Open Source Contribution Model for Cardano Organizations

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1. ABSTRACT

Context: Open Source has gained enough traction in the business world to be perceived as a potential source of competitive advantage.

Objective: This document proposes a process that progressively allows an organization to move towards the implementation of an Open Source contribution model to cultivate its benefits in favor of a project (product, service, component, etc).

Method: On February 14, 2024, the Gimbalabs community initiated a process of ideation and implementation of a Governance framework, which has been recorded through a series of sessions called "Gimbalabs Open Spaces" that are still ongoing to date, to build in public and creating an entry point for new contributors. The procedure described in *section 3. Research Design* of this study and its findings are the product of the running of these governance sessions.

Results: The "Open Source Contribution Model for Cardano Organizations" formulated in *section 4. Results*, describes a structure of access layers for users and contributors to a project that an organization has decided to make open participation in an Open Source framework. In addition to being access points, these layers allow to conceive the organic growth of a community of contributors that influences and guides the transformation of the organization itself.

Conclusion: Establishing open source participation and governance structures drastically redefines the management style of an

organization. A drastic change in exchange of extracting the proven benefits of the value proposition of open source models. Slowly embarking on the implementation of such models while the organization's learning curve gains momentum is the most appropriate approach to follow.

Keywords: open source, cardano, governance, participation, contributors, maintainers, community.

2. INTRODUCTION

At first glance, adopting an open source business model seems counterintuitive. However, extensive research reveals its benefits in cost efficiency, scalability, security, talent attraction, innovation acceleration and time-to-market. Contributions to open source and business growth show a strong positive relationship: a 1% increase in GitHub commits is associated with a 0.1% increase in valuations in the following year and a 0.03% increase in funding (Wright et al., 2024). In terms of security, it has been determined that the greater the availability of source code for public testing, scrutiny and experimentation, the faster all forms of bugs will be discovered (Raymond, 1999). With still a way to go in industries not 100% related to software development in terms of understanding Open Source Software (OSS) dynamics such as frequent update management, regulatory compliance and cybersecurity assurance, Health-Tech startups have increasingly adopted OSS for its cost and time efficiency, scalability and customization (Ahmad et al, 2024).

Open Source development models, with their emphasis on sharing and collaboration, encourage improvements and iterations of existing software from various sources, in a phenomenon of collective intelligence that shapes development methodologies and governance practices that impact the level of transparency, innovation and longevity of a project (Benkort, 2024).

The last two decades have seen Open Source software development deliver successful examples of its applicability: the Linux Kernel, Android, OpenOffice, Apache, among others, which have led to it being considered as a system that can be put to work towards an organization's market objectives. This study addresses the formalization of a process of progressive integration of Open Source collaborative environments in software, products and services, profit and non-profit organizations, usually driven by the priorities, ideas and initiatives of a defined and closed set of contributors.

The main focus of any Open Source collaborative environment is the Contributor: the users whose level of involvement with the project goes beyond the consumption layer, interacting with the product design itself (code, item, product, service, etc).

The Contributor role in an Open Source project is adapted to its different possible types: individual, team, organization, each with different motivations to execute their contribution. For an individual, the motivations can be:

- Learning and professional development: Improve technical skills and gain new experiences working on real projects.
- Recognition: Build a reputation in their community.
- Collaboration and networking: Connect with other professionals in the industry.
- Personal purpose: Contribute to causes or technologies one believes in.
- Flexibility and autonomy: Freedom to choose how, when and what to contribute.
- Career opportunities: Improve visibility to employers.

For a team or organization in the Contributor role, the motivations can be equally diverse, and undoubtedly directly related to the benefits that adopting an Open Source framework brings to organizations:

- Cost reduction: Leverage existing software to avoid development from scratch.
- Shared innovation: Collaborate with global communities to improve products and accelerate innovation.
- Improve reputation: Position itself as a leader in the industry and strengthen its brand.
- Avoid dependence on suppliers: Maintain control over tools and reduce lock-in.
- Standards compliance: Participate in the creation of open standards that benefit its industry.

An active Contributor base (new contributors + active contributors) is essential for a project to scale. However, in order to have contributors, there must first be users. Under an open source collaboration framework, and with the right pipeline in place, it is possible for people to run their user and contributor roles at will with as little friction as possible: a reality in which the user contributes to the success of an organization's project, leveraged by access to the participatory decision-making process.

In such an open source pipeline, the main structure is the governance model that the organization decides to adopt: the level and methodology of openness, transparency and participation that is put in place for user-contributors will define the level of cost efficiency, scalability, security, talent attraction, innovation acceleration, and time-to-market that will be obtained.

Aware of a gradual open source integration into their operations as the most striking scenario for organizations (a project, a unit, a work area, etc.) while their learning curve of open source dynamics and adaptation grows organically, the designed experiment describes the procedure that can be followed for a smooth integration of the model generated by this study.

3. RESEARCH DESIGN

Experiment objective: to lay the groundwork for building a community of contributors around a project, keeping in mind the natural progression of a contributor: user → new contributor → active contributor. Using the project for a while and reaching the point of being willing to contribute is the expected behavior pattern.

Convenient considerations:

- Types of expected contributors:
    - ☐ Individuals, not prior agenda: looking for a place in the project. High probability that variable Compensation will arise in the course of the contribution exercise.
    - ☐ Individuals, prior agenda: looking to build on the project for their own particular project. Low probability that the Compensation variable will arise in the course of the contribution exercise.
    - ☐ Organizations, prior agenda: looking to build on the project for their own particular project. Low probability that variable Compensation will arise in the course of the contribution exercise.
- Community building is a social exercise at its core, seeking to cultivate an environment of active participation and involvement in the project.

- As the level of contribution activity scales, it leads to the natural emergence of a network of trust that allows the identification of core contributors whose decisions can be quickly integrated into the project workflow.

Background of the experiment:

- For years, Gimbalabs has hosted Live Coding and other community sessions, open to all Cardano members and newcomers.

- The *Live Coding sessions* have revolved around teaching a key resource: the *Gimbalabs Plutus Project-Based Learning (PPBL)* course, now in its *fifth version*.

- Prior to the creation of the fifth version of the course, the involvement of the community participating in the *Live Coding sessions* in the creation, maintenance and teaching of the *PPBL* resource was defined as a goal.

- It was concluded that, to succeed in this objective, conditions had to be created for participation in decision making related to the direction of the resource and its short-term impact. In order for the decision-making exercise to be clean and controlled, such conditions had to be implemented in a session of its own, distinct from the usual learning environment of the *Live Coding sessions*.

- The aforementioned session was created: in addition to the *Live Coding sessions*, weekly *Governance sessions* (one per week) have been held throughout the year 2024 within the framework of the session called "*Gimbalabs Open Spaces*". Under this modular concept, the community was able to focus on working with *Gimbalabs Plutus Project Based Learning (PPBL)* and other related resources (*Mesh Project Based Learning - Mesh PPBL, Cardano Golang Project Based Learning - Cardano Go PBL*) during the Live Coding

sessions, and leave the participation and decision making conversations for the Governance sessions.

- Organically, the initial goal of facilitating community participation in the decision making of the *Plutus PBL* resource expanded its scope to other *PBL* resources subscribed to the Education area, and gradually, to all the resources of the Gimbalabs organization in its different areas: *Education, Onboarding, Building, Community*. In this new decision-making environment, the community has acquired the right and responsibility to actively participate in the direction of the existing resource stack, and the creation of new initiatives that contribute to the improvement and growth of Gimbalabs as a community organization.

- Weekly *Live Coding* and *Governance* sessions are expected to continue through 2025.

Procedure:

Stage 1: Activation of Onboarding

1. Establish *live sessions* (if they do not already exist) in which the characteristics of the project that you want to share publicly and around which you want to build a community of contributors are displayed. The sessions, focused on fostering understanding of the fundamental pieces of the project, are the entry point for new participants.

   A *weekly 1-hour* session is sufficient to get this stage of the experiment underway.

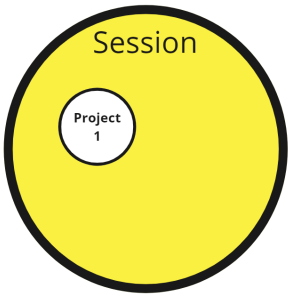


Fig 1. *Session*

2. Extend the scenario of possible interactions between the community of contributors and the project, beyond the limits of the sessions, by enabling resources that promote the Open Space concept: an Open Space is a space in which, with no prior agenda, attendees are free to learn, hack, collaborate, contribute, experiment, with the project on which they seek to build community. With the guidance of an assigned facilitator, collaborative resources such as a Discord server, a Notion account, a Miro account, foster interactions that cultivate a sense of collaboration and community among contributors.

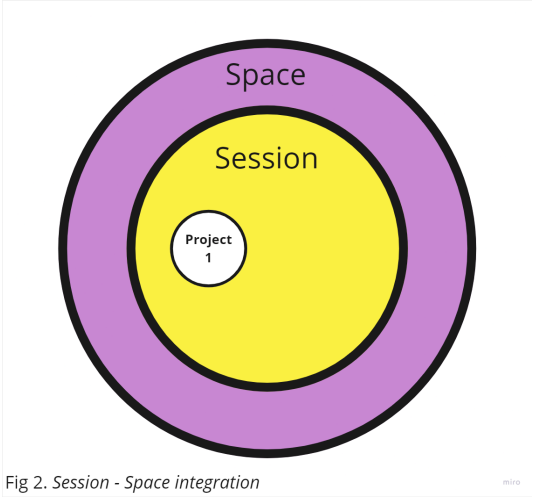


Fig 2. *Session - Space integration*

3. After a defined period of time, with sessions underway and collaborative interactions escalating, the project's Open Space begins to take shape organically: activity beyond the sessions generates ideas and proposals that potential contributors bring back to the sessions for discussion and analysis. This feedback loop, where sessions drive collaboration outside of the sessions, allows for the identification of the levels of interest and commitment of those who have demonstrated an understanding and articulation of the details necessary to contribute to and sustain the project.

Why the difference between “Sessions” and “Spaces”?

Sessions are virtual meetings, via Zoom or other means, of a specified duration, during which, with the guidance of a facilitator, people proceed to explore and interact with the project. On the other hand, the Spaces can manifest forms of interaction not subscribed to the virtual sessions: conversations through the Discord server, asynchronous collaboration via Notion, independent sessions, mini-workshops, etc.

The Spaces are the playground where potential contributors and maintainers express their enthusiasm about the project they are being exposed to, in the ways they find most convenient. The Sessions are the “Office Hours” of the project that engage new participants. In particular, the Sessions have the ability to galvanize the sense of community that the organization wants to cultivate.

Regarding the sustainability of the Spaces, the organization in charge of the project should strive to provide the community with better and better resources for collaboration.

Stage 2: Activation of Governance

With the feedback cycle Sessions-Space underway, it is determined to activate *stage 2: Governance*.

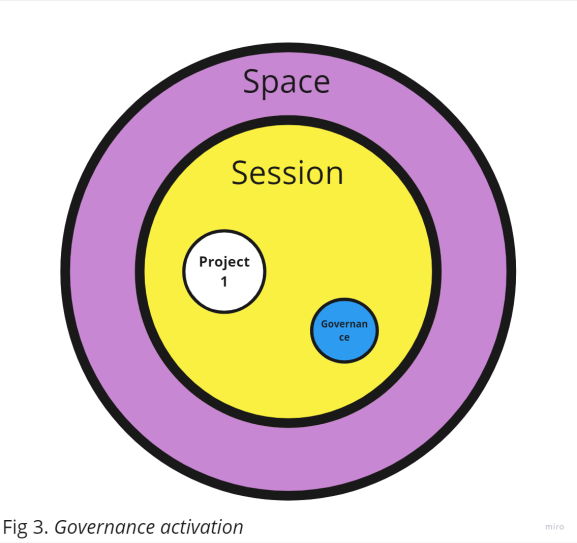


Fig 3. *Governance activation*

1. A new session is created and implemented, dedicated exclusively to making decisions on the direction of the project. A weekly session lasting 1 hour is sufficient to set up this stage of the experiment, while stage 1 continues its normal operation.

2. Following the same procedure deployed in the Onboarding activation stage, resources are put in place to promote the growth of an Open Space. To this end, tools (Discord, Notion, Miro,etc) are enabled to stimulate interactions that foster a sense of collaboration and community between contributors.

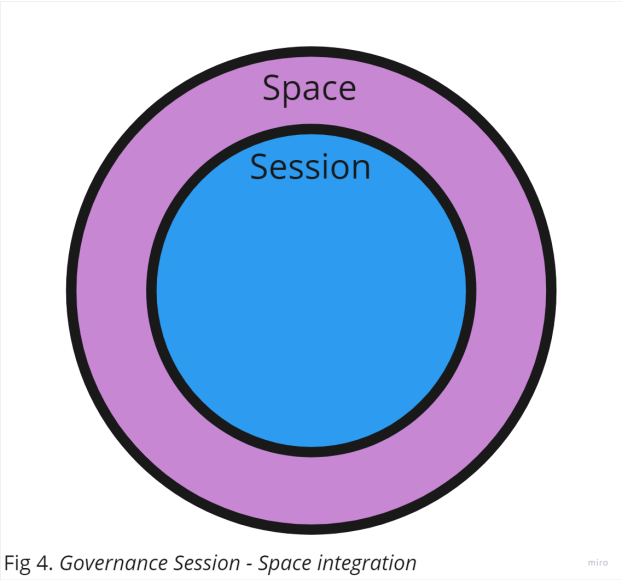


Fig 4. *Governance Session - Space integration*

3. Definition of Circles: A Circle is a self-governing and semi-autonomous team of equivalent contributors who collaborate to account for a domain of the project.

   The definition of the Circles requires the previous definition of the Domains of the project.

   Domain: distinct areas of responsibility and authority within the project. Depending on the purpose it's meant to achieve, a domain in a project may be temporary, or permanent.

   A definition of the Domains of the project as precise as possible is necessary for the adequate definition of the Circles to which current and future contributors to the project will join themselves. For this purpose, the first Governance sessions revolve around the realization of the "Driver Mapping" workshop, which covers in order the following topics:

   a. *"Why" discovery: Why are we here?*
   b. *Drafting a Why statement: the Primary Driver of the project.*
   c. *Who Will be Impacted?*
   d. *What is Needed?*

e. *Identify Experience + Expertise*
f. *Identify Domains*
g. *Populate & Define Domains*
h. *Define Circles*

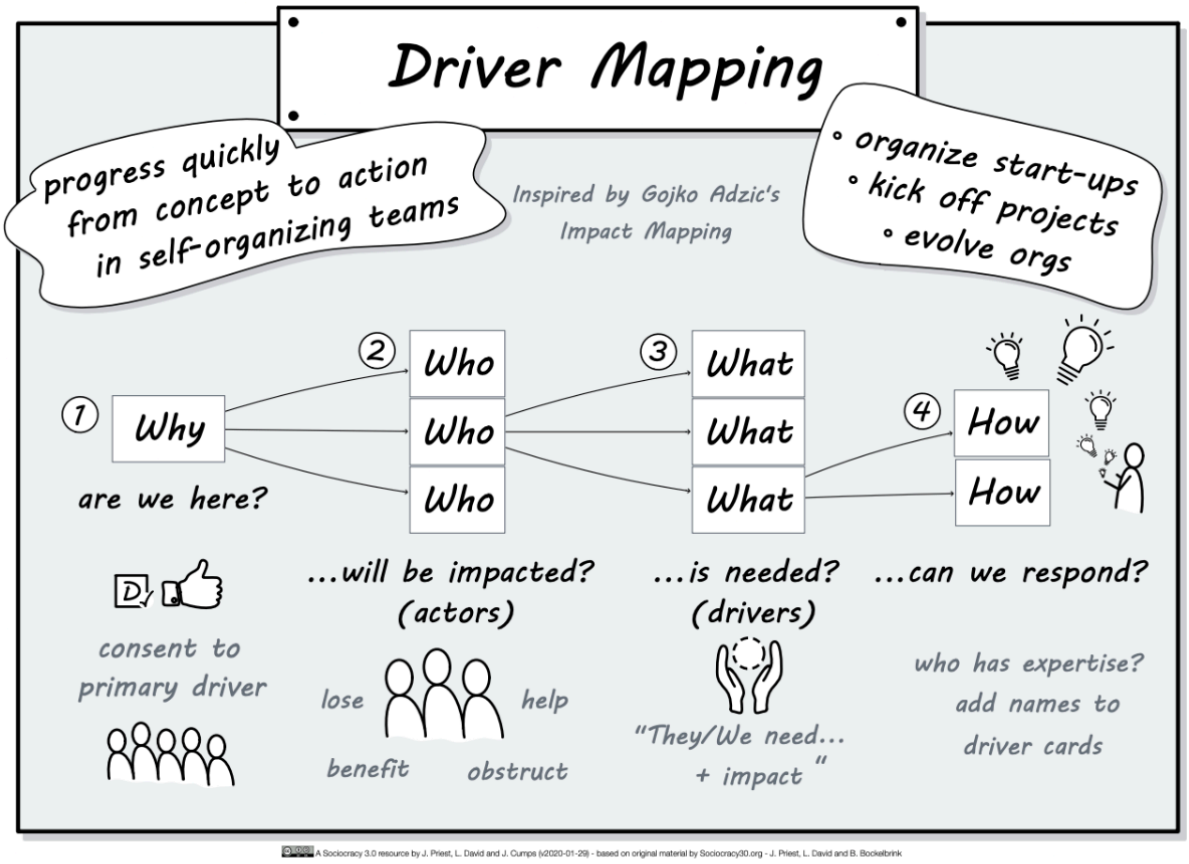


Fig 5a. https://patterns.sociocracy30.org/driver-mapping.html

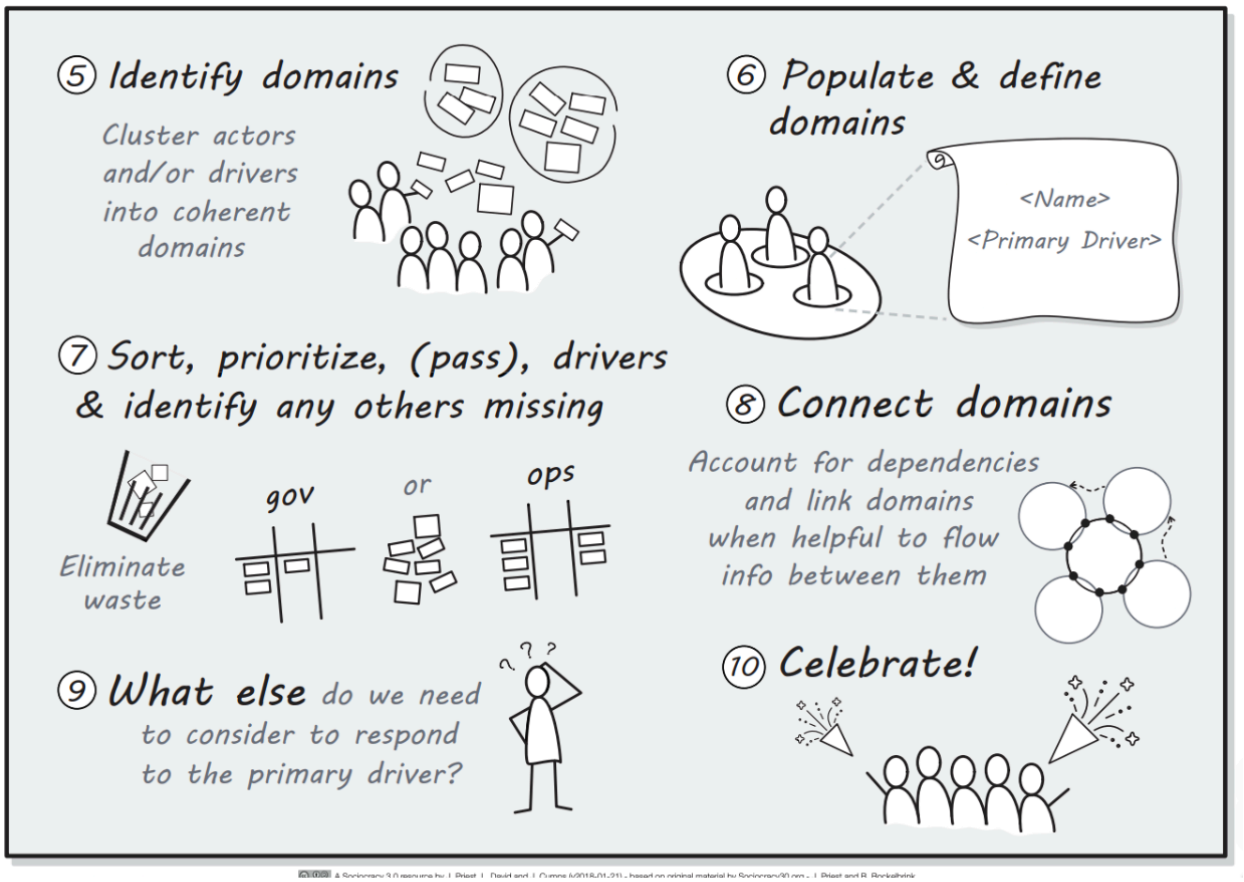


Fig 5b. https://patterns.sociocracy30.org/driver-mapping.html

Using collaborative tools such as the Miro board, the workshop facilitator leads the participants towards defining a shared vision of the project and its direction. Based on our experience in conducting this study, it is estimated that four Governance sessions are sufficient to deliver the above mentioned workshop with the defined circles.

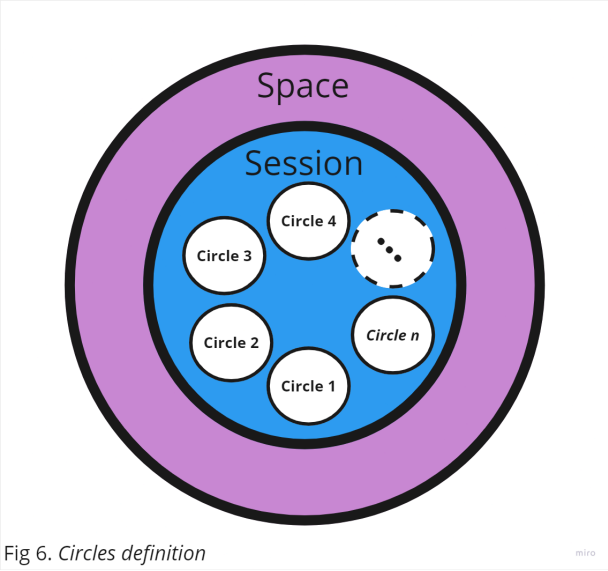


Fig 6. *Circles definition*

4. Configuration and assignment of the Contribution Platform instance to the project. Prototype: https://gimbalabs-prototype.andamio.io/

   Organizations that, given their operational and competitive advantages, decide to venture into the gradual introduction of Open Source models, must allocate a budget to the program. Its main cost is related to the compensation to contributors and maintainers who, actively involved in their respective circles, create proposals aligned with the Primary Driver of the project that are then submitted to the consideration of the other circles during the Governance sessions. The proposals, including the estimated compensation for their implementation, are openly discussed within the framework of a Consent process. If no objections to implementation are found (it is a proposal in a "*good enough for now, safe enough to try*" state), the implementation of the list of necessary tasks proceeds accordingly. This is where *the Contribution Platform* comes in.

   Each task is a Contribution opportunity that is taken by members of the submitting circle, members of other circles, or new members, under the conditions (time, compensation, etc.) defined in the proposal consented during the Governance sessions. The distribution of such contribution opportunities is done through

the Contribution Platform, whose main function is to act as an escrow system that "packages" tasks together with compensation, and releases the latter when the delivered result has been approved by the proposal manager (or similar position) before the due date.

Stage 3. Activation of Circles

With the completion of the "Driver Mapping" workshop, and with the Governance sessions in progress indefinitely, it is determined to activate *stage 3: Circles*.

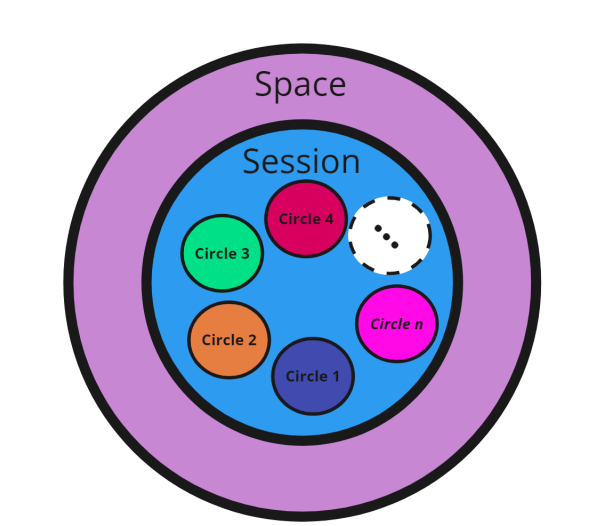


Fig 7. *Circles activation*

1. The Circles that were defined in step 2 assume responsibility for their assigned domains, co-creating proposals in response to the *Primary Driver* produced. The co-creation results in the design of proposals (see Sociocracy proposal forming pattern, step 8: Design proposal).

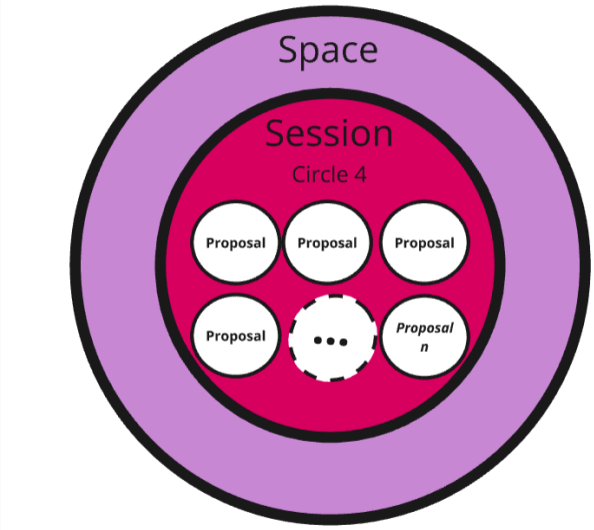


Fig. 8a. *Co-creation of proposals*

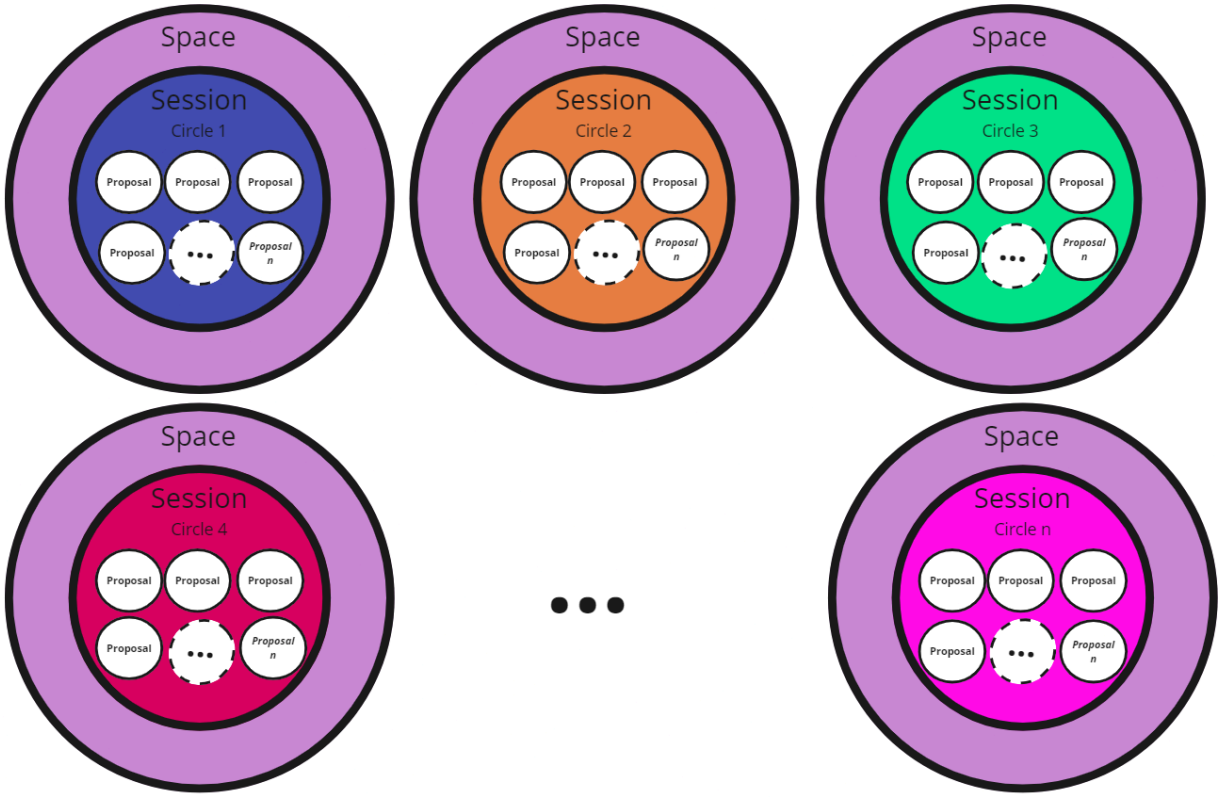


Fig 8b. Proposal's co-creation in every circle

2. Once the proposals are designed, the Circle submits them to the "Consent Decision-Making" process, for consent and potential approval of implementation by the other Circles during the Governance sessions of *Stage 2*.

3. Once a proposal is approved, the proposing Circle receives the resources requested for its implementation:

    - Funds: allocated through the Project *Contribution Platform*.
    - Time from other Circles: in case some kind of joint work with other Circles is required.
    - Information: in case any kind of input (data) is required from other Circles.

4. Retrospective and Demo day: progress review periods are established for approved initiatives (sprints), to be performed during the Governance sessions.

4. RESULTS AND DISCUSSIONS

Principle:

"We build stronger organizations.
We organize people in cells, circles,
where they learn, execute, and take decisions.
And when they take decisions and execute those decisions,
they are fairly compensated." James Dunseith, Gimbalabs co-founder.

Result 1: Model

Open Source Contribution Model for Cardano Organizations

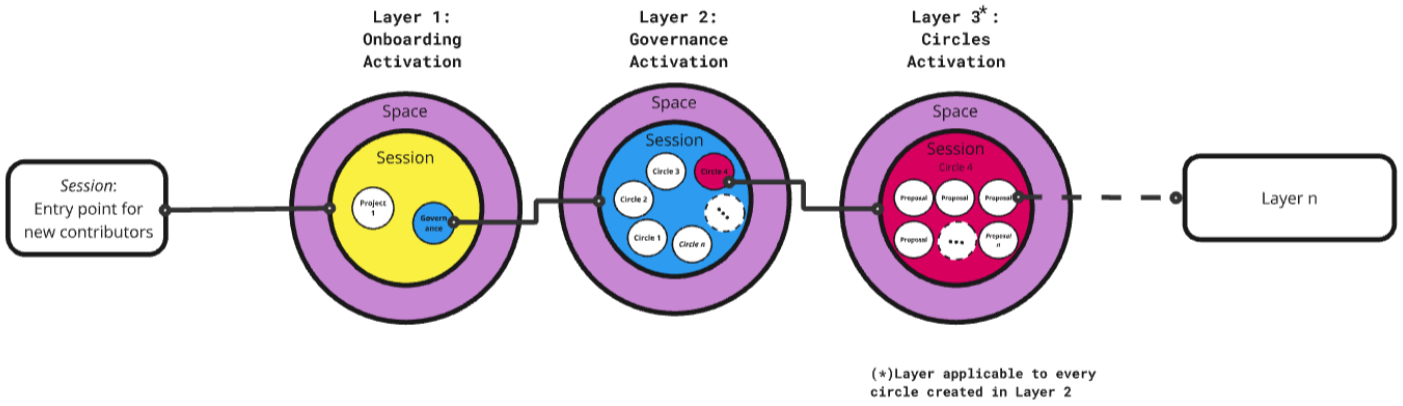


Fig 9a. Generic Contribution Model

Layer n describes a state in which each Circle in *Layer 2* can extend the creation of deeper layers beyond Layer 3 if some development requires it.

Justification for creating a layer after *Layer 3*: a sub-project, sub-system, component, that requires special attention and can be addressed by formulating a proposal, may form the setting for a new layer.

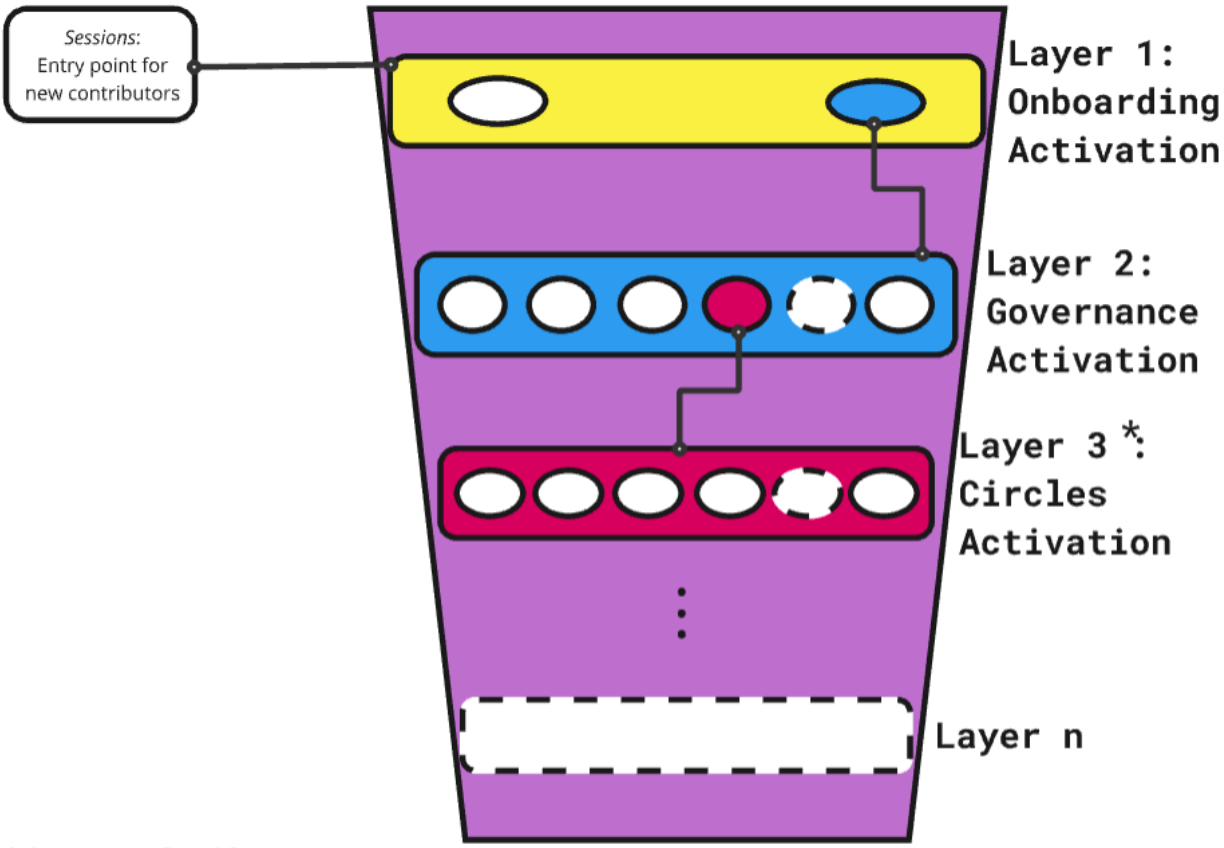


Fig 9b. Generic Contribution Model

Layer 1: Onboarding Activation

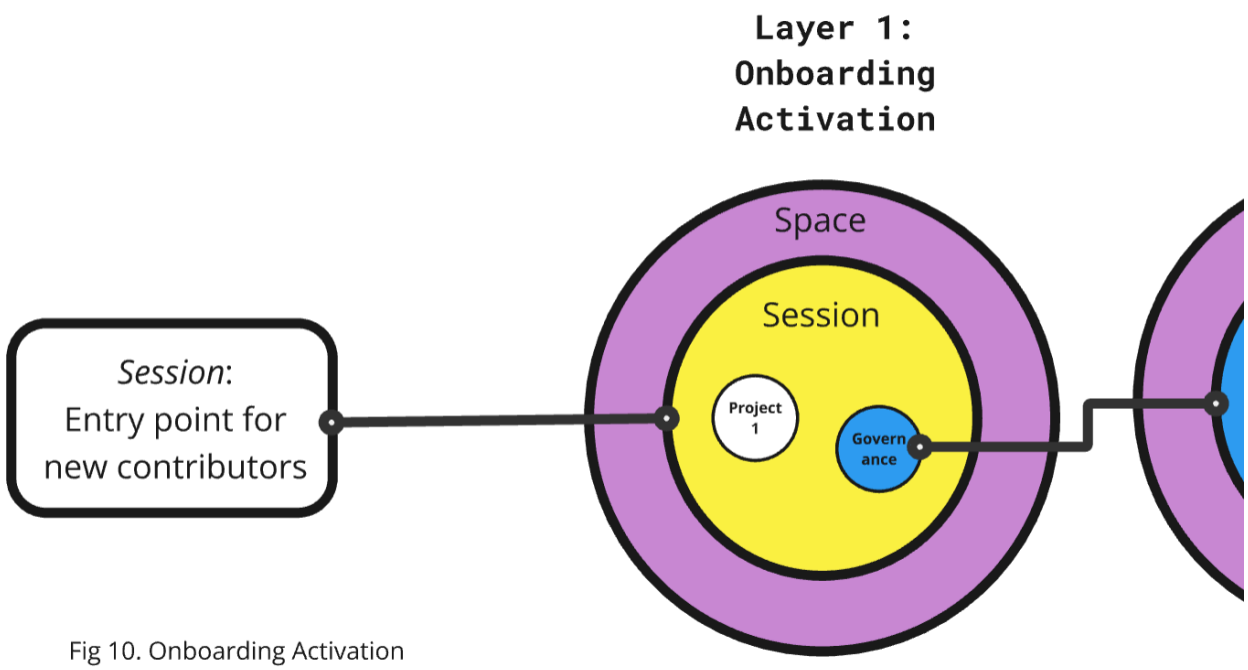


Fig 10. Onboarding Activation

Layer 2: Governance Activation

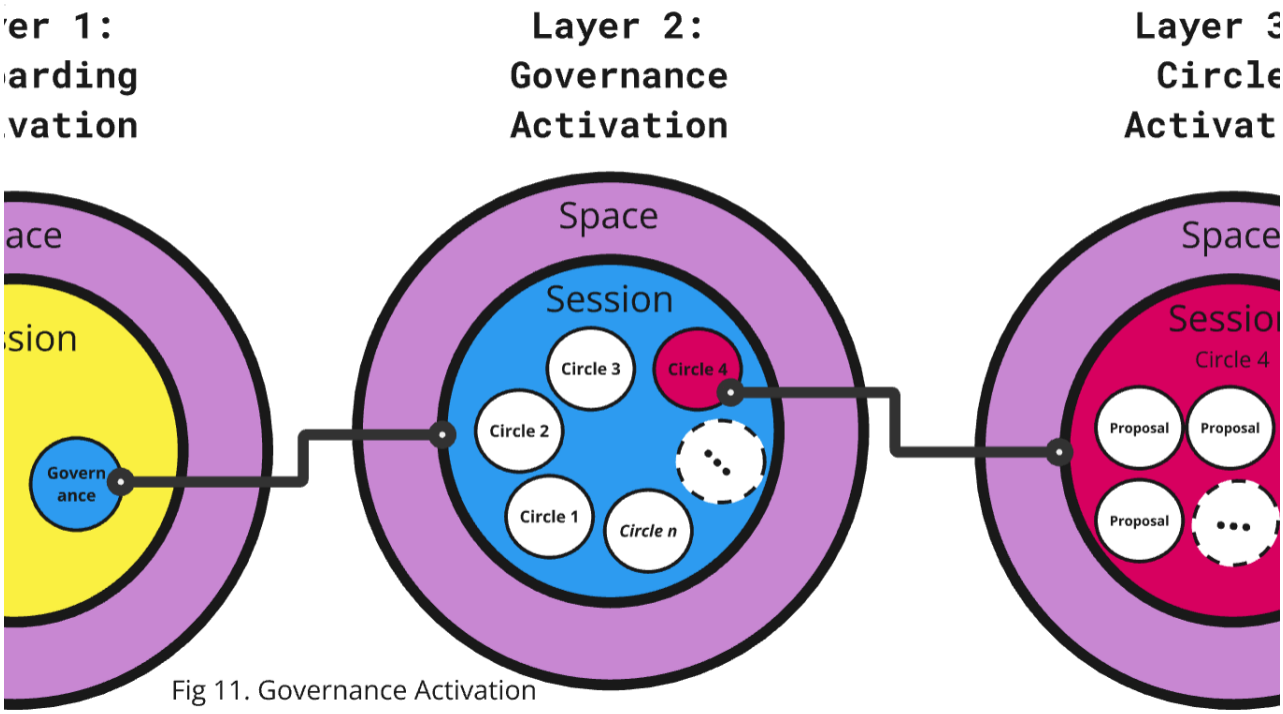


Fig 11. Governance Activation

Layer 3: Circles Activation

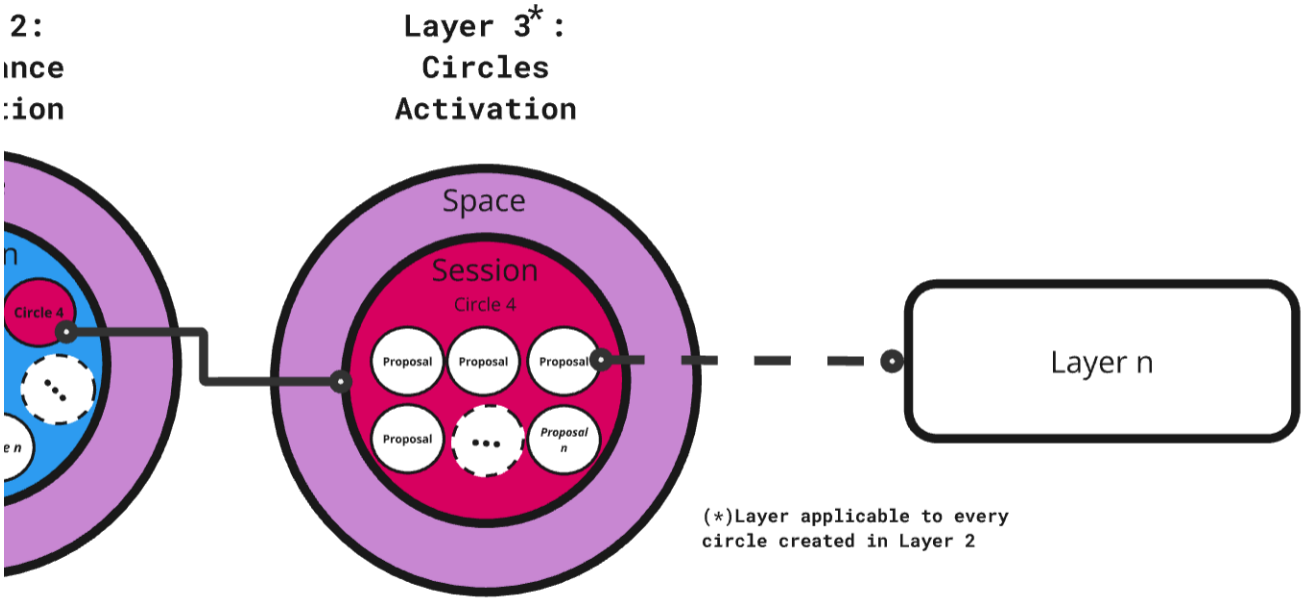


Fig 12. Circles Activation

Principle: sessions at every layer are entry points for new contributors.

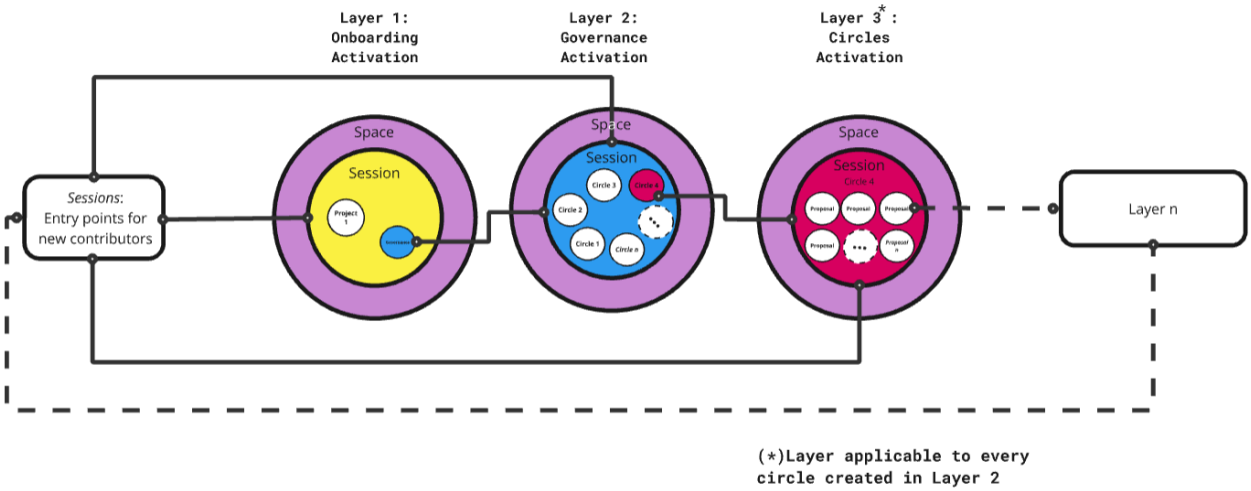


Fig 13a. Sessions are entry points at every layer.

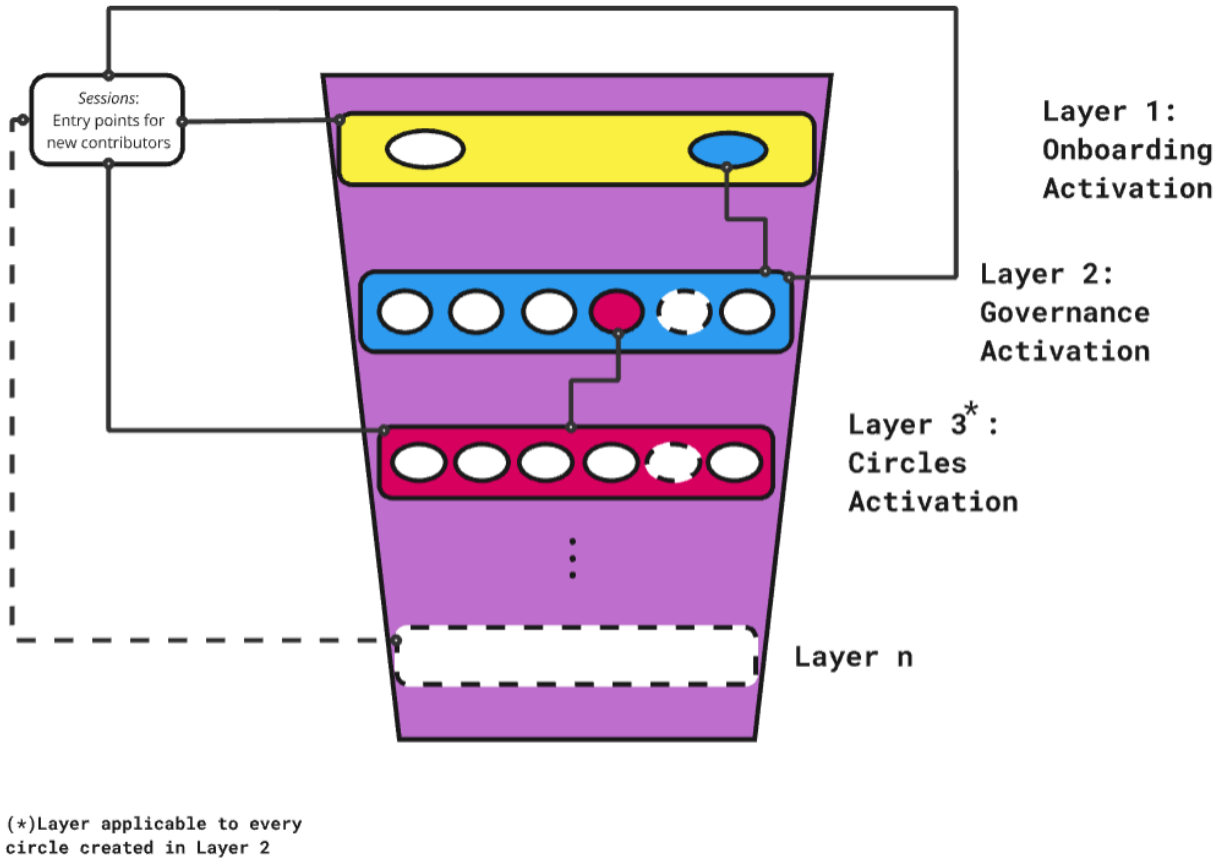


Fig 13b. Sessions are entry points at every layer.

Result 2: Evaluation of the model

Increased agency of community members in the following areas:

- Formulation and submission of Catalyst proposals focused on sustaining Gimbalabs as a community project.

- Formulation and submission of Catalyst proposals focused on collaborations: members creating synergies between their own projects and Gimbalabs' capabilities, in two areas:

    - Using Gimbalabs community resources.
    - Creating new resources in collaboration with Gimbalabs.

- Community members seeking partnerships and collaborations with organizations outside the Cardano ecosystem: universities, private companies, incubators, decentralized organizations, NGOs, among others.

- Community members assuming the role of educators and facilitators, promoting Gimbalabs community resources among cohorts of developers around the world.

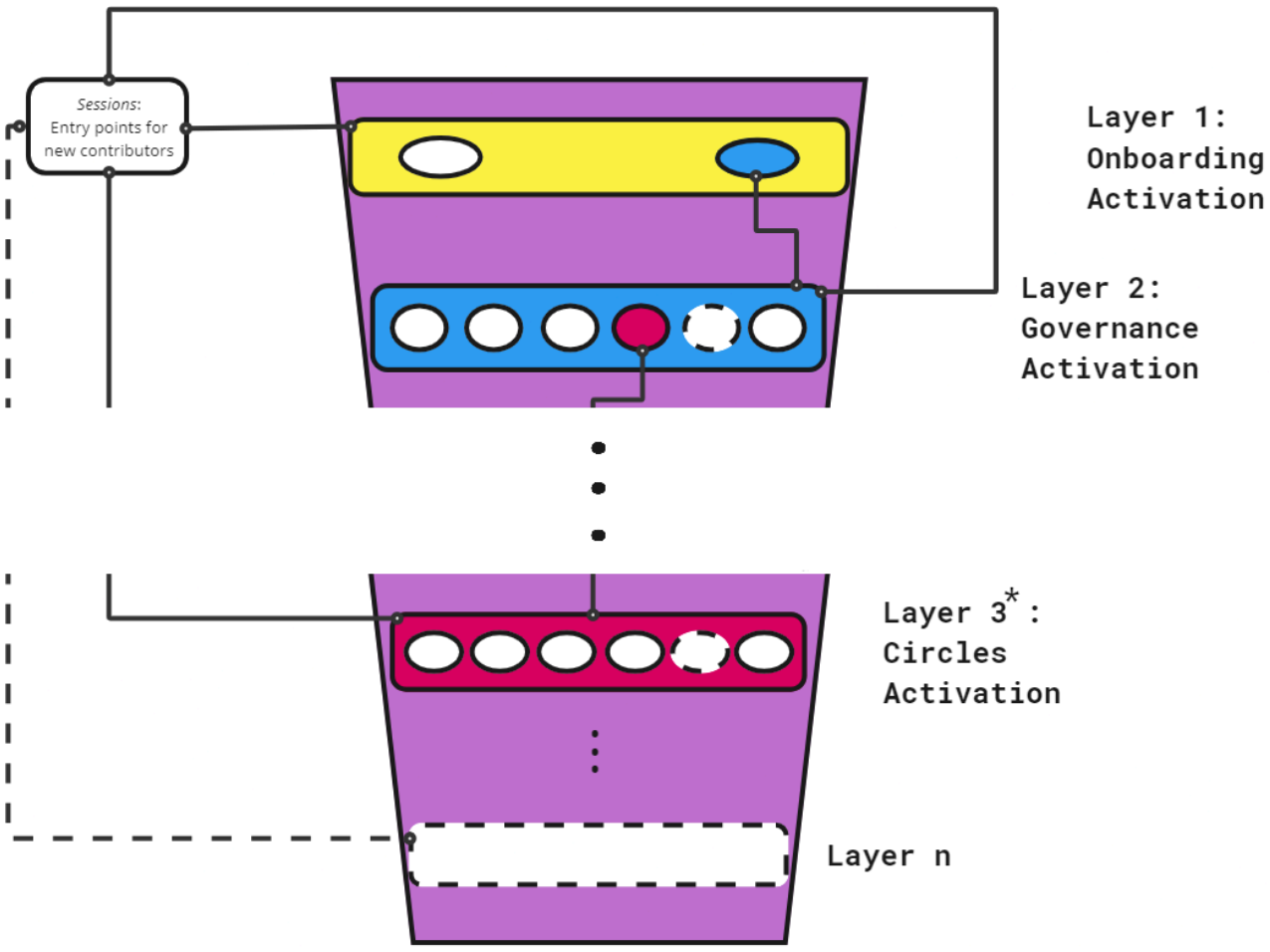
5. Conclusions

- Creating conditions for a project to organically generate a community of users and contributors requires the implementation of participation and governance structures.

- Achieving stability in the flow of participation and governance of a project is as important as achieving stability in the development of the product embodied in the project itself.

- Organic community building is a balancing act: a single access point for users and potential contributors to explore a project is not enough (layer 1: Onboarding), while, at the same time, offering several Governance layers (layer 2: Governance, layer 3:

Circles, . . . , layer n) without a previously defined participation structure leads to the community building process not even starting. Attracting high-level talent and organizations that make significant contributions to a project requires moving forward bit by bit, starting with the design and deployment of layers 1 and 2. Deployment of subsequent layers should be in line with the increase in activity (contributors, contributions, initiatives to test; sub-projects, sub-systems, components that require special attention, etc).



(*)Layer applicable to every circle created in Layer 2

Fig 14. Progressive deployment of the model

- It is key to permeate each layer whose existence is really necessary to run the Primary Driver of the project, with a previously defined participation structure. For the definition of such a structure, this study has chosen the patterns of Sociocracy 3.0 as a reference Governance framework. Although the use of Sociocracy 3.0 is optional (the model developed is adaptable to diverse organizational practices), this study aims to uphold the principles of fairness, transparency, and collaborative governance as practiced in Sociocracy 3.0, while addressing the needs of the organizations and their projects.

- The implementation of governance structures from the beginning, in the layers corresponding to level 2 of the model and beyond, will facilitate the navigation of possible sources of conflict in the future: succession of contributors, contributors acting outside the scope of their domains, etc.

- The model resulting from this study, applied internally in an organization, reduces the risk of a project being difficult to maintain by making it a better documented and accessible project.

- By creating a participatory governance environment co-created with contributors, community engagement and feedback resources such as community engagement channels (Discord, Github, mailing lists, etc), introductory webinars, Q&A sessions, workshops, monthly community calls, feedback forms, dedicated forums for suggestions, scheduling of periodic checks, and so on, create a support system for the Spaces that the community develops organically, which contributes to the sustainability of those spaces.

- For many organizations, the model formulated in this study represents a restructuring opportunity, with its genesis at the level of *layer 2: Governance*. There, the core team of contributors begins to shape its new organizational structure and, as described in *Fig. 14: progressive deployment of the model*, progressively advances to the definition of the layers beyond

Layer 2, starting with Layer 1: Onboarding, the main entry point for new users and contributors. Under this line of reasoning, during the restructuring process, layer 2 is the epicenter of a series of sessions during which the core team works on laying the foundations of its new organizational direction: formulation of Primary Driver, identification of key domains, definition of roles, definition of best practices for participation and decision making, documentation of decision making process, strategy for deploying an efficient layer 1, allocation of resources, etc. From there, the organization progressively moves forward with the implementation of the model generated in this research.

- When implemented in the framework of an open participation model as described in this study, Layer 2 of the restructuring process can act as Layer 1: onboarding, for those new users and contributors who have the drive to get involved in the new participatory dynamics proposed by the organization.

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