

TL;DR:

- we, the team behind building InnoPolis during the ETHGlobal Bangkok Hackathon, propose creating a decentralized version of Polis for the Arbitrum DAO;
- the original Polis has proven its effectiveness in large-scale irl-discussions but is not web3-compatible;
- we would love to hear comments and suggestions from the Arbitrum community, either here on the forum or in the Polis conversation we've organized: <https://pol.is/5jbzpjw2t8>.

## 1. Abstract

DePolis ([InnoPolis](#) in ETHGlobal Bangkok Hackaton) is a decentralized version of Polis (<https://pol.is/>), an open-source technology for survey research that uses data science to gather insights.

In practical terms, DePolis is a tool for “smart” gathering of Arbitrum users’ and/or delegates’ opinions on specific topics. The term “smart” here refers to the process of collecting and displaying opinions in a clear, concise, and human-readable manner. This enables the Arbitrum DAO to better understand its users/delegates by identifying dominant opinions, points of consensus and disagreement, as well as major clusters of perspectives.

In its highest ambition, DePolis is a platform for enabling collective intelligence in human societies and fostering mutual understanding at scale.

## 2. Motivation

Original Polis:

- is used as a deliberation tool on a national and/or regional scale in Taiwan, Greece, Germany, USA, and other countries (you can find case studies [here](#));
- was mentioned by Vitalik as a great social technology that could be used to enable more decentralized governance over contentious decisions ([one](#), [two](#), and [three](#));
- likely the best technology for large-scale conversations which can radically improve the structure of communication in DAOs;
- is gradually starting to integrate into web3 governance frameworks (eg, [Filecoin governance](#)).

Our strong belief is that DePolis, if integrated wisely, could provide a way to create feedback loops between DAO/delegates/developers/protocols and users to truly grasp the “community’s mind” and channel those insights into DAOs and protocols decision-making.

## 3. Rationale

This proposal is aligned with [Arbitrum’s community values](#):

- DePolis is the tool that enables the collection of Arbitrum users’ opinions in their own words while providing clear and actionable insights into their collective views;
- DePolis can serve as a tool for constructive governance participation, empowering Arbitrum users who currently lack the skills/time/knowledge to fully express their opinions in the governance forum.

## 4. Key Terms

Polis

- a real-time system for gathering, analyzing, and understanding what large groups of people think in their own words, enabled by advanced statistics and machine learning, for more info check <https://pol.is/>.

DePolis

- a web3-compatible version of Polis, which our team plans to develop for the Arbitrum community.

Topic

- a question or subject to be discussed using DePolis (e.g., “How should the DAO allocate its funds?” or “What improvements are most needed?”).

Participants

- entities/accounts eligible to participate in the conversation by voting and writing statements, which can be filtered using

any arbitrary set of onchain data (e.g., “accounts holding/staking >100 ARB” or “accounts that participated in Tally voting > 5 times”).

## Statements

- opinions submitted by participants through DePolis (<140 characters) on a specific topic, which other participants can vote on.

## Report

- the summarized output generated after a conversation conducted on the DePolis platform. It provides a structured and visual representation of the collective insights and findings from the discussion (check example of [Polis report from Bitcoin DAO conversation](#)).

## 5. Specifications

### I. How Polis for DAOs should look like

Conceptually, DePolis could serve as a tool for:

#### A. Gathering Arbitrum users’ opinions on contentious topics

Remember the spiciest conversations in the Arbitrum DAO (for example, the [STIP proposal](#) or the [gaming ecosystem catalyzing discussions](#))? Imagine that, alongside forum debates, ordinary Arbitrum users were also asked to express their opinions in a simpler, more accessible way - by providing a short statement or upvoting/downvoting others’ statements. Now, what if these opinions were then transformed into a clear, human-readable report, summarizing key points of consensus and disagreement? Do you think this would change how decisions are shaped and communicated?

#### B. Gathering opinions from specific protocol/domain users

Imagine that before launching massive incentivization programs (like those for the GameFi or DeFi sectors), we could ask active users of relevant protocols for their thoughts on pain points and opportunities in the domains they use daily. Do you think such feedback could refine and improve the parameters of these programs?

#### C. Facilitating a “pre-forum” exchange of delegates’ opinions to map the existing opinion landscape

Do you think this could help structure and smooth discussions? Some Arbitrum delegates seem to believe so (eg, check [Oversight Committee thread](#)).

#### D. Some other ideas:

- an automatically created incentivized poll for all Arbitrum users and/or ARB holders/stakers in case of highly contentious proposals appearing on the Arbitrum governance forum (the level of contentiousness could be determined using AI tools like x23.ai);
- a tool that operates autonomously on its own website and can be initiated by any delegate on any issue;
- a required procedure to be launched before/after any major grant program, enabling the identification of the opinions of the ultimate beneficiaries of such grant programs.

### II. Why can’t we just use original Polis?

We can! Moreover, Polis has been used in numerous conversations among DAO members:

- some conversations in Bitcoin DAO ([one](#), [two](#), [three](#)), check report example [here](#);
- a few conversations in Arbitrum forum ([one](#), [two](#)).

But the original Polis has serious limitations:

1. It is excellent for conversations within relatively small groups that are highly interested in quality discussions (e.g., among delegates on a specific topic), but it is not well-suited for managing large-scale discussions with thousands of participants.
2. In the aforementioned low-scale discussions, manipulation of Polis is not a concern. However, if we imagine that opinions expressed through Polis truly matter and are embedded in governance decision-making processes, there will quickly be those looking to manipulate the conversation. The original Polis does not provide tools to counteract this.
3. The original Polis is not compatible with web3 environments. It does not allow for defining the list of participants based on onchain data, does not enable incentivization for participating in conversation, and does not support integration with numerous platforms like Farcaster and Lens, among others.

### III. So, what we wanna build for Arbitrum DAO?

We want to start with a relatively simple implementation of DePolis that, on one hand, will validate key hypotheses (regarding technical solutions, UX, organizational aspects, etc.) and include all the minimally necessary technical features, and on the other hand, will enable the Arbitrum DAO and its delegates to independently launch conversations without our involvement (including defining the participant pool and providing incentives for participants).

Core features of the first iteration of DePolis:

#### A) Conceptual:

1. The ability for anyone to create and configure a conversation in the same way as in the original Polis.
2. The ability to provide statements, with a limit of total statements per participant (unlike the unlimited submissions in the original Polis), and to vote on others' statements.
3. The ability to define a timeline for submitting statements and voting on them (e.g., 3 days for submitting statements, then revealing submitted statements, and then 3 days for voting).
4. Configuration, moderation, and monitoring tools for administrators to effectively manage conversations (similar to the original Polis).
5. The ability to incentivize the conversation by sending USDC/ARB to a smart contract associated with the conversation, which will distribute rewards among participants based on the conversation outcomes, with customizable reward distribution logic.
6. Report generation accessible to all participants, summarizing the conversation and its outcomes.

#### B) Technical:

1. A UX/frontend closely resembling the original Polis (examples linked below) but with a more modern and streamlined design.
2. Wallet-based authentication with access restrictions based on onchain data (e.g., "accounts holding/staking >100 ARB", "accounts that participated in Tally voting >5 times", "accounts with >15 transactions on the Arbitrum chain in the previous month", "holders of X, Y, and Z tokens", etc.).
3. A no-coding or minimal-coding method to set such access restrictions.
4. Storing all important data (votes and statements) onchain/ipfs, so anyone can verify the accuracy of the reports generated through the frontend.
5. The ability for administrators to moderate statements - removing statements from the frontend while keeping them stored onchain.
6. An off-chain script to generate reports (onchain report generation would be too expensive and unnecessary).

The specification outlined above, including the technical solutions, may be adjusted during the development process.

Links:

- official Polis website - <https://pol.is/>
- example of Polis conversation - <https://pol.is/5jbzpjw2t8>
- example of Polis report - <https://pol.is/m/5jbzpjw2t8/reports>

As part of this proposal, we aim to conduct and moderate four conversations: two among delegates (without incentivization) and two among Arbitrum users (one without incentivization and one with incentivization).

The two conversations among delegates can be considered as test conversations to validate technical solutions. We do not expect these to yield any meaningful insights, but we would be pleased if at least 20 delegates or active forum participants take part. Accordingly, the topic of these conversations is not critical - it could, for example, involve a contentious issue relevant to governance procedures in the DAO that concerns delegates and forum members. Following the two test conversations, we aim to gather feedback from participants and use it to improve DePolis.

Additionally, we would like to conduct two larger and more engaging conversations involving active Arbitrum users and/or ARB holders/stakers. Examples of questions we propose for discussion include:

- Does the Arbitrum community feel the DAO could improve transparency in how treasury funds are used? Would clearer reporting and progress milestones help build trust and accountability?
- What impact do you think Arbitrum's incentive programs (STIP, LTIPP, Gaming Catalyst Program, etc.) have had on

the ecosystem? Have they driven meaningful growth, or were they just a short-term boost?

- Should ARB emissions prioritize rewarding current stakers or subsidizing developers to grow the ecosystem?
- Delegates and active forum members are encouraged to suggest more relevant and pressing questions as well.

For one of the conversations, we would like to incentivize participants (see below for incentivization methods).

#### IV. Controversial issues

There are certain architectural questions relevant to DePolis. Below is a list of these questions and our ideas on how to address them appropriately. The approach may evolve during development.

##### List of controversial questions

###### 1. Sybils

When the results of conversations can genuinely influence decisions made by delegates and/or participants are incentivized, it is inevitable that some will attempt to game the system. We believe that carefully defining participation conditions and prohibiting accounts flagged as sybils from participating in the conversation will solve this issue. Additionally, this problem is not particularly relevant for the first iteration of DePolis.

###### 1. Timings

In the original Polis, a conversation is ongoing - participants can submit statements and view others' statements throughout the conversation. The downside of this is that early statements have a higher chance of receiving more votes. In our view, the default solution should be to provide a specific period (e.g., 3 days) during which participants can submit statements without being able to see those of others.

###### 1. Incentivization

An intuitive solution seems to be incentivizing two categories of statement authors:

- those whose statements received the highest number of upvotes (participants who helped identify points of consensus);
- those whose statements received the most upvotes within their opinion groups (participants who helped identify points of disagreement).

The question of whether voting itself should be incentivized - and if so, under what principles - is something we propose to leave open at this stage.

###### 1. Seed Comments

The original Polis includes the creation of seed comments - comments submitted by the conversation owner (more details [here](#)). In our opinion, dividing the conversation into two phases (see 'Timings' above) eliminates the need for seed comments. Those with something to say will do so in the first phase, while those who prefer to understand the landscape of opinions before contributing can do so during the second phase.

###### 1. Moderation

The original Polis allows for various moderation approaches (details [here](#)). In our view, a permissive moderation approach should be chosen, allowing statements that violate predefined rules or are repetitive to be removed from the interface (but retained onchain).

###### 1. Anonymity

In some cases, linking statements to specific accounts might discourage participants from expressing their genuine opinions. However, integrating onchain logic with anonymity poses a complex technical challenge and is a subject for future research.

###### 1. Interpretation

Is the standard Polis report sufficient for consideration in decision-making processes? In our view, it is - currently, the report is clear, accessible, and informative enough for delegates to use. However, proper interpretation of conversation results remains a topic for future research.

## 6. Steps to Implement, timeline

1. Development phase 1, core features and UX:
2. frontend with web3 authentication and popular wallets support

3. functionality for checking customizing participation criterias
4. decentralized statements and votes storing via blockchain/ipfs
5. public backend for heavy math operations and verifiable report generation

Estimated timeline: 1-2 months

1. Conducting two test conversations among Arbitrum delegates, collecting feedbacks

Estimated timeline: 2-4 weeks

1. Development phase 2, improvements based on feedback received from delegates

Estimated timeline: 2-4 weeks

1. Conducting two test conversations among Arbitrum users

Estimated timeline: 2-4 weeks

### Overall Cost

According to our calculations, developing the technical components will require the work of three technical specialists (two backend and one frontend) over a period of two months. Based on this, we propose setting the compensation at \$60k (in ARB tokens) as compensation for developers + \$5k (in ARB tokens) to cover the incentivized conversation with Arbitrum users

. If needed, the compensation can be distributed in installments, for example:

- \$20k after the completion of Development Phase 1
- \$20k after the completion of Development Phase 2
- \$20k after conducting two DePolis conversations among Arbitrum users

### Team

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Will be happy to answer any questions! We also invite everyone to participate in the conversation on Polis - <https://pol.is/5jbzpjw2t8> (conversation topic: "DePolis as a deliberation tool for Arbitrum DAO").