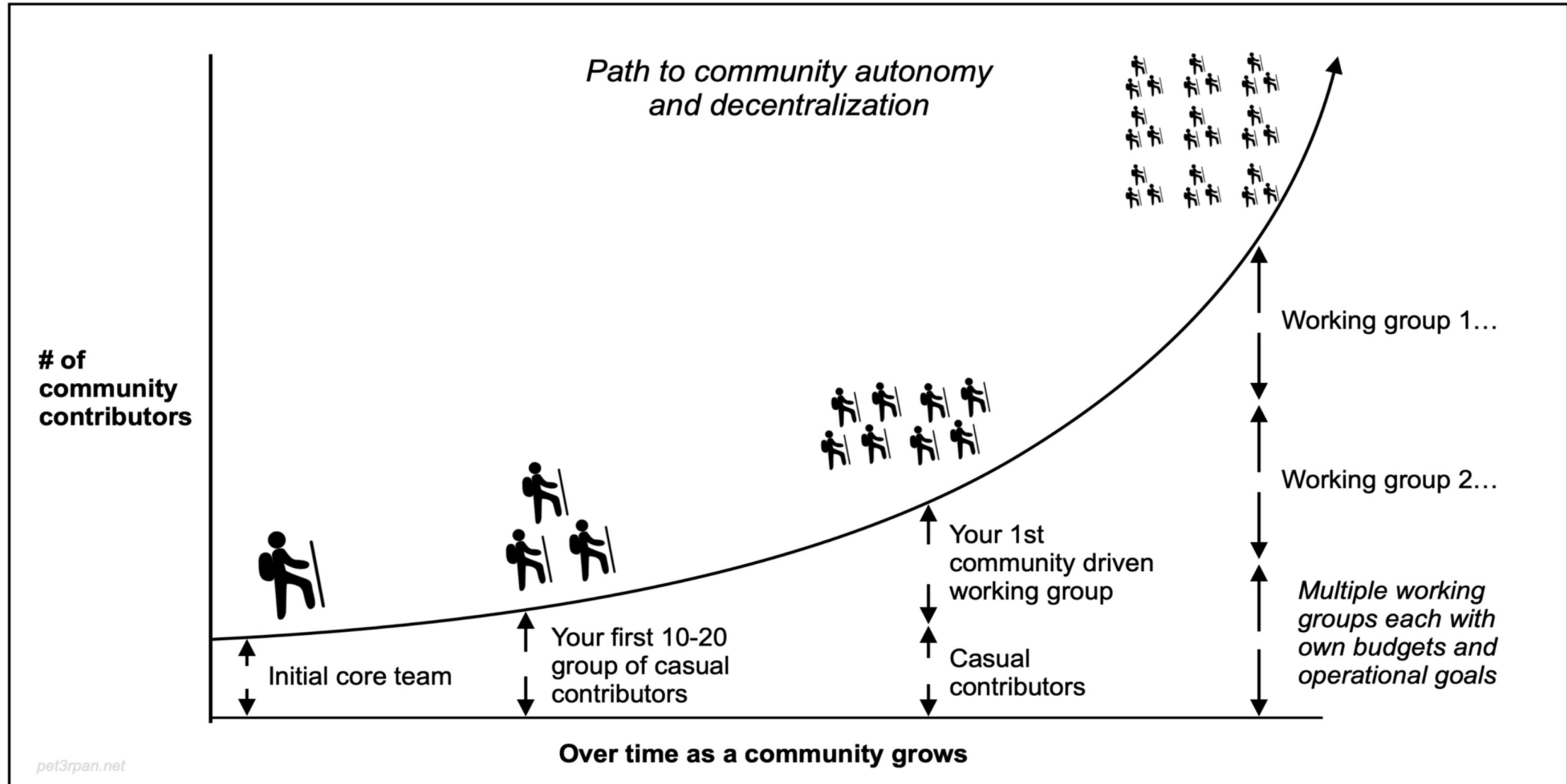
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How DAOs become DAOs



Progressive decentralization

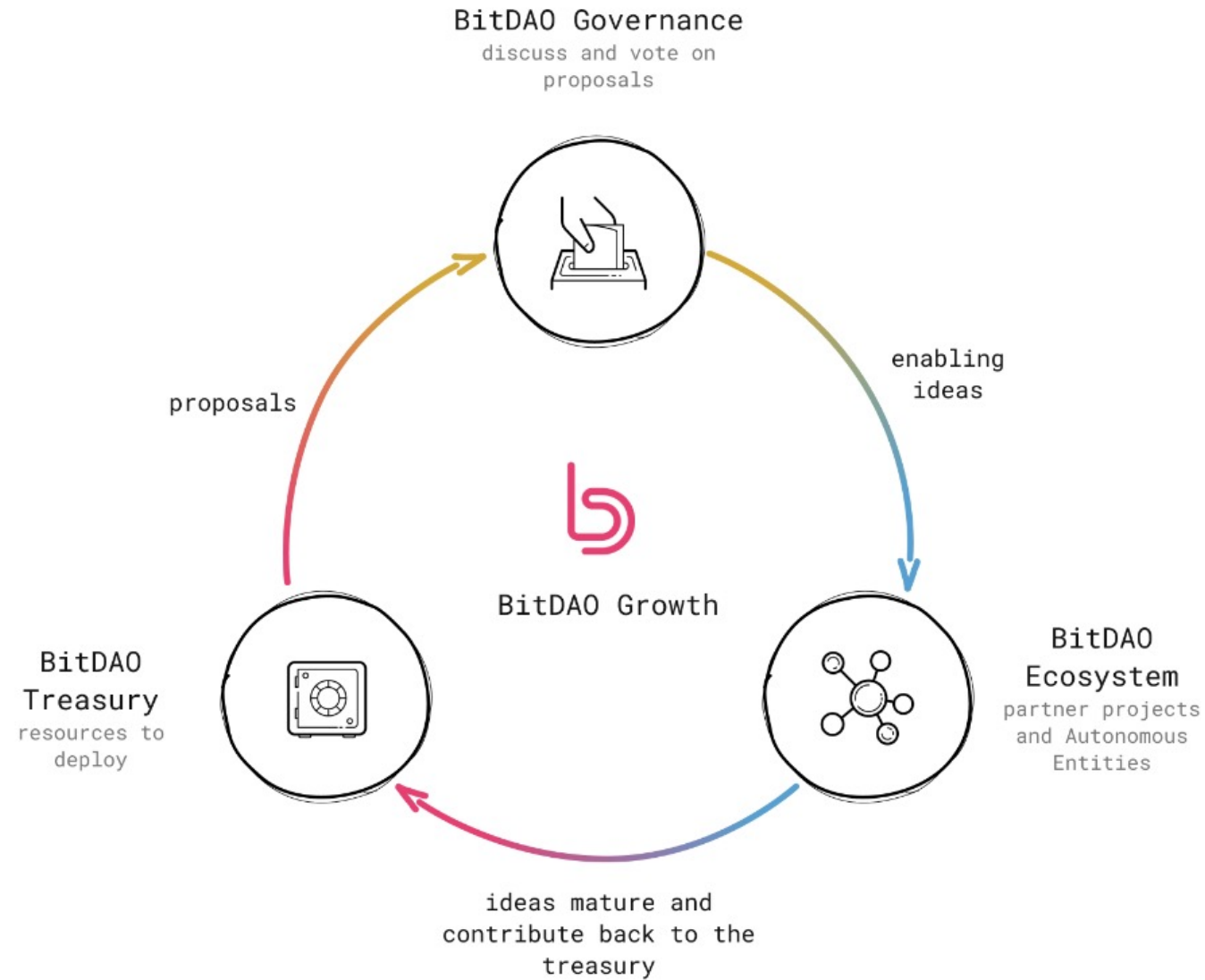
Example of an Investment DAO

Acts as a Venture Capital Firm



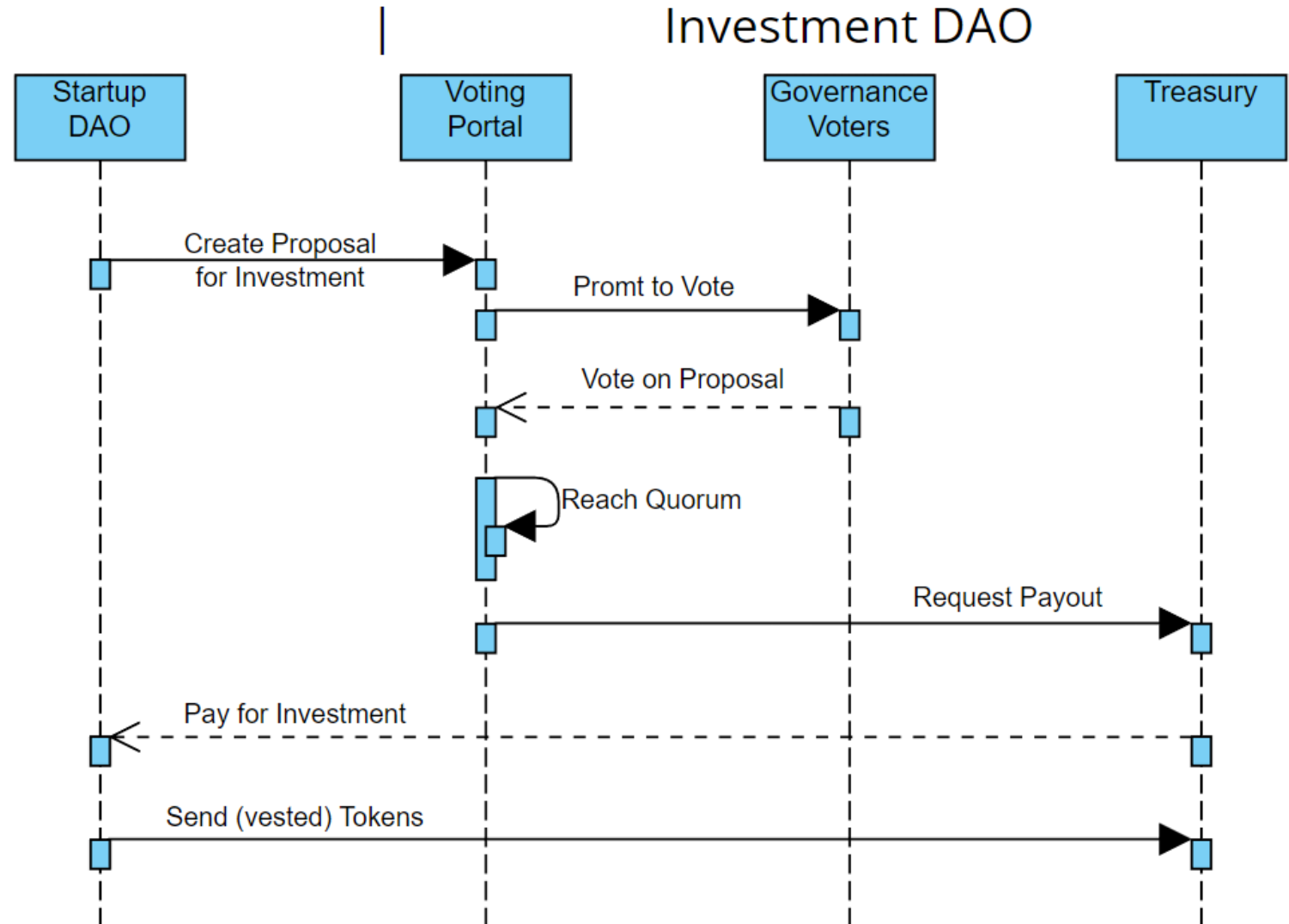
- BitDAO is a DAO with billions in existing assets and billions in forecasted contributions.
- BitDAO aims to support builders of the decentralized economy. It is an open platform for investment proposals that are voted upon by BIT token holders. It is agnostic to chains and projects.
- BitDAO is supported by Peter Thiel, Founders Fund, Pantera, Dragonfly, Spartan, Bybit, etc.

How BitDAO works

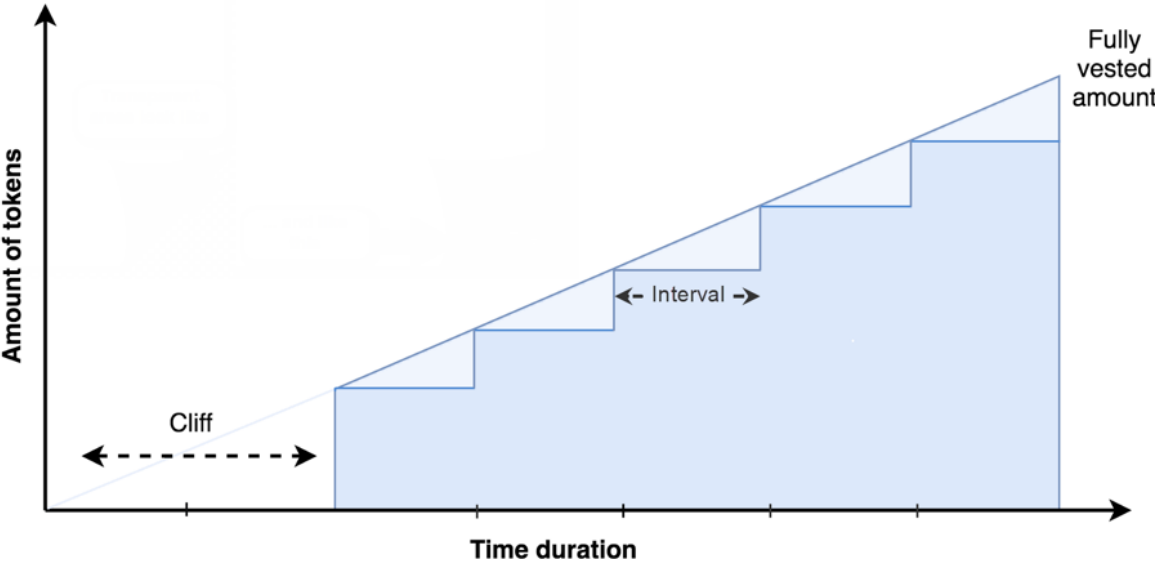
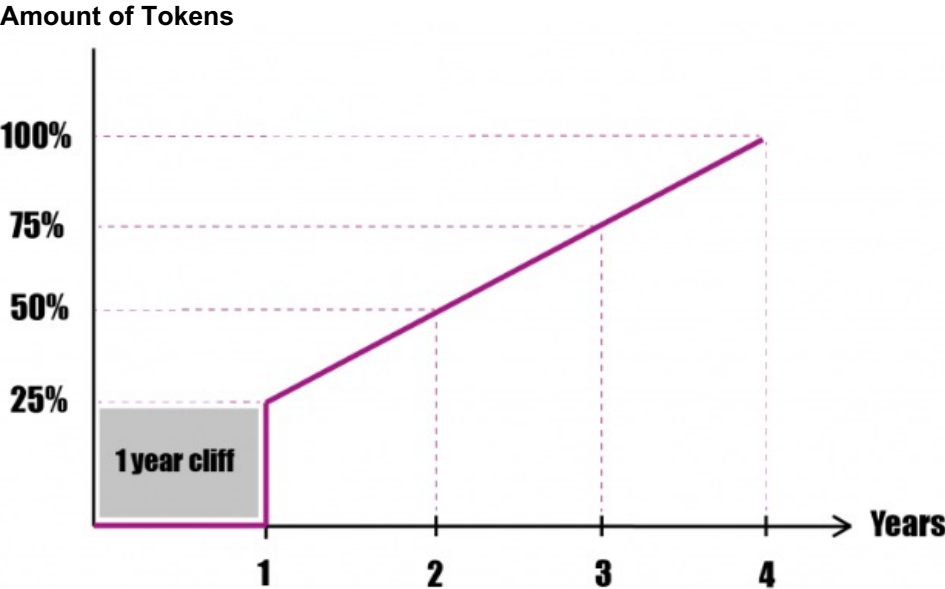


Source of Image and Content: <https://coin98.net/what-is-bitdao-bit>

Investment in a Startup

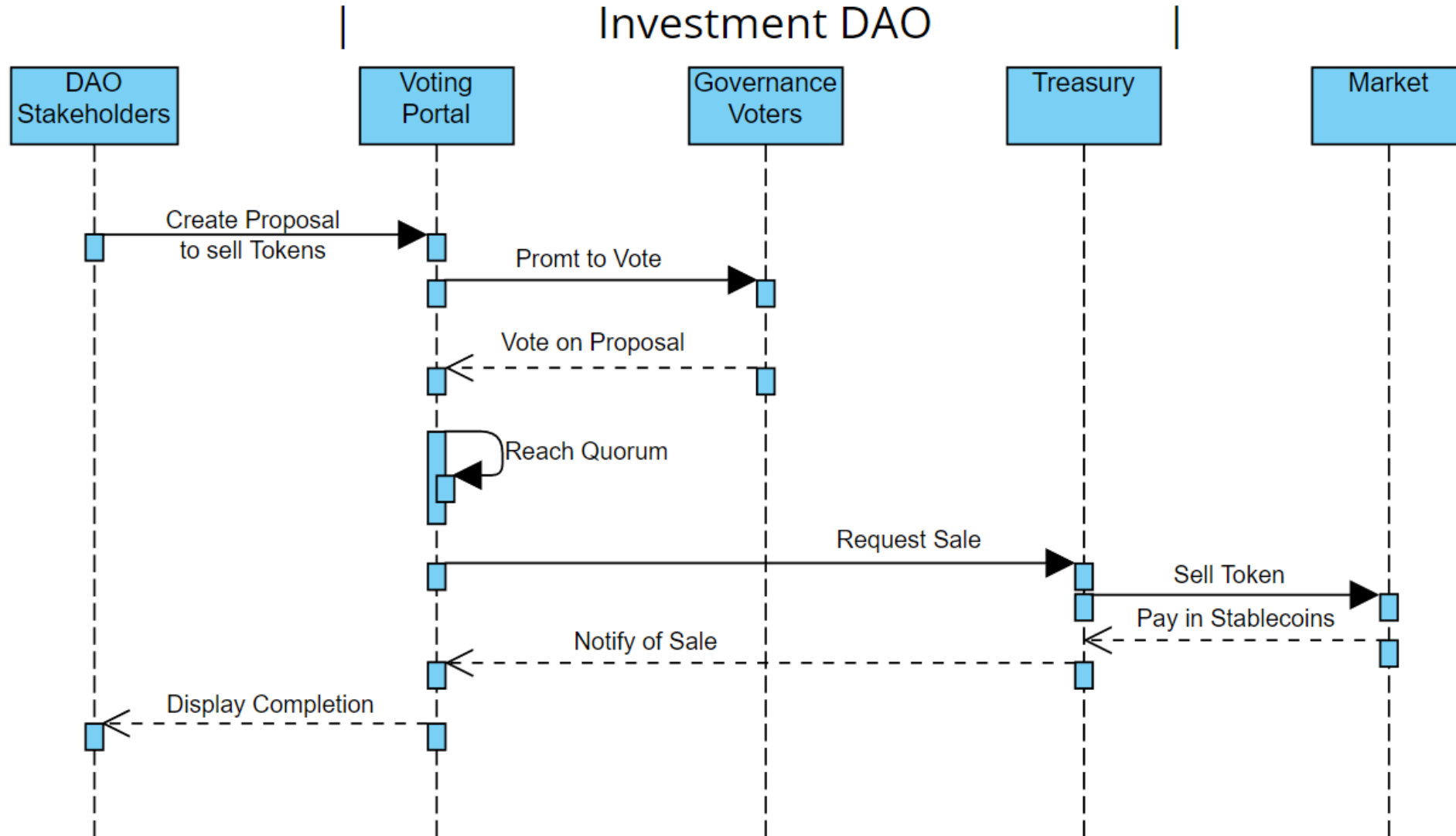


Token Vesting



<https://www.wecanbeheroes.io/media/wiki/linear-vesting/>
<https://cpucoin.medium.com/the-making-of-an-open-source-token-vesting-smart-contract-34274f9ea257>

Liquidation of Investments



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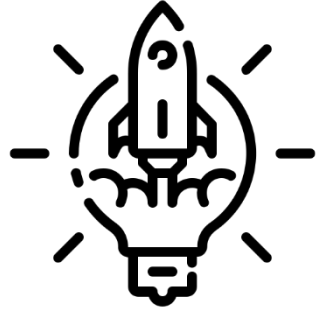
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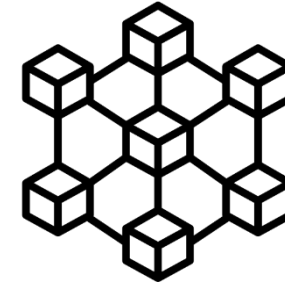
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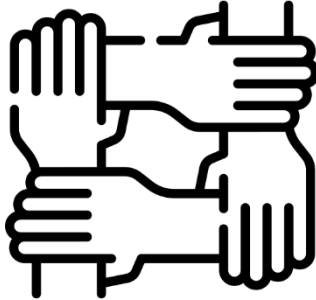
Types of DAOs



Product and Service



On-Chain Product and Service



Networking focused Community



Investment Focused

Possible Taxonomy of DAOs

		Dimension	Characteristics			
Community	Membership	Access	Open (19)	Token Ownership (8)		Token Staked (1)
		Type	Profit from Tokens (16)		Community (9)	
		Is hierarchical	Yes (3)			No (27)
		Anonymity	Anonymous (11)		Pseudonymous (16)	
	Meta	Contributor Rewards	REP Token (2)		Governance Token (13)	
		Purpose	Community Building and Engagement (7)		Product Building and Management (18)	
Governance	Token	Type	Singular (28)			Primary and Reputation (2)
		Supply Cap	Capped (27)			Uncapped (3)
	Process	Entry Barriers	Ownership (23)	Ownership + Application (2)	Invitation (2)	Staking (2)
		is fully Public	Yes (27)			No (3)
		Execution	Automatic (8)			Manual (22)
		has Proposal Creation Restricted	None (7)		#Tokens Owned (12)	
	Voting	is fully On-Chain	Yes (10)			No (20)
		Power	#Tokens Owned (29)			Per Individual (1)
		Limits	None (28)			Per Address (2)
Treasury	Meta	Diversification	None (18)		Some (2)	
		Stakes Tokens	Yes (9)			No (21)
		Capital Gain	Token Sales (9)		Services (16)	
	Setup	Initial Airdrop	Yes (11)			No (18)
		Initial Token Sale	Yes (19)			No (10)

* Numbers in brackets are the sample size for this characteristic

DAOs, A Canon

Sonal Chokshi, Zoran Basich, Guy Wuollet

Share

Contents

definitions & foundations

overviews & guides

applications

stories & journeys

how to's; get started

mechanics & more

What is (and isn't) a DAO? Why do DAOs matter? How do DAOs fit into web3, crypto, the creator economy, future of work, and many other areas?

Inspired by our [NFT Canon](#) earlier this year (and original [Crypto Canon](#)), we've culled the below list of resources for those seeking to understand, build, and otherwise get involved with these “decentralized autonomous organizations” — which represent the future of community, coordination, work... and much, much more. If you have suggestions for quality pieces to add, let us know [@a16z](#).

* * *

Definitions; conceptual foundations, evolutions

Why decentralization matters — decentralized networks aren't a silver bullet, but they offer a much better approach than centralized systems

by Chris Dixon

<https://cdixon.org/2018/02/18/why-decentralization-matters>

The meaning of decentralization — one of the most frequently yet most poorly defined words; reasons for; three types of

IDP Opportunities about DAOs

-  [DAOs: An Investigation of the primary Actors behind successful DAOs](#)
-  [DAOs: An Investigation of Tokenomics, Emission Models and their link to success](#)
-  [DAOs: An Empirical Assessment of Investments in Decentralized Autonomous Organizations](#)
-  [DAOs: An Empirical Analysis of Treasury Diversification in Decentralized Autonomous Organizations](#)

... and more!



Supervised by Christian Ziegler
(christian.ziegler@tum.de)

<https://www.notion.so/tum-cso/Final-Theses-Project-Studies-IDPs-29baca3b9cc44c15b3ceea10eb9cc3ec>

An Example of a Local DAO: PretzelDAO

- Founded by TUM and CDTM Alumni
- Gives talks on local events like muc.xyz
- Joins Hackathons such as EthAmsterdam, Lens, Chainlink and EthNYC
- Works together on Web3 projects

