Airdrops as a governance tool for DAOs?

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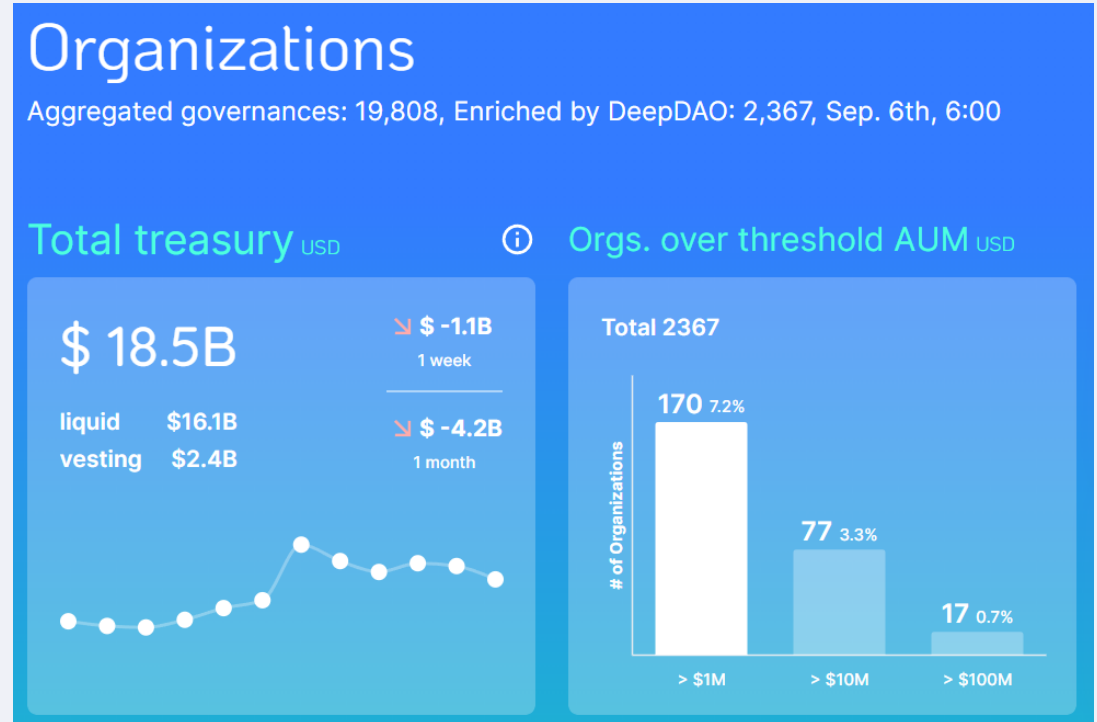
Agenda

1.   Background
     a.   DAOs
     b.   Governance challenges
     c.   Airdrops as an incentive

2.   Data
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     b.   Comparison of the protocols

3.   Evaluation
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     c.   Distribution and holding time
     d.   Snapshot activity
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4.   Results

Exodus to the community

- Growth of the DAO phenomenon, especially 2020 – 2021, Launch of DAO frameworks and DAO tooling

- Collective approach (parallels to other cooperation structures)
-> "member-owned" and "member-governed"

- Regulated by means of smart contracts, "hardcoding business ethics" (Sulkowski 2019)

- DAOs "by design" on a digital level, joint treasury / voting

"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 decentralised way" (Rikken et. al, p. 15).

Organizations
Aggregated governances: 19,808, Enriched by DeepDAO: 2,367, Sep. 6th, 6:00

Total treasury USD   ⓘ   Orgs. over threshold AUM USD

$ 18.5B   ↘ $ -1.1B
                           1 week

liquid $16.1B   ↘ $ -4.2B
vesting $2.4B   1 month

Total 2367

170 7.2%

77 3.3%

17 0.7%

\# of Organizations

> $1M   > $10M   > $100M

Source: https://deepdao.io/organizations

Governance challenges

"On-chain governance refers to rules and decision-making processes that have been encoded directly into the underlying infrastructure of a blockchain-based system" (Reijers et al. 2021, p.822).

— Concerns the decision-making process in DAOs, increased discourse on governance

— Empirical analyses show a high concentration of voting rights in some cases and little participation ("voting fatigue") (cf. Arroyo et al. 2022, cf. Fritsch et al. 2023, cf. Feichtinger et al. 2023), "minority rule" (cf. Barbereau et al. 2022)

— "Dark DAO" scenario (Daian et al. 2018)

"By measuring low decentralisation we find evidence that DAOs might be used as a marketing tool, or worse yet, as means to justify and veil decisions of a ruling dictatorship behind the facade of a community" (Feichtinger et al. 2023, p.15).

Source: https://www.tally.xyz/gov/uniswap/proposal/31?chart=0
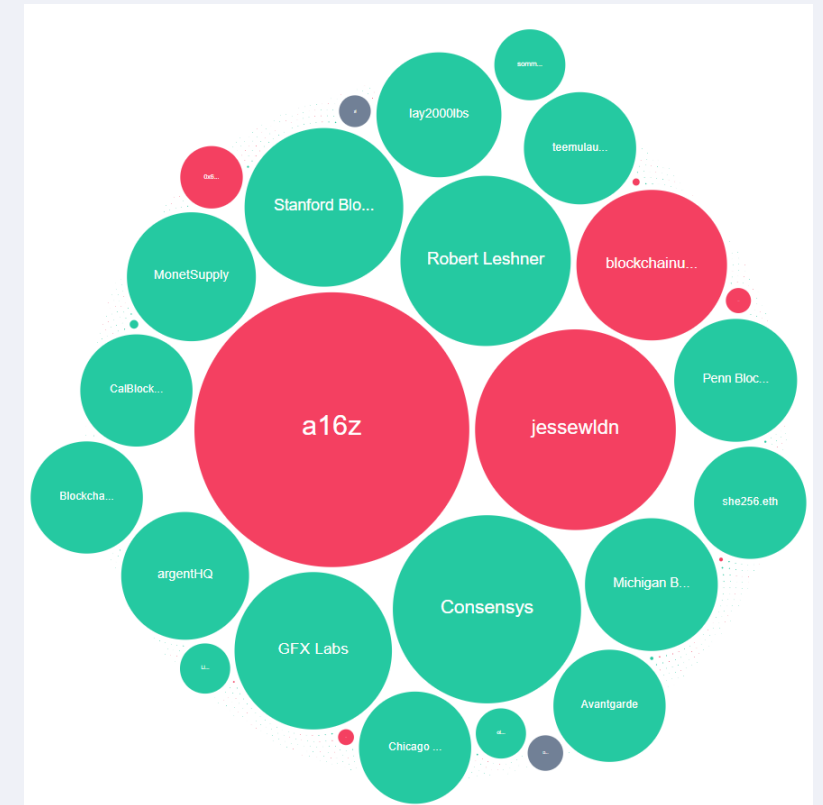
Airdrops as an incentive mechanism

INCENTIVES

"An incentive is an offer of something of value, sometimes with a cash equivalent and sometimes not, meant to influence the payoff structure of a utility calculation so as to alter a person's course of action" (Grant 2002, p.111).

— Direct behaviour in a certain direction

— Cooperation structures in particular are said to have an incentive problem (cf. Borgen 2004)
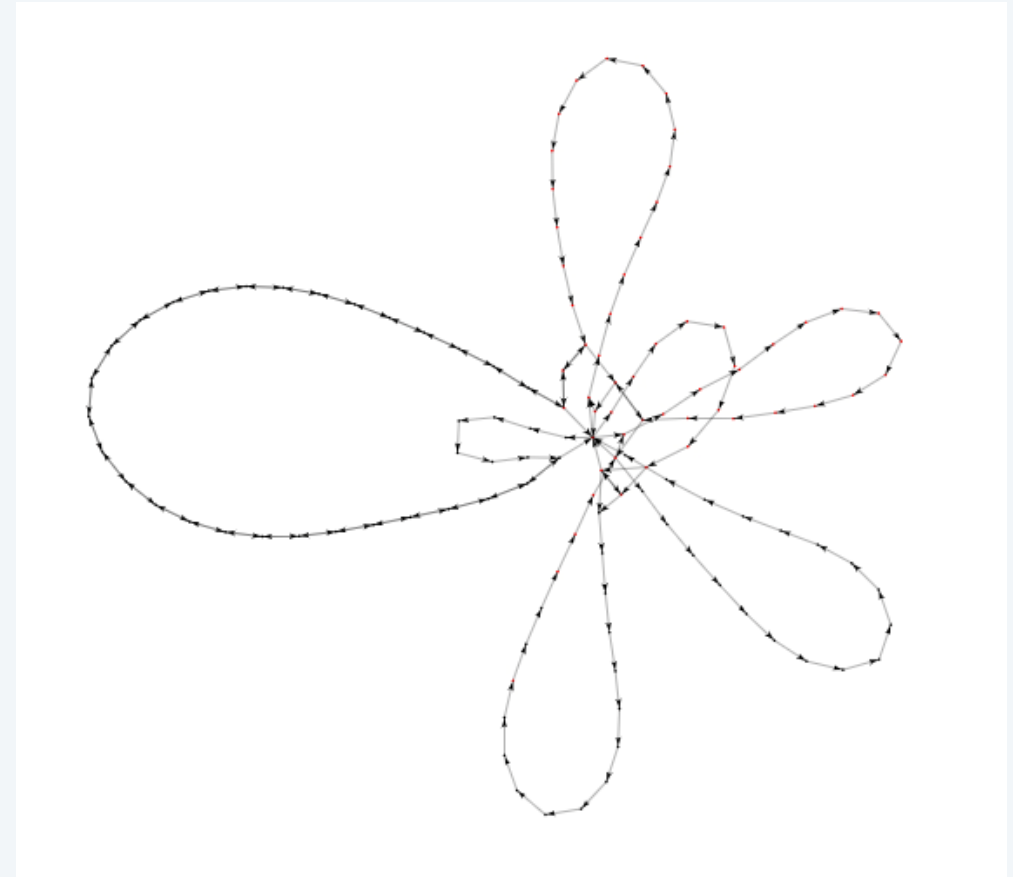
AIRDROPS

— Became popular in the course of ICOs

— Uniswap was the first well-known DAO Airdrop / retrospective Airdrop (against Airdrop Farming)

— Benefits of airdrops (cf. Allen et al. 2023):
  — Countering the "cold start problem"
  — Targeting users (on-chain criteria)
  — Decentralise token distribution
  — **Increase governance activity?**

—> Airdrops as a tool to address governance challenges in DAOs?

Airdrop challenges

— Incentivisation can contribute to airdrop farming (Sybils), "fake users"

— Extrinsic motivator (cf. Grant 2002)

— Airdrops are transferred/sold shortly after the airdrop ("free money") (cf. Fan et al. 2023)

— "Fair" distribution of tokens, "activity-based" airdrops can lead to concentration among a small number of users

Research question: *What effect do airdrops in Decentralised Autonomous Organisations (DAOs) have on the governance activity of the recipients?*

Methodology

DATA

— Queries via Dune Analytics, Snapshot (off-chain) and on-chain data

— Airdrop distribution, post-airdrop actions and on-chain delegations

— Voting activity 6 and 12 months after the airdrop and currently (Oct. 2023) -> comparison of airdrop recipients with all token holders

$$Governance\ Retention\ Ratio = \frac{Voter\ (t)}{Token\ Holders\ (t)}$$

$$Airdrop\ Governance\ Retention\ Ratio = \frac{Airdrop\ Voter\ (t)}{Airdrop\ Recipients}$$

SELECTION OF AIRDROPS

— "Convenience sampling" (cf. Taherdoost 2016)

— Top DAOs from DeepDAO by treasury and participants

1. Size	2. Airdrop	3. data
Treasury of at least $25 million	At least 1% of the token supply reserved for the airdrop	Airdrop distributed on an EVM-chain (available on Dune Analytics)
Lifetime participants min. 5,000	Continuous airdrop, no vesting	Governance on Snapshot
	Airdrop publicly available	At least 1 proposal in each analysis period
	Airdrop of a governance token	

Table 1: Requirements for the DAO airdrops

Selected protocols
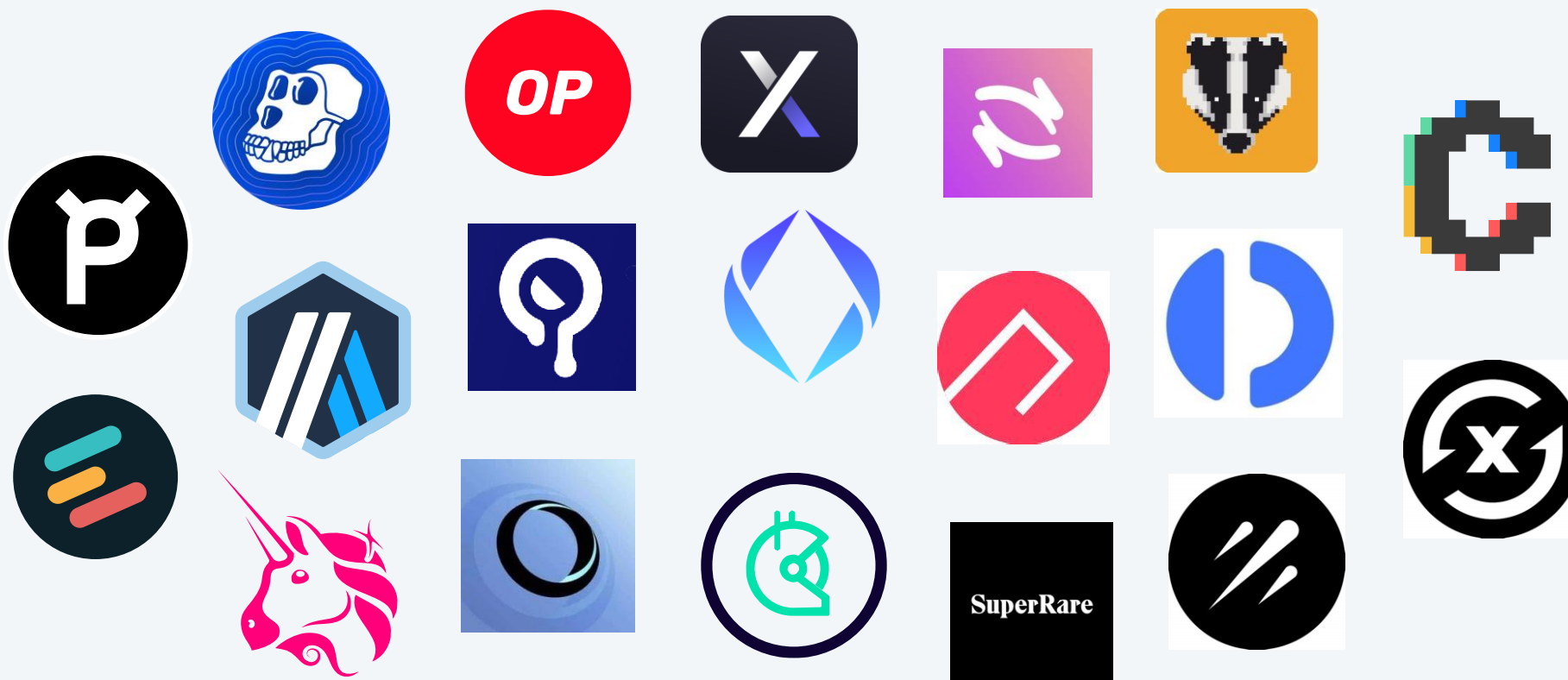
Comparison of the protocols

GOVERNANCE PROCESSES

- Comparatively similar

- Token-based voting (one-token-one-vote)

- Threshold, (variable) quorum

- Multi-stage process:
  forum post -> voting on snapshot -> possibly voting on-chain

- 8 protocols use (additional) on-chain voting, including only financially strong protocols

AIRDROP CRITERIA

- All retrospective / on-chain activity-based

- Airdrop amounts almost always tiered according to activity/volume ("differential allocation") (cf. Fan et al. 2023)

- Some airdrops have „sybil-detection" programmes to exclude suspicious addresses

- Target groups: not only own users, but also users of partner protocols or users of competing protocols ("vampire attack") (cf. Lommers et al. 2023)

Example dashboard

Size and period

- Number of recipients or "eligible addresses" varies (~580k recipients at Arbitrum, ~1.3k at Ribbon Finance)

- Likewise the allocation, on average 11% of supply

- Proportion of addresses that have claimed ("claim rate") strongly dependent on the airdrop

- Most airdrops took place between mid-2021 and mid-2022

Airdrop recipients
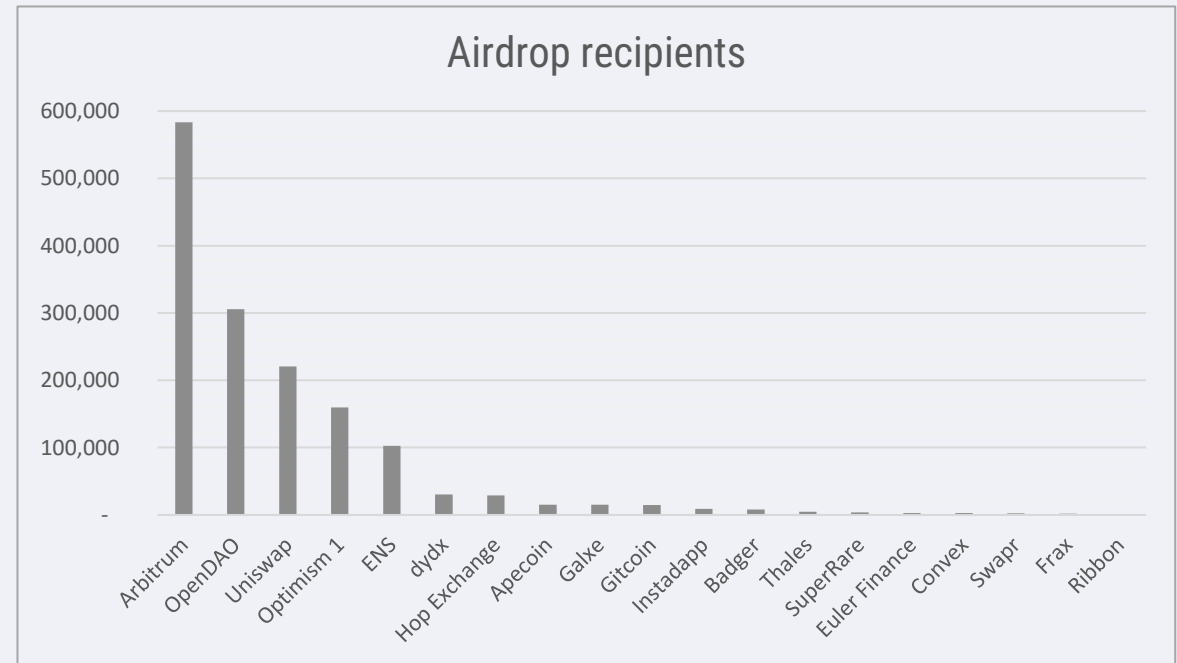
Distribution of tokens

- Proportion of the Airdrops supply calculated, that the top 10% or 1% of recipients have received

- Rough estimate of the distribution

- 10% percentile on average 44%, 1% percentile on average 23%

-> Trade-off between "fair" and "differential" allocation or activity-based airdrops (cf. Fan et al. 2023)

Token distribution (1% / 10% percentile)
■ 10% percentile ■ 1% percentile
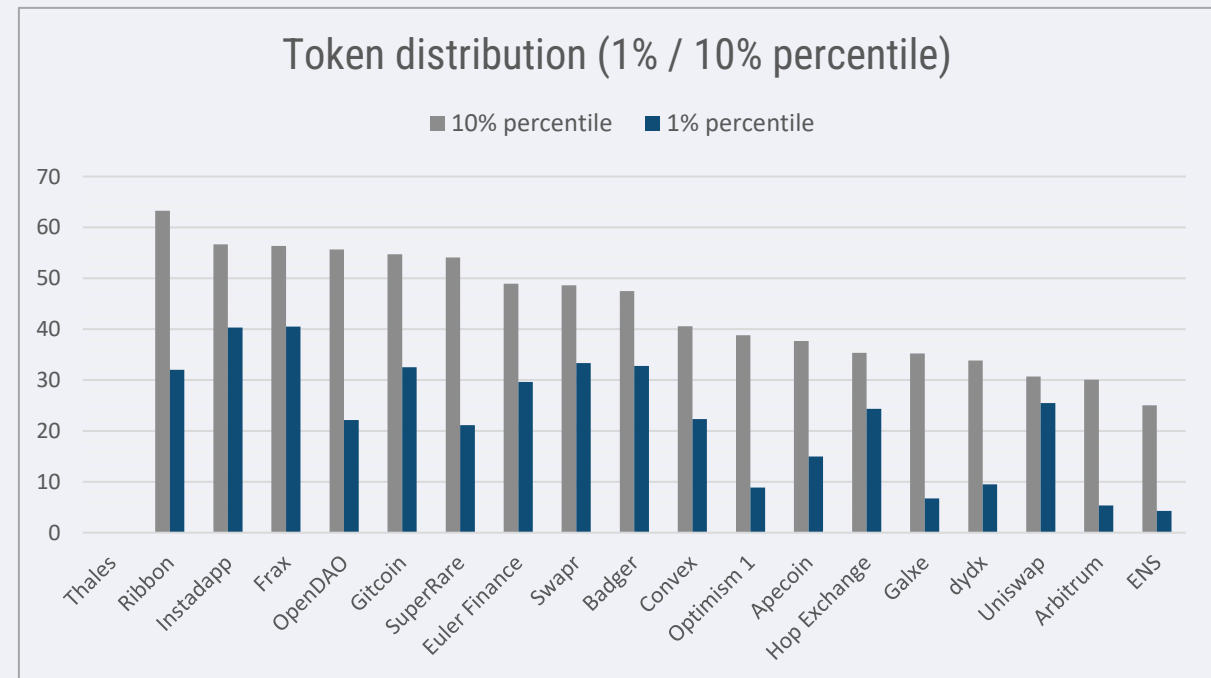
Note: Thales distributed the same amount to all recipients

Holding time

- Behaviour of the receivers after the airdrop (current status only)
- Transfer on average 76%, partial transfer 10%, hodl 12%, accumulating 3%

-> Most of the tokens are transferred

Actions Post Airdrop

■ Transfer ■ Partial transfer ■ Hold ■ Accumulated

Categories (x-axis): Uniswap, Badger, dydx, Euler Finance, Instadapp, Galxe, Ribbon, ENS, Convex, Apecoin, Gitcoin, Arbitrum, Hop Exchange, Frax, Thales, SuperRare, Swapr, Optimism 1, OpenDAO
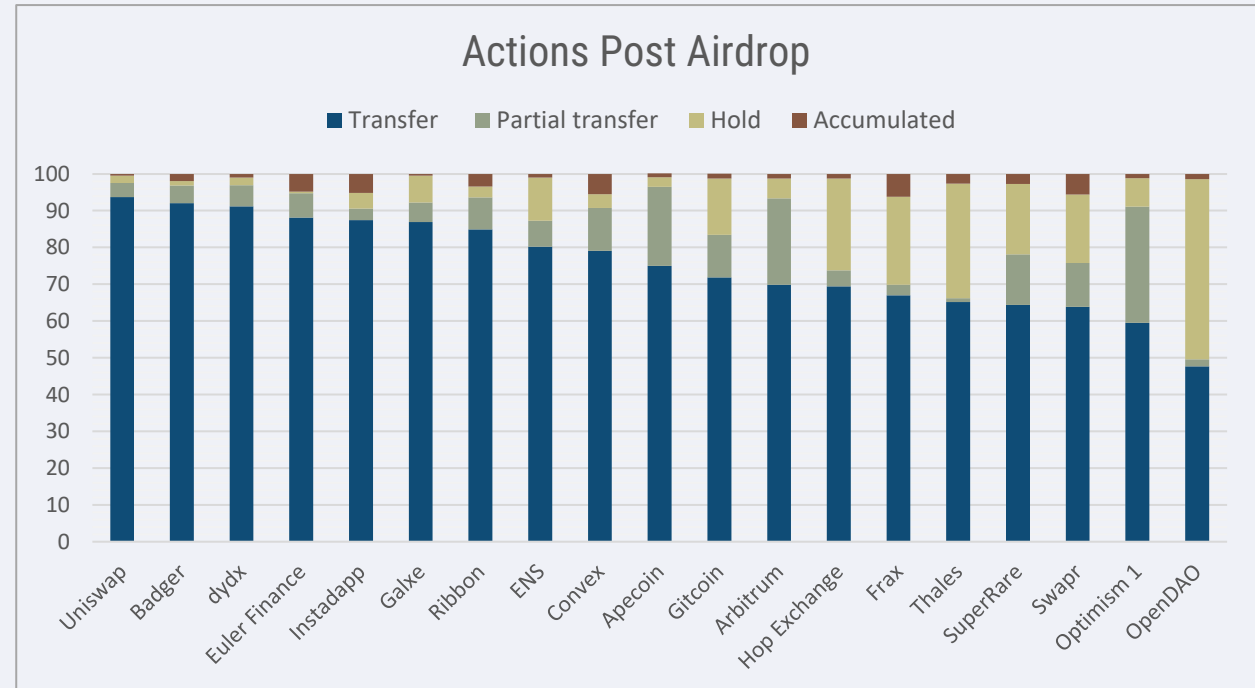
Note: For the OpenDAO airdrop, the average USD-value is very small, which might explain the low transfer rate

Snapshot voter share

Snapshot voting share in general (governance retention ratio) [%]

■ 6 Mon. ■ 12 Mon. ■ currently

Snapshot voting share of Airdrop recipients (Airdrop Governance Retention Ratio) [%]

■ 6 Mon. ■ 12 Mon. ■ currently
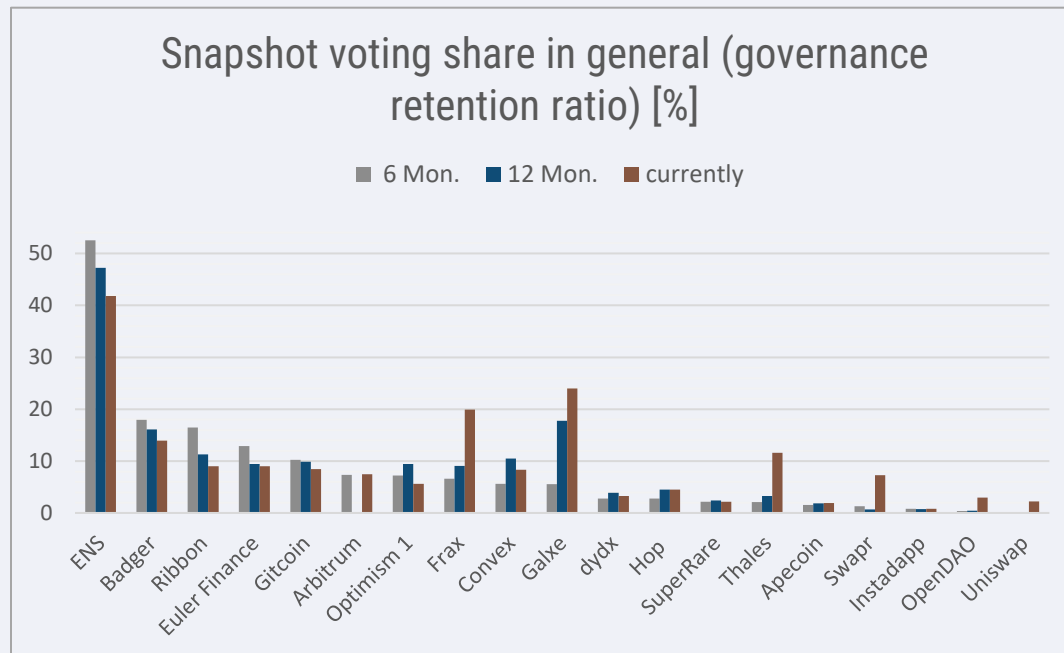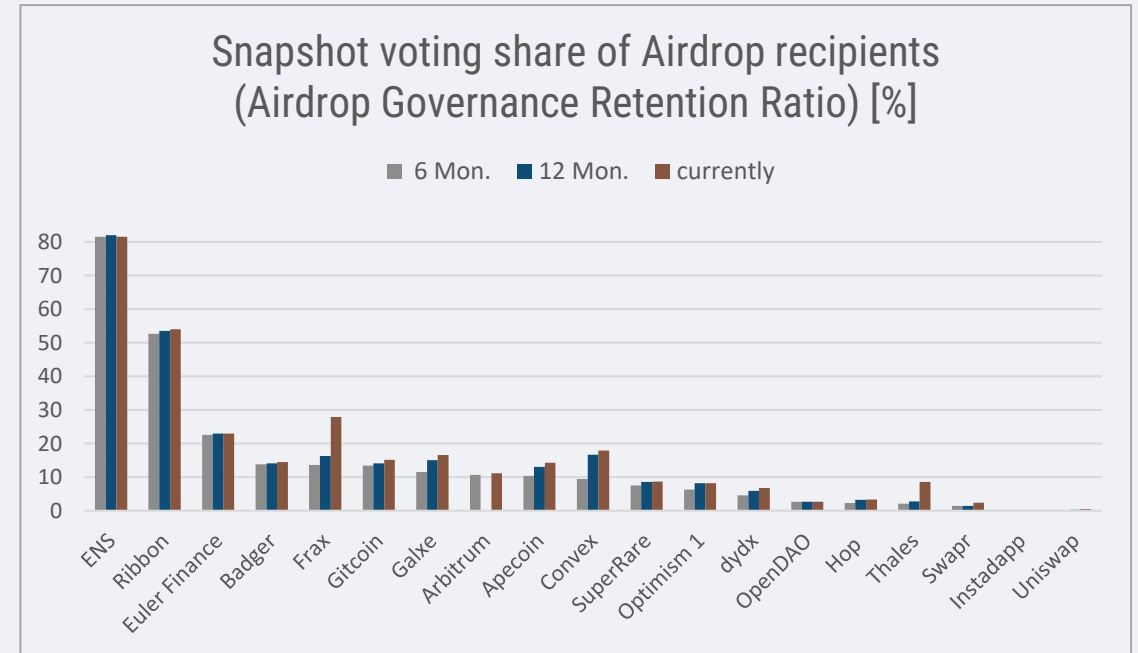
Note: For ENS, voting on the ENS constitution on Snapshot was part of the airdrop claiming process

Comparison with non-Airdrop recipients on Snapshot

- Voting participation in general on average:
  8.2% (6 months) -> 8.8% (12 months) -> 9.7% (current)

- Voting participation airdrop recipients on average :
  14.2% (6 months) -> 15.7% (12 months) -> 16.7% (current)

-> Participation of Airdrop recipients on Snapshot on average approx. 6% higher

- Difference to non-airdrop recipients shows protocols with the greatest influence of the airdrop

Snapshot: Difference between Airdrop voters and voters without Airdrop [%]
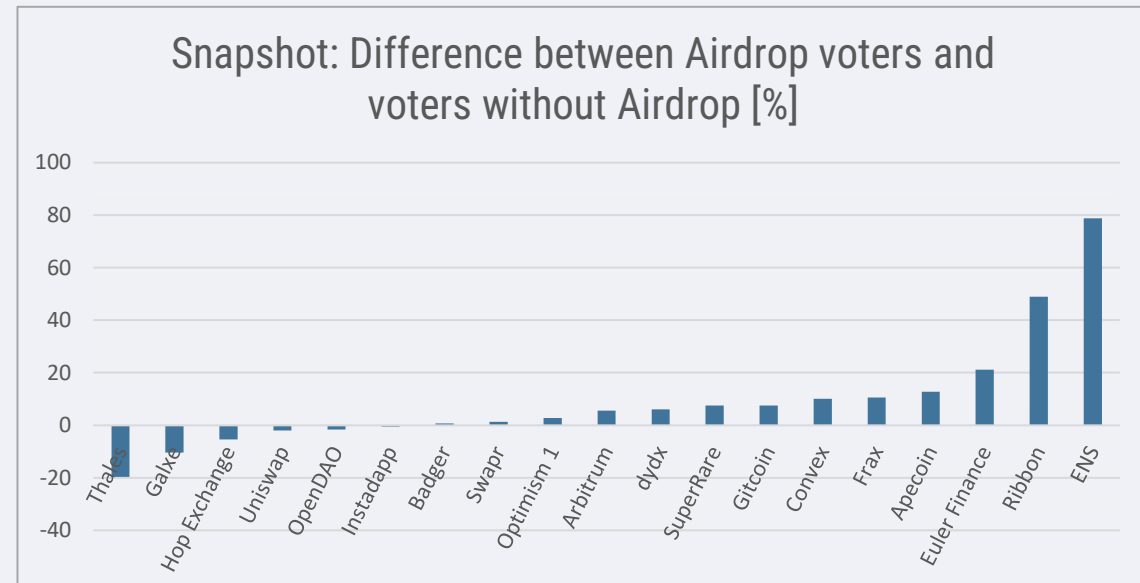
On-chain voter share

ALL TOKEN HOLDERS

On-chain voting share in general (governance retention ratio)

■ 6 Mon. ■ 12 Mon. ■ currently
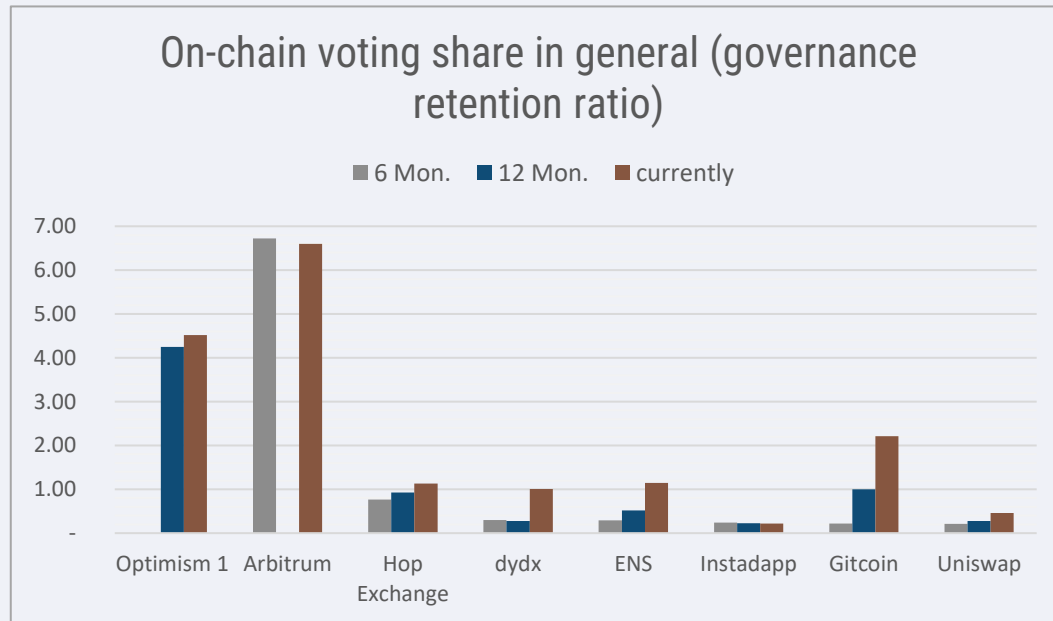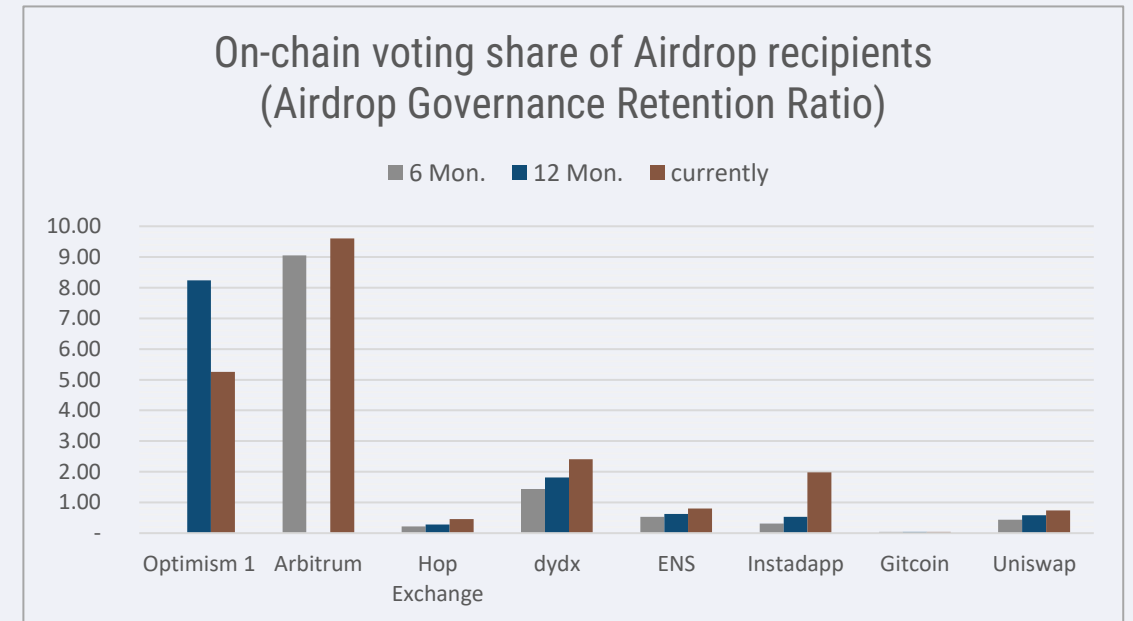
Average 1.2% (6 months) -> 1.7% (12 months) -> 2.1% (current)

AIRDROP RECIPIENTS

On-chain voting share of Airdrop recipients (Airdrop Governance Retention Ratio)

■ 6 Mon. ■ 12 Mon. ■ currently

Average: 1.7% (6 months / 12 months) -> 2.7% (current)

Note: The Arbitrum Airdrop ist not past 12 months yet. For Optimism, the on-chain governance started about 9 months after the airdrop

Delegation share

ALL TOKEN HOLDERS

General share of delegation
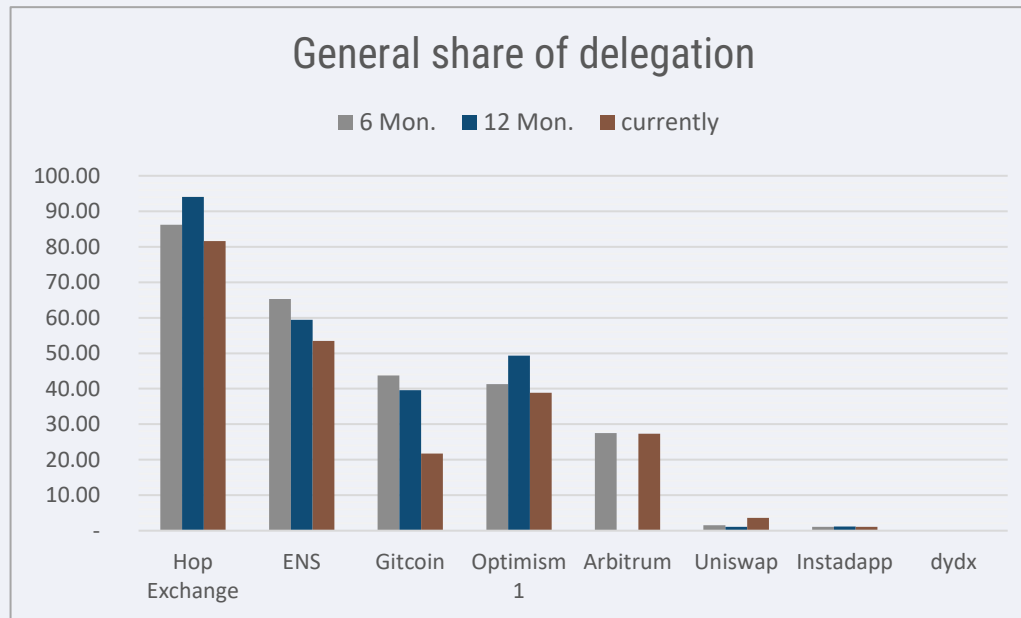
Average: 33.3% (6 months) -> 35.0% (12 months) -> 28.5% (current)

AIRDROP RECIPIENTS

Delegation share Airdrop recipient
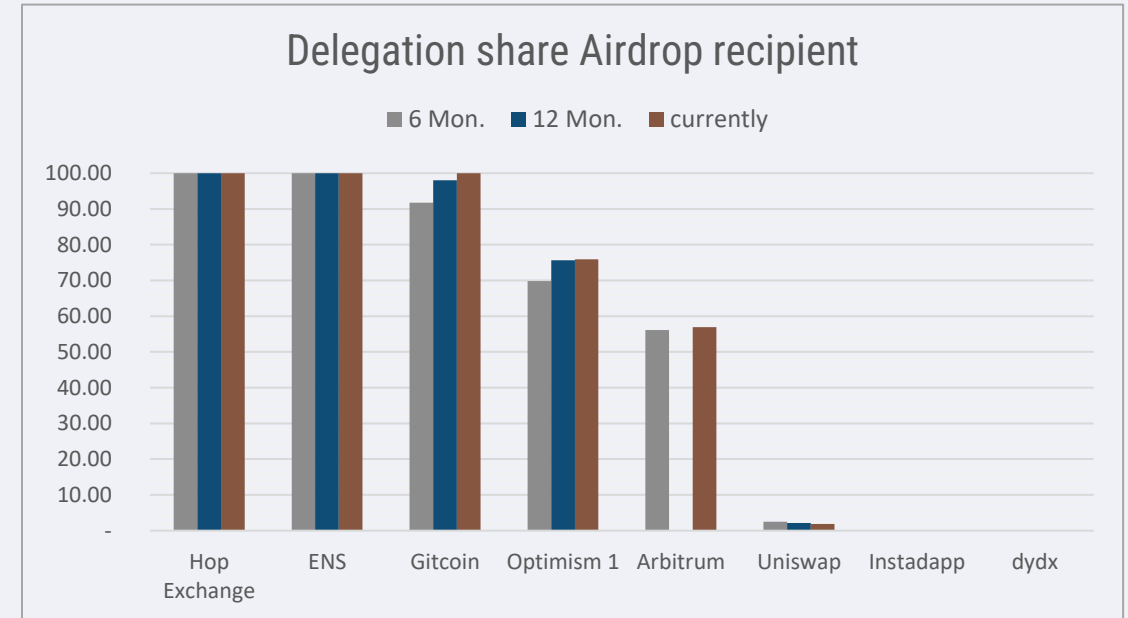
Average: 52.5% (6 months) -> 53.7% (12 months) -> 54.3% (current)

Delegation share

– Delegation events provide information on whether a token holder has delegated at least once in the respecitve period

– Delegation popular to (indirectly) increase participation

– For ENS, HOP and Gitcoin delegation was mandatory when claiming the Airdrop

-> Delegation share approx. 20% higher for airdrop recipients

– Delegation is necessary to vote on-chain -> 41% have delegated to themselves, varies depending on the protocol

Share of self-delegation
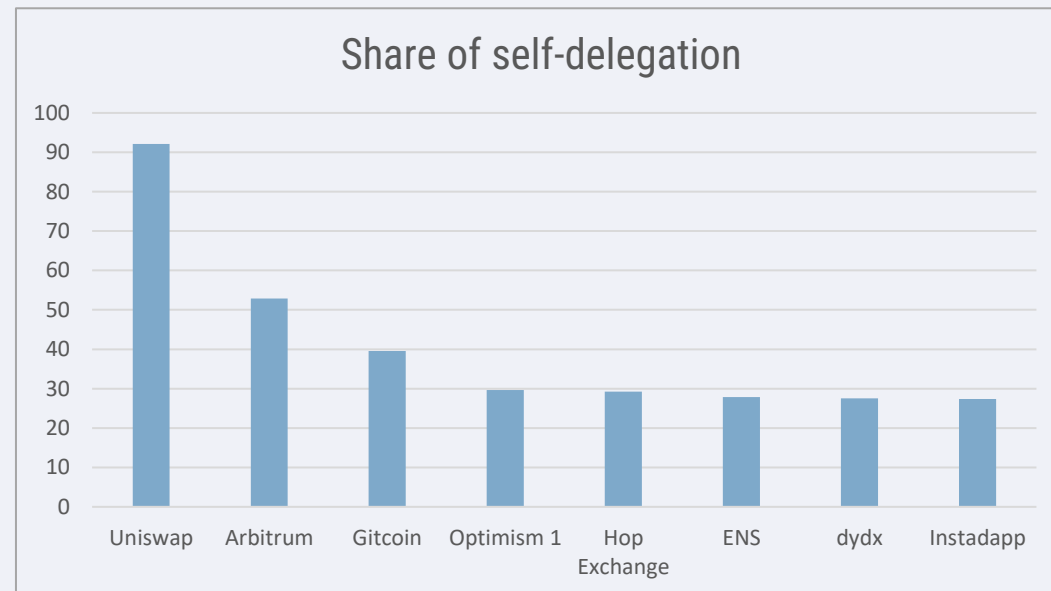
Results

- Airdrops have a wide range
- In DAOs, airdrops are mostly retrospective and on-chain activity-based / amounts staggered
- Different target groups: mainly to own users, sometimes also to potential users
- Airdrops are initially "decentralising" (distribution of tokens), but sometimes high transfer rates and concentration of tokens
- Delegations tend to be used for on-chain voting and are mandatory for some airdrops
- The share of voters among airdrop recipients is higher than the one of the average token holders, but it depends on the individual case

-> Airdrops can be a possible governance instrument
-> The airdrop design has an influence on this ("balancing act")

- Outlook: also investigate smaller DAOs, differentiate according to the function of the token, consider the voting frequency, include various voting mechanisms

Thank you!

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Data: https://github.com/JanetMo/governance-activity-of-airdrop-recipients

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