

[Retroactive Public Goods Funding 5](#) (Retro Funding) will reward contributions to the OP Stack. A high degree of knowledge is required to understand the OP Stack's different components, the impact of protocol development initiatives and the usefulness of tools that support OP chain operators. The hypothesis that round 5 is aiming to test is if experts make better OP allocation decisions on OP Stack contributions compared to non-experts.

Research Questions

The Retro Funding 5 governance experiment is designed around the following research questions:

1. Are there significant differences in how experts versus non-experts vote to allocate resources to technical contributions?
2. Are there significant differences between existing badgeholders and new guest voters, both in how they vote to allocate resources and in other characteristics?
3. Will sorting badgeholders into smaller groups dedicated to evaluating a specific set of applications improve the voter experience?

Expertise Measurement

Expertise is measured via a score assigned to each individual based on their past Github activity relating to the OP Stack. The GitHub accounts of guest voters are collected in the [application flow to become a guest voter](#). Badgeholders are invited to add their GitHub account to their [Optimist Profile](#) in the process of completing Season 6 onboarding. The scores are assigned using an algorithm developed through a collaboration between [Karma3Labs](#) and [Open Source Observer](#), and is based on [Hubs and Authorities](#). The algorithm is more complex than [EigenTrust](#), because it incorporates two entities: GitHub Repos and GitHub Users, both of which can have 'trust' and give 'trust' to each other. You can find more details on guest voter selection [here](#) and the algorithm [here](#).

Voter groups

In order to account for a small degree of churn, the following voter groups have been formed and participants informed by email:

Badgeholders: 97 individuals

Guest Voters: 30 individuals

Guest Voters

- Guest voters were separately announced in [this forum post](#).
- Guest voters were selected by choosing the top ranked applicants based on OP Stack expertise. The algorithm ranked all GitHub users on their proximity to the OP Stack.
- The highest rank among the Guest Voters is #3

out of ~74,000 GitHub users with a score of 2.47 (zero is a perfect score)

- The median rank was #111
- The lowest rank among the Guest Voters is #861

with a score of 5.74

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- 30 Guest voters were invited to account for the possibility of churn.

Citizens

Given that the number of Citizens that opted-in to participate in Season 6 was 97 (as of August 16th), all Citizens who opted-in before 16.08.24 have been invited to participate in the Round, with 34 assigned to the experiment condition (high OP Stack expertise) and 63 to the control condition (low OP Stack expertise).

- The expertise ranking of Citizens ranges from none (no GitHub or no relevant GitHub activity) to the highest ranking expertise score - #58

with a score of 4.17

- The median expertise score was 6.95
- Citizens above the median expertise score were assigned to the experiment condition and the other half was assigned to the control condition.

Random sampling

Random sampling is a widely used statistical method in which all members of a population (all Citizens) have the same probability of being selected. Random sampling does not guarantee that a particular sample is a perfect representation of the population, but rather allows for valid conclusions to be drawn about the entire population based on the sample. Another way of saying this is that the random sample approximates the full population. This is due to the equal probability of selection. Read more here [Experimenting with Random Sampling in the Citizens' House](#)

Treatment and control groups

Retroactive Public Goods Funding is an ongoing experiment, in which the Collective tests and validates different voting designs based on how well they perform at rewarding impact. Previous experiments were largely product iterations based on learnings from previous rounds and hypothesised improvements. For future rounds, experimentation will become more scientific to better understand cause and effect of different design choices. We believe this approach will allow the Collective to develop an industry-leading approach to metagovernance that will strengthen the design of the system over time. Retro Funding 5 introduces the concept of treatment and control groups. In experimental design, the “treatment group” participates in the experiment, while the “control group” does not (representing the status quo.) This allows hypotheses to be validated or invalidated by comparing the results of the treatment group to the control group. Specifically, taking this approach in Round 5 will allow the Collective to generate actionable insights about the performance of expert voters compared to non-expert voters.

Voting Process

An iteration on Retro Funding voting design is the allocation of voters into subgroups. Each subgroup only votes on a specific category of projects (e.g. Ethereum Core Contributions, OP Stack Research & Development, OP Stack Tooling). This has been a popular experimentation request and is one proposed methodology by which the Retro Funding voting process can be scaled to reward more projects. This change can be understood as a product iteration, as its validation largely relies on the change in performance data compared to previous rounds and badgeholder feedback, while there is no control group which would allow for more scientific comparison.

Process Overview:

1. Subgroups are established

: voters are (randomly) assigned into subgroups, the subgroups are equal in size and remain representative of the different voter groups.

1. Category allocation

: All voters vote on the allocation of OP among the three categories of the round scope. These votes will be public.

1. Impact Evaluation

: Each voter votes on the amount of retro rewards all projects within their assigned category should receive. Votes will be private to prevent intimidation and coercion, promote unbiased decision-making and protect against bribery.

Voting design

The Foundation Mission “[Evaluating Voting Design Tradeoffs for Retro Funding](#)” is expected to deliver relevant insights into voting design tradeoffs, which will inform the selection of a voting mechanism for round 5. Further details on the implementation of impact = profit within the round, and the policy for conflicts of interests among badgeholders, will follow.