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## Abstract

We propose the development of an ArbitrumDAO Governance Analytics Dashboard to support ongoing governance initiatives, enhance transparency, and provide comprehensive insights into governance data. The dashboard aims to track voting behavior, safeguard against potential governance attacks, and measure the success of initiatives like Redelegation Week. We are seeking comments and support from the Arbitrum community to develop this analytic dashboard.

## Motivation

The Arbitrum community needs a robust, user-friendly tool to simplify the understanding of complex governance dynamics, track the effectiveness of initiatives, and ensure transparency and accountability. This dashboard will foster inclusive, data-driven decision-making, enhancing community governance effectiveness.

Differentiation from Existing Solutions:

Our Arbitrum Governance Analytics Dashboard aims to fill the gaps in existing platforms by providing more detailed metrics for enhanced understanding and transparency:

### 1. Concentration of Voting Power Metrics

: Our dashboard sheds light on the distribution of voting power among small and large holders, their engagement in delegation, and the source of delegates' voting power. It identifies potential centralization of power and offers insights into each delegate's influence.

### 1. Proposal Metrics

: We offer a detailed view of proposal activities, including the ratio of unique proposers to total proposals and the distribution by type. We classify proposal results as contentious, generally accepted, or normal to help stakeholders understand voting dynamics.

### 1. Participation Metrics

: Our focus is on delivering granular metrics on the participation of small and large holders. This comprehensive analysis identifies underrepresented groups and informs strategies for more balanced and inclusive participation.

Our dashboard is an analytical tool designed to provide a comprehensive view of Arbitrum's governance process, highlighting underrepresented holders or delegates and the overall power structure. We are committed to iterative development, refining our dashboard based on community feedback to ensure it remains valuable and relevant for all stakeholders.

## Rationale

This proposal aligns with the Arbitrum community's mission and guiding values by enhancing transparency, promoting data-driven decision-making, and supporting the effectiveness of governance processes. By providing near real-time monitoring and detailed analytics, the dashboard will help the community make informed decisions and maintain a secure governance framework.

## Example Uses of the Dashboard

### 1. Redelegation Week Success Tracking

To ensure the success of the Redelegation Week program, our dashboard will monitor delegate change in their voting power and track the overall votable supply. This user-friendly interface will display the number of delegates joining and the increase in delegations, providing clear insights into the program's success.

### 1. Optimizing Voting Schedule

Our dashboard will help optimize the voting schedule by identifying periods when delegates are most active. By aligning voting schedules with peak voting activity, we can support the predictability proposal from Entropy, adjusting dates based on these insights to enhance participation and predictability.

### 1. Safeguarding from Potential Governance Attacks

To safeguard against potential governance attacks, our dashboard will help monitor unusual delegation behavior, such as

sudden changes in delegate voting power into their respective delegate's voting activity for certain proposals, helping to maintain a secure and robust governance framework.

## 1. Supporting Tools for Current and Future Delegate Incentive Programs

Our dashboard will complement the auditing of the Delegate Incentive program's results. By providing comprehensive analytics and near real-time delegate participation tracking, it ensures transparency and accountability, allowing for accurate assessment and evaluation of the program's effectiveness.

## Specifications

The ArbitrumDAO Governance Analytics Dashboard will be developed by Curia Lab, leveraging our extensive expertise in DAO governance and data analysis. The dashboard will include features:

### Dashboard Metrics

#### Holder Metrics

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- Total number of holder wallets.
- Total token supply.
- Total Circulating Supply.
- Votable supply (tokens in circulation that are eligible to vote).
- Share of circulating supply that is votable.
- Number of tokens with a holding period (e.g., more than 6 months, 1 year without selling).

### Concentration of Voting Power Metrics

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- Small Holder vs. Large Holder Representation:
- Voting power delegated by small holders.
- Number of delegated tokens held by small holders.
- Percentage of small holder wallets that have delegated.
- Voting power delegated by small holders.
- Number of delegated tokens held by small holders.
- Percentage of small holder wallets that have delegated.
- Large Holders Metrics:
- Voting power delegated by large holders.
- Number of delegated tokens held by large holders.

- Percentage of large holder wallets that have delegated.
- Voting power delegated by large holders.
- Number of delegated tokens held by large holders.
- Percentage of large holder wallets that have delegated.
- Voter Quorum Gauge & Nakamoto Coefficient:
- Delegate Nakamoto Coefficient: The number of top delegates required to achieve 50% of the votable supply.
- Delegate Quorum: The number of top delegates needed to reach the proposal quorum of 10M of Voting power.
- Voting Power Distribution: Share of total voting power held within the top 1, top 5, top 10, top 25, top 50, top 100, and top 200 voters.
- Delegate Nakamoto Coefficient: The number of top delegates required to achieve 50% of the votable supply.
- Delegate Quorum: The number of top delegates needed to reach the proposal quorum of 10M of Voting power.
- Voting Power Distribution: Share of total voting power held within the top 1, top 5, top 10, top 25, top 50, top 100, and top 200 voters.
- Delegates Categorized by Source of Voting Power:
- Single-Holder Delegate (via Self-Delegation): Any delegate that received  $\geq 50\%$  of its voting power via self-delegation.
- Single-Holder Delegate (via Other Address): Any delegate that received  $\geq 50\%$  of its voting power via one other address's delegation.
- Community Delegate: Any delegate with voting power where each delegation it has received (including self-delegation) accounts for  $< 50\%$  of its voting power.
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- Community Delegate: Any delegate with voting power where each delegation it has received (including self-delegation) accounts for  $< 50\%$  of its voting power.
- Share of Total Small VS Large Voting Power Ratio.
- Herfindahl-Hirschman Index

## Proposal Metrics

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- Distribution of Proposals by Category:
- A breakdown of governance proposals based on their topic area.
- A breakdown of governance proposals based on their topic area.
- Voting Results of the Proposal:
- Provides an overview of voting outcomes for governance proposals. This offers a snapshot of the degree of consensus or division among token holders. Classification of results as contentious, generally accepted, or normal.
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- Unique Proposers:
- Indicates the range of individuals or entities participating in governance proposals. This helps highlight varying levels of engagement among proposers.

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- Proposal Outcome:
- Number of passed vs. failed proposals.
- Number of passed vs. failed proposals.
- Table of All Proposals:
- Proposal Name, Status, Result, and Category.
- Proposal Name, Status, Result, and Category.

#### Participation Metrics

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- Top 1000 Delegates Participation Voting Power Delegators:
- This section provides an overview of the participation via delegation within the governance token ecosystem.
- Voting Power: Indicates the token voting power delegated from small & large holders to each delegate category: Active, Inactive, and Ghost.
- Delegators: Indicates the number of both small and large delegator addresses associated with each delegate category: Active, Inactive, and Ghost.
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- Voting Power: Indicates the token voting power delegated from small & large holders to each delegate category: Active, Inactive, and Ghost.
- Delegators: Indicates the number of both small and large delegator addresses associated with each delegate category: Active, Inactive, and Ghost.
- Proposal Participation:
- This section provides an overview of the participation within each proposal.
- Voter: Indicates the unique number of addresses that have cast a vote on each proposal.
- Voting Power: Indicates the total number of tokens that were used to cast votes on each proposal.
- Participation Rate: Indicates the percentage of votes cast in relation to the total votable supply.
- Participation return rate: Indicates the percentage of participants retentions
- This section provides an overview of the participation within each proposal.
- Voter: Indicates the unique number of addresses that have cast a vote on each proposal.
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#### Delegate Metrics

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- Delegated Table: Ranking, Delegate Name, Delegated token (%Voting power), Delegating address, Voting turnout, Most Recent 5 votes.
- Voter Turnout: Tracking individual participation activeness, refers to their recent proposals participation.
- Delegate Profile:
  - Dedicated page for each delegate, displaying all proposals they have voted or not voted on.
  - Rationale Vote: Tracking each delegate whether a delegate only votes or also provides a rationale & discussion for their vote, both on-chain and in forums.
  - Non-Conformity Ratio: Display the ratio of times a delegate votes against the majority.
  - Delegation Tracking: Tracking changes in the amount of delegation each delegate receives.
- Dedicated page for each delegate, displaying all proposals they have voted or not voted on.
- Rationale Vote: Tracking each delegate whether a delegate only votes or also provides a rationale & discussion for their vote, both on-chain and in forums.
- Non-Conformity Ratio: Display the ratio of times a delegate votes against the majority.
- Delegation Tracking: Tracking changes in the amount of delegation each delegate receives.
- Voter Behavior:

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- Trend Voting Period Density: Heat map indicating voting density during various time periods.
- Voting Momentum: Indicates the distribution of voter activity across the entirety of the proposals' voting phase, divided into four equal quartiles: 'early', 'normal', 'late', and 'ending'.
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- Voting Momentum: Indicates the distribution of voter activity across the entirety of the proposals' voting phase, divided into four equal quartiles: 'early', 'normal', 'late', and 'ending'.

## Steps to Implement

1. Research & Ideation:
2. We started by identifying the metrics and gather community feedbacks
3. Design & Mockups:
4. Based on our research, we created initial design mockups focusing on user experience and the presentation of key metrics. These were shared with the community for initial feedback.
5. Development Phase 1:
6. We developed a Minimum Viable Product (MVP) featuring basic holder metrics and concentration of voting power metrics. This was released as a mid-development preview to gather community feedback.
7. Development Phase 2:

8. We integrated additional metrics based on community feedback, including more detailed proposal and participation metrics.
9. Testing & Iteration:
10. The dashboard underwent multiple rounds of testing for functionality, usability, and data accuracy. We also made iterative improvements based on ongoing community feedback.
11. Launch & Maintenance:
12. After final testing and refinements, the dashboard was officially launched. We have committed to maintaining it, including daily updates and feature iterations based on community needs.
13. Monthly Report:
14. Release of monthly governance analytics report

## Timeline

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## Budget Request (6 months)

### Governance Dashboard (40,000 USD)

- Infrastructure Costs: This includes all the foundational services needed to support the dashboard's operation.
- Maintenance and Operational Costs: These are ongoing costs required to keep the service up-to-date and running smoothly.
- Data Management Costs: Expenses related to handling and storing the data used by the dashboard.
- Third-Party Services: Costs for services provided by external entities that enhance the functionality of the dashboard.
- Overhead Costs: General administrative and operational expenses not directly tied to specific technical resources.

### Monthly Report (10,000 USD)

- Data Interpretation and Analysis: Simplify complex metrics into clear insights and identify trends, patterns, and anomalies.
- Focus on Key Governance Metrics: Voting patterns, voter performance, proposal outcomes, and voting power shifts.
- Actionable Insights: Provide recommendations for increased participation and governance improvements.
- Customized Content: Tailor reports to community interests and feedback.

Example of our report from SafeDAO: [SafeDAO Governance Analytics Report Thread](#)

## Overall Cost

- The total requested budget is 50,000 USD

, with 40,000 USD allocated for the Governance Dashboard and 10,000 USD for the 6 months of report generation and maintenance.

(The amount will be paid denominated in 71,000 ARB (at the current ARB price of \$0.70

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## Team

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Curia Lab: Our team brings extensive expertise in research, data analysis, and experience in DAO and decentralized governance. We have actively served as delegates in multiple DAOs, deeply engaging in governance, data analysis, and operational activities. We have built governance data-driven tools for notable projects like the Optimism Collective ([Optimism Dashboard](#)) and SafeDAO ([SafeDAO Dashboard](#)) and are keen on developing similar tools for ArbitrumDAO as well.

## Contact Information

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We look forward to your feedback and suggestions!