

Neither Community nor Corporation: A Deeper Look at Decentralized Autonomous Organizations (DAOs)

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Decentralized Autonomous Organizations (DAOs) are defined as:

*“**non-hierarchical** organizations that perform and record routine tasks on a **peer-to-peer**, **[algorithmically] secure**, public network, and rely on the voluntary contributions of their internal **[participants]** to operate, manage, and evolve the organization through a democratic consultation process”*

(Hsieh, Vergne, Anderson, Lakhani, Reitzig, 2018)

The "Great Decentralization Experiment"

Firms use **authority and incentives**.

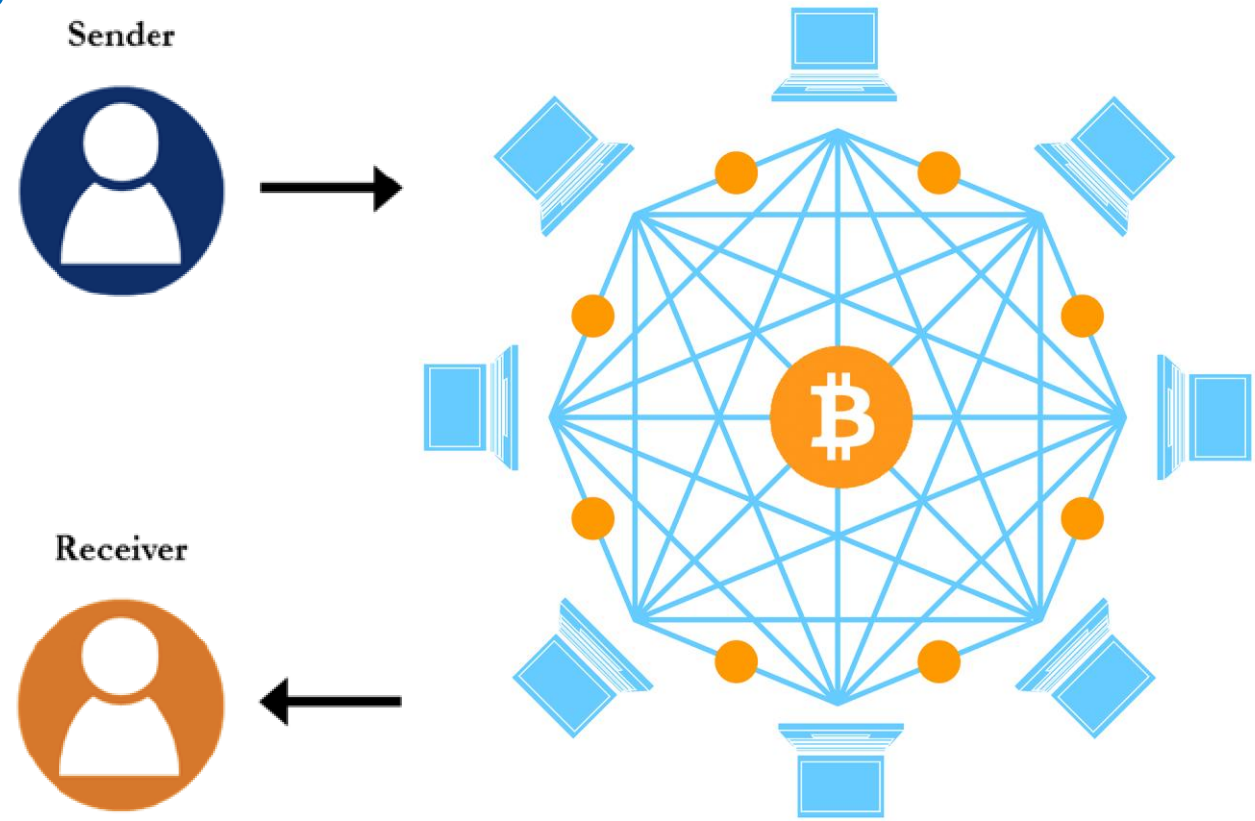
Communities use **shared values**.

DAOs promise to combine the *scalability* of firms with the
participation of communities.

Does the reality fulfill this promise?

Bitcoin is the first DAO: Decentralizing all aspects of organizing

- Enabled by blockchain technology
 - Simple rules encoded in the algorithm
- Self-governed
- P2P
- No CEO
- No Managers
- No employment contracts
- No HQs or subsidiaries
- No shareholders
- No identity required
- Workers rewarded for payment processing services provided



DAOs vs. Firms vs. Communities

Feature	Firms	DAOs	Online Communities
Managerial hierarchies	Yes	No	No
Voting-based decisions	Yes (shareholder)	Yes	Yes
Automated execution	No	Yes	No
Economic incentives	Yes	Yes	No
Open rules of engagement	No	Yes	Yes

Research Question:

What do DAOs' systematic departures from their design ideals reveal about decentralization, autonomy, and the nature of organization?

The Study: DeepDAO Data

- We conducted the first large-scale analysis of the DAO ecosystem using **DeepDAO**, the largest systematic dataset on DAOs
- The 2,380 DAOs tracked from 2019-2023 vary in their tasks, scale, and goals.

Tasks

Financing, Governance,
Participation, Outcomes

Scale

Millions of members, billions
in treasuries

Goal

Assess the organizational
realities vs. design aspirations

Three Theoretical Recalibrations

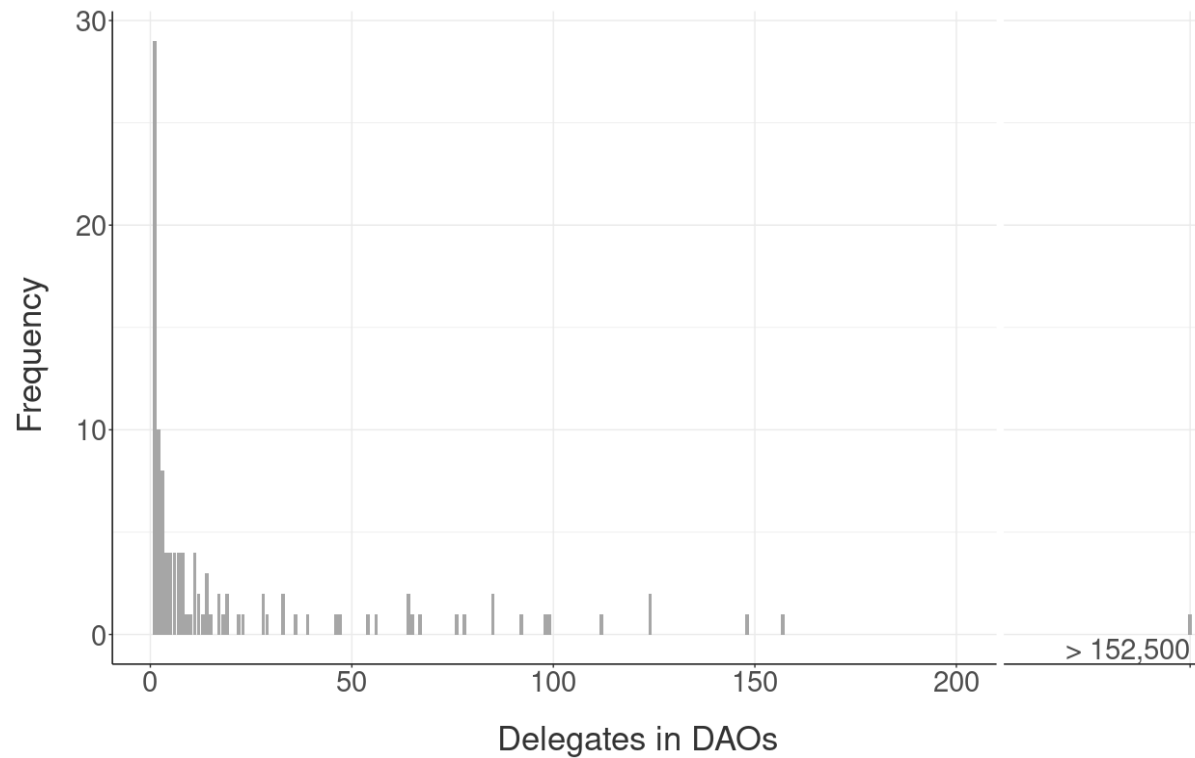
Based on large-scale departures from design ideals.

1. Decentralization: Level of Analysis Matters

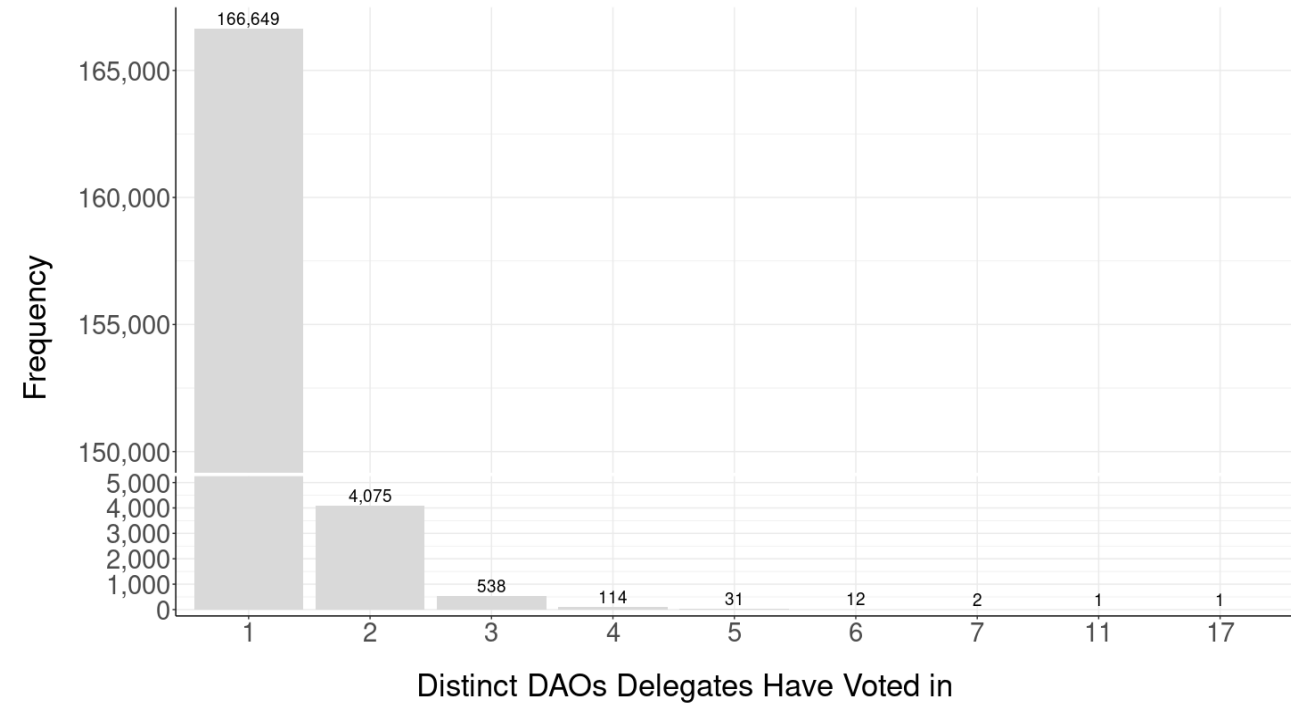
- **Ecosystem Level:** Highly decentralized. No dominant players controlling multiple DAOs.
- **Individual DAO Level:** Highly centralized.
- Decision-making power is concentrated due to:
 - Asymmetries in token ownership (Whales).
 - Chronically low participation.
 - Delegation (proxies).

Organizational vs. Ecosystem-level centralization

DAO level:
Most DAOs have few delegates (median = 8).



Ecosystem level:
Most delegates participate in only one DAO



2. Autonomy: Polysemy Made Visible

The term "autonomy" conflates two distinct properties. Most DAOs achieve neither fully.

Automation

Execution of decisions by code without human discretion.

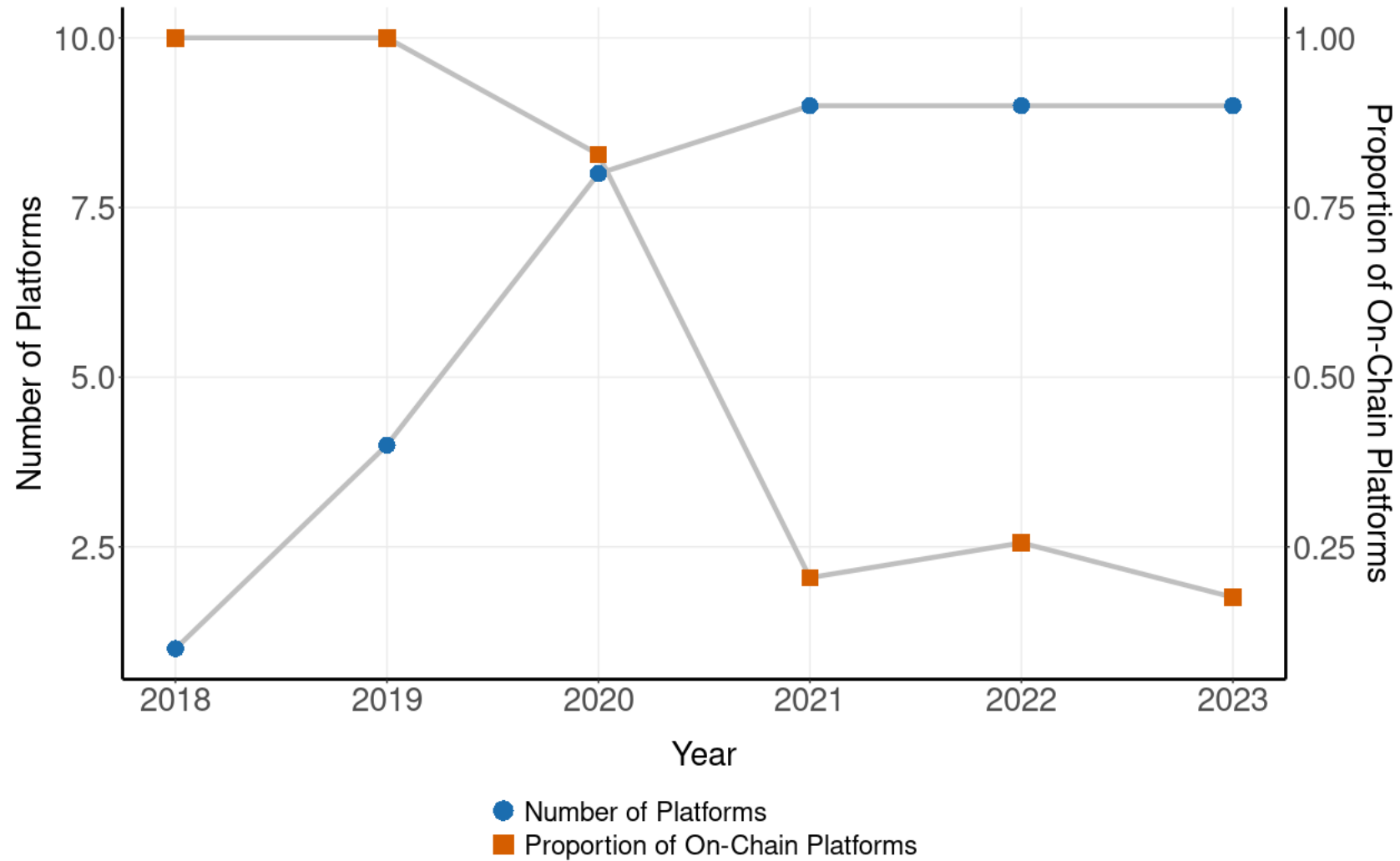
Reality: Only 8% of DAOs rely solely on on-chain governance. Human intervention is needed for exceptions/emergencies.

Independence

Freedom from external control and intervention.

Reality: DAOs share overlapping treasuries, infrastructures (Ethereum), and members, creating deep interdependencies.

Use of On-Chain (algorithmic) Governance decreases over time



Shared Elements between DAOs

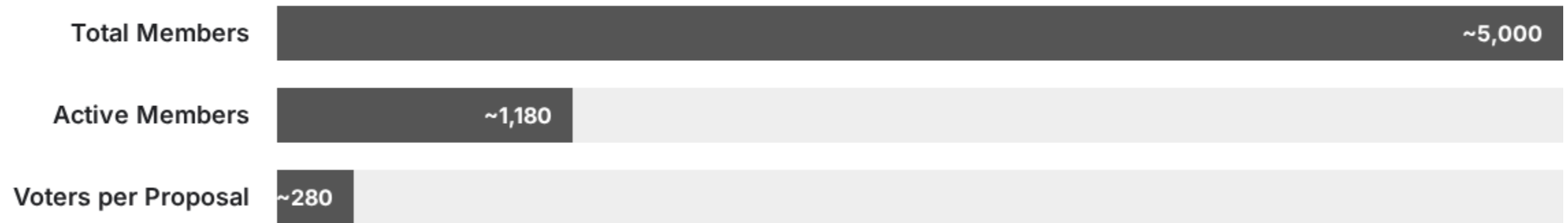
	N (DAOs)	% of possible pairs*	mean	sd	median	min	max	skew	kurtosis	se
Common Voters	1682	27.09	21.16	386.6	1	1	58,074	77.59	8,942.18	0.62
Common Delegates	130	6.75	12.54	90.68	1	1	1411	12.97	181.58	3.81
Common Co-Voting Pairs/ Groups	299	0.06	3.07	4.64	2	1	26	4.59	23.00	0.86
Similar Treasury Tokens	222	17.65	11.76	21.35	7	1	604	14.95	333.71	0.32
Similar Members	1878	1.92	1,857.02	25,596. 24	8	1	487,897	17.80	325.26	139.14

* This number captures the proportion of observed pairs relative to the theoretical maximum $N(N-1)/2$ for each variable, making it easier to assess how prevalent cross-DAO overlap actually is.

3. Organization-ness: From Binary to Continuous

Organizations are multi-actor systems working toward shared goals. In DAOs, participation is the primary mechanism for contribution.

Average DAO Participation Metrics



Conclusion: Most DAOs resemble "algorithmic commons" or "financialized communities" rather than coherent organizations.

The Iron Law of Oligarchy in Web3

"Regardless of the reigning political ideology, the control and exploitation of the many by the few is inevitable..."

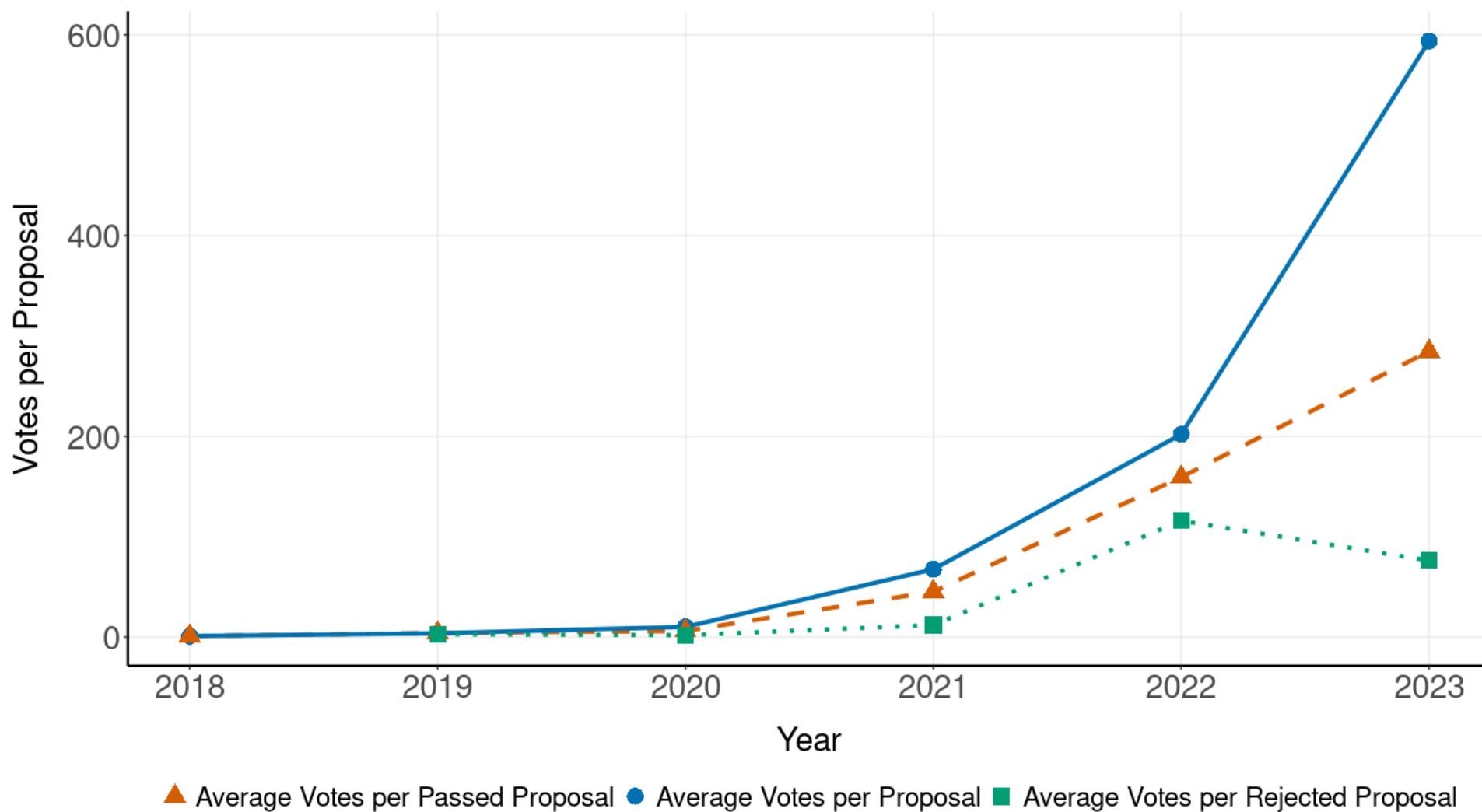
— Robert Michels (1911)

- Token-weighted voting makes influence distribution entirely predictable.
- Low participation and concentrated power become mutually reinforcing.
- While formally decentralized, DAOs often become de facto centralized oligarchies.

DAO Members in Governance

	N (DAOs)	mean	sd	median	min	Max	skew	kurtosis	se
Members	2,380	5,024	41,420.62	23	0	1,316,312	18.66	479.25	849.04
Active Members	2,380	1,186	15,759.79	20	0	648,609	31.78	1,222.21	323.04
Proposals	2,380	28	119.8916	3	0	2,834	13.24	243.03	2.46
Successful Proposals	2,366	12.05	58.07	0	0	935	9.49	108.68	1.19
Voters	2,345	709.41	7,260.40	18	0	220,917	22.53	591.15	149.93
Co-Voting	299	14.52	34.97	4	1	581	6.58	56.92	0.30
Members in Co-Voting Pair/Group	299	3.51	1.81	3	2	10	1.29	0.94	0.02
Votes	2,380	5,282	90,041.71	33	0	3,980,858	37.81	1,611.58	1,845.68
Proposers	1,900	10.39	61.87	2	1	1,692	20.87	521.83	1.42
Votes per Proposal	1,900	280	5,523.83	11.5	0	220,917	35.47	1,367.12	126.73
Votes per Passed Proposal	1,900	436	7,235.22	14	0	220,917	27.38	811.13	220.36
Votes per Rejected Proposal	1,900	58	856.50	0	0	23,177.67	23.83	611.66	28.46
Pass Rate	1,900	0.26	0.33	0.11	0	1	1.04	-0.26	0.008
Platforms	1,900	1.04	0.20	1	1	3	5.25	28.69	0.005
On-Chain Platforms	1,900	0.08	0.26	0	0	1	3.12	7.96	0.006

Average Votes per Proposal over Time



Implications for Practice

For Corporations

- Tokens show participative decision-making is feasible at scale with "skin in the game."
- Routine task execution can be automated via smart contracts to reduce hierarchy.

For Communities

- DAOs provide a formal decision-making structure.
- Built-in financial systems allow communities to collectively control and capture value across borders.

Tensions in DAOs

Openness-Direction

Inclusivity-Efficiency

Broad participation-Layered delegation

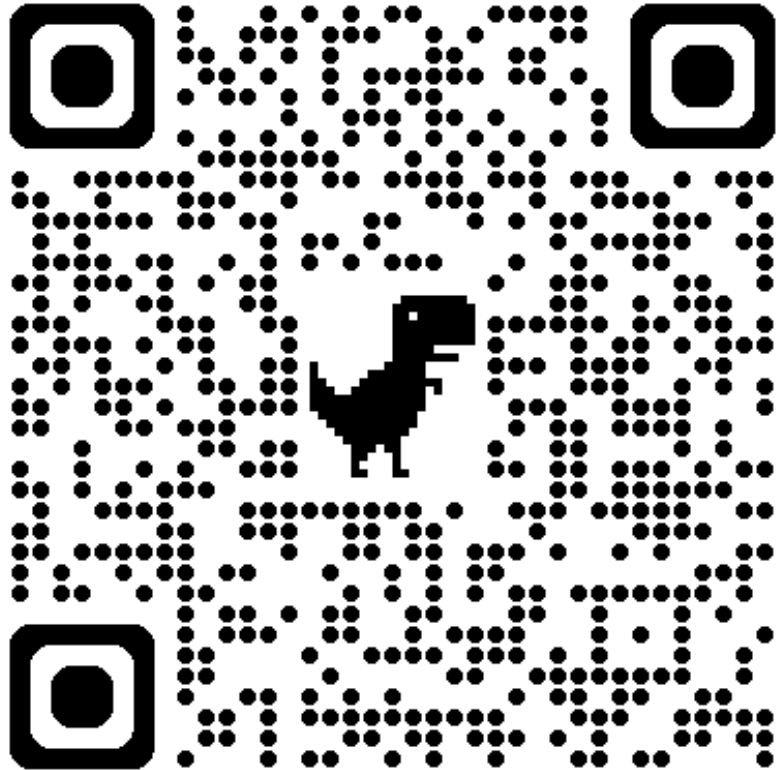
Structure – Influence

Centralization- Decentralization

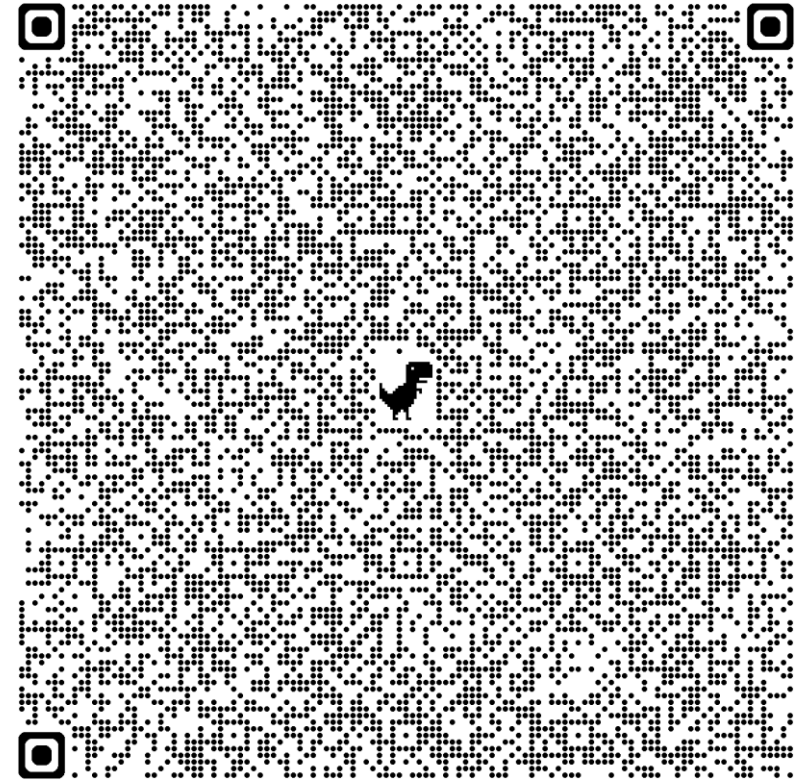
Future research: We need different perspectives and empirical strategies

- Decentralization is multidimensional, multi-level, a matter of degree.
- Decentralization is often studied with:
 - The level of **hierarchies** (i.e., flatness)
 - The degree of **openness**
 - The absence of **authority**
 - The presence of **self-selection** and **self-organization**
 - **Governance/ownership structure**
 - **Algorithmic governance/** autonomy
- New, extreme form of decentralization as theoretically revealing contexts for understanding decentralization

All DAOs are not the same (Hsieh, 2024)



Neither Corporation nor Community
(Hsieh, Puranam, Gelman-Hofstadter, 2026)



Thank you!

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