

# Cardano Governance Health Key Performance Indicators

## GOVERNANCE HEALTH WORKING GROUP

Recommendations for monitoring participation, decentralization, and constitutional integrity under CIP-1694.

Date  
3 December  
2025

### Authors

Nicolas Cerny, Ken Erik Ølmheim, Cathy Hermstad Patanakarun, Larisa Mcfarlane, Vaibhav Solanki

Version  
1.0

## 1. Executive Summary

### 1.1 PURPOSE OF THIS REPORT

This report formalizes the Key Performance Indicators (KPIs) to measure the health of Cardano Governance under CIP-1694, recorded by the Governance Health Working Group (GHWG).

It translates brainstorming efforts into a structured framework, defining the key metrics required to monitor the system's participation, decentralization, and constitutional integrity.

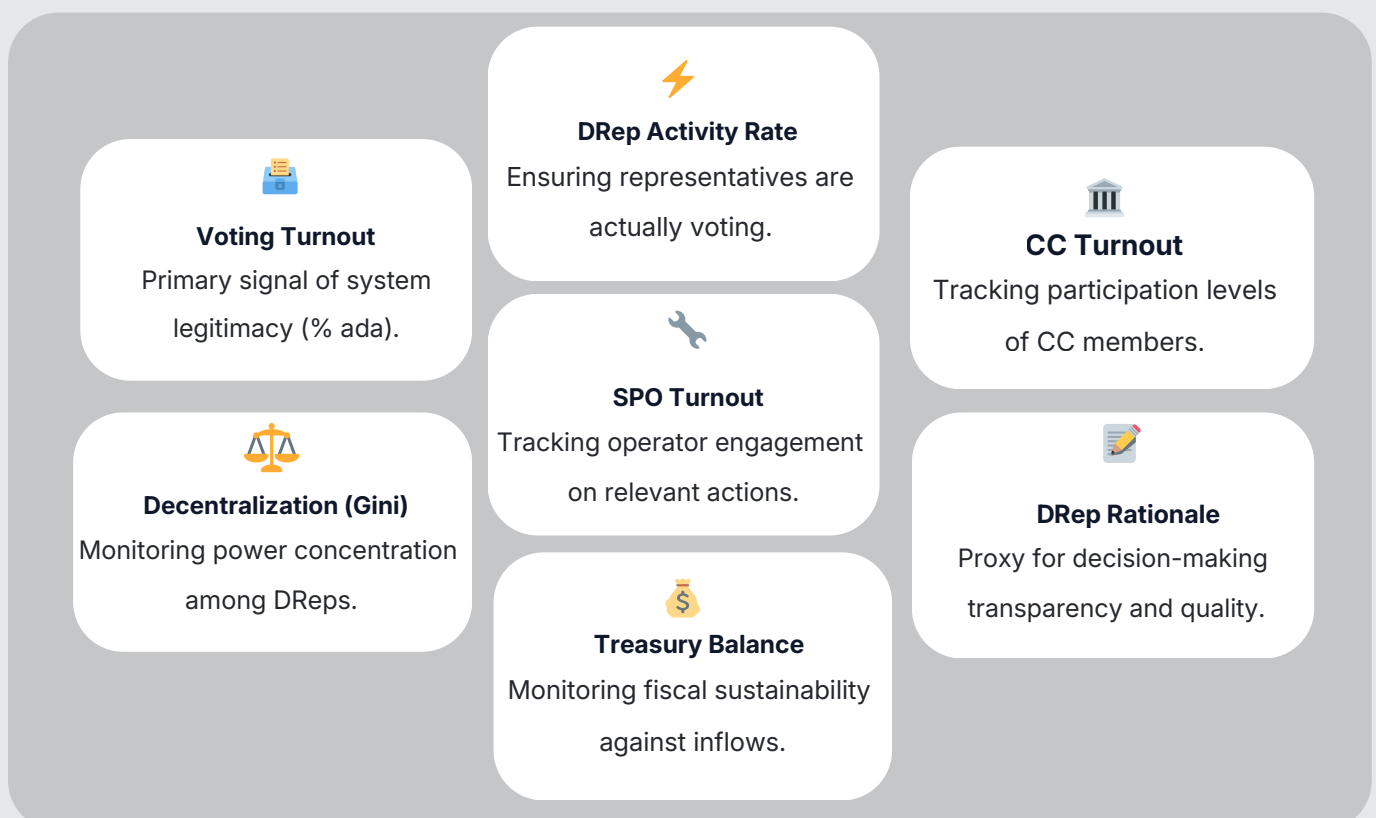
## 1.2 HEADLINE GOVERNANCE HEALTH DIMENSIONS

To effectively track the ecosystem's health, we map KPIs across six dimensions:

- **Ada Holder Participation:** The number of ada holders and the amount of ada they control.
- **DRep Activity:** The effectiveness and independence of Delegated Representatives (DRep).
- **SPO Participation:** The engagement of Stake Pool Operators in their governance role.
- **Governance Action & Treasury Health:** The volume of budget info actions and treasury withdrawals, level of debate, and efficiency of treasury spending.
- **Constitutional Integrity:** The reliability and responsiveness of the Constitutional Committee.
- **Tooling & UX:** The accessibility and transparency of the governance interfaces.

## 1.3 CORE GOVERNANCE HEALTH KPIS (TOP 7)

For the initial governance health dashboard, the following high-signal indicators are prioritized:



## 1.4 KEY INSIGHTS & RISKS

Participation vs. Quality: High turnout does not guarantee high-quality decisions. Metrics must pair quantitative activity with qualitative proxies (e.g., Rationale Rate, Contention Rate).

Data Gaps: While on-chain data is abundant, critical "off-chain" signals (e.g., rationale quality, tooling friction) require new metadata standards and community-maintained data pipelines.

Centralization Risks: Several KPIs are specifically designed to detect "herd behavior" or excessive power concentration (e.g., DRep Gini, DRep Correlation).

# 2. Introduction & Context

## 2.1 BACKGROUND AND GOVERNANCE HEALTH WORKING GROUP (GHWG)

With the implementation of CIP-1694, Cardano has entered a new era of on-chain governance. The Governance Health Working Group (GHWG) was formed under the Cardano Civics Committee to objectively define what "healthy" looks like in this new context. This group serves as a neutral body to brainstorm, filter, and specify the metrics that the community should track.

## 2.2 OBJECTIVE OF THIS REPORT

The primary objective of this report is not to define every possible metric, but to establish a foundational baseline approved by IntersectMBO CIVICS committee. This report delivers a catalog of potential indicators and highlights areas where data infrastructure needs to be built.

The immediate priority is to collaborate with explorer teams to implement standard visualizations. Subsequent efforts should focus on more complex, qualitative metrics.

## 2.3 INTENDED AUDIENCE AND USE CASES

Cardano Community Participants: To monitor the current status of Cardano's governance model to determine the health and discover trends and risks earlier.

Tool Builders: To understand what data points need to be indexed and visualized.

Researchers: To analyze long-term trends in decentralized governance.

## 2.4 SCOPE AND LIMITATIONS OF THIS VERSION

This document focuses on definitions and logic. It does not yet provide live data or finalized code for every metric. Some KPIs listed here are aspirational and may require tooling upgrades before they can be reliably tracked.

## 3. Governance Health Measurement Framework

### 3.1 WHAT WE MEAN BY "GOVERNANCE HEALTH"

"Governance Health" is not a single number. It is a measurement of a composite state where the system is accessible, decentralized, efficient, functioning and upholds principles of fairness, equality and protection from undue influence. A healthy system resists attack vectors, manages its economy, and accurately reflects the Cardano community's will.

### 3.2 GOVERNANCE HEALTH DIMENSIONS

We organize our measurement efforts into the following buckets:

- **Participation:** Are people showing up? Is the system inclusive?
- **Distribution of Power:** is influence concentrated in too few hands (SPOs, DReps or CC)?
- **Performance & Effectiveness:** Are decisions being made in a timely manner? Is the treasury being drained or utilized effectively?
- **Constitutional Alignment:** Are the checks and balances (Constitutional Committee) functioning as intended?
- **Tooling, UX & Data Parity:** Is the barrier to entry low enough for the average user?

### 3.3 KPI DESIGN PRINCIPLES

**Actionable:** Metrics should prompt specific questions or actions.

**Hard to Game:** We prefer on-chain data over subjective social sentiment.

**Context-Aware:** A single number (e.g., "turnout") is meaningless without context (e.g., "seasonality" or "wallet distribution").

### 3.4 RELATIONSHIP TO FUTURE PHASES

This report focuses on "plumbing", getting the basic counts and rates correct. Future community iterations will explore "Semantic Governance," utilizing LLMs or advanced analysis to grade the quality of rationales, the sentiment of debates, and the competence of actors.

## 4. Overview of KPI Categories

The KPIs are divided into six logical categories to ensure comprehensive coverage:

- 4.1 **Category 1: Ada Holder Participation**: Focuses on the "base layer" of governance, the ada holders.
- 4.2 **Category 2: DRep Insights & Activity**: Focuses on the behavior, independence, and quality of the Delegated Representatives.
- 4.3 **Category 3: SPO Governance Participation**: Focuses on the operators who secure the network and their specific governance duties.
- 4.4 **Category 4: Governance Action & Treasury Health**: Focuses on the inputs (Governance Actions) and outputs (Constitutionality, Treasury spend) of the system.
- 4.5 **Category 5: Constitutional Committee Activity**: Focuses on the specific performance of the constitutional committee.
- 4.6 **Category 6: Tooling & UX**: Focuses on the friction involved in participating.

## 5. KPI Catalogue by Category

### 5.1 Category 1 – Ada Holder Participation

#### 5.1.1 CATEGORY OBJECTIVE & GOVERNANCE HEALTH RELEVANCE

This category measures the engagement of the broader ada-holding population. High participation implies legitimacy and network security against governance attacks. However, "participation" must be analyzed to ensure it isn't just a few whales or exchanges dictating outcomes.

## 5.1.2 KPI SUMMARY TABLE (KEY KPIS)

| KPI NAME                               | GOVERNANCE QUESTION  | PRIMARY DIMENSION     |
|--|--|-----------------------|
| Voting Turnout (% ada)                 | How much of the network's stake is actively participating in the governance process? | Legitimacy / Security |
| Active Stake Address Participation     | How many unique stake addresses are delegated, mitigating whale-bias?                | Participation         |
| Delegation Rate (% ada)                | What % of ada in circulation has been delegated to DReps?                            | Participation         |
| Delegation Distribution by Wallet Size | Is governance dominated by whales or is it inclusive of smaller holders?             | Distribution of Power |
| New Wallet Delegation Rate             | Are we successfully onboarding new participants?                                     | Growth                |
| Inactive Delegated Ada                 | Is delegated stake "dead" (stuck with inactive or retired DReps)?                    | Efficiency            |

## 5.1.3 INTERPRETATION CAVEATS & EDGE CASES

Whale Skew: "Turnout" can be high even if only 5 wallets vote. Always pair Voting Turnout with Active Stake Address Participation and Distribution by Wallet Size.

Abstain Ambiguity: An "Abstain" vote is technically participation, but functionally different from "Yes/No." Reporting should ideally toggle "Abstain" inclusion.

Seasonality: A drop in participation might be seasonal (e.g., August holidays) rather than a sign of apathy.

## 5.1.4 POINTER TO FULL KPI DEFINITIONS

See [Appendix A](#) for full technical definitions, formulae, and data sources for [Category 1](#).

## 5.2 Category 2 – DRep Insights & Activity

### 5.2.1 CATEGORY OBJECTIVE & RELEVANCE

DReps are the primary decision-makers in Cardano's governance model. This category monitors whether they are active, independent, and transparent. A healthy DRep layer features diverse voices, regular voting, and clear voting rationales.

### 5.2.2 KPI SUMMARY TABLE (KEY KPIS)

| KPI NAME                            | GOVERNANCE QUESTION  | PRIMARY DIMENSION     |
|-------------------------------------|--|-----------------------|
| Delegation Decentralization (Gini ) | Is voting power overly concentrated in a few "Super DReps"?                      | Distribution of Power |
| DRep Activity Rate                  | Are registered DReps actually doing the job (voting)?                            | Performance           |
| DRep Rationale Rate                 | Are representatives including a rationale with their votes (transparency)?       | Performance / Quality |
| DRep Voting Correlation             | Are DReps voting in herds or thinking independently?                             | Decentralization      |
| DRep Lifecycle Rate                 | Is the DRep ecosystem growing or shrinking (registrations vs. de-registrations)? | Health / Churn        |

### 5.2.3 INTERPRETATION CAVEATS & EDGE CASES

Activity vs. Quality: A DRep might have 100% activity but vote randomly. This metric must be viewed alongside Rationale Rate and Voting Power.

Correlation: High DRep voting correlation isn't always bad; it may simply mean the community agrees on obvious decisions. It becomes a risk signal when combined with low rational rates.

Time-to-Vote: Fast voting isn't necessarily better; it might indicate a lack of deliberation.

### 5.2.4 DEPENDENCIES / DATA REQUIREMENTS

Off-chain Metadata: Rationale Rate and Metadata Completeness rely on DReps correctly using metadata standards (CIP-100/108) and explorers reliably indexing this data.

### 5.2.5 POINTER TO FULL KPI DEFINITIONS

See [Appendix A](#) for full technical definitions, formulae, and data sources for [Category 2](#).

## 5.3 Category 3 – SPO Governance Participation

### 5.3.1 CATEGORY OBJECTIVE & RELEVANCE

SPOs have a dual role: block production and voting on specific governance actions (e.g., security parameters, no-confidence motions). This category ensures they are fulfilling their governance duties without exerting undue influence or acting as a silent monolith.

### 5.3.2 KPI SUMMARY TABLE (KEY KPIS)

| KPI NAME                          | GOVERNANCE QUESTION  | PRIMARY DIMENSION        |
|-----------------------------------|--|--------------------------|
| SPO Voting Turnout                | Are operators voting on Governance Actions where their approval is required (e.g., hard forks, parameters, update committee, no-confidence)? | Participation / Security |
| SPO Silent Stake Rate             | How much potential voting power is left uncast?  | Efficiency               |
| Default Stance Adoption           | Are SPOs relying on "Abstain" or "No-Confidence" default voting option by delegating their rewards account?                                  | Engagement               |
| Entity Voting Power Concentration | Do multi-pool entities control a disproportionate share of the vote?   | Distribution of Power    |
| SPO-DRep Vote Divergence          | How often do SPOs vote differently than the DReps on shared actions?   | Alignment                |



### 5.3.3 INTERPRETATION CAVEATS & EDGE CASES

Scope of Voting: SPOs do not vote on all Governance Action types. Metrics must be filtered to relevant action types to avoid false "inactivity" flags.

### 5.3.4 OVERLAPS WITH ADA HOLDER & DREP KPIS

Rational Ada Holder: There is a debated metric regarding whether delegators switch pools based on SPO voting behavior. This is complex and noted for future research.

### 5.3.5 POINTER TO FULL KPI DEFINITIONS

See [Appendix A](#) for full technical definitions, formulae, and data sources for [Category 3](#).

## 5.4 Category 4 – Governance Action & Treasury Health

### 5.4.1 CATEGORY OBJECTIVE & RELEVANCE

This category measures the system's "metabolism." It tracks the volume and velocity of all Governance Actions, the level of community consensus (contention) across all action types, and the resulting financial and sustainable health of the Cardano Treasury.

### 5.4.2 KPI SUMMARY TABLE (KEY KPIS)

| KPI NAME                          | GOVERNANCE QUESTION  | PRIMARY DIMENSION |
|-----------------------------------|--|-------------------|
| Governance Action Volume & Source | Who is submitting actions (Intersect or Founding Entities or Individuals or Projects)?   | Participation     |
| Governance Action Contention Rate | Are we rubber-stamping or having healthy debates?  | Legitimacy        |
| Treasury Balance Rate             | Are we draining the treasury faster than we replenish it?                                | Financial Health  |
| Time-to-Enactment                 | What is the amount of time between submission and successful ratification and enactment? | Efficiency        |
| Constitutional Compliance Clarity | How often are actions rejected for constitutional reasons?                               | Effectiveness     |

### 5.4.3 INTERPRETATION CAVEATS & EDGE CASES

More != Better: A high volume of Governance Actions could indicate spam.

Low Contention: Could mean consensus, or it could mean apathy. Context is key.

NCL (Net Change Limit): Treasury spend should ideally be benchmarked against the "Net Change Limit" baseline, which currently specifies the maximum amount of ada that can be withdrawn from the Cardano Treasury within a given time period.

### 5.4.4 LINKS TO TREASURY POLICY & NCL

Treasury Spend vs NCL: A critical future KPI will be comparing actual spend against approved budgets or NCL to ensure long-term runway.

### 5.4.5 POINTER TO FULL KPI DEFINITIONS

See [Appendix A](#) for full technical definitions, formulae, and data sources for Category 4.

## 5.5 Category 5 – Constitutional Committee Activity

### 5.5.1 CATEGORY OBJECTIVE & RELEVANCE

The Constitutional Committee (CC) functions as a vital guardrail, ensuring all governance actions they can vote on adhere to the Cardano Constitution and assessing any potential violations. This category tracks their responsiveness and reliability. It is crucial to ensure the CC is not becoming a bottleneck or a centralized point of failure.

### 5.5.2 KPI SUMMARY TABLE (KEY KPIS)

| KPI NAME                      | GOVERNANCE QUESTION  | PRIMARY DIMENSION |
|-------------------------------|--|-------------------|
| Time-to-Decision              | Is the CC reviewing actions quickly enough not to block governance?        | Efficiency        |
| CC Member Participation Rate  | Are CC members, as determined by their CC hot credential, actually voting? | Accountability    |
| CC Abstain Rate               | Is the CC unable to determine constitutionality?                           | Effectiveness     |
| CC Vote Agreement Rate        | Is there groupthink, or do CC members vote differ on the same action?      | Independence      |
| CC Off-Chain Election Turnout | Does the community care about who sits on the CC?                          | Legitimacy        |

### 5.5.3 INTERPRETATION CAVEATS & EDGE CASES

Abstention: A high abstain rate from CC members might be problematic, suggesting the Constitution is unclear or the committee member is dysfunctional.

Unanimity: While 100% agreement might seem good, continuous unanimity might signal a lack of independent analysis by members.

### 5.5.4 RELATIONSHIP TO CONSTITUTIONAL LEGITIMACY

Low turnout in CC elections or a "Update Committee" or "No Confidence" action against the CC are the ultimate "Health" indicators for this category, signaling a loss of trust.

### 5.5.5 POINTER TO FULL KPI DEFINITIONS

See [Appendix A](#) for full technical definitions, formulae, and data sources for Category 5.

## 5.6 Category 6 – Tooling & UX

### 5.6.1 CATEGORY OBJECTIVE & RELEVANCE

Governance cannot be healthy if it is inaccessible. This category tracks the "friction" of the system, how hard it is to submit a proposal, find information, or cast a vote.

### 5.6.2 KPI SUMMARY TABLE (KEY KPIS)

| KPI NAME                           | GOVERNANCE QUESTION   | PRIMARY DIMENSION |
|------------------------------------|---|-------------------|
| Submission Path Share (CLI vs GUI) | Is governance action submission accessible to non-technical users?                          | Accessibility     |
| Proposer Onboarding Completion     | Is the submission process too difficult (drop-off rate)?                                    | UX / Friction     |
| Gov. Info Availability             | Can community members easily find rationales and vote history?                              | Transparency      |
| Governance Data Parity             | Do different explorers show the same data (e.g. approval rates of live governance actions)? | Reliability       |
| Access Friction Index              | (Composite) How difficult is it to participate in Cardano governance?                       | UX                |

### 5.6.3 INTERPRETATION CAVEATS & EDGE CASES

Data Availability: Many of these metrics require analytics from portal providers (e.g., Tempo.vote, GovTool, etc.), which may not be publicly available on-chain.

Subjectivity: "Friction" is often subjective; these metrics rely on proxies like drop-off rates and error logs.

### 5.6.4 TOOLING COVERAGE & CONCENTRATION RISKS

It is also important to track if the governance tooling landscape is monopolized. A healthy ecosystem has multiple GUI options for voting and submission to prevent a single point of failure.

### 5.6.5 POINTER TO FULL KPI DEFINITIONS

See [Appendix A](#) for full technical definitions, formulae, and data sources for [Category 6](#).

## 6. Debated but Excluded KPIs

The GHWG debated several metrics that were ultimately excluded from the Core list.

### 6.1 RATIONALE FOR EXCLUSION CRITERIA

Too Subjective: Relying on opinion without a clear rubric.

Hard to Game-Proof: Easily manipulated by bad actors.

Redundant: Providing the same signal as an existing KPI.

### 6.2 SUBJECTIVE METRICS

DRep "Competence" Score: Excluded because "competence" is subjective. We replaced this with proxy metrics like Rationale Rate and Participation.

Social Media Sentiment: Unattributed sentiment is prone to bot manipulation and noise. We focus on on-chain signals or signed metadata.

### 6.3 REDUNDANT OR OVERLAPPING METRICS

General "Engagement" Score: Merged into specific Turnout and Active Address metrics to be more precise.

### 6.4 ITEMS PARKED FOR FUTURE RESEARCH

Rational Ada Holder Index: Determining if delegators punish SPOs/DReps for specific votes is complex and requires further study on causality.

DeFi Governance Correlation: Tracking how much voting power is controlled by DeFi protocols is valuable, but it requires robust entity tagging that is not yet available.

# 7. Data Sources, Infrastructure & Methodology

## 7.1 ON-CHAIN DATA SOURCES

The majority of KPIs rely on direct ledger data:

Stake Distributions: For turnout and Gini coefficients.

GovernanceTransactions: For governance action volumes, vote counts, and treasury movements.

Registration Certificates: For DRep and SPO lifecycle tracking.

## 7.2 OFF-CHAIN DATA SOURCES

CIP-100/108 Metadata: Essential for Rationale Rate and Context.

Exchange Rates: Required for Deposit Burden (ada to Fiat).

Portal Analytics: Required for UX metrics (CLI vs GUI).

## 7.3 ENTITY MAPPING & IDENTITY ASSUMPTIONS

Some KPIs (e.g., SPO Entity Concentration) require a known registry of which stake keys belong to the same entity. The GHWG relies on community-maintained sets for these mappings.

## 7.4 KNOWN DATA GAPS AND RELIABILITY ISSUES

Identity Resolution: We cannot perfectly identify unique humans, so we rely on "Active Stake Addresses," "Registered DRep Credentials," and "Wallet Size" cohorts as proxies.

Data Parity: Different explorers may currently index governance data differently. The Governance Data Parity KPI is specifically designed to highlight these discrepancies.

## 7.5 REPRODUCIBILITY AND OPEN METHODOLOGY

All "Core" KPIs should have open-source queries (SQL/GraphQL) available to ensure any community member can verify the numbers.

## 8. Core KPI Shortlist & Dashboard Design

### 8.1 CRITERIA FOR SELECTING CORE KPIS

To avoid dashboard clutter, the "Core" list is limited to metrics that are:

- **High Signal:** They tell us something immediate about system health.
- **Feasible:** Data available now or can be made available soon with minimal effort.
- **Foundational:** They serve as denominators for other metrics.

### 8.2 SELECTED CORE KPIS BY DIMENSION

- **Participation:** Voting Turnout (% Circulating ada)
- **DRep Health:** DRep Activity Rate (Voting Frequency)
- **Decentralization:** Delegation Decentralization (Gini)
- **SPO Engagement:** SPO Voting Turnout (on relevant actions)
- **Financial:** Treasury Balance Rate (vs Inflows/Time)
- **Transparency:** DRep Rationale Rate
- **CC Participation:** CC Voting Turnout

### 8.3 EXAMPLE GOVERNANCE HEALTH DASHBOARD LAYOUT

**Header:** SystemStatus(Epoch, Active DReps, Treasury Balance).

**Top Row**

**(Health Vitals):** The 6 Core KPIs with Trend Lines (e.g., Turnout  $\uparrow$ , Spend  $\nearrow$  ).

**Middle Section**

**(Drill-Down):** Tabs for "Ada Holders", "DReps", "SPOs", "Actions".

**Footer:** Links to raw data and methodology.

## 9. Appendices

### A. Full KPI Dictionary (Formal Definitions & Formulae)

#### CATEGORY 1: ADA HOLDER PARTICIPATION

| KPI Name                               | Description  | Potential Formula   | Data Source | Caveats  | Status   |
|--|--|---|-------------|--|----------|
| Voting Turnout (% Ada)                 | Share of circulating ada that voted on a governance action | Total ada voted / Circulating ada   | On-chain    | Subject to whale skew.                         | Core     |
| Active Stake Address Participation     | Distinct stake addresses that voted or delegated to DReps  | Count unique addresses  | On-chain    | Sybil risk; mitigate via size-tier reporting.  | Included |
| Delegation Rate (% Ada)                | Ada delegated to DReps                                     | Ada delegated / Circulating ada   | On-chain    | May mask apathy if users delegate and forget.  | Included |
| Delegation Distribution by Wallet Size | Cohort representational equity                             | Group wallets by ada tier; compute % delegation per tier.                     | On-chain    | Tier definitions are arbitrary.                | Included |
| Delegation Churn                       | Liquidity/responsiveness of delegation                     | (Wallets changing DRep) / Total Delegated Wallets                             | On-chain    | Can reflect fees/retirements , not just views. | Future   |
| New Wallet Delegation Rate             | Governance onboarding effectiveness                        | (New wallets delegating within N epochs / New wallets) * 100                  | On-chain    | Exchange/cold wallets distort this.            | Included |
| Post-Vote Delegation Flow              | Redelegations after contentious actions                    | $\Sigma$ ada redelegated away from DReps voting X on action Y within Z epochs | On-chain    | Causality is hard to prove.                    | Future   |
| Inactive Delegated Ada                 | Delegated ada tied to inactive and retired DReps           | Total amount of ada delegated to DReps who are inactive or retired            | On-chain    | One-off inactivity can be benign.              | Included |

## CATEGORY 2: DREP INSIGHTS &amp; ACTIVITY

| KPI Name                              | Description                                 | Potential Formula                                     | Data Source   | Caveats                                       | Status   |
|---------------------------------------|---|---|---------------|---|----------|
| Delegation Decentralization (Gini)    | Concentration of delegated power            | Gini Coefficient on ada delegated to active DReps     | On-chain      | Gini doesn't measure quality.                 | Core     |
| DRep Activity Rate                    | Voting activity by DReps                    | DReps voting on $\geq X\%$ actions / Registered DReps | On-chain      | Activity $\neq$ Quality.                      | Core     |
| DRep Rationale Rate                   | Transparency of voted per governance action | Votes with rationale / Total DRep votes               | On-/Off-chain | Quantity over quality (initially).            | Core     |
| Time-to-Vote                          | Timeliness of votes                         | Median time between Gov Action submission + vote      | On-chain      | Speed $\neq$ Quality.                         | Included |
| DRep Voting Correlation               | Detect herd/centralization of opinion       | Avg pairwise vote-direction corr. among top-N DReps   | On-chain      | Genuine agreement is possible.                | Future   |
| DRep Lifecycle Rate                   | Net population health                       | New reg de-registrns / epoch                          | On-chain      | Net no. hides total churn.                    | Included |
| DRep Vote Change Rate                 | Stability vs reconsideration                | Vote-change transactions per action                   | On-chain      | Thoughtful updates vs volatility.             | Future   |
| DRep Seniority Distribution           | Experience mix                              | Histogram by registration date                        | On-chain      | Seniority $\neq$ Competence.                  | Included |
| DRep-CC Vote Latency                  | Independence from CC decisions              | Median time diff between CC decision and DRep vote    | On-chain      | Rational to wait for CC, but dependency risk. | Future   |
| DRep Metadata Completeness            | Baseline quality of data                    | % DReps with complete minimal metadata                | On/Off-chain  | Verification is hard.                         | Included |
| Top-100 DRep Concentration Volatility | Power mobility (Liquid Democracy)           | StdDev over rolling W epochs of % ada held by top-100 | On-chain      | Window W is arbitrary.                        | Future   |
| Seasonality of Voting                 | Cyclical patterns                           | Avg turnout per period; YoY same-period % change      | On-chain      | Needs long history to be useful.              | Included |



### CATEGORY 3: SPO GOVERNANCE PARTICIPATION

| KPI Name                          | Description   | Potential Formula                                   | Data Source | Caveats                            | Status   |
|-----------------------------------|---|---|-------------|------------------------------------|----------|
| SPO Voting Turnout                | Core engagement check on governance actions that SPOs can vote on | SPOs who voted / Active SPOs                        | On-chain    | Definition of "Active SPO" varies. | Core     |
| SPO Silent Stake Rate             | Identify uncast operator power                                    | Non-voting active-pool stake / Active stake         | On-chain    | Legit abstention vs inattention.   | Included |
| Default Stance Adoption           | Reliance on auto-abstain or No-confidence                         | % pools using Abstain / No-Confidence defaults      | On-chain    | Defaults ≠ Considered position.    | Included |
| Ratification Latency              | Voting timing behavior  | Median time from vote window open to SPO vote       | On-chain    | Time zones affect this.            | Future   |
| Entity Voting Power Concentration | Multi-pool entity influence                                       | HHI/Gini on entity-aggregated stake                 | On-chain    | Requires Entity Registry.          | Included |
| SPO Vote Change Frequency         | Stability of decision   | Count of vote-change transactions per SPO           | On-chain    | Changing vote can be thoughtful.   | Future   |
| SPO vs. DRep Vote Divergence      | Alignment between bodies  | Diff in voting outcomes between SPO and DRep bodies | On-chain    | Divergence isn't necessarily bad.  | Future   |

## CATEGORY 4: GOVERNANCE ACTION & TREASURY HEALTH

| KPI Name                          | Description                    | Potential Formula   | Data Source | Caveats                                | Status   |
|-----------------------------------|--------------------------------|---|-------------|--|----------|
| Gov Action Volume & Source        | Submission by origin           | Count per month by submitter  | On-chain    | More actions ≠ better governance.      | Included |
| Gov Action Contention Rate        | Healthy debate check           | Distribution of Yes/No/Abstain; share of close outcomes                       | On-chain    | Low contention can mean consensus.     | Included |
| Treasury Balance Rate             | Resource deployment            | Ada spent / ada added (per calendar year)                                     | On-chain    | Context-dependent optimum. ≠           | Core     |
| Gov Action Consequence Analysis   | Risk/benefit analysis presence | % Actions with standardized consequence section                               | Off-chain   | Process ≠ Outcome quality.             | Future   |
| Time-to-Enactment                 | Execution efficiency           | Median days from submission to enactment                                      | On-chain    | Complex changes naturally take longer. | Included |
| Treasury Spend vs NCL             | Fiscal discipline              | Treasury Spend Rate / Net Change Limit  | On-chain    | NCL definition is pending.             | Future   |
| Constitutional Compliance Clarity | Submission quality             | % Actions w/ zero No votes by the CC  | CC Logs     | Process maturity affects this.         | Included |
| Success Rate by Source            | Bias check                     | Approved Actions from X / Submitted from X (e.g. Intersect submitted actions) | On-chain    | Inst. may have more resources.         | Included |
| Min Attack Vector                 | Security threshold             | Num actors needed to collude to meet approval threshold                       | On-chain    | Theoretical metric.                    | Future   |

## CATEGORY 5: CONSTITUTIONAL COMMITTEE ACTIVITY

| KPI Name                      | Description         | Potential Formula                                | Data Source | Caveats                                 | Status   |
|-------------------------------|---------------------|--|-------------|---|----------|
| Time-to-Decision              | CC Efficiency       | Median days from submission to CC vote           | Logs        | Complex actions take longer.            | Included |
| CC Member Participation Rate  | Individual activity | Actions voted on by member / Total actions       | On-chain    | 100% participation ≠ Quality.           | Included |
| CC Abstain Rate               | Decision capability | Count 'Abstain' / Total CC votes                 | On-chain    | Abstention can be valid neutral stance. | Included |
| CC Vote Agreement Rate        | Consensus level     | % actions with non-unanimous CC vote             | On-chain    | 0% variance could signal groupthink.    | Included |
| CC Off-Chain Election Turnout | Legitimacy of CC    | Total ada voted in CC election / Circulating ada | Off-chain   | Low turnout undermines legitimacy.      | Included |

## CATEGORY 6: TOOLING & UX

| KPI Name                 | Description           | Potential Formula  | Data Source  | Caveats                          | Status   |
|--------------------------|-----------------------|--|--------------|----------------------------------|----------|
| Submission Path Share    | Tooling accessibility | % Actions submitted via CLI vs GUI                         | Analytics    | Path detection imperfect.        | Included |
| Proposer Onboarding Rate | UX friction           | Completed submissions / initiated drafts                   | Analytics    | Requires portal data access.     | Included |
| Deposit Cost Burden      | Barrier to entry      | Ada deposit for DRep reg / GA submission × FX index basket | On-chain/ FX | Basket choice is subjective.     | Included |
| Access Friction Index    | Entry barriers        | Composite of steps, errors, time-to-submit                 | Analytics    | High subjectivity.               | Future   |
| Info Availability        | Transparency          | % actions with human-readable vote pages                   | Explorers    | Proxy for UX, not participation. | Included |
| Governance Data Parity   | Data consistency      | Delta between Explorer A and Explorer B data               | Explorers    | Manual check initially.          | Included |

## B. GLOSSARY

DRep: Delegated Representative.

SPO: Stake Pool Operator.

CC: Constitutional Committee.

CIP-1694: The Cardano Improvement Proposal establishing on-chain governance.

Governance Action: A formal proposal submitted to the chain (formerly "Proposal").

NCL: Net Change Limit. Set by the DReps via an info action. Defined the the maximum amount of ada that can be withdrawn from the Cardano Treasury in a specified time period (e.g. 350M ada in 2025)

## C. OPEN QUESTIONS FOR FUTURE ITERATIONS

Constitutional Debt: How do we define and measure "debt" in the Constitution (unresolved issues)?

Rational ada holder: Does a divergence in SPO/DRep voting actually cause ada holders to move stake?

Tooling Monopoly: What is the ratio of tools available for DReps vs SPOs? (e.g. 1 tool per 1000 DReps).

Bubble Maps: Can we use visual bubble maps as a standard reporting tool alongside numerical KPIs?

### Contributors:

We extend our gratitude to the Cardano Community members who dedicate their time to join the working group meetings, including Tevo Saks, Alex Seregin, Thomas Lindseth and Matthieu Pizenberg.