Mapping Decentralized Autonomous Organization Governance Across Chains: An Updated, Multi-Platform Dataset

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Abstract

This paper presents a novel dataset of blockchain-based decentralized autonomous organization (DAO) governance activity, unified across the six major DAO platforms. This dataset is the first of its scale and completeness, featuring 85K DAOs, 330K proposals and 66M votes. The release is based on a prior 2023 census, which is updated and expanded by systemizing heterogeneous outputs into a common schema with three tables (deployments, proposals, votes), adding fields, fixing inconsistencies, and documenting provenance for every row. We describe the data sources and retrieval pipelines, the integration and validation steps, and known limitations. To illustrate reusability, we benchmark the updated dataset against the 2023 DAO census and outline directions for further cross-domain analyses, including governance participation trends, power concentration, and connections between DAO and open-source software (OSS) communities. The dataset and code are all publicly available and open-licensed. We aim to lower the barrier to cross-chain governance studies and enable replication of earlier findings, facilitating future evidence-based DAO research.

CCS Concepts

• **Software and its engineering → Software libraries and repositories**.

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1 Introduction

A DAO (Decentralized Autonomous Organization) is a blockchain-based system enabling self-governance through self-executing rules on a public blockchain, independent of central control [20]. Governed by token holders, DAOs facilitate voting on proposals, including technical upgrades and budget allocations.

Proponents claim DAOs enable openness and democratization of decision-making, but their actual governance dynamics remain under-studied [19]. Existing studies highlight a lack of large-scale quantitative analysis on DAOs [13, 28]. One of the broadest quantitative studies is represented by the DAO governance census dataset, which covers six platforms, and provides insights into power concentration and participation patterns [24].

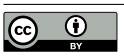
DAOs act as laboratories for studying online community governance, offering insights applicable to DAO-related software systems. This is illustrated by Davó et al. [14] through their analysis of the DAOstack platform, and other digital communities like open-source software (OSS) projects, which share parallels with DAOs [29]. Both DAOs and OSS rely on distributed decision-making, contributor coordination, and transparent rule enforcement, making DAO governance data valuable for comparative research in software engineering and socio-technical systems.

The dataset presented in this work enables reproducible, cross-platform, and longitudinal studies of DAO governance for blockchain governance researchers, MSR scholars, and socio-technical systems researchers. This paper integrates DAO governance data in an updated, multi-platform dataset that offers:

- Coverage of the six major DAO platforms.
- Detailed data retrieval methodology and unified schema.
- Release of fully reproducible code and data pipelines.
- Demonstration of usability with example use cases.
- Discussion of limitations and future work.

2 Related Work

Empirical research on DAOs faces challenges from fragmented data and inconsistent record-keeping. Faqir-Rhazoui et al. [16] addressed such issues comparatively analyzing Aragon [1], DAOstack [3], and DAOhaus [2]) platforms, using API-level data. In the last few years, more works provide quantitative analysis of DAOs. Peña-Calvin et al. [24] conducted the first census-style mapping of over 30,000 DAOs, revealing power concentration and low voter participation. Similarly, Ma et al. [23] analyzed 16,000 DAOs across nine blockchains, examining governance processes. Rikken et al. [27] classified over 9,000 DAOs, finding many "perceived DAOs" lack verifiable on-chain governance. And Qin Wang et al. [30] analyzed 581 Snapshot platform DAOs. Other smaller-scale analyses exist, such as Feichtinger et al. [18] inspecting 21 investment DAOs for governance shortcomings or Sharma et al. [28] examining 100 DAOs to reveal governance heterogeneity.



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Software engineering research is also exploring DAO mechanisms for OSS communities. Van Vulpen et al. note that DAOs enhance OSS project governance[29], while Kaal proposes a "Code Review DAO" to improve the open-source code review process, emphasizing faster reviews, pricing transparency, community audits, and accountability [21]. Recent findings indicate that token incentives and on-chain transparency significantly boosts developer engagement, surpassing traditional organizations [26]. Moreover, DAO governance activities, like proposals and votes, are recorded on public blockchains, creating a transparent decision-making process. Additionally, the dataset enables comparative analyses of decentralized governance models, indicating a convergence between DAO and OSS governance. Van Vulpen et al. [29] propose a framework linking both models, while others suggest that DAO principles-such as decentralized decision-making, token-based incentives, and transparent rule enforcement-could enhance OSS communities [22]. These insights reveal a socio-technical convergence, where on-chain governance mechanisms inform OSS standards. As Davó et al. [14] emphasize that lessons from DAO governance can strengthen collaboration and software development practices, bridging blockchain governance research with the software engineering community. However, the field lacks open, cross-platform datasets for governance records, as most sources are platform-specific or use proprietary crawlers, hindering replication. The DAO Governance Census dataset addresses these gaps by providing a harmonized schema that integrates six major platforms into a single open and reproducible corpus, supporting further research on DAO governance principles, participation patterns, and socio-technical dynamics in blockchain and open-source contexts.

3 Methodology

This dataset consolidates governance data from six widely adopted DAO platforms: Snapshot, Tally [9], Realms [6], DAOhaus, Aragon, and DAOstack, which represent the core infrastructure of the DAO ecosystem across multiple chains.

The selection of platforms follows four explicit criteria: (a) governance capability, i.e., the platform support of general purpose DAO governance such as creating proposals and voting, (b) ecosystem significance, reflected in sustained adoption or historical importance within the DAO landscape; (c) data accessibility and reproducibility, via public APIs, RPC endpoints, or open datasets; and (d) longitudinal coverage, enabling multi-year governance analysis. These criteria ensure a representative and reproducible cross-platform view of DAO governance. We classify these platforms as *first-generation* and *second-generation* to illustrate the evolution of DAO governance (Figure 3). The **first generation**: DAOstack, Aragon, and DAOhaus, emerged between 2018 and 2020, introducing governance primitives like token-weighted voting and membership systems. Their adoption has remained stable or declined as newer frameworks gained traction. The **second generation** (Snapshot, Tally, and Realms) focuses on usability, scalability, and multi-chain operability. Snapshot is the leading off-chain voting platform for Ethereum [4], favored for gasless voting. Tally indexes Governor-based DAOs on the OpenZeppelin framework [5], providing transparent on-chain proposal and delegation. Realms, built on Solana's SPL Governance program [8], offers fully on-chain proposal and voting mechanisms. This distinction provides context for interpreting the dataset's longitudinal patterns and the cumulative growth shown in Figure 3. Platforms

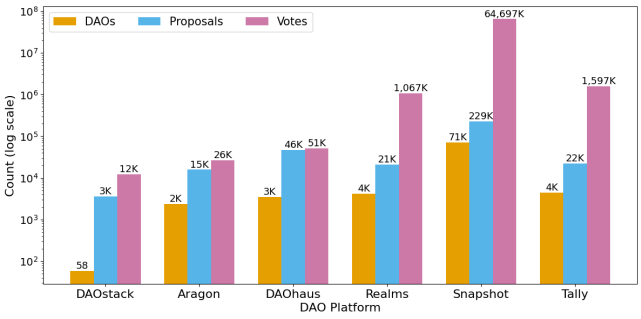


Figure 1: Distribution of DAO governance activity

that did not meet the selection criteria were excluded, e.g., JuiceboxDAO is mainly a funding mechanism represented by Snapshot; NounsDAO is a single DAO; Colony lacks an accessible API for data retrieval; and custom governance implementations were excluded due to generally limited adoption. By focusing on these six major platforms, the dataset ensures comprehensive coverage and practical reproducibility across governance architectures.

This work updates the DAO Governance Census Dataset [25], originally designed to study power concentration and participation in DAOs [24]. The original dataset documented governance activity: deployments, proposals, and votes, across six major DAO platforms. This paper expands the temporal and structural scope by (a) extending coverage to include new DAOs until October 2025, (b) integrating new APIs and improved retrieval pipelines for Tally (GraphQL) and Realms (RPC) for accurate historical governance event reconstruction, and (c) resolving inconsistencies by adding missing deployments and correcting proposal–vote linkages. The dataset retains the original three tables. The 2023 census included about 30K DAOs, 207K proposals, and 21M votes, while the 2025 update features over 85K DAOs, 330K proposals, and 66M votes-making it the most comprehensive cross-platform DAO governance dataset available. Table 1 illustrates the dataset's growth and Figure 1 shows governance activity in 2025 from the DAO Governance Census dataset [17], illustrating the shift from first-generation (DAOstack, Aragon, DAOhaus) to second-generation platforms (Realms, Snapshot, Tally) that now dominate the ecosystem.

3.1 Data Retrieval, Cleaning and Integration

Data from six major DAO governance platforms were retrieved using a combination of APIs, RPC endpoints, and existing datasets, with tailored pipelines for each platform as summarized in Table 2.

To ensure consistency and usability across the multi-platform dataset, we performed several data cleaning and integration steps. First, we normalized the data by merging records from all platforms into a unified schema, standardizing blockchain addresses for case and format, and converting timestamps to the ISO 8601 standard.

Next, we addressed duplication by removing repeated records, such as proposals fetched multiple times, and aligned each proposal with its corresponding DAO ID. To preserve provenance, we tagged

Table 1: Growth in DAO Governance Data (2023–2025)

Metric	2023 Census	2025 Census
Number of DAOs	30,250	86,489
Number of Proposals	207,131	339,108
Number of Votes	21,619,733	67,452,825

every row with the source platform and deployment ID, enabling traceability across all files.

To validate, we cross-checked total vote counts per DAO against platform summaries to correct omissions. For DAOs without directly queryable voting power, we estimated voting power by assigning a unit weight of one to each recorded vote, reflecting equal participation. Total voting power (total_vp) for each proposal was computed as the sum of vote weights. At the DAO level, estimated voting power (estimated_vp) was calculated by aggregating vote weights across all proposals, capturing total votes cast within a DAO. This estimation serves as a proxy for voting power based on participation, while analyses needing precise token-weighted distributions may require additional on-chain data.

3.2 Unified Schema and Data Availability

All DAO data were standardized under a unified schema consisting of three core files, as illustrated in Figure 2.

deployments.csv - Contains DAO-level information, where each deployment is a DAO; including `deployment_id`, `platform`, `name`, `proposals_count`, `unique_voters`, `votes_count`, & `estimated_vp`.

proposals.csv - Stores proposal-level data such as `proposal_id`, `deployment_id`, `date`, `votes_count`, `total_vp`, and `platform`.

votes.csv - Captures individual votes with `vote_id`, `proposal_id`, `deployment_id`, `voter`, `date`, `weight`, and `platform`.

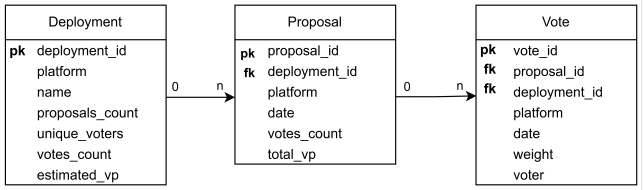


Figure 2: Unified DAO data schema

The complete schema details and data types, the dataset and associated code are publicly available and archived on Zenodo, ensuring open and permanent access at https://doi.org/10.5281/zenodo.17529116 [17]. The dataset is versioned by timestamp, with the latest release collected in October 2025. Each version includes the corresponding retrieval scripts, configuration files, and processing notebooks required for full regeneration of the census. This highlights the census reproducibility, since it can be regenerated end-to-end using the provided scripts and environment specifications. Data is retrieved independently via open APIs or RPC endpoints, processed through platform-specific Jupyter notebooks, and harmonized into a unified schema. On a standard academic server (16-core CPU, 32GB RAM), re-collection of all six platforms takes 2-3 weeks, depending on API rate limits.

This modular pipeline allows researchers to verify and extend the dataset with new platforms or updated snapshots, promoting longitudinal replication and cumulative research in DAO and decentralized governance analysis.

4 Example Analysis

To illustrate the growth of governance activity across platforms, Figure 3 shows the cumulative number of proposals recorded from 2018 to 2025. It highlights Snapshot's expansion after 2023, contrasting with the more stable trajectories of Aragon, DAOhaus, and Tally. This underscores the increasing adoption of lightweight off-chain governance frameworks over traditional on-chain models.

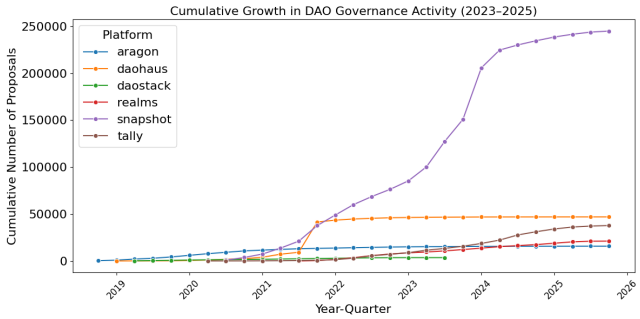


Figure 3: Cumulative Growth in DAO Governance Activity

Table 3 summarizes DAOs by platform based on the number of unique users who voted. Across all platforms, DAO governance is dominated by small communities. Most deployments fall within the [2,10] and (10,100] voter ranges, indicating limited participation in the majority of DAOs. This pattern is especially pronounced on Snapshot, which hosts the largest number of small DAOs, consistent with its low-cost, off-chain voting model. First-generation platforms (Aragon, DAOstack, and DAOhaus) are almost entirely concentrated in the smallest size categories, with very few DAOs exceeding 100 unique voters. In contrast, second-generation platforms—particularly Snapshot and, to a lesser extent, Realms and Tally—exhibit a longer tail of larger DAOs, including deployments with thousands of unique voters. Although such cases are somewhat rare, their presence highlights differences in how governance participation scales across platforms.

5 Potential Use Cases

The dataset enables diverse empirical studies including:

Voting Participation, Power Inequality and Participation Dynamics: Compute Gini coefficients or model voting power distribution across DAOs of varying sizes, chains, or ages. Previous research [24] noted low participation and greater inequality in larger DAOs; our dataset enables updated analyses. Similarly, to analyze how participation evolves over time using time series from the `proposals` and `votes` data, correlating DAO activity with external factors like major announcements or price changes [15].

Platform analysis and Cross-Platform Comparison: The dataset enables platform studies, as [14, 30], but, in addition, the

Table 2: DAO Data Sources and Extraction Details

Platform	Retrieval Method	Limit	Data Extracted	Cleaning / Challenges
Snapshot	Snapshot Hub GraphQL API [7]	60 req/min	Retrieved proposal IDs, creation dates, choices, strategy tokens (voting power), and votes (address, choice, power, timestamp).	Removed non-DAO/test spaces, normalized checksums, and deduplicated votes across strategies.
Tally	Tally GraphQL API [10]	~1 req/sec	Collected proposals (title, description, time) and votes (address, weight, choice), including delegation info.	Mapped Gnosis Safe backends to DAOs and handled proposal pagination.
Realms	DRPC API	100 req/sec	Retrieved governance and proposal accounts, decoded metadata (title, description), and vote records (voter, weight).	Filtered dummy proposals, normalized Solana keys, converted timestamps.
Aragon	DAO Analyzer dataset [12]	-	Extracted proposals (dates, actions, settings) and votes (address, weight) from Voting apps.	Unified versions (v1/v2) under one schema; flagged sparse legacy data.
DAOhaus	DAO Analyzer dataset [12]	-	Fetched proposals (applicant, tribute, shares), votes (yes/no, voter), and membership changes.	Cross-checked DAO IDs across multiple chains.
DAOStack	DAO Analyzer dataset [12]	-	Retrieved DAO list, proposal logs, and votes (reputation staked).	Included inactive DAOs; data often sparse.

Table 3: Distribution of DAO Deployments by Platform and Number of Unique Voting Participants

Size	Aragon	DAOstack	DAOHaus	Realms	Snapshot	Tally
$[2, 10]$	450	22	314	707	14572	832
$(10, 100]$	210	9	77	93	4723	106
$(100, 1K]$	52	2	4	21	1793	40
$(1K, 10K]$	4	0	1	3	290	17
$(10K, 100K]$	0	0	0	1	21	5
$(100K, 1M]$	0	0	0	1	1	2

unified schema facilitates comparisons of governance across platforms, as [16]. For instance, do Snapshot DAOs (off-chain) show different turnout rates than on-chain DAOs? Is power concentration higher in token-based versus share-based DAOs? These analyses can evaluate claims about DAO democracy or plutocracy.

Bridging DAO and Open-Source Governance: The dataset links DAO governance and OSS communities. Analyzing DAO decision-making can inform OSS project governance, advancing socio-technical studies on community-driven development [22, 29]. Specifically, researchers may link this dataset with the platforms' GitHub repositories to correlate e.g. relevant code commits with changes in DAO governance. And generally, it enables comparison of governance models across different types of communities.

Monitoring Tool Development: The dataset can inform dashboards, as [11] or even models to predict DAO vitality or detect anomalies in historical patterns.

6 Limitations and Future Work

Despite its breadth, the dataset has limitations. First, voting power is not directly known for some platforms (e.g., Tally, Snapshot). In such cases, the dataset records the actual voting power when available and estimate it otherwise. While this enables cross-platform comparison, these values should be interpreted as *approximate* rather than exact representations of underlying token holdings or delegation states. As a result, analyses that rely on relative participation (e.g., voter turnout, proposal activity, or participation inequality measured by number of voters) are well-supported across all platforms. Consequently, analyses requiring exact power distributions (e.g., governance token supply dynamics) may need additional on-chain queries. Second, some DAOs lack identifiable names by design. In these cases, the dataset retains the deployment_id as a unique identifier. Notably, Realms votes do not include the vote time. Additionally, DAOstack is deprecated, which should be considered when interpreting historical data from that platform [14].

Thirdly, we rely on public APIs and subgraphs, which may be incomplete or have rate limits. Certain DAO proposals or votes, especially very old or new ones, may be overlooked. While we've cross-referenced official sources to mitigate this, users should be aware of potential gaps, particularly on less mainstream platforms.

Furthermore, the schema currently does not capture off-chain deliberation (e.g., forum discussions or IPFS proposal text), which is another aspect of DAO governance; and the complete retrieved data columns, as we have only focused on a unifiable view of the DAOs. The additional data could be helpful in other use cases.

Future work includes regular dataset updates (e.g., quarterly) and adding new platforms. We may also create separate datasets for each platform for in-depth research. Community feedback is essential for refinement. Users are encouraged to report missing data or desired features, like delegation fields or token economics, via the GitHub issue tracker. We expect the dataset to evolve with DAO tools, facilitating empirical research on decentralized governance.

7 Conclusion

We present a multi-platform DAO governance dataset detailing its collection, unification, schema, and applications. This resource enables cross-platform analyses of DAO behavior, supports replication of prior studies, and allows exploration of trends, participation dynamics, and power structures in decentralized governance. It also fosters interdisciplinary research between DAO and OSS communities, promoting transparency, collaboration, and decentralized decision-making. This work contributes to blockchain research and the software engineering community by providing data-driven foundations for resilient, decentralized collaboration systems.

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