

Building Communities Around Digital Public Goods

Resilience for Digital Infrastructure: OSS4DPGs



This is a work of independent research, commissioned by **Omidyar Network India** in 2023-2024.

It was produced by **Aapti Institute**, a public research institute that works on the intersection of technology and society. Aapti examines the ways in which people interact and negotiate with technology both offline and online.

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Foreword

Globally, Digital Public Infrastructure (DPI) and Digital Public Goods (DPGs) are adopted across multiple sectors- health, payments and education. Despite their accelerated adoption, inquiry has primarily focused on technical components, with little consideration to non-technical layers, such as governance and capacity building. There is an urgent need to build playbooks around these themes to create a robust set of assets for the long term sustenance of and value-creation from DPGs.

This playbook seeks to build an understanding around one such non-technical layer: the open source community. This playbook underscores the value of building open source communities around DPGs, with a key focus on understanding how active, inclusive, scalable and sustainable open source communities around DPGs are built. It is a practical resource guide that serves as an effective and innovative approach to building the capacity of DPGs by borrowing principles and practices from open source communities. Further, the playbook is informed by insights of a participatory action research, comprising interventions undertaken to build and grow the communities of two DPG collectives: eGovernments Foundation and Beckn Open Collective.

About the Playbook

What is the Purpose of This Playbook?

The playbook for open-source communities follows a two-pronged approach of 'learn' and 'engage' to help the growth and sustainability of DPGs by enabling DPG collectives to build communities around the DPG. Community building, one of the non-technical layers that supports DPG and DPI, is a foundational, capacity-building measure for DPG collectives to ensure their growth and sustainability. This playbook intends to codify best practices of community engagement that the DPG collectives can adopt, enabling them to scale their communities rapidly.

The most sustainable open-source projects are the ones that are surrounded by a vibrant community. DPGs are <u>defined</u> by the Digital Public Goods Alliance (DPGA) as, "OSS, open standards, open data, open AI systems, and open content collections that adhere to privacy and other applicable best practices, do no harm, and are of high relevance for the attainment of the United Nations 2030 Sustainable Development Goals (SDGs)." The importance of building communities around DPGs becomes obvious, as they are common-based resources.

This Playbook Discusses:

1. The Role of Communities as Foundational to the Development and Deployment of DPGs: This playbook explores how building open-source DPG communities makes them more sustainable in the long run, as compared to DPGs that are sustained by funding alone.

2. Building Sustainable, Vibrant, and Replicable Communities: There are two parts to community building that intrigue DPG creators:

- How to Build a Community: Includes the need to build a community, understanding community goals, what is the target audience, and how to approach them
- How to Sustain the Community: Includes, how to ensure community engagement, how to balance the twin objectives of purpose-drivenness and creative stimulation, what is the rubric for diversity within communities, and who are the other stakeholders, beyond developers, that ought to be reflected within the community

Who is This Playbook For?

This playbook is designed for DPG creators and funders. Currently, most DPGs either do not have a community or lack the presence of an active or vibrant one. Community building is treated as an afterthought and deprioritised. However, the experience of opensource communities around the world demonstrates that focusing on community-building early on makes the project more vibrant and successful in the long run. This playbook serves as a guide for stakeholders in the DPG ecosystem who are considering participating in the community.

How Did We Build the Playbook?

The playbook for open-source communities follows a two-pronged approach of **'learn'** and **'engage':**

Part A: Learn From Legacy Open-Source Communities to

document best practices relating to community engagement and expansion, which have evolved over the years through trial and error.

Method: To develop a guide on building communities, this segment of the effort had participants contributing from legacy open-source communities and DPG collectives. The method consisted of:

• Expert Interviews: Conducted 20 interviews with experts across 14 organisations hailing from legacy open-source communities and DPG collectives. This enabled knowledge sharing and surface test templates that DPG collectives can imbibe going forward • **Desk Research:** Reviewed existing literature on open-source histories, and tracked community building efforts undertaken by legacy open-source communities.

Part B: Engage With DPG Collectives, at varying maturity levels, to collaboratively and iteratively build roadmaps on how to develop active and sustainable open-source communities. This helped us understand the impetus and challenges encountered by DPG collectives while attempting to build open-source communities.

Method: Aapti undertook a participatory action research approach to engage with existing DPG collectives: eGov and Beckn Open Collective. This included the following activities:

- Brew Workshop with the two DPG Collective Teams: Conducting workshop with eGov and Beckn Open Collective teams to seek inputs on the playbook
- **Collective Conversations:** Conducting periodic and frequent conversations with the respective DPG teams, to understand their community-building journey and the subjective experiences of DPG members to collaboratively identify challenges and co-create roadmaps to overcome roadblocks in community engagement
- Learning Workshops and Sessions With a Few Communities: Conducting learning workshops in the communities studied and others. This allows deep engagement in the playbook. Also, attending conferences of DPG communities to gain an understanding of community engagement

How to Use This Playbook

What is a Play?

A play (or section) consists of guiding literature, insights, and strategies or best practices, for DPG creators to unlock a foundational understanding of building a community around the DPG. The plays are modular; you can read and implement them independently of each other, based on your journey of building a community around your DPG.

This playbook is divided into two parts:

• Part A: Learn From Legacy Open-Source Communities. Part A is conceptualised as a broad guide to building communities. It comprises six plays: The first three plays focus on the intellectual underpinnings defining the need to build open-source communities around DPGs. The latter three plays refer to the step-wise guide to building communities. They consist of broad strategies and specific pathways, bolstered by case studies and expert notes that support the research.

• Part B: Engage With DPG Collectives.

Part B is informed by practical insights that were generated during the engagement with the DPG collectives. It comprises two plays: Each play or section focuses on the engagement with the respective DPG collective: eGov and Beckn Open Collective. Each play elaborates on the background of the DPG collective, Aapti's engagement with the DPG collective with a focus on interventions curated to overcome challenges in community engagement, and the results of the implementation of interventions. Each play further guides the DPG collective on actionable next steps.

What Does Each Play Contain?

Part A:

- **Insights for DPG Creators:** Refers to overarching insights and action items to be considered by DPG creators
- **Strategies:** Broad action items to be considered by DPG creators in building communities
- **Specific Pathways:** Specific action items under each strategy to be considered by DPG creators in building communities
- Expert Notes: Observations made during expert conversations
- **Case Studies:** References to examples of legacy open-source communities or DPG collectives
- **Resource Guide:** References to resources and explainers from desk research

Part B:

- Overview of Engagement With DPG Collective: Encompasses the background of the DPG collective, need for the community, goals of the envisioned community, goals of Aapti's engagement with the DPG collective, and barriers in building the community
- Aapti's Intervention With the DPG Collective: Refers to measures co-created by Aapti and the DPG collective to achieve goals of community building
- Results: Refers to the impact of the interventions
- **Next Steps:** Outlines the action items suggested by Aapti to be undertaken by the DPG collective going forward
- **Templates:** Ready reckoners curated during the engagement with the DPG collective, which can be adopted by other DPG collectives similarly placed

Glossary and Abbreviations

Glossary

Beckn Protocol	It is an open protocol (not a platform) for decentralised commerce. It comprises a set of open specifications allowing multiple commercial service provider entities to bring their services together to offer one seamless integrated experience to their customers. The solutions (Beckn-enabled apps or platforms) built atop Beckn need not necessarily be open source. <u>(Beckn)</u>
Committers	Committers are official maintainers of the software — a committer is someone who has commit access: the right to make changes to the copy of the code that will be used for the project's next official release. (Producing Open Source Software)
Community	A community is a group of people united by a shared belief and a shared ritual, which provides community members with a sense of belongingness. A shared belief refers to the collective purpose, values, and principles that may change over time. A shared ritual refers to the various activities that bind the community together. (Aapti Institute)
Community Members	They are the participants of the community, including DPG creators, maintainers, contributors, end-users, and the communities of practice around the DPG. (Aapti Institute)
Contributors	Any person involved in making contributions to the community. <u>(The</u> Open Source Way 2.0)
DIGIT	Digital Infrastructure for Governance, Inclusive Transformation (DIGIT) is a service delivery and governance platform. It enables ease of access to services for citizens, ease of coordination for employees & vendors,

	ease of administration for administrators and ease of policy-making for policymakers & researchers. (<u>DIGIT Core)</u>
DPG Collective	The ecosystem of builders, maintainers, contributors, and other individuals or entities such as system integrators of the DPG. A DPG collective is distinct from a DPG community in which these ecosystem individuals and entities do not engage with each other, and are bound by a shared sense of belief. (Aapti Institute)
DPG Community	A DPG community is a community comprising participants, including the builder or DPG creator, maintainers, contributors, end-users, and communities of practice.(Aapti Institute)
DPG Community of Practice (CoP)	A community of practice around a DPG refers to the group of individuals and entities, including system integrators, academic institutions, non-Government organisations, and the Government, that directly contribute to the development of the DPG. While OSS communities are dominated by a community of developers, DPG creators need to build a CoP that comprises participants beyond developers, who enable the adoption of DPG ¹ . (Aapti Institute)
DPG Creator	They are builders or the internal team that has directly contributed to the development of the DPG. (Aapti Institute)
Digital Public Good (DPGs)	OSS, open standards, open data, open AI systems, and open content collections that adhere to privacy and other applicable best practices. They do not harm and are instrumental to attaining the United Nations 2030 Sustainable Development Goals (SDGs). <u>(Digital Public</u> <u>Goods Alliance)</u>

Digital Public Infrastructure (DPI)	A set of shared digital systems which are secure and interoperable, built on open standards, and specifications to deliver and provide equitable access to public and/or private services at a societal scale. They are governed by enabling rules to drive development, inclusion, innovation, trust, competition, and respect for human rights and fundamental freedoms. <u>(India's G20 Presidency, 2023)</u>
End-users	In the context of DPGs, they are beneficiaries of the DPGs who use them to avail services or products. Their experiences, in turn, contribute to the development of DPGs based on user perceptions. (Aapti Institute)
Foundation for Interoperability in Digital Economy	It is the author of Beckn Protocol specifications and the angel donor for its evolution. FIDE continues to foster an open community-led movement for Beckn, by building interoperable open protocol specifications as a public good. <u>(FIDE)</u>
Good First Issues	It refers to a list of work items that new community members can tackle, helping them get started. Many communities label issues in their issue trackers with labels such as 'good for first-time contributors', 'good first issue', or 'help wanted'. This helps newcomers easily identify tasks which they can action immediately. The issues captured by these labels range from documentation errors to easy bug fixes, or other simple tasks that help new contributors experience early successes and build their confidence. (The Open Source Way 2.0)
InnerSource	InnerSource is a software development strategy that applies open- source practices to proprietary code. InnerSource can help establish an open-source culture within an organisation while retaining software for internal use. Teams use InnerSource to increase visibility, strengthen collaboration, and break down silos. <u>(GitLab)</u>
Maintainers	The Maintainers of an open-source project are the people who review and merge contributions from contributors and generally run the project. <u>(The Open Source Contributor Funnel)</u>

Micro-communities	The offshoot of existing communities around the DPG. They are smaller communities that are self-run by the network weavers. (Aapti Institute)
Network Weavers	This term is used by FIDE to describe individuals who deeply believe in the power of open-source technology to solve population-scale problems. They intend to amplify change-making by leveraging technologies for the benefit of communities through a community- based approach. They are members of the community of the DPG, who further take the responsibility to build micro-communities. (Aapti Institute)
Open Source	Software that adheres to the Open Source Initiative's (OSIs) <u>Open</u> <u>Source Definition</u> , and is released under a license, approved by the OSI is an OSS. Outside of software, it refers to knowledge creation systems that adhere to the open-source principles of collaboration, community, and the shared ownership of knowledge <u>(FOSS United Forum)</u>
OSS Community	A group of people united by the shared purpose of developing, maintaining, extending, and promoting a specific body of OSS. These communities are often globally distributed — their members occupy different geographic regions and work across numerous industries. What unites them is their common vision for the OSS project, as well as the spirit of camaraderie and collective identity that participating in the community affords them. <u>(The Open Source Way 2.0)</u>
Open-Source Project Development	It is an emerging term used to describe the community-led development model found within many successful free and OSS projects. The term Open Development Method (ODM), or sometimes community-led development, has been coined to describe this collaborative way of working. <u>(OSS Watch)</u>

Abbreviations

BTSP	Beckn Technology Service Provider
C4GT	Code for GovTech
CHAOSS	Community Health Analytics in Open-Source Software
COSS	Commercial Open Source Software
DHIS2	District Health Information Software
DIGIT	Digital Infrastructure for Governance, Inclusive Transformation
DIKSHA	Digital Infrastructure for Knowledge Sharing
DPG	Digital Public Good
DPGA	Digital Public Goods Alliance
DPI	Digital Public Infrastructure
eGov	The eGovernments Foundation
FIDE	Foundation for Interoperability in Digital Economy
FOSS	Free and open-source software
GFI	Good First Issue
HISP	Health Information Systems Programme
ICT	Information and Communications Technology
iHRIS	IntraHealth International's Human Resources Management System
KRA	Key Responsibility Areas

MOSIP	Modular Open Source Identity Platform	
NDEAR	National Digital Education Architecture	
ODM	Open Development Method	
ONDC	Open Network for Digital Commerce	
OpenMRS	Open-source Medical Records platform	
OSI	Open-source Initiative	
SDGs	Sustainable Development Goals	
STEM	Science, Technology, Engineering, and Mathematics	



PART A

Learn From Legacy Open-Source Communities



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Learn from Legacy Open-Source Communities

Learn From Legacy Open-Source Communities, but Only Applicable to DPGs

Globally, OSS communities that have sustained over time (e.g. Linux and Apache), have a clear set of community 'norms' about culture, governance, and engagement. For example, Apache has a<u>code of conduct</u>, a <u>consensus-building process</u>, a process to add<u>new 'committers'</u>, rules to ensure the <u>independence of projects</u>, and how <u>project management committees</u> should function.

These norms keep contributors motivated, establish processes for decision-making, encourage transparency, documentation, good communication within the community, and create shared ownership. OSS communities contributing to DPGs need such norms, that contribute to the 'public good' and 'population scale' requirements of open-source DPG projects.

Part A of this playbook focuses on:

- Delineating the intellectual underpinnings for the need to build OSS communities around DPGs: This section of the playbook helps readers underscore the need to build an OSS community around a DPG by establishing how a community unlocks the value of open source and enables the evolution and sustainability of DPGs.
- Understanding the journeys of legacy open-source communities to create a roadmap to foster OSS communities around DPGs: This section of the playbook helps readers develop an understanding of how to build active and sustainable OSS communities contributing to DPGs, starting

from mapping stakeholders, unpacking community engagement, and understanding community needs.

I. Unbundle Tenets of Open Source

Building a community is imperative to the success of open-source projects. Though closed-source projects also have communities that contribute to their development, open-source projects <u>thrive</u> on the existence of communities. As rightly noted by <u>experts</u>, "There is simply no project without a community."

Though open-source projects attract developers initially, keeping up with their needs and expectations over time is <u>challenging</u>. A community, foundationally rooted in principles of open source enables the sustenance of open-source projects. This section elucidates the key tenets of open source and how the same is enabled by a community.

²Why is the key tenet important?

³ How does a community enable the key tenets - what are the processes/tools/mechanisms used to realise the key tenet?

KEY TENET EXPLANATION²

PRACTICE³



Open source project development works on the contribution of more than one developer, with little to no barriers to participation, signifying a <u>collaborative</u> <u>effort</u>

In the context of open-source projects, <u>open development</u> has come to the forefront. It is a collaborative way of working, rooted in communities, that creates <u>possibilities</u> to innovate and problem-solve.

A well-managed community ensures that space for contributors to convene, collaborate, and co-create is made by:

- Attracting a diverse range of stakeholders
- Engaging stakeholders regularly
- Incentivising collaborative efforts

Transparency & Accountability

Transparency processes need to be embedded into open-source project development. While the end product may be 'open source', it is possible that the manner of developing it, is not open, i.e., neither transparent nor public. This manner of product development defeats the founding principles of open source, which is envisioned as a 'method of development', amenable to public input and/or scrutiny.

OSS communities value fairness, transparency and collective decision-making. They are committed to making all <u>information</u> and <u>processes</u> public.

Open-source projects leverage the power of the community to embed transparent processes, thereby moving towards <u>true 'openness'</u>. These processes are the building blocks of open-source projects that attract and sustain community members in the long run. Thus, a community monitors the transparency of processes.

A well-managed community makes all information and processes visible and facilitates <u>accountability</u>, through measures, such as:

- Making the contributors to projects and their contributions public
- Making decision-making within the community public
- Making information accessible to facilitate ideation and innovation
- Enabling open and electronic communication for all types of content

While the community propels transparency, clarity of processes in turn fosters the community. Enhanced visibility instils confidence and trust in community management. It further enables accessibility to the community by easing onboarding

KEY TENET EXPLANATION²

PRACTICE³

Diversity

Open-source project development intends to reap the benefits of diversity – demographic and occupational.

Closed circles lack diversity, hampering the quality of output. To further diversity, there must be a commitment to inclusivity, equality and non-discrimination to enhance participation from diverse members.

The District Health Information System 2 (DHIS2) believes that equity and inclusion are integral to building diversity. They define equity to mean fairness and justice in the distribution of resources, opportunities, and outcomes. Inclusion intends to create a sense of belonging and ensure that all individuals have equal access and participation. Open-source projects leverage communities to facilitate diversity. Communities are organic grounds that allow for demographic and occupational diversity to flourish. For instance, experts have noted that OSS communities have been recognised as easier entry points for women to <u>re-enter</u> the workforce. The work environment is flexible and unstructured, allows work-from-home, and comprises several non-technical roles (e.g.: promotion, marketing, documentation, graphic design, and volunteering). Volunteering for OSS communities helps them build their resumes, enabling them to make a gainful living going forward.

A well-managed community propels diversity by:

- Actively encouraging diversity through the deployment of various outreach measures for new contributors
- Instituting a system of checks and balances that maintain diversity

Collective Ownership

Open-source projects enable collective ownership by giving every contributor a sense of ownership over the project. Contrary to closed-source projects, contributors in opensource projects are <u>rewarded</u> by gaining access and control over the projects. Open-source projects leverage the power of communities to facilitate collective ownership. They <u>believe</u> in shared risks and rewards.

To build a sense of belongingness in the open source project, <u>trust</u> must be built. In the absence of trust, contributors do not participate in the project at later stages.

Trust is built when contributors can participate in the development of the project. A well-managed community facilitates collective ownership by:

- Making opportunities available to contributors to engage multiple times, and in varied capacities, from technical
- to non-technical
- Recognising all efforts and contributions, however small



Insights for DPG Creators

"Being open source doesn't mean it must have a community. But it does mean that if it has one, it gets certain benefits particular to OSS." – <u>The Open Source Way 2.0.</u>

As DPG creators build OSS communities, they must understand how communities enable the key tenets of open source. Opensource projects go beyond making the code open. There are members within the <u>FOSS</u> movement who argue that community is more important than code. Experts noted that there is a need to adopt an ecosystem approach when developing DPGs, through communities. For instance, in the case of Digital Infrastructure for Knowledge Sharing (<u>DIKSHA</u>), the absence of an ecosystem approach, which enables the free and open participation of all entities, <u>prevented</u> quality content from being uploaded by private entities. The lack of openness in participation when developing the DPG decelerates the optimal utilisation of the DPG.

While community is integral to legacy open-source projects, funders of DPGs may not require a community to be built. In that case, they need a plan that sets project expectations and what open source means, in the absence of communities.

II. Understand the Lifecycle of DPGs

DPGs <u>refer</u> to the building blocks of DPI. They consist of OSS, data, models, standards, and content. While DPIs can be built upon proprietary solutions, they are <u>characterised</u> by the lack of interoperability and contractual lock-ins, which makes the transition to DPGs more desirable. DPGs <u>leverage</u> digital power to offer enhanced service delivery of public goods. However, there are risks associated with the development and deployment of DPGs, as shown in the figure below.



Figure: Opportunities and Risks Associated With DPGs and Proprietary Solutions (Source: <u>OECD iLibrary, Digital public goods: Enablers of digital sovereignty)</u>

The risks of DPGs can be overcome by building a community around the DPG. In this section, we unpack why a DPG requires a community around it and how a DPG creator can go about building a community.

A. Why Do We Need a Community?

The typical DPG <u>lifecycle</u> involves creating, deploying, sustaining, and evolving the goods, and communities are critical in the last two stages of the development of DPGs. Communities help the DPG to sustain and evolve by enabling characteristics that propel the adoption of the DPGs. These characteristics include relevancy, modularity, and customisability, <u>among others.</u> Given that the end goal of every DPG creator is to enhance adoption, a community helps bridge the gap between initial adoption and large-scale adoption, by helping the DPG evolve and sustain.

The need for a community, based on the subjective goals of the DPG creator, is magnified when DPGs function with limited funding and resources (human resources, capacity, and limited time).

Every DPG creator needs a community based on the subjective assessment of factors such as the nature of the DPG and the intent

of DPG creators. For instance <u>DIGIT</u> found it necessary to build a community after 20 years of operation, unlike <u>Agami</u> and <u>Dhiway</u>, who found it necessary to build a community from the start. Experts recognised that working with a community was necessary for Dhiway as they found it impossible to build an 'open' standard without their processes being 'open'.

Community building lies at the heart of developing the DPG for Agami, which recognises itself as a facilitator, or a <u>community</u> <u>builder</u>, that connects changemakers to collaboratively build resources. DPGs such as Primero, owing to their funding by UNICEF, find themselves comparatively less dependent on a community to drive sustenance. However, in the future, Primero <u>believes</u> that the success of the DPG is highly dependent on the strength of communities that foster strong partnerships.

Most DPGs are fundamentally guided by a social motive and non-profit sensibilities. This means that they are built using grant funding. DPGs work on limited resources (monetary and nonmonetary, including human capital and capacity). A community helps overcome some of these <u>barriers</u> that prevent DPG creators from attaining their goals. For instance, eGov follows a closed model to DPG development. Most of its platforms are created by dedicated teams working within the organisation⁴. For 20 years, this model has been <u>successful</u> as DIGIT, eGov's flagship DPG, was adopted across India. However, this model is neither sustainable nor feasible because it:

- 1. Is inadequate to achieve global scalability
- 2. Affords limited avenues to engage with external volunteers

Insights for DPG Creators

A combined assessment of goals and barriers helps DPG creators understand whether a community is necessary to attain goals:

- Identify the current and long-term goals of the DPG. Goals could include, modular, relevant, transparent, shared ownership, innovative, trustworthy, scalable, and sustainable processes
- 2. Identify barriers that prevent the attainment of these goals:

⁴ Refer Part B: Onboarding volunteers for eGov Foundation lack of collaboration with Commercial Open Source Software (COSS) companies that accelerate the growth of DPGs, lack of long-term funding, and lack of tangible opportunity and apparent incentives (such as career growth and monetary gains) to attract highly skilled contributors

3. Assess whether these barriers can be overcome by building a community

A community is key to the evolution and sustainability of the DPG, with the aim of large-scale adoption and scalability. It is almost impossible to run a DPG at scale without a self-sustaining mechanism where the dependencies on the core team are as minimal as possible. A community presents itself as that selfsustaining mechanism that helps adoption at scale.

KEY TENET

EXPLANATION⁵

Relevancy

Relevance refers to the ability of a DPG to be locally (socially, culturally, politically) and globally applicable The relevance of a DPG is <u>dependent</u> on several factors: quality of code, and interaction between global and local teams, among others.

A community ensures the success of some of these factors. For instance, it puts into place processes that facilitate smooth communication and effective engagement between local and global teams. Further, communities help global teams understand the local context well. They allow for <u>cross-learning</u>, through the development of resources that can be used across geographies while remaining sensitive to the local context.

PRACTICE⁶

The <u>DHIS2</u> carries out successful implementations <u>locally</u>, at the country level (more than 100 developing countries), yet it is scalable globally.

The Health Information Systems Programme (HISP) networks that are formed locally help understand local contexts and further intend to exercise influence over the global team at the University of Oslo.

⁵ How does a community enable each tenet?

⁶ How does a community enable the key tenets - what are the processes/tools/mechanisms used to realise the key tenet?

KEY TENET

EXPLANATION⁵

PRACTICE⁶

Customisability

Customisability refers to the ability of the DPG to be applicable across numerous use cases and purposes. A community can help customisability of the DPG, at the technical level by facilitating diverse contributions to the codebase, and at the implementation level by creating avenues for the design, use, and training of the DPG. The technical threshold for implementation of DHIS2 is very low. For instance, experts note that the user interface is easily customisable.

The use case of DHIS2 has expanded from health to other domains such as agriculture and education, efforts which are led by communities.

Modularity

Modularity refers to the ability of components of the DPG to be replaced or evolve. Modularity, to be optimally used, necessitates reduced barriers in deployment and the participation of members.

A community reduces these barriers by ensuring easy access to resources by documenting and facilitating greater opportunities to contribute effectively. Experts maintain that DHIS2 stands out among other DPGs due to its modularity. The <u>feature</u> allows it to apply to additional software modules that coexist with the core DHIS2. This feature meets countryspecific requirements, which are recognised through the support of local networks.

Modular and Open Source Identity Platform (MOSIP) helps users, such as Governments, to build, own, and implement a national digital foundational identity system. A global community of collaborators, governed by mechanisms that monitor contribution and approval to the codebase, support the deployment of MOSIP in low-resource contexts.

A. How Do We Build a Community?

Initial adoption triggers the activity of building a community. It creates a spark which attracts potential contributors. However, initial adoption alone does not lead to community building – building a community is an active exercise and requires conscious intent and effort. Once built, it fulfils the goals of large-scale adoption.

For instance, despite being operational for over 20 years and having multiple partnerships, DIGIT has not formed a community. A community will have to be formed by eGov where they actively take measures to create and grow the community.

Insights for DPG Creators

Community building entails an active and conscious intent and effort, that is triggered by initial adoption. Adoption alone does not translate into building resilient communities.

III. Identify the Functions of Communities

Communities are critical to the existence of open-source projects. However, for DPGs, the need for a community is more pressing given the limits posed by funding and capacity.

While communities are vital to the growth of DPGs, they should not be perceived as the end goal of a DPG creator. A community around a DPG achieves sustainability, while simultaneously serving several other functions as follows:

FUNCTION **EXPLANATION**⁷ **PRACTICE**⁸ Build User engagement and feedback are key to the The DHIS2 began as a response to the needs o Feedback development and deployment of the DPG. The public health planning units at the national Loops collection, due to a lack of feedback. Communities can create a loop between users and Between DPG creators where users can identify problems, The DHIS2 identified the need to adopt a botto Users & DPG troubleshoot them, and create new feature requests. was considered critical to enhance its feature, Creators Additionally, they provide general feedback on the Communications Technology (ICT) software plu DPG and its development and deployment process. to troubleshoot problems, gain feedback on the In parallel, users need support from the DPG creator These benefits proved to be the reason why the to overcome challenges related to deployment. **Achieve Scale** Growth and expansion are challenges, given that In the late 1990s, the DHIS2 began expanding & Adoption DPGs work with limited funding and capacity. constrained due to a lack of resources, reiterat for DPG Communities are a lever to scale. They make DPGs An active and vibrant community was consider (known as, HISP networks) support the develo more sustainable, as compared to those sustained by funding. coordinating the technical support and capacity community of developers, implementers, users the DHIS2 the national standard since 2000 fo **Create means** Knowledge related to the deployment of the DPG is Detailed and clear documentation is essential t of Knowledge essential for adoption. documentation leads to a dropout of community Creation learning online courses (DHIS2 Academies). Communities ensure that resources that facilitate & Transfer users to learn and use the DPG are available. They Further, the HISP network helps in intra and int act as a means of knowledge creation and transfer. enables users to learn from the live experience Community members provide feedback on existing resources and contribute to the knowledge repository, based on their DPG experience. As they encounter challenges, they inform other community members and rely on each other to seek or provide solutions.

⁷ Why is the function critical, in the context of DPGs?

⁸ What are the examples of the function in practice and what are the specific measures to fulfil the function?

INTERVENTIONS



f the local communities in Cape Town, South Africa, in 1994. and district levels faced issues of local community data

m-up approach to developing the software. User engagement making it more than just another Information and ugged into health systems. Community engagement was vital e software, and provide support to users during deployment.

e community around the DHIS2 was built.

- Deploy field intermediaries who sustain the community across geographies and gather on-ground feedback from community members at a local level
- 2. Create safe, transparent, and active channels of communication

- to different countries. However, efforts to scale were ing the value of local support and training.
- ed foundational in building local networks. These <u>local networks</u> oment, implementation, and evolution of the DHIS2 by y-strengthening process. The HISP network, which is a a, and researchers, <u>facilitated</u> country-wide adoption, making r decentralised healthcare information systems.
- Build a community that includes not just developers, but also system integrators, academic institutions, non-Government organisations, and the Government
- 2. Bolster local networks of support and training

- o enable learning and utilisation of the DHIS2 platform. A lack of y members. Key resources include video playlists and self-
- er-country knowledge sharing. This system of cross-learning s of other users.
- 1. Create preliminary resources and enable community members to give feedback on their value or use
- 2. Document extensively and periodically update resources
- 3. Enable community members to build resources

FUNCTION	EXPLANATION ⁷	PRACTICE ⁸
Build a ground for Problem- Solving & Troubleshooting	There are several types of challenges that are encountered during the deployment of the DPG. These challenges are diverse and need not be technical. A diverse set of perspectives and solutions eases the deployment of DPGs. A community organically allows for people of different backgrounds to come together to problem- solve and troubleshoot.	The DHIS2 Annual Conference is among the ma leading to effective problem-solving. The Conference, through specific sessions, pro seek solutions from people, hailing from varied
Facilitate Deployment & Implementation	Digital Autonomy is a key reason for countries considering DPG adoption. When the implementing entity trusts the DPG, adoption is accelerated. This trust is built through the community which allows implementing entities to own the DPG. As dependencies on the core team are reduced through the functioning of a community, every entity plays an active part in the development and deployment of the DPG. This increases their trust and instils a sense of ownership in the DPG.	 The DHIS2 adopted several strategies to instil To build trust, they drove home the significa To facilitate a sense of ownership, they allo To reduce dependency on the core team, the during summer school programs
Means for Advocacy of Sustainability	Building a community is not the end goal for a DPG creator. Community is a means to achieving sustainability of the DPG. An active and vibrant community is a testament to the DPG's sustainability. The presence of communities around DPGs is an indicator of sustainability – criteria that several DPG creators need to fulfil, as they scale globally.	In the case of the DHIS2, the presence of an ac widespread adoption, which has been consider The DHIS2 community has enabled its deployn education, and agriculture). Hence, the depenc

INTERVENTIONS



- any ways that diversity of people and perspectives is welcomed,
- vides deployers with an opportunity to voice their problems and occupational, demographic, and geographical backgrounds.
- 1. Promote diversity in demographics and expertise amongst community members
- 2. Allow community members to resolve each other's problems and enable the free flow of cross-domain knowledge

- a sense of ownership amongst implementing entities: ance of the DHIS2 to diverse demographics wed the DHIS2 to be modified by participating countries ey built the capacity of members to develop new use cases
- 1. Allow implementation entities to own the DPG through measures that build trust
- 2. Take active measures to reduce dependencies on the core team, including capacity building of community members

- tive community is evidence of its success. It signifies ed the most telling guarantor of sustainability.
- nent across various geographies and domains (including health, ence on the core team to accelerate adoption is limited.
- 1. Build the capacity and talent of community members
- 2. Create opportunities to learn, ideate, and innovate for community members



Insights for DPG Creators

1. Consider Building a Community Around the DPG

Learnings from legacy open-source communities suggest that developers channel their contributions based on whether the project has a vibrant and active community, apart from assessing whether the project meets their needs. Most DPGs currently do not have an active community, due to funder and Government priorities that focus on time-to-deploy. However, their need is more urgent in the context of DPGs, which, unlike generalpurpose software projects like Linux, do not typically attract contributors in large numbers.

2. Perceive a Community as a Means to Achieve Sustainability and Not as an End in Itself

A community serves multiple purposes, as elaborated in this section, enabling the sustainability of the DPG.

3. Formulate the Vision of the Community Around the DPG Every community must have a shared vision, which seeks to answer the question: 'Why does the community exist?'

The following list of questions will help guide a DPG creator in framing the vision, mission, and values of the community:

Questions on the DPG:

- 1. What is the vision and mission of your DPG?
- 2. What is the identified socio-economic need the DPG aims to address?
- 3. Who are the intended beneficiaries?
- 4. What are the various use cases of the DPG?

Questions on the community:

- 1. How does the community contribute to the goals of your DPG?
- 2. What is the identified purpose of building a community around your DPG?
- 3. At what stage did you recognise that a community must be built?

- 4. What are the values of the community?
- 5. What are the long- and short-term goals of your community?
- 6. What are the barriers that prevent you from achieving these goals?
- 7. Are you open to the idea that the defined 'purpose' of the community may change over time?
- 8. Are you open to the idea of considering the perspective of the community when framing the defined 'purpose'?
- 9. Is there a need to keep the community 'purposedriven' and take measures to ensure the same? If yes, what are those measures?

Resource Guide

For more detailed insights into understanding how the shared vision can be defined, refer to Section 3.2 on Visions of the <u>Communities of Practice Playbook</u>.

CASE STUDY

<u>Vue.js</u> maintains clear roadmaps, making the project goals and direction transparent. This ensures continuous alignment of the shared vision, mission and direction among community members.

IV. Map Stakeholders

As a community built around a DPG is envisioned to be vast and diverse, it is imperative for a DPG creator to actively understand the varied stakeholders that are integral to the development and sustainability of the DPG. Mapping stakeholders is the first actionable step towards building a community. A stakeholder mapping exercise enables the DPG creator to identify critical drivers of the community, understand the rationale for their significance in building the community, and streamline efforts in building the community by accurately identifying the target audience to begin the outreach process. Though every community around a DPG is unique, depending on the purpose of the DPG, stakeholder types in communities around DPGs remain fairly consistent. The following are the key stakeholder types:

STAKEHOLDER TYPE

SIGNIFICANCE

'population scale'.

PARTICIPATION TYPE

Builders, or DPG Creators	 Builders help in the core decision- making process and decide the trajectory in which the DPG has to be developed. Key decisions such as identifying the purpose and intended beneficiaries of the DPG are taken by builders. They play a significant role during the initial stages of developing the DPG, as well as building the community. For more detailed insights into the role of the core team, refer to Section 3.4 of the <u>Communities of</u> <u>Practice Playbook.</u> (Resource Guide). 	Provides predominantly technical expertise, such as design and development. However, it is recommended that policy experience, such as knowledge of governance of DPIs or DPGs and managerial experience be included.
Contributors	Contributors help in the software development, as well as other technical functions, such as design and maintenance. Contribution in non-technical areas is just as critical in the context of DPGs, where the goal is to ensure the provision of services for 'public good' and	Provides technical expertise, such as design and development. Non-technical expertise, such as policy research, communications and outreach, and translation, among others.
STAKEHOLDER TYPE

SIGNIFICANCE

PARTICIPATION TYPE

Community of Practice	CoP develops and embeds the DPG	Provides support in the <u>discovery,</u>	
	by bridging the gaps between the	assessment, and advancement of DPGs.	
	DPG creator and the end-users.	They help accelerate the adoption of	
	They act as critical bridges that	DPGs, by addressing critical needs and	
	facilitate on-ground adoption of the	responding to urgent challenges.	
	DPG. A CoP consists of system		
	integrators, academic and		
	institutional partners, non-		
	Government organisations, and the		
	Government or public agencies,		
	among others. Collaborating with		
	these diverse institutions which are		
	beacons of longevity, enhances the		
	sustainability of the DPG.		

End-Users

End-users, who are the beneficiaries of the DPG, offer patterns and reasons for adoption. Users also become <u>active contributors</u> by participating in the community. Provides feedback on the usability of the DPG, with the potential to contribute actively.



Experts Note

"We need more research on institutions, rather than individual organisations. Institutions may refer to social structures such as ministries. Though the technology may evolve and improve through the contribution of individual organisations, collaboration with institutions is required to ensure sustainability. In the DHIS2, collaboration with ministries across countries was considered critical to its large-scale adoption." - DHIS2 Community Member.

Resource Guide

For detailed insights into understanding how to conduct a stakeholder mapping exercise, refer to Section 3.3.1 of the Communities of Practice Playbook.

Strategies

1. Build a Community of Practice (CoP)

A Community of Practice refers to a group of individuals and institutions that directly contribute to the development of the DPG. Their primary focus is to enhance implementation for easy and efficient DPG adoption. DPG collectives predominantly comprise a community of software developers. However, a CoP includes a community of developers who focus on increasing technical contributions and accelerating implementation and adoption.

Governments are increasingly recognising the power of opensource technologies and how DPGs enable digital sovereignty. Building a community with local or country-specific adopters is a driving force of adoption.



A Comparison Between the DHIS2 and MOSIP

The DHIS2 originally comprised predominantly academic volunteers. It was complemented by extensive fieldwork to build the platform in a community-sensitive way. This led to the involvement of on-ground practitioners who were better equipped to enable the adoption of DHIS2.

In contrast, the MOSIP community primarily includes members of the IIIT-B team who are primarily engineers. This posed challenges when anticipating and driving the DPG adoption due to a lack of field and implementation orientation. To overcome the challenge, MOSIP is building a <u>CoP on inclusion</u>, specifically for gender inclusion, by informing stakeholders in the ecosystem to incorporate gender-inclusive design thinking.

The differences are considered to have implications for the adaptability and modularity of the DPG, with the DHIS2 faring better than MOSIP. It is pertinent to note that the number of technical developers is less than the number of socio-technical academicians in DHIS2.

Specific Pathways

1. Identify a Community of Practitioners Who Believe in the Vision of the DPG: The DPG creator must start small by building an inner circle of practitioners who believe in the vision of the DPG. While identifying members to advocate and evangelise the idea of the DPG, it is recommended to recruit well-recognised individuals with noteworthy contributions in their respective fields as champions of the DPG. This selection determines the rate at which the community grows given that inner-circle members have the primary responsibility to advocate for the DPG and the community⁹.

2. Identify the Support Required for the Varied Stakeholders: Once the DPG creator identifies the stakeholder type, it is important to identify the support required to ensure effective participation from each stakeholder.

⁹Refer to Part A, Play 5, Community advocacy



For practitioners, Bahmni applied a broad-based approach that helped the DPG scale. This broad-based approach identified the needs of practitioners, which go beyond technical support developers. For instance, their needs primarily revolve around effective communication through good websites and configuration.

2. Strengthen the diversity of the community

<u>OSS projects</u> around the world include persons from varied occupational and demographic backgrounds, reflecting proficiencies beyond technical expertise. Open-source projects are large and complex to be handled by a small group of individuals and require a diversity of thought and roles (such as in growth and advocacy) to flourish. DPG creators must overcome <u>barriers</u> of hostile online environments and disorganised documentation, two significant challenges identified by OSS communities, that come in the way of strengthening diversity.

There are several benefits of strengthening diversity when building communities around DPGs:

- Diversity in expertise helps solving problem effectively by fulfilling inherent occupational needs involved in creating and deploying the DPG
- Diversity in demography gives global relevance by ensuring applicability across racial ethnicities and genders
- Diversity, facilitates the vibrancy of communities and prevents echo chambers by breaking the monotony that is characteristic of homogeneous communities



Experts Note

According to experts, the demographic diversity of the HISP network, which is the CoP around DHIS2, emphasises the significance of the DHIS2 to diverse racial demographics, giving the platform global relevance. Though women are not actively involved in the developer community, they engage in training and teaching roles. The DHIS2 observes several reasons that hinder women's participation in their community. Gender biases discourage girls from pursuing tech education, systematic barriers of discrimination in hiring practices at workplaces, and the absence of female role models in the tech industry limits inspiration and guidance.

Further, experts noted that in India, being a part of the opensource community has been perceived as a privilege. It can only be afforded by a few people from certain socio-economic backgrounds that allow volunteering. Though there is no active discrimination against dissimilar individuals, the absence of active measures to include them creates homogeneous spaces that could in turn manifest as echo chambers.

Specific pathways

1. Acknowledge that Diversity is Necessary, Both Demographic and Occupational

a. Outline a range of stakeholders that are integral to the success of the DPG: The DPG creator must create a diversity chart by outlining the range of stakeholders key to the success of the creation and deployment of the DPG. For instance, while developing DPGs related to public health, it is key to have public health officials as part of the community.

CASE STUDY

Agami presents an interesting example to understand strategies for diversity. The community was built with a variety of personas in mind, going beyond software developers to include legal scholars and lawyers - given that the DPG is one built for the justice domain.

b. Build a diverse core team: The first step to promote diversity in the community is to ensure that the same is reflected in the core team that is creating and deploying the DPG and building the community. For instance, women feel <u>unsafe</u> in workplaces due to the lack of adequate representation of women in top management.

CASE STUDY

In Bahmni, 30 to 40 per cent identify as women, in the core team. In Open-source Medical Records platform (OpenMRS), they have women in their core developer team and their practitioner community. According to experts, this measure is a good starting point to propel diversity in the community.

> 2. Take Proactive Measures to Retain Community Members by Running the Community in a Fair, Inclusive, and Non-Discriminatory Way

a. Publish content in simple and multiple languages: The language barrier in India is critical to be overcome given the absence of a homogeneous language adopted across the country. Care must be taken to ensure that content is maintained in an accessible, straightforward language that can be understood by a broad section of the community.

b. Ensure that every member's queries are resolved: This creates a welcoming environment and goes a long way in ensuring that every community member feels valued, promoting a sense of belonging and ownership.

3. Allow other members (who are experts in their field) to answer questions that relate to their field of expertise: All questions need not be addressed by or directed to the core team of the DPG community. The core team can encourage peer-to-peer conversations and problem-solving, by intentionally avoiding non-critical questions. This promotes a sense of acceptance amongst community members, as well as enhances engagement.

d. Create safe spaces for vulnerable community members: The creation of <u>safe spaces</u> builds trust and enables members to

express themselves freely. A lack of safe spaces deters vulnerable members from joining the community. For instance, special measures such as community guidelines or codes of conduct (mandating public and open communication, adhering to respectfully disagreeing), and helplines and grievance redressal channels must be set up within the community to promote a sense of safety amongst members. There must be strict policies for hate speech, such as muting members on the channel for a certain time. Events can be conducted in ways that encourage diversity and inclusion. The Community Health Analytics in Open-Source Software (CHAOSS) DEI Badging Initiative encourages open-source projects to create safe and inclusive spaces for everyone.

Experts Note

Agami presents an interesting example to understand strategies for diversity. The community was built with a variety of personas in mind, going beyond software developers to include legal scholars and lawyers – given that the DPG is one built for the justice domain. An expert noted how public communication was key to the safety of community members. In their experience, when communication between members went into private channels, it led to untoward incidents. Hence, public communication is highly encouraged and private communication is discouraged in spaces where the community does not typically operate. For instance, private communication through the community slack channel is preferred as opposed to private networks of community members.

CASE STUDY

Linux Kernel adopted the <u>Contributor Covenant</u>, which is recognised as an effective code of conduct that facilitates a welcoming environment and ensures the safety of community members. The <u>Apache Way</u> has also been <u>recognised</u> for conducting their community in a good and safe atmosphere. The Linux Foundation has conducted its events in ways that incorporate a range of <u>diversity</u>, <u>equity</u>, <u>and inclusion</u> measures. Further, they have provided <u>travel funding</u> to enable accessibility to in-person events.

Resource Guide

This <u>OpenSource Guide</u> will help you develop a code of conduct. <u>The Open Source Way 2.0 guidebook</u>, recommends a two-step approach to deal with statements that violate the code of conduct.

First, the moderator should publicly declare within the community networks that the statement was in violation of the code of conduct and that the same is not permitted. Second, the moderator must privately reach out to the person who made the offensive statement and understand the underlying reason as to why the statement was made. The moderator should make an effort to engage and explain to the person who made the statement why the statement was declared offensive, and how they should engage respectfully in the future.

e. Recognise efforts of community members: Appreciate the idea of community members, <u>however small.</u> This goes a long way in acknowledging the multitude of people and ideas that make up the community.

CASE STUDY

The annual meetings of <u>OpenMRS</u> recognise the efforts and contributions of underrepresented communities, such as those from non-western countries, and people of colour (especially women). In their fellowship programs, the community takes special care to reward contributions from female members.

f. Foster flexible work practices in the community: Open source is built to allow people to contribute asynchronously, depending on their bandwidth and skill set. DPG creators must actively run the community in ways that foster flexible work practices

Experts Note

Experts highlighted that while attracting students as potential community members, one must account for their academic

schedules and allocate projects as well as assign deadlines accordingly. For women, participation in open-source communities is preferred over a '9-to-5' job, given the flexibility that these communities offer. There must be a stronger sense of empathy where the DPG creator relates to the community member and their commitments given that their contribution is out of free will, entailing no monetary incentive.

g. Partner with organisations that uphold similar values of diversity and inclusivity: DPG communities are expected to keep expanding, where partnerships are extremely critical to their growth. Partnerships are perceived as an extension of the community, and not independent to them. Therefore, it is important to partner and collaborate with organisations that hold core values that are similar to the DPG community to prevent any conflict in the way the community functions.

CASE STUDY



Linux Foundation jointly sponsored events with organisations to display their commitment to diversity. They followed the advice of community members who guided them to <u>'meet diverse communities where they are'</u> and hence, nudged them to participate in 'diversity-in-tech' events.

h. Provide tiered support systems depending on the experience and expertise of community members: For instance, the kind of support, needs, and expectations of experienced community members differ from new community members. Further, given the difference in level of experience, the entry points must also be suited to their experience. The entry point for a student cannot be the same as that for an experienced developer. This discourages inexperienced people from joining the community.

Bahmni, in their <u>'Contributing to Bahmni'</u> page, chalks out the various ways in which new entrants to the community can contribute, in simple language. This goes to show how problem statements must be broken down to depict a progression in the level of difficulty (such as easy, moderate, and difficult). This engages the interest of potential community members from varied domains and levels of expertise.

The DHIS2 has established mentorship and support networks that provide guidance and enable women to develop, customise, and use the DHIS2 system.

> i. Foster a culture of fairness, inclusion, and equity through education, encouragement, and transparency: It is important to educate and inspire at the societal level, with stakeholders beyond the DPG community.

CASE STUDY

The DHIS2 community engages in promoting Science, Technology, Education and Mathematics (STEM) education for girls and inspires their interest in tech from a young age.

Ersilia ensures that their diversity and inclusion <u>initiatives</u> are periodically communicated to community members.

The Open Mainframe Project, through their <u>'Making Our Strong Community Stronger</u>' collaborative initiative, has curated and published content (webinars, blogs, and presentations) focussed on diversity, equity, and inclusion.

GitHub has curated the <u>DEI Resource Hub</u>, a vetted collection of tools, best practices, and resources to help foster inclusivity in communities.

Resource Guide

For insights into understanding why and how diversity should be promoted in communities, refer to the Section 'Attracting User' (pages 36 to 47) of <u>The Open Source Way 2.0 guidebook.</u>

V. Unpack Community Engagement

Community engagement is key to sustaining the DPG and propelling its adoption. Once stakeholders are mapped, it is imperative to unpack the outreach mechanisms to identified stakeholders. Further, the DPG creator must engage the community members in ways that keep the community active, vibrant, and growing.

Community engagement measures consist of two types:

- Initial approach and outreach mechanisms to attract and induce stakeholders
- Sustained measures to ensure that community members continue to contribute to the community

Further, community management practices are foundational community engagement strategies that ensure smooth functioning.

Strategies

1. Attract and Induce Community Members by Deploying Targeted Approach and Outreach Mechanisms Initially

A. Community Advocacy

Community advocacy is the first step to building the community. It refers to the process of evangelising the idea and purpose of the DPG and the community. Community advocacy is carried out by members of the core team, as well as, the identified inner circle of practitioners who believe in the vision of the DPG and community. The DPG creator undertakes these pathways to ensure the acceptance of the idea, not to increase contribution. Advocacy and evangelism increase eagerness to contribute.

Specific Pathways

a. Encourage existing users or contributors to advocate for the DPG and the community: In the long run, it is useful to advocate by encouraging existing users and contributors to share their journeys, and have them advocate for the DPG and the community.



<u>PwC</u> and <u>BEL</u> are system integrators of eGov's flagship DPG, DIGIT. They have a long relationship with eGov and have built deep expertise over the years, deploying DIGIT successfully. While eGov has supported the journeys of its partners by actively promoting them and building technical capabilities, the partner organisations have contributed to the development of DIGIT. There is an immense benefit to documenting this mutually beneficial relationship, mapping the journey of partner organisations, and encouraging partner organisations to share their experience in working with the DPG creator.

b. Seize every opportunity to work with the community: The process of community building is an active and conscious effort that often runs parallel to developing the DPG. Thus, while developing the DPG, the DPG creator must seize everyopportunity to work with the community, i.e., be open to collaborating and co-creating with the community, in as many areas as possible. Further, the process of thinking with the community is enabled by the provision of platforms that facilitate the exchange of ideas and opinions.

CASE STUDY

Agami believes that every idea must create a spark in the community, which decides the direction of action. They seize every opportunity to think and work with the community. Agami is driven by members of the community and ideation is an output of community collaboration. There are numerous advantages to this collaborative process:

- a. Decentralised decision-making instils greater confidence in the roadmap curated for the DPG
- b. Co-creation in the process of ideation promotes greater belief in the success of the idea by ecosystem players

Agami acknowledges that though this collaborating style, of engaging with the community from 'day zero', differs from how other open-source communities function (where the idea is typically created outside of the community), it is crucial to Agami's success in building a stronger community. **c.** Build tools and pathways that allow potential community members to enter easily, with minimal friction: There must be minimal barriers to entry into a community. To enable easier and smoother entries into the community, and gain traction towards the DPG, it is important to create tools and entry points that are interactive and gamified. This measure also has the benefit of facilitating the discovery of new use cases of the DPG.

Experts Note

<u>NativeScript</u> and <u>Django</u> regularly put out good 'first issues', which give easier entry points to freshers in the community. To ease discoverability, <u>standardised ticket formats</u>, appropriate labels, and tags across projects are provided.

The membership conditions for <u>Mojaloop</u> are high. The team is working towards creating lower thresholds to enable greater traction towards the community. Conversations with experts underscored the need to adopt an ecosystem approach while building a community around a DPG.

<u>DIKSHA</u>, a repository of eBooks and eContent, is a good example that highlights the need for an ecosystem approach. In DIKSHA, to upload content onto the repository, one has to be certified as an educational board. Thus, trained individuals with expertise on the matter are unable to upload content onto the repository.

This example highlights the need for minimal barriers to entry. Also, participation cannot be truly facilitated if there is a centralised authority that approves membership. It is important to be open-source, and also promote openness in participation.

d. Conduct non-mission-critical yet relevant projects to induce large-scale public participation: Non-mission-critical projects refer to projects and use cases related to the DPG deployment that are not considered by the DPG creator, and lie outside the mission and scope of the DPG deployment. However, these projects are critical as they are relevant to pressing issues affecting the public at large. Through non-mission-critical projects, the DPG creator can attract great public participation. The project may revolve around topics of daily interest and invoke public interest to find a solution.

Experts Note

Expert conversations suggest the exploration of ideas that evoke public interest to facilitate greater participation. For instance, the traffic in metropolitan areas is a concern. Any DPG that aims to improve urban living conditions can focus on curating problem statements that focus on traffic management.

B. Stakeholder-Specific Community Outreach

Community outreach strategies differ depending on the composition of target stakeholders. They must be curated taking into consideration the demographic background (age, gender, and region) and occupational background (their educational background, expertise, and experience).

The channels for outreach, which include social media, events and conferences, and community forums and networks, vary depending on the stakeholder type. They are elaborated in detail in an upcoming Section: 'Channels of communication for outreach'¹⁰.

Specific Pathways

a. Student community

i. Build incentives for students in ways that contribute to their skillset: There are many incentives available to DPG creators to induce contributions from students. They take the shape of:

- Rewards: Certificates and credits
- Capacity building: Guest talks and lecture series
- Deep engagement: Informal one-on-ones with key members of the community or with people who are extremely well-known in the areas that the community is interested in

Students are interested in opportunities that contribute to their career growth. Hence, rewards must take the form of

¹⁰ Refer Part A, Play 5, Establish clear communication protocols

acknowledgements that act as evidence for this <u>career growth.</u> Hence, rewards must take the form of acknowledgements that act as evidence for this career growth.

CASE STUDY



The student community is one of Agami's key stakeholders. They engage with law students by incentivising them through credits provisioning that are accounted for in their academic trajectories. Further, they have found guest talks and informal one-onone sessions with the Agami team to be useful as a measure to attract students. Agami allows students to interact with key members of the community, and those who are well known. This encourages students to participate and contribute.

ii. Frame an opportunity for 'immediate action': An immediate call-to-action refers to a specific goal and a clear pathway to action which must be completed within a short timeline. An immediate call-to-action goes beyond motivating students to come together to formulate values. Esoteric entry points deter students from participating in the community

CASE STUDY



Agami's real and immediate call-to-action was the <u>Summer of Data Program.</u> It was a two-month actionable program that gained a lot of traction in the student community.

iii. Empathise and relate to students' lives while interacting with them: Given that the contribution to the DPG community goes beyond the academic expectations of students, it is imperative to interact with them in ways that keep them interested and intrigued with the DPG and the community. Therefore, interactions with the student community should not be bereft of empathy and relatability, as it may deter contributions.

<u>Samagra</u>, while interacting with the student community, found that referring to other students who achieved milestones through contributions to the DPG acts as an effective hook to motivate other students. It perpetuates a sense of relatability.

Further, it is important to empathise with the student community by being more mindful of their existing academic commitments. Samagra sets realistic deadlines for students by accommodating their pre-existing academic schedules.

iv. Collaborate with academia: DPG creators can target the student community through partnerships with formal academic institutions, such as schools and universities. There is a certain benefit to housing DPG communities in academic institutions. They collaboratively work to familiarise students with the open-source philosophy early on.

CASE STUDY

University engagement is crucial to building the community around the DHIS2. The DHIS is developed and maintained by the <u>HISP Centre</u> at the Department of Informatics, University of Oslo (UiO). The engagement with universities is summarised in the following action items:

- Create <u>design-based</u> research frameworks: Research objectives should be founded in practicality and should not be purely theoretical. Experts note that the first batch of PhD students were leaders of the <u>HISP network</u>, who engaged in on-ground practical research work.
- Establish smaller networks of regional academies: To grow the DHIS2 community, they engaged with smaller regional academies, which helped form the basis of the HISP groups. They engaged with university students by conducting training through various approaches, such as through a 'train the trainer' model, establishing support centres, and facilitating 10-day workshops, among others.



Experts Note

There are numerous instances of successful open-source initiatives that have been heralded through university partnerships, such as Project Samrath undertaken by a cohort of 300 universities in India.

The notable example of Upanzi Network, a project that supports DPGs, is an example of how <u>universities can build the capacity</u> of DPGs. Both the university (CMU Africa), and the network, benefit through such a collaboration – with increased exposure to real-life problem statements for students and a lab for the network to develop and test their products.

v. Collaborate with networks: There are several informal channels of collaborative outreach, such as social media and coding communities.

Experts Note

Experts at the Code for GovTech (C4GT) Community Building workshop recognised the merit of collaborating with social media influencers, such as YouTubers to enhance outreach with student communities. Many YouTubers curated engaging content on applying for the <u>Google Summer of Code</u>, giving insights into program details. Further, coding communities, such as Codechef, Codeforces, and Devfolio can reach out to student communities.

b. Under-represented communities and persons from developing contexts

DPG creators must foster diverse, fair and inclusive environments, especially by focusing on increasing contributions from underrepresented communities. Measures to strengthen diversity are outlined in detail in the section, 'Strengthen the Diversity of the Community'11.



Experts Note

In India, it is critical to engage with persons from regionally developing areas. Expert conversations revealed that more effort should be put towards integrating students from tier-II cities in India into DPG communities. It is important to leverage their skills by instilling confidence in them. For instance, while conducting workshops, mentors should be mindful of the way they interact with these students. There are subtle pointers that go a long way in building trust in the community. They should be taught using simple language. It is imperative to communicate with humility, and in non-condescending tones.

The Linux Foundation has provided travel funding to enable accessibility to in-person events. These included diversity travel scholarships, diversity registration scholarships, and needbased travel scholarships.

The emergence of Viluppuram GNU/Linux Users Group (VGLUG) - a community of OSS developers based in Viluppuram, Tamil Nadu - is a testament to the diversity of developer voices in India. The community has pushed the boundaries of accessibility and is also reaching out to low-income students to provide free training in programming languages.

c. Mid and/or senior-level contributors

i. Build entry points and incentives for experienced contributors in ways that challenge their abilities to problem-solve: Experienced contributors require a different set of incentives to be roped into the project as compared to a fresher. They prefer sustained and long-term gains through participation in OSS communities. Guided self-learning pathways that are commensurated with higher levels of competency attract experienced contributors.

ii. Nurture a pool of senior developers from existing projects: It is a conscious process to create and nurture senior developers. However, given the constraints in attracting senior

¹¹ Refer Part A, Play 4, Acknowledge that diversity is necessity - both demographic and occupational

developers, it is preferred to elevate contributors from the same project, since they are familiar with the project and do not need search costs.

iii. Create separate channels based on the level of expertise and years of experience¹²: Though a community is a common space with no hierarchy and segregation, there is a need to cater differently to members for easy facilitation. Common communication spaces across all members create an information overload for some. Experienced community members can be grouped in separate channels from freshers, to prevent the main channels from being cluttered with basic technical questions. However, opportunities must be created to facilitate information flow and communication amongst diverse members, to ensure that the essence of a community is retained.

iv. Make the type of project public: Experienced contributors are inclined towards contributing to projects that have more value attached to them, ascertained by the number of stars, quality of documentation, and <u>forks.</u>

d. Other DPG communities

For DPGs, engaging with other DPG or legacy open-source communities is critical as these networks accelerate growth at scale.

CASE STUDY

Dhiway built their community by first participating in other similar communities, bolstering their ongoing efforts of community building. Participation in other communities enhances exposure to the DPG in developer communities, driving curiosity to learn about the DPG. Similarly, it has been <u>noted</u> that the collaborative work between OpenMRS, IntraHealth International's Human Resources Information System (iHRIS), and the DHIS2 within the Open Health Information Exchange community, sustains the DHIS2.

¹² Refer Part A, Play 4, Channels of communication for internal communication, including grievance redressal



Experts Note

Conversations with experts from FIDE and eGov indicate that creating a network of communities is an accelerator to ongoing community-building efforts for DPG creators. The <u>C4GT</u> is an initiative that aims to create India's first, active, open-source, super community of coders that will build and contribute to several global <u>DPG</u> projects.

2. Create Sustained Incentives to Ensure Wide and **Deep Engagement**

Sustained incentives refer to incentives that nudge community members to be a part of the community for long tenures and engage meaningfully. Meaningful engagement cannot be built by providing incentives of momentary appreciation. Temporary incentives such as mugs, shirts, and other gifts can be rewards for contributions occasionally after fulfilling specific goals. These incentives, though useful, are not fundamental to ensuring meaningful and sustained engagement.

Communities should aim to create:

- **Deep Engagement:** Engagement that results in meaningful • contributions
- Wide Engagement: Engagements that increase the strength of the community

A. Formulate and Communicate Incentives Depending on the **Type of Stakeholders and Their Goals**

Specific pathways

a. Devise incentives depending on the type of stakeholder and their goals

The first step to building relevant incentives is to map potential stakeholders that the DPG creator aims to attract, identify their purpose of engagement, and formulate incentives accordingly.

For instance, incentive motivations for the student community, system integrators, and the Government are very different. Their goals of engagement with the DPG creator are varied hence the structure of incentives also varies. The Government looks at long-term, sustained gains such as reaping the benefits of maintenance of the DPG through the community. Whereas students intend to benefit from meaningful learning, as well as, short-term gains such as tokens of appreciation (gifts such as bags, shirts, and mugs).

Motivations of community members in open-source communities include:

Motivations of Contributors in Open-Source Software Projects

The motivations to contribute to Open Source (OSS) Software projects are quite different and are the following as portrayed in the paper "Carrots and Rainbows: Motivation and Social Practice in OSS Development" by von Krogh, et. Al, 2012.

Such motivations can be group into the following main categories:

- Intrinsic motivations (performed for the inherent joy of participating and contributing) a. Ideology: The believe and commitment to the purpose and nature of OSS: free to modify, etc. b. Altruism: A voluntary contribution that does good, is an end in itself and is not directed at gain. c. Kinship amity: Urge of people to help others in a community that they belong to. d. Enjoyment and fun: The playfulness and experimentation possibilities when contributing.
- 2. Internalized Extrinsic Motivation (performed with an external result or purpose linked in a way to the project) a. Reputation: Refers to the reputation that is obtained through contributions made to a projectthat can be divided into peer reputation (within the community) and outside reputation (friends, relatives, and prestige awarded). b. Gift Economy/Reciprocity: Giving code in return for other code. c. Learning: The motive to improve or acquire new skills through OSS. d. Own – Use Value: When the OSS has direct user value for the contributors.
- 3. Extrinsic (performed with a separable outcome not linked to the project) a. Career: When they want to signal their talent for all to see and inspect in hopes for new job opportunities. b. Pay: Up to 40% of contributors is paid to contribute to OSS projects in some studies.

According to "Shifting Sands of Motivation: Revisiting What drives Contributors in Open Source" by Gerosa, et al. (2021) the most prevalent motivators to contribute to OSS are:

Snapshot of motivation types (Open Source Guide, GitHub)

Resource Guide

For more insights into understanding why people participate in open-source communities, refer to the Section 'Guiding Participants' (pages 48 to 51) of <u>The Open Source</u> <u>Way 2.0 guidebook.</u>

b. Communicate incentives strategically and impactfully

It is important to align with the vision of the stakeholder and communicate or deliver incentives in ways that encourage the stakeholder to participate.

They can gamify the incentive: Any incentive delivered through a gamified approach enhances the participation of potential community members. Gamification creates spark, curiosity, and competition. It reduces the turnaround time for members to think about whether they should participate and contribute. From the perspective of the DPG creator, it is an easy approach to implement – it yields quicker results, attracts greater numbers, and is easily replicable.

STAKEHOLDER TYPE	EXPECTATIONS	MODE	
Student Community	Immediate and tangible gains	Competitions, such as skill-a-thons and hackathons	
Experienced Developers	Sustained and long-term gains	Guided self-learning pathways commensurate with varying levels of competency	

Snapshot of gamified incentives (not an exhaustive list)

A. Structure Incentives That Enable Behavioural Change Inducing Long-Term Contribution to the Community

Open-source projects primarily work on volunteer time. Volunteer motivations are driven by their innate interest and curiosity in the subject matter and passion to contribute and explore the space. Therefore, there is a <u>lower expectation</u> of being incentivised. Moreover, open-source communities do not incentivise <u>monetarily</u>. Hence, DPG creators must structure incentives that enable behavioural change, inducing long-term contributions. The goal of these incentives is to keep community members intrigued by the DPG, interested in problem-solving, and engaged in the community. Three levers that enable behavioural change:

- Learn: Pathways rooted in the 'learn' lever contribute to • knowledge development
- **Practice**: Pathways rooted in the 'practice' lever facilitate experimentation and interaction
- Inspire: Pathways rooted in the 'inspire' lever instil intrinsic motivation and drive



Experts Note

Most experts observed that to ensure the long-term sustainability of the community, the DPG creator must undertake deep engagement measures. However, the value of wide engagement measures cannot be neglected.

Every DPG has unique objectives. While some prefer momentum (greater numbers), others prefer contribution. Depending on their objective, the effort undertaken by the DPG creator will vary, as will the outcomes.

OBJECTIVE	EFFORTS BY THE DPG CREATOR	BARRIER TO ENTRY FOR POTENTIAL MEMBER	OUTCOMES	NATURE OF ENGAGEMENT
Momentum	Medium effort	Low	More people, less contribution	Wide engagement
Contribution	High effort	High	Fewer people, more contribution	Deep engagement

Specific pathways

a. Create guided learning pathways

When contributions by community members are bereft of any direct monetary incentive, the focus should be on adding value to the learning pathways of community members by building their capacity and sharpening their skills. These learning pathways must further be guided. A guided learning pathway caters to the needs and expectations of community members as they are commensurate with varying levels of competency.

Guided learning pathways can be developed in the following manner:

- i. Understand the needs and expectations of community members
- ii. Ascertain levels of competency, where each successive level of competency represents a higher level of difficulty
- iii. Map each level of competency to a problem statement that matches that level of difficulty (such as easy, moderate, and hard)
- iv. Curate training content (including self-learning online courses, webinars, guest lecture series, and peer learning circles) for every competency level and disseminate accordingly
- v. Integrate other incentive types into this pathway by affording a certain incentive type, once a particular competency level is accomplished

CASE STUDY

A guided learning pathway is one of the key incentives to enable contribution in the long term. The <u>DoNew</u> way of curating incentives can be referred to understand the process of how personalised learning pathways are created.

It sheds light on other incentive types that can be linearly achieved by community members as they continue on their journey of learning by moving up the competency levels. These incentives include skilling, earning, mentorship, and startups.

The DHIS2 has curated self-learning online courses, which enhance the earning capacity of contributors.

b. Provide targeted mentorship

Good mentorship is a key incentive for community members, especially freshers in the industry. While mentorship is a highimpact incentive for a potential community member, it requires DPG creators to allocate internal resources. These resources face bandwidth issues and also community engagement is not their priority. Hence, mentorship programs need to be creatively designed to ensure they do not require high effort. Mentorship can be administered in unique ways:

i. Mentorship through competitions: Typically, competitions such as hackathons create valuable learning experiences. However, they are short-lived. Even from the perspective of the DPG creator, the result is limited, given that hackathons allow them to identify the top contributors. The pertinent question is: how can the DPG creator retain the rest of the existing and potential community members who participated in the competition? Targeted mentorship at every level translates participation into effective and meaningful engagement.

Experts Note

The following example sheds light on how targeted mentorship can be provided by understanding the needs of potential community members, who participate in hackathons:

600 candidates were interested in participating in a hackathon. 300 of them sent proposals. 100 were shortlisted and 10 were selected as winners. Typically, the DPG creator is likely to focus on the 10 winners, building their capacity, to make them active contributors. However, it is more important from the perspective of building a community, to convert the 590 participants into active community members.

A tiered approach is adopted, where each type of participant can be provided appropriate support, depending on which level of difficulty they were eliminated.

90 participants (100-10): These participants have the interest, knowledge, and ability to articulate their ideas. They are most likely to become potential contributors, however, they cannot finetune their ideas. Exposure to Good First Issues (GFIs) will sharpen their skills, nudging them to bridge the gap between a participant and contributor. For more detailed insights into understanding how an issue tracker can be used as an essential communication tool, refer to the Section 'Attracting Users' (pages 25 to 30) of The Open Source Way 2.0 guidebook. (Resource Guide).

- ii. 200 people (300-100): These participants generally require mentorship on how to write a request for proposal. They need to be taught how to articulate their needs, as they were eliminated because of their inability to draft a good proposal.
- iii. 300 people (600-300): These participants require enhanced mentorship that develops their skills and capabilities. They displayed an interest. However, there was a gap between their interest in contributing and their ability to contribute. To participate effectively in these competitions, they must possess relevant and adequate skills. There is a need to conduct more skill-a-thons and capacity-building exercises that hone their skills.
- ii. Mentorship through volunteer engagement programs: A volunteer engagement program is a focused mentorship program that enables a few volunteers to build atop the DPG. These programs are led by internal resources of the DPG creator, who are essentially mentors, guiding volunteers towards achieving a pre-defined objective within a short time. The program is designed in interactive and self-sustaining formats that ensure that mentors offer minimal guidance and support.

Refer to 'Part B' of this playbook to know more about Aapti's engagement with eGov, which revolves around kickstarting a volunteer engagement program. Further, the Linux Foundation conducts its <u>mentorship program</u> in ways that suffice as effective learning pathways for both mentor and mentee.

Resource Guide

To know more about guidelines on mentorship, refer to the Section 'Guiding Participants' (pages 71 to 78) of <u>The Open</u> <u>Source Way 2.0 guidebook.</u>

c. Recognise and acknowledge the effort

All <u>developers</u> want to participate and contribute to open-source projects. Recognition and acknowledgement have been determined to be key drivers of contribution and retention in OSS communities. Further, given the lack of direct monetary incentive and individual ownership<u>, acknowledgement and recognition</u> go a long way in stimulating contributions. It is the most noted practice to never turn a contribution down in a community.

CASE STUDY

<u>Python</u>, like most OSS communities, recognises contributions within the community. It has been noted that such recognition, though tokens of appreciation and providing intangible benefits like the 'Python Community Award', promotes a culture of appreciation, support and trust among community members.

> i. Reward through tokens of appreciation at occasional intervals: Communities can resort to the provision of tokens of appreciation that stimulate sudden activity and participation from community members, depending on the kind of target stakeholder.

CASE STUDY

Agami relies on incentivising students by rewarding them through tangible tokens of appreciation. These include mugs, shirts, and bags.

ii. Reward through increasing opportunity to gain monetary incentives: Community members are generally not rewarded monetarily. However, DPG creators can occasionally reward monetarily through competitions or create avenues for community members to earn.





Experts suggest refraining from directly incentivising monetarily as they tend to overshadow small contributions. It also creates a burden on the DPG creator to formulate and enforce strict definitions of contribution which is not viable in the context of a community which runs on volunteer time and effort.

iii. Recognition through intangible appreciation:

Contributions vary in terms of nature, perceived significance, and frequency – and they must be proportionately recognised and rewarded. However, where all community members contribute voluntarily, with minimal expectations, implementing a strict system of rating and recognition may prove to be counter-productive to the efforts of community building.

Firstly, it creates an atmosphere of competition where community members refrain from helping each other. This process also enforces centralised decision-making. Thereby, putting power in the hands of a few within the community, defining strictly what contribution means and establishing fair procedures to assign ratings. Overall, it is a process that runs contrary to the core values of a community that is meant to be free-flowing and decentralised.

On the other hand, having no system of recognition to capture one's effort can discourage members from further contributions. It is therefore imperative that DPG creators strike a balance in recognising the efforts of community members to not only strike core community values, but also ensure that community members feel valued. There are several ways of recognising community members for their contribution:

Badges: Badges, though a commonly known method to recognise contributions are preferred over a quantitative system of appreciation, such as a star rating, in the context of communities. Badges can be awarded in the following manner:

- A unique badge for every type of contribution. This ensures that no two dissimilar types are considered the same
- Badges can be achieved by community members, rather than by being assigned by the DPG creator. For instance, upon solving a certain number of problem statements, a member can attain a badge. This ensures a fair assessment based on objective and quantitative indicators, which avoids subjective decision-making by the DPG creator, such as the quality of the solution
- A peer rating system can be implemented where other community members appreciate efforts by assigning them tags and special mentions. This way, if a community member has been awarded a certain number of tags by other community members, they are eligible for a badge. This peer rating system encourages members to help each other, rather than compete against each other, and also facilitates decentralised decision-making



The DHIS2 assigns different types of badges for different types of contributions. This helps community members create an identity for themselves within and outside the community. It was highlighted that the number of badge types is limited for the convenience of the DPG creator. Also, creating too many badge types is harder to manage and reduces the value assigned to each badge type. In the DHIS2, they have approximately six badge types for academic contributions, one for developers and three for the overall community.

The DHIS2 also ensures that small contributions, such as helping another community member, are recognised. If a member posts a query, and another member responds and resolves the query, then the member can give the other member a 'Helpful Reply' or a 'Problem Solver' tag. This way any helpful interaction, be it helping someone make a connection, can be recognised.

This peer rating system ensures an efficient system of feedback loop within the community, reduces the role of the community coordinator or manager, enhances engagement, and facilitates decentralised decision-making.

• Opportunity to be heard: A key motivation for community members is to make them feel heard. DPG creators must create opportunities for community members to voice their perspectives, express their ideas, share their experiences, and disburse their knowledge. If there is no commitment to continue engagement when the community expands, members may get detached. To prevent attrition, it is important to make them feel valued. Providing opportunities to be heard is crucial in ensuring retention.

Further, these opportunities must be made available regularly but not generally to everyone. A sense of achievement must be attached to the opportunity to make it valuable to a community member.

Agami recognises contribution by providing community members with a platform to speak. Further, they pick community members who have contributed immensely to 'represent' Agami in external-facing events. This is perceived as more valuable to a community member who feels a greater sense of belonging, in comparison to being given a chance to speak at an internal event in one's own capacity.

The DHIS2 conducts year-end events and allows three community members to share their experiences as members of the CoP. This has contributed significantly to the community-building efforts.

The Linux Foundation conducted numerous in-person OSS Summits across countries. This allowed several community members to speak. Community members <u>testified</u> that this opportunity was the most rewarding experience in their careers as IT professionals and developers.

• Opportunity to interact with renowned persons from the industry: One-off meetings with industry influencers and/or with the top leadership of the community can provide exceptionally great contributors. This can be administered through competitions, by facilitating interactions for the winners of the competition.

CASE STUDY

The Skill-A-Thon, an NDEAR-ONDC skilling hackathon, created the opportunity for winners to present their ideas to Mr. Nandan Nilekani, a noteworthy figure within the DPG and DPI ecosystem.

• References at events, conferences and other noteworthy platforms: Key contributors can be acknowledged and recognised internally, through newsletters and email mentions, and externally, at events, conferences, and public gatherings.

Agami recognises key contributors at internal and external events. OpenMRS especially recognises the efforts of contributors hailing from under-represented populations.

Samagra explains the personal journey of the successful contributors and their contributions. They especially use student profiles as hooks when delivering lectures to student communities. As a student contributor, it is a privilege to be referred to as a 'success story'. Further, for potential student contributors, there is a sense of relatability which is enough incentive for them to join the community.

3. Institute Community Management Practices

A. Create Smooth and Efficient Onboarding Processes

Community building is an active and conscious process. Communities do not self-organise themselves and require processes to be institutionalised to spur growth. Effective onboarding is one such measure that helps convert interested and potential members into active and integral community members.

Onboarding processes are critical to the development of the community, as they allow people to understand the DPG, nudge exploration, and discover new use cases. They ensure that dropouts are prevented during the initial phase where community members are fairly new, and are often overwhelmed.

Experts Note

One of the key challenges noted by our experts was how the learning curve in MOSIP was steep and prevented participation from potential contributors. The onboarding process at OpenMRS serves as a valuable contrast. There are assigned volunteers within the community who help with the process of onboarding. The <u>'Community Guide to the New and Curious'</u> is a one-stop site that helps new members navigate the forum. <u>Reactiflux, Typescript,</u> and <u>Python</u> have excellent onboarding processes. Newcomers find it extremely easy to navigate due to the presence of clear guidelines, a friendly approach, and accessible resources. OpenStack hosts onboarding events through webinars and workshops regularly. Their <u>OpenStack</u> <u>Upstream Institute</u> is an effective way for members to gain insights and skills, helping them contribute effectively to the project.

Resource Guide

Refer to 'Part B' of this playbook to know more about Aapti's engagement with eGov which revolves around instituting a volunteer onboarding process.

For insights on onboarding, refer to the Section 'Guiding Participants' (pages 66 to 70) of <u>The Open Source Way 2.0</u> <u>guidebook.</u> This guide further cites these open-source communities as models for effective onboarding processes -<u>OpenStack Upstream Institute, Kubernetes Contributor Experience</u> <u>Special Interest Group, and GitLab Merge Request Coach</u>

B. Document all Pertinent Information and Update them Periodically

Documentation is critical, as it leads to easier onboarding in the initial stages and adoption in the long term. Research suggests that even rudimentary documentation is worthwhile to jumpstart community engagement for new members.

Project communications: The basics

What great communication accomplishes

People must understand the "who," "what," "where," "when," "why," and "how" of working with an open source software community. Thoughtfully established and well-maintained communication channels enable open source project and its participants to:

- Establish shared understanding of what the software it is, why people may wish to use it, and how they can get started doing so.
- Educate the community about how to use the software and how to contribute to the project.
- Keep people informed about project events (like a conference or webinar) and developments (like a new software feature, the formation of a working group, or the arrival of new contributors).
- · Preserve knowledge about the project's decision-making norms and practices.
- Allow users to report an error with the open source project's software itself and to submit fixes for errors they or others uncover.
- Build a sense of common interest and purpose amongst participants, and provide an outlet for people in the project to socialize or "hang out" together online.
- Provide a location for contributors to the project to collaborate, be it on documentation for the project or to discuss how a particular part of the code base should be refactored.

Source: The OpenSource Way Guidebook 2.0

The following pointers should be kept in mind in the process of documentation:

- i. Understand your <u>target audience</u> well enough to document according to their needs.
- Maintain project repositories and project websites comprehensively. They are critical forms of documentation. They lead to transparent ways for potential contributors to decide whether they want to invest their time and effort in the project. Specifically, issue tickets for projects must be extremely detailed to provide the contributor with all the requisite information to understand the problem, nudging them to ask the right questions and motivating contributions.

Experts Note

<u>Django</u> has been recognised for its elaborate documentation. It provides extensive resources and guides to help contributors understand the framework. <u>Open Street Maps</u> and <u>Eclipse</u> are known to update their documentation periodically through mailing lists and forums, keeping the community continuously engaged. <u>Apache</u> and <u>Anuket</u> further document even the minutes of their meetings helping community members track project progress and decision-making.

Resource Guide

For detailed insights into understanding how to gauge the target audience and develop project websites comprehensively, refer to Section 'Attracting Users' (pages 22 to 25) of the <u>Open Source Way</u> <u>2.0</u> guide.

 iii. Rely on easy-to-access and user-friendly tools to document. It is important to use easy-to-access tools for documentation, like GitHub. There is little to no investment or effort involved in training members to use GitHub.

Experts Note

A standard open tool like <u>GitHub</u> facilitates the process of documentation as it is easy to explore. It can further be leveraged to track the contributions of community members, as well.

CASE STUDY

<u>Angular</u> has an extensive GitHub repository which documents all information that is relevant to new community members. For instance, it includes <u>policies</u> related to contribution. This sheds light on how the project works. It also has an <u>'about page'</u> that lists the names of core team members, their roles and other contributors, a <u>'contribution guide'</u> elaborating useful information for developers such as coding rules, and a <u>code of conduct</u> guiding community interaction.

C. Establish Clear Governance Practices

Specific pathways

a. Decision-making process: Decision-making is fundamentally an emergent process, which is highly dependent on the curation of the team. It is important to ensure that the first few people on the team are diverse and have a clear mission, value, and vision for the future of the community. These people decide the tone of the community culture.

The decision-making process at Agami evolved over time. A fairly diverse team, they believe in the vision and mission of Agami. This ensures that the community operates on shared values.

Similarly, OpenMRS acknowledges that decision-making facilitated by a small group of individuals within the community led to its massive growth. However, as the community expanded, adjustments were made in the decision-making process to facilitate autonomy, openness, and inclusivity. Refer to the OpenMRS Decision-Making Playbook <u>here</u>.

> **b.** Community member independence and autonomy: Independence and autonomy are key to building trust in the community. Every community member must be allowed to contribute independently to promote a sense of ownership.

Experts Note

A central <u>command and control structure</u> is unlikely to work in a community in the long term. Community members should work in teams and be able to independently choose how they want to contribute to the community, based on the assessment of their skills and interests.

c. Transparent community engagement: Transparency in community engagement is a <u>beneficial exercise</u> to build trust, enhance fairness, and ensure equity amongst community members. It is important to be open to community members about ongoing efforts – they need to know 'what's going on'.
CASE STUDY

Mojaloop makes their engagement with countries public. Before commencing the engagement with a country, they undertake a journey-mapping exercise. This exercise begins by identifying stakeholders, followed by outlining the value of engagement with the stakeholders. If countries express interest in the project, Mojaloop signs a letter of interest, based on the projected journey mapping. They make this letter public as a testimony to their engagement with the country. This transparency promotes traction and trust in the project, encouraging more countries to collaborate.

OpenMRS makes its engagement with <u>partner organisations</u> public. They undertake a journey-mapping exercise, which chalks out the nature of engagement with partner organisations, encouraging community members to contribute.

Experts Note

"It is important to make public the contribution of community members. They should not work in the dark. Making visible the journey of community members and their contribution helps attract more members." – Expert Interviewee.

d. General community engagement practices: Generally, all community engagement measures should facilitate collaborative and cohesive community engagement. The community should function with minimal gatekeeping and operate flexibly.

Experts Note

Conversations with experts emphasised the value of building trust in the community through flexible and fluid governance practices. While the community should never be categorically split and ideally function as one single unit, to facilitate effective contribution and smooth management of large communities, smaller groups can function on specific projects. This maintains the balance between overarching community collaboration and effective individual contribution. <u>Squad models</u> followed in OpenMRS are an example of how small groups within the community are created to ensure an effective contribution. The community should operate flexibly, with minimal restrictions on how community members conduct themselves. Governance practices must be framed as guidelines or best practices, rather than rules, as the latter may be perceived by community members as prescriptive.

D. Establish Clear Communication Protocolst

Clear communication protocols must be established for outreach and internal communication. The <u>purpose of communication tools</u> in an OSS community is to enable interested community members to find the resources they need to navigate within the community, and not so that members understand technicalities. Effective communication tools ensure that they facilitate and empower, and not handhold community members. This way, the burden of being available for every community member is reduced on the core team or community manager.

Specific pathways

a. Channels of communication for outreach: Several outreach communication channels serve different purposes:

- There must be public convenings and periodic gatherings such as conferences (annual, regional, domain-specific) and interactive gamification of events.
 These gatherings are critical to attract key external stakeholders such as policymakers, NGOs, and Government officials who are significant to the conversation around DPGs.
 These gatherings are used to present roadmaps, generate ideas, and gain feedback. Domain-specific conferences help understand the local context of the country – the needs, the problems that need solving, and how to ensure the sustainability of the product.
- There must be active outreach through new and relevant platforms such as social media, especially if the target audience is technologically adept and young
- There must be an appropriate forum that is openly available and easily accessible to publish content and allow new contributions

CASE STUDY



The four-day <u>DHIS2 Annual Conference</u> was an opportunity for DHIS2 developers, implementers, ministry representatives, technical partners, donors, and other DHIS2 experts from around the world. They presented their work, shared experiences and insights, learnt about the ongoing developments, and discussed the next steps. The Aapti Institute participated in the DHIS2 Annual Conference, 2023 to observe the community in action. Aapti learnt lessons from the success story of the DHIS2 and collated insights relating to its community-building journey, which has immense significance to this playbook. The conference was a way to reaffirm the significance of the research on communities from diverse stakeholders who are integral to the DHIS2 ecosystem. Aapti's participation in the lightning talk, panel discussion, and workshop on DPG sustainability and communities generated valuable counter-points to discussions that were otherwise underscored by a predominantly technical focus.

Further, the Conference set an excellent precedent for how DPGs should think about conducting events in participatory ways, creating avenues for interaction, hands-on learning, and discussion. The structure for an annual conference has been provided in the **Templates.** (Resource Guide).

The Linux Foundation, in 2023, hosted a live streaming of their conference sessions and offered the recorded sessions on YouTube. This <u>democratised access</u> enhanced the reach and longevity of the knowledge shared. Further, the Linux Foundation incorporated a range of <u>diversity</u>, <u>equity</u>, <u>and inclusion</u> measures in their event design, which were been lauded by community members.

CASE STUDY

Agami has a vibrant social media that targets young changemakers. Blogs and writeups are key ways to communicate content through social media. Mozilla enjoys a similarly active <u>social media</u> presence.



Experts Note

Open-source projects mostly converge on GitHub. It is the 'go-to' or 'popular' place to convene. It has lowered the barrier to entry into OSS communities and attracts a wider set of contributions.

b. Channels of communication for internal communication, including grievance redressal:

There must be a structure given to internal communicationsespecially since communities are large in numbers and diverse in ideas. This makes managing these conversations hard. However, the need to establish channels of communication should not be equated with the need for formal structures of communication. Unlike traditional organisations, OSS communities encourage free-flowing communication and exchange of ideas to promote innovation. The structure of communication should also facilitate informal networking.

Communication comprises general communication as well as communication of concerns (such as queries and grievances). While gueries pertain to the technicalities of the DPG, which are natural to the purpose of the community, grievances are concerns that either relate to the functioning of the community or personal grievances (instances of harm).

- i. There must be public discussion channels like emails, Slack, or Discord to coordinate activities and conduct everyday communication
- ii. There must be provision for ad hoc communication given that the DPG is deployed in local contexts. In such scenarios, unplanned meetings and communication are necessary

CASE STUDY



<u>OpenMRS</u> uses Slack and IRC for real-time conversation. These modes of communication can be used for daily project-related communication as well.

In the DHIS2, there are large forums for open discussion and deliberation. For instance, the DHIS2 has a community forum called <u>'Community of Practice'</u> where queries are asked and community members are encouraged to resolve each other's queries. The core staff only manages the platform and facilitates communication. For instance, the community coordinator only facilitates communication between members and core team members.

Resource Guide

Community members may be hesitant to post on public discussion forums due to a variety of reasons, such as a lack of confidence in one's ability to communicate, and fear of peer reviews and judgement. DPG creators must help community members overcome their reluctance through various measures, as elaborated in the Section 'Growing Contributors' (pages 55 to 58), of <u>The Open Source Way 2.0 guidebook.</u>



As the DHIS2 expanded globally, there was a need to establish communication networks for local chapters that facilitate ad hoc communications and in-person local meetings.

iii.	For concerns	in	the	form	of	queries:
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ACTION	DESCRIPTION	CASE STUDY & EXPERTS NOTE
Establish Public Forums	Public forums should be established. They can also be used as support forums for Q&A. This helps both parties, supports contributors, and provides information to the DPG creators to understand where they should be improving.	<u>OpenMRS</u> uses Slack and IRC for real-time conversation. These modes of communication can be used for everyday project-related communication as well.
Create Separate Channels Based on the Level of Expertise	New members of the community are grouped in a newbie or fresher group and are gradually transferred to a more mature group, such as the main channel. This is because their technical questions are more basic and this will unnecessarily crowd the main channel. The point of movement from the newbie channel to the main channel is based on several factors, such as the number of pull requests or the quality of questions asked. These queries can be communicated publicly.	The <u>DHIS2</u> has a separate page for new community members that allows them to introduce themselves.
Engage Collabora- tively	If queries are non-critical, the core team should resist responding and should allow other members to answer, facilitating engagement.	Experts noted that trivial issues must be left for the community to solve. One expert quoted, "Leave the low-hanging fruits for the community of students to solve. These are ways to make them more involved. For instance, errors in documentation, let them handle."

ACTION DESCRIPTION

CASE STUDY & EXPERTS NOTE

Engage Swiftly and in Simple Language	Answers must be fast, crisp, and in simple language. DPG creators use these spaces to talk about features and hence any doubt must be answered quickly.	Legacy open-source communities adopt several measures to be able to communicate globally, yet accommodate local language diversity. For more detailed insights, refer to the Section 'Attracting Users' (pages 31 to 32) of The Open Source Way 2.0 guidebook. (Resource Guide). WordPress has an extremely active Slack channel which allows members to ask queries and receive responses immediately. This fosters a culture of support. It has been noted that the community significantly drops in numbers when response rates are slow.
Maintain a Cadence for Com- munica- tions	A rhythm for check-ins can be institutionalised. This is not required at the community level but for specific stakeholder types, such as partner organisations, system integrators, and student communities.	MOSIP does monthly calls with universities and companies in their network to ensure longevity in their engagement.
Be Actively Involved	Developers should be actively involved. Active involvement by team leadership and prominent contributors helps the acceleration.	The <u>key developer</u> and founder of ERPNext was the most active person in the community during its initial phase by answering the bulk of the questions that were posted in the community. This helps grow the community.
Streamline	Project- or purpose-specific groups can be created to streamline communication.	Academic concept networks like the DHIS2 Academic Concept sharpen and consolidate communication.
Publish Communica- tion Expec- tations from Community Members	Community members should also be made aware of how they can communicate effectively, including the channels and modes of communication.	The Section 'Attracting Users' (pages 34 to 35) of <u>The Open Source Way 2.0</u> guidebook, provides insights into how community members can communicate effectively. (Resource Guide)

iv. For concerns in the form of grievances:

The community should create safe spaces and establish channels of grievance redressal for community members to raise concerns. Community members should be allowed to raise concerns through private modes of communication for sensitive issues, especially regarding situations that cause harm to the mind and body. For instance, measures could include the explicit publication of the email or contact details of the person in charge of grievance resolution. This information must be made available during the onboarding process and must also be easily accessible, such as through the website. If required, a committee can be formed that looks into disputes related to problems.

E. Assign Key Roles in a Community to Manage its Functioning

Every community requires staff that is dedicated to ensuring its smooth everyday operations. These people are the driving force of activities, especially in the initial years of building thecommunity, as well as acting as mediators between the community members and the core team. It is also imperative that these roles are easily replicable.

Some of the key roles include:

i. Community Advocate

When building a community, there is a need for an inner circle that believes in the vision of the community. As every community develops small, active outreach, and advocacy of the purpose of the community is required to bring the first member within its fold. The need for this role is significant in the context of DPGs, given the lack of monetary incentives in open-source projects. The primary function of a community advocate must be to motivate potential contributors that they are willing to invest their time and effort, despite a lack of monetary benefits.

ii. Community Manager

As the community begins to grow, there is a need for an individual to manage everyday operations.

iii. Other roles

There are several roles and functions that a community can

fulfil. These functions include code development, testing and quality of products, implementation, documentation, writing, design, translation, roadmap building, and evangelism. Apart from these key roles, several roles emerge on a need basis, depending on the kind of DPG, the kind of product we build using the DPG, and the maturity and uniqueness of the DPG. These are product-specific roles such as those of legal experts, auditors, and others.

Resource Guide

For more insights into understanding why and how diversity should be promoted in communities, refer to the Section 'Guiding Participants' (pages 97 to 103) of <u>The Open Source Way 2.0 guidebook.</u>

CASE STUDY

The DHIS2 community has been around since 2018. However, the community began to grow only once the role of a community coordinator was assigned in 2021. The community coordinator accelerated growth by ensuring smooth coordination between teams. Before 2021, the community was neither active nor organised. This case study underscores the need for community coordinators or managers.

<u>Docker</u>, an OSS community has been recognised for its efforts in dedicating community managers to ensure smooth functioning of its operations.

The community manager should periodically receive support through community managerial training, such as the <u>Goonj</u> and <u>Ashoka</u> fellowships.

GitHub's <u>DPG Open Source Community Manager Program</u> builds the capacity of DPG Community Managers enabling them to work towards growing and engaging the community.



A day in the life of a community coordinator at the DHIS2

There are about 7000 members that the community coordinator manages. However, not all are active. They receive about 300-500 posts per month, with a daily average of 20 posts. They are required to allocate requests and queries that emerge in the community channels to the respective teams. Teams are allocated based on the subject matter of the post or query. For instance, feature requests are forwarded to project managers and detection of bugs to developers.

They keep the community active and engaged by:

1. Publishing the Community of Practice monthly post

- Identifying the top 10 active users monthly
- Tagging helpful members i.e., who find bugs, featured requests, and others.
- Appreciating and recognising the efforts of community members
- Highlighting the topic of the month and other important topics of the month
- Outlining the challenges faced in the development of the DPG and extending badges to members who engage with the question

2. Coordinating community activities and arranging local meet-ups

The qualities and role of a community manager have been provided in the Templates. (Resource Guide).

i. Other roles

There are several roles and functions that a community can fulfil. These functions include code development, testing and quality of products, implementation, documentation, writing, design, translation, roadmap building, and evangelism. Apart from these key roles, several roles emerge on a need basis, depending on the kind of DPG, the kind of product we build using the DPG, and the maturity and uniqueness of the DPG. These are product-specific roles such as those of legal experts, auditors, and others.

Resource Guide

For more insights into understanding why and how diversity should be promoted in communities, refer to the Section 'Guiding Participants' (pages 97 to 103) of <u>The Open Source</u> <u>Way 2.0 guidebook.</u>

VI. Understand Community Needs

Several questions need to be answered when we think about unpacking community needs. First, should DPG creators prioritise fulfilling the expectations and needs of the community; second, is fulfilling community needs dependent on the contributions (nature, quality or perceived significance, or frequency) made by the community members?

DPG creators should prioritise understanding the expectations of community members and try to fulfil those expectations. In the initial stages, these measures keep the community engaged and sustain the community in the long term. Further, it only is fair that if the community contributes to the evolution and sustenance of the DPG, then their expectations must be fulfilled as reasonably as possible.

However, fulfilling the expectations and needs of community members can be viewed as burdensome, irrelevant, and unnecessary, where contributions from the community are perceived as inadequate. Hence, DPG creators should focus on fulfilling the needs of the community as a whole, and should not be obliged to individual expectations of community members.

The very concept of 'contribution' varies across communities and is abstract. Contributions can differ based on the expertise of the contributor (i.e., nature), the perceived significance (i.e., quality) and frequency. Further, there can be varied interpretations of what contribution means. For instance, some may view it objectively thereby restricting it to mean product enhancement ('adding to the product'). Others may interpret it to mean mere engagement, such as posting questions in the community channels ('taking the product forward').

There is no obligation of DPG creators given that the foundation of a community is voluntary participation, without any restrictions on exit.

CASE STUDY



Should contributions be defined and measured?

Agami has not defined what 'contribution' means, in the absence of a clear need to articulate such a threshold. As members have diverse skills that manifest differently within the community, there is a certain inability to define 'contribution' precisely. Hence, Agami does not track contributions (for instance, they do not maintain records of the number of contributions made, or assess the significance or value of contributions). They have no KPIs to do so. However, they 'recognise' contribution.

Similarly, MOSIP believes that 'contribution' cannot be looked at rigidly or only from the lens of code. It has to be assessed at multiple levels, given all contributions irrespective of their nature or significance, are still contributions. Contribution is construed to include anything and everything that 'improves' MOSIP.

Strategies

1. Acknowledge that Understanding the Expectations of the Community as a Whole, Irrespective of Individual Contributions, is a Priority

DPG creators should fulfil community expectations, irrespective of contributions made.

A. Adopt a Tiered Approach to Understanding and Fulfilling Community Needs

There are various challenges that community members encounter during their journey. They can be technical (security patches and product development), non-technical (policy, documentation and translation), or managerial (values and roadmap planning). The response of the DPG creator depends on the level of urgency with which it needs to be resolved. Hence, there is a need to categorise problems in ways that ensure that they are resolved efficiently and effectively. In the beginning, the DPG creator needs to be mindful of community issues and actively aim for quick resolution. A tiered approach helps.

Specific pathways

a. Understand the expectations of the community: These expectations can be categorised as follows:

NEEDS & EXPECTATIONS	DESCRIPTION	ACTION BY DPG CREATOR
Process- Related Needs and Expectations of the Community	These refer to procedural and operational needs or relate to the governance of community, culture, and norms. This includes the safety of community members, lack of documentation, and inadequate capacity-building measures.	Set up a new process to address the need. Improve the existing process or figure out ways to better implement the process.
Product-Related Needs and Expectations of the Community	These refer to technical issues, such as product development and security patches.	Problem solve and resolve. Seek help from technical team to resolve technical glitches.

 Ascertain and categorise the significance of the issue into high-priority, mid-priority, and low-priority issues, based on an assessment against the factors mentioned below:

FACTOR	DESCRIPTION
Criticality	If time is of the essence, how much damage will be caused by deferring the issue?
Functionality	Is the issue key to the functioning of everyday operations, i.e., will it hamper the activities of the community immediately or has it been hampering everyday activities?

ommunity members have flagged the issue in the

c. Take appropriate action depending on the determination of priority

PRIORITY OF ISSUE	ACTION BY DPG CREATOR
High	Immediate action
Mid	Deferred action
Low	Shelved, at the moment

B. Identify Stakeholder Types and the Support Required for These Varied Stakeholders¹⁴

2. Assess Community Health to Understand the Satisfaction of Community Members by Identifying Relevant Metrics

Community satisfaction is key to sustaining the community in the long term. Initially, DPG creators should understand if members are satisfied with the community as they determine retention and ensure meaningful contributions in the long term. Further, assessing the satisfaction levels is critical initially, as that gives insight into the efficacy of engagement measures undertaken by the DPG creator. It helps them understand if the measures are structured in the right direction, and if there is any need to revise or improvise. Lastly, adopters assess community health to determine whether they should adopt a DPG. Assessing community health helps them understand if there is a self-sustaining system to facilitate problem-solving, and if there are forums to influence roadmaps.

- Develop metrics for the sustainability of DPGs
- Revise metrics across different stages of developing a DPG, as

¹⁴ Refer Part A, Play 4, stakeholder-specific community outreach

metrics will vary depending on the maturity of the DPG

• Assess community health based on the metrics listed:

METRICS

- What is the frequency of asking questions?
- What is the frequency of answering questions: how many questions get answered by non-key members?
- What is the mood of the community: are they frustrated, happy, or satisfied?
- What is the quality of the artefacts?
- How many security patches are being reported?
- Are there community safety guidelines and codes of conduct?
- How much is the lock-in time?

[This is not an exhaustive list]

Resource Guide

Experts shared several resources to measure community health:

- <u>CHAOSS</u> is a Linux Foundation project that focuses on creating metrics to better understand open-source community health on a global scale
- Measuring your open source program health
- <u>12 factors to measuring an open source project's health</u>
- <u>An interesting writeup, categorising various areas of</u> <u>community/OSS health</u>

3. Establish Processes to Facilitate the Communication of Needs and Expectations

• Collect Feedback from Community Members It is important to collect periodic feedback from community members to foster a sense of trust and ownership in the community.

CASE STUDY

<u>React.js</u> collects and reviews feedback from contributors proactively. This feedback loop, collected through unique ways, such as <u>SizeBots</u>, helps them improve the quality of their code. Feedback on processes helps them maintain the project's longevity.

> • Appoint a Person to Address the Facilitation of Community Needs

As community members have diverse feedback, an appropriate person can facilitate the process of ensuring that the needs are addressed effectively and efficiently. A community coordinator can also fulfil this role.

RESPONSIBILITIES INCLUDE, BUT ARE NOT LIMITED TO:

- Ensure that inputs of all members are taken by establishing appropriate channels of communication or feedback loops
- Ensure that issues are addressed by the relevant stakeholders promptly
- Ensure that the tiered approach to understanding community needs is followed
- Ensure the appropriate action is taken and the same is completed within determined time frames

PART B

Engage with DPG Collectives





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(ANNEXURES)

Engage with DPG Collectives

Engage with DPG collectives, to overcome their challenges when growing and building communities

The eGov and Beckn Open Collective, are at varying levels of maturity, with different community-building goals. This part of the playbook has been curated through collaborative and iterative efforts between Aapti and the respective DPG collective. It aims to build targeted interventions that help the collective overcome community-building challenges. Templates have been curated for adoption by other DPG collectives who face similar challenges.

Part B of this playbook will focus on:

- I. Onboarding volunteers for eGov
- II. Building capacity for Beckn's Network Weavers

I. Onboarding Volunteers for the eGov Foundation

A. Overview of Engagement

eGov is a not-for-profit organisation that intends to leverage the potential of DPI to transform governance and public service delivery to citizens around the world. After 20 years of operations, the eGov Foundation seeks to achieve global scalability, a goal which cannot be achieved through its current closed model of DPG deployment. Building an active and vibrant community is imperative to its vision of sustainability through global deployment.

Aapti's engagement with eGov involved institutionalising a volunteer onboarding process. It is the first step towards attracting

and inducing potential community members. This process defined the need to onboard and templatise the journey of volunteers. Aapti facilitated the mentor onboarding process. We conducted a mentorship workshop that enabled a mindset shift amongst eGov's existing mentors who were previously hesitant to collaborate with external volunteers. The mentorship workshop overcame challenges cited by existing mentors, such as bandwidth constraints and information asymmetry about the DPG, amongst others. After the workshop, the existing mentors acknowledged the value of engaging with external volunteers and displayed a greater willingness to collaborate and co-create.

Introduction to the eGov Foundation and DIGIT

"DIGIT aims to correct the market failures that arise in the access of state services by citizens. It seeks to bridge the access to citizen-centric services by addressing failures that arise due to strained capacity of the State, and the lack of coordination between the State and citizens." – An eGov Member

eGov, a Bangalore-based not-for-profit organisation, seeks to solve social challenges by creating public digital platforms, enabling policies and open digital ecosystems. eGov leverages the potential of DPI to transform governance and public service delivery to people worldwide.

eGov built an open-source service delivery and governance platform called DIGIT, which is a DPGA-certified DPG. DIGIT catalyses collective action between different stakeholders and reimagines the experience of a public service delivery. It brings together citizens, employees, vendors, policymakers, and administrators to enable citizen-centric governance, facilitating meaningful collaboration and seamless information exchange.

Why build the community around DIGIT?

The eGov Foundation followed a closed model to DPG development where most platforms are created by dedicated teams working within the organisation. This closed partnership model, despite contributing to the successful deployment and integration of DIGIT for over 20 years, is not sustainable for the following reasons:

- Is inadequate for global scalability: As eGov's flagship DPG, DIGIT, is poised for adoption and integration across different countries such as Indonesia and Nigeria, limited internal capacity and lack of experience with new geographies may decelerate efforts to scale globally.
- Has limited avenues to engage with external volunteers: Despite volunteers expressing enthusiasm for working on DIGIT, eGov did not have streamlined channels to capture interest. For instance, eGov did not have a volunteer application or intake form in their initial years of operation.
- Derails efforts to enhance inclusivity: Community is one way of reaching out to potential members who have profiles dissimilar to the troves of developers that eGov already has at its disposal within the organisation.

Consequently, Aapti proposed a transition towards a volunteer engagement model to grow the DIGIT community.

Goals of the DIGIT Community

"Our vision for the community is to ensure that thirty per cent of contributions to the DIGIT flow from members engaging with the organisation in a volunteer capacity." – eGov Leadership Team.

Long-Term Goals

eGov believes that the community will ensure the sustainability of DIGIT in the long term. Sustainability of the DIGIT community would mean:

- Sharing dependencies related to DIGIT implementation: A community around DIGIT resolves the internal eGov capacity and bandwidth issues to carry out the seamless implementation of DIGIT.
- Accelerating global adoption of DIGIT: Globally, a community sustains the DPG. A DIGIT community will solve concerns about sustainability that were flagged during eGov's efforts to facilitate global DIGIT adoption.

Short-Term Goals

eGov is in its initial stages of community building. While interested people have reached out through their volunteering portal, they do not have an active community. Hence, eGov has decided to leverage this interest by kickstarting a 'Community Volunteer Engagement Program'.

Goal: Kickstart a volunteer engagement program. eGov defines the objective of the volunteer engagement program as:

- Enabling volunteers to build atop DIGIT and extend its capabilities, with minimal guidance and support
- Encouraging eGov product managers to be proactive mentors and define good problem statements
- Ensuring at least one mentor has a community-written code for one project
- Attracting interest from non-product expertise, such as policy
- Accelerating efforts towards projects that tend to get deprioritised due to a lack of financial funding and talent availability

Goals of Aapti's Engagement with eGov

Aapti sought to facilitate eGov's volunteer engagement program by:

- Formalising the volunteer group: Aapti instituted a process that formalises the transition journey from a potential volunteer to a volunteer.
- Enabling a mindset shift in eGov mentors: Aapti conducted a mentorship workshop to encourage eGov product managers to become proactive mentors.

Key Barriers in Community Building

Conversations with the eGov team indicated barriers that were to be addressed to co-create effective strategies and kickstart the volunteer engagement program. These barriers include:

- Lack of time, priority, and internal resources: Community building is not a Key Responsibility Area (KRA) of eGov management personnel. This limited the incentives to take up the initiative. Further, there are no dedicated resources to build a community, such as the presence of a community manager.
- Lack of knowledge about the true potential of a community: Internal eGov members are unclear about the role and benefit of embarking on the journey of community building for DIGIT.
- Lack of expertise in community building: Community building

entails a new way of working, compelling mentors to rethink their roles and engagement in ways that have a marked difference, from working with internal team members.

- Inability to articulate and communicate the value proposition of DIGIT: DIGIT is a DPG that enjoys applications across a variety of settings, from healthcare to sanitation and even, urban governance. The disparate use cases combined with an insular approach to development make articulating the value proposition of contributing to the DIGIT community a challenge.
- Lack of structured documentation: The DIGIT Academy is a key knowledge repository. However, the Academy lacks structure and could benefit from curation. Further, there is limited tracking of content engagement within the repository, leaving the question of comprehension and usefulness of the documentation unaddressed.

B. Aapt's Intervention Within eGov

Aapti's role entails institutionalising a volunteer onboarding process that comprises several interventions:

Articulating the need for onboarding volunteers for eGov

Community building is an active and conscious process. Communities require processes to be institutionalised to help growth. Onboarding is a measure that helps convert interested and potential members into active and integral community members. Smooth onboarding processes are critical to the development of the community as they allow people to understand the DPG on their own, nudge exploration, and enable the discovery of new use cases.

Why onboard?

Reflections from Pillar I: Learnings from legacy open-source communities

One of the key challenges noted by our experts was how the learning curve in MOSIP was steep and prevented participation from potential contributors. The onboarding process at OpenMRS is valuable. There are assigned volunteers who help with the process of onboarding. There is a comprehensive guide called <u>'Community Guide to the New and Curious</u>' that serves as a one-stop guide explaining to new community members how they should be navigating the forum.

Templatizing the journey of volunteer onboarding

A volunteer engagement program is one of the community engagement strategies. The volunteer engagement program serves as the starting point in eGov's community-building efforts. The vision initiates the process of building a community through volunteers, where the program becomes foundational to attracting more community members over time. A volunteer engagement program entails a deeper level of engagement with the community member characterised by predefined, and usually, short-term goals and streamlined engagement (for instance, through mentorship).

Onboarding volunteers is more comprehensive than onboarding community members. While a community member generally requires onboarding to enhance knowledge and familiarity about the DPG and the existing community, a volunteer onboarding process will further narrow down the specific expectations from volunteers and the outcomes of the volunteer engagement.



The volunteer engagement program onboarding is available in the <u>Annexure.</u>

Sharing broad frameworks to help conduct the open-house day for volunteers

An open house is an introductory session conducted in the initial phase of the onboarding process. It is integral as it gives in-depth context to interested volunteers about the program. The likelihood of interested volunteers engaging in projects is higher when they attend an open house. A good open house stimulates interested volunteers to join the community and also deeply engage.



The open-house structure is available in the Annexure.

Facilitating the mentor onboarding process through the mentorship workshop

A mentorship workshop imparts preliminary insights into community engagement, particularly in the context of open-source collectives. It offers a snapshot of the mentorship journey and addresses primary concerns. In doing so, facilitators mentor community managers to build an understanding of the modalities for sustaining interest and encouraging contributions from newly onboarded volunteers. There is also a need to 'mentor the mentor' to shift their mindset – 'Go far, go with everyone; go fast, go alone' and 'work with volunteers' – and build internal capacity.

Post the open-house day, there was immense demand to contribute to DIGIT. However, there are constraints to respond effectively to the growing demand. Mentors need to participate in the program and engage with volunteers more effectively. Though there is an intent to work with the community, there are constraints such as:

- Lack of organisational alignment: The community approach is not a part of the organisational culture decelerating the progress of the program.
- Lack of experience in working with community: Mentors are accustomed to working with internal teams, at their own pace and internal deadlines.
- Lack of bandwidth to accommodate commitments to volunteer program: Mentors perceive volunteer engagement as an added task, and are apprehensive to put out problem statements.
- Lack of awareness of incentives of community approach: Mentors are unsure how the program will help their learning journeys, as well as add value to the growth of eGov.

The mentorship workshop, facilitated by Aapti and OSS experts, Venkatesh Hariharan and Karan M.V. was housed under eGov's in-house capacity-building program – eGov Dialogues as 'Community as Culture' – considering the workshop objective and purpose. The <u>culture of communities and open source</u> was discussed, experiences on mentorship were shared, and concerns were flagged.

The mentorship workshop structure is available in the <u>Annexure</u>.



C. Results

Interventions to the community-building efforts of eGov have led to substantial impact.

As a result of the <u>DIGIT Open House</u>, there has been substantial volunteer interest and updates, as indicated by the growing membership on the community's <u>Discord channel</u>.

Observations made on the day of the open house:

- Online and offline turnout was substantially high indicating good interest in DIGIT
- Virtual chat was active indicating that the structure of the open house was engaging
- Varied perceptions of communities held by volunteers were understood, indicating a value-add to the learning curve of internal eGov members
- Suggestions by volunteers were taken into consideration indicating a greater inclination by internal eGov members towards working with the community

Observations made post the day of the open house:

- There was a substantive turnout on the Discord platform, with volunteers engaging on the platform
- Five volunteer programs were successfully kickstarted, with volunteers taking the initiative to run the project
- There is frequent engagement through in-person meet-ups by volunteers
- There is interest elicited by volunteers to engage in the policy and research space

1. How many people showed up?

250 applied, and 130 showed up for the event (100 online and 30 in person).

2. Did people join the Discord? Yes, around 130 people joined the Discord.

3. Did the audience engage well? The online audience stayed for an average of 220 out of 248 minutes indicating above-average and high engagement.

"The open house has proved to be extremely valuable and is a sustained measure to engage with volunteers given that turnout post the open house on communication channels has been substantially high and meaningful. The likelihood of volunteer retention after such an event is greater." – eGov Foundation Member

Conversations with eGov regarding the **mentorship workshop**, facilitated by Aapti and OSS experts, indicated that it created greater motivation and buy-in from DIGIT product managers to kickstart projects and work with volunteer contributors.

The workshop, which was well attended and received by mentors, reaffirmed that mentors do see the value in building a community and that they are willing to adopt the community approach, reiterating that there isn't a lack of intent to engage.

"Thanks a lot for the session today. Even though some of us couldn't join in person, there was genuine interest in trying to unlock the pain points our team leads are facing in driving volunteer projects. I was especially happy to see participation from managers who can enable and motivate their teams and themselves to drive these initiatives." – eGov Team Member

"The discussion was very insightful! Feels real, meaningful, and a pivot to operating from a place of strength rather than scarcity as a non-profit. I will do some research based on the stuff I heard today – like what exactly is inner-source and how we can work internally as an open-source organisation, what changes will it require in our management and communications approach. Really stoked about this." – eGov Foundation Team Member

D. Next Steps

Conversations with eGov regarding their overall thoughts on the volunteer engagement program elicited that, despite the gradual pace of growing the community, the direction is correct. While recognising that certain constraints persist, such as limited bandwidth and fragmented attention of the internal team, eGov considers recommendations to create opportunities at the organisational level, by institutionalising processes for mentors to engage with volunteers more effectively.

The next steps include making **community engagement an organisational priority.** This includes:

- Creating opportunities by including community engagement as a part of employee KRAs
- Instituting regular check-ins internally with mentors and volunteers to address bandwidth constraints
- Ensuring that volunteer meet-ups are more frequent and in-person

II. Building Capacity for Beckn's Network Weavers

A. Overview of Engagement

Beckn Protocol (Beckn), built by FIDE, is an open protocol specification, that is open-source and free for ecosystem players to adopt and build digital infrastructure. FIDE has built an active Discord community around Beckn. The community, also known as Beckn Open Collective has many members willing to discover and build new use cases using the Protocol and DPG. This indicates the growing popularity of the DPG, though there is little clarity on how to support the members, or network weavers in their advocacy and adoption efforts.

Aapti's engagement with Beckn seeks to help Beckn build the capacity of their network weavers. Through several conversations with the FIDE team, experts in social entrepreneurship and Beckn's existing network weavers, Aapti documented the journey of network weavers and their challenges. Through a gap analysis, Aapti templatised the process of discovery of network weavers, unpacking their archetypes, and outlining measures for FIDE to build their capacity. The intended outcome of the intervention is for Beckn to accurately identify network weavers and enable them to find new use cases and create micro-communities.

Introduction to FIDE and Beckn Protocol

"We envision to catalyse the process of creating an interoperable and decentralised digital world by increasing the number of Beckn-enabled transactions." – Beckn Team Member

Foundation for Interoperability in Digital Economy (FIDE) is a not-for-profit organisation that designs and advocates open protocols. FIDE builds interoperable open-protocol specifications, a public good, that enables collaboration, co-creation and innovation for ecosystem players. Beckn, built by FIDE, is an open-protocol specification, that is open-source and free for ecosystem players to adopt and build digital infrastructure.

<u>Beckn</u> intends to create open, interoperable, and decentralised digital ecosystems that enable discovery, ordering, fulfilment, and payment between buyers and sellers of a digital marketplace. While platforms are closed, intermediated and rivalrous, Beckn is open and built on the vision of creating a free decentralised digital world that fosters fairness and inclusivity. It facilitates discoverability and direct interactions amongst customers, businesses (big and small), and the Government accelerating innovation and the ease of doing business for all.

Why 'Grow' the Community Around Beckn?

Efforts to build and grow the Beckn community were organic and parallel to developing Beckn. It was never perceived to succeed the development of the protocol because the idea of a community aligned with the vision and mission of Beckn is as follows:

• Enabling the achievement of the ideological underpinnings of Beckn: Community symbolises shared ownership aligning with Beckn's vision of 'decentralisation'. This reinforces that community should be the driving force of Beckn-enabled transactions, and not FIDE.

• Enabling the achievement of Beckn's actionable goals: The community increases the number of Beckn-enabled transactions by compensating for resources and bandwidth constraints of the FIDE team.

Despite the early presence of a community, Beckn did not actively and consciously streamline community-building effort. The community built early on was a result of leveraging existing networks of FIDE. Further engagement was limited and superficial through channels such as Discord. Consequently, Aapti proposed building the capacity of network weavers to grow the Beckn community more meaningfully.

Goals of Beckn Community

"The vision for the community is to become the driving force of Beckn-enabled transactions, making FIDE irrelevant. Further, the vision for the Beckn community is to act as catalysts that make communities discoverable to each other and help in facilitating the idea of a collection of communities." – Beckn Team Member

Long-Term Goals

Beckn envisions that the community ensures the sustainability of the protocol in the long term. Sustainability of the Beckn community would mean:

- Transitioning Beckn into a community-led initiative: Until now, FIDE has been the driving force behind increasing Becknenabled transactions. Going forward, the community should be the driving force for these transactions, and Beckn needs to be a community-driven initiative. Beckn intends to increase the number of community-led, Beckn-enabled transactions, by advocating 'permissionless innovation' where the community fosters ideation, experimentation, innovation, and ownership, without any gatekeeping by FIDE.
- Creating the Beckn community as the primary support system of adoption and implementation: The community should provide adequate help required to support the journey of any person seeking to experiment, adopt, and implement Beckn. This way Beckn becomes a community-led initiative, with FIDE becoming inconsequential.

- Accelerating global adoption of Beckn: Globally, a community is perceived as a method of sustaining the DPG. They spark an interest and facilitate the process of converting the interest to contribution. Communities enable scalability and independence rapidly, especially in the absence of adequate funding.
- Catalysing the discoverability of other communities: Beckn Open Collective is more than a community, it is a movement. It brings together communities and people. It intends to establish itself as a network of various open-source communities that share similar ideas and ideologies and facilitate cross-learning and collaborations.

Short-Term Goals

"The community is not performing optimally. Subjectively, no new ideas originate outside a certain set of community members. There are lots of interested potential community members, who due to reasons both known and unknown, fail to become an integral part of the community. Objectively, less than 20 per cent of the community indulges in high-level engagement." – Beckn Team Member

Beckn has an active Discord community – Beckn Open Collective – where many members want to discover and build new use cases using the Beckn or the DPG. This indicates the growing popularity of the DPG, though there is little clarity on how to support the members, or network weavers¹⁵ in their advocacy and adoption efforts.

Goal: Create a greater sense of ownership by distributing the ability to discover new protocol use cases

Beckn envisions that a greater sense of ownership can be created by improving the capacity of network weavers by:

- Outlining the processes that need to be institutionalised to strengthen community ownership
- Devising pathways of support that enable the growth of domain-specific communities that build solutions around the Beckn protocol

¹⁵Network Weavers are accelerated changemakers who deeply believe in the power of open source technology to solve population scale problems. They intend to amplify changemaking by leveraging technologies for the benefit of communities through a community based approach. They are members of the community of the DPG, who further take the responsibility to build micro communities, which are essentially self-run communities, and are offsprings of existing communities around the DPG.

Goals of Aapti's Engagement With Beckn

Aapti engaged with Beckn to bolster their ongoing efforts to build the capacity of network weavers by helping them:

- i. Accurately identify network weavers: As there is so much inbound interest to build with Beckn, there is a significant amount of effort invested to work with potential network weavers. Pathways to accurately identify network weavers will streamline the efforts of the Beckn team.
- ii. Enable network weavers to find new use cases and create micro-communities: Network weavers are intrinsically motivated to build on Beckn. However, they lack a roadmap to build domain-specific communities. Roadmaps to build such communities enable network weavers to build networks of startups across sectors such as energy, education, mobility, and IoT applications.

Key Barriers in Community Building

Conversations with the Beckn team indicated barriers that hindered community-building efforts. These include:

Lack of visibility into existing audiences: There is no data about existing community members, their interests and skills. As a result, there is a lack of targeted interventions. Further, feedback loops on community governance are not constructive.

Lack of institutionalised community management practices: There is great interest in understanding Beckn. However, there is no retention in the community or active contribution due to a lack of streamlined community management practices. An outdated website, lack of onboarding process and inappropriate communication channels contribute are examples that indicate a lack of community management practices.

B. Aapti's Intervention Within Beckn

Aapti's role entails outlining pathways for Beckn to build the capacity of network weavers. These pathways were drawn after conducting a series of interventions, as follows:

Initiating Conversations With Key Stakeholders in the Ecosystem

Aapti initiated conversations with a diverse range of stakeholders in the ecosystem. These stakeholders comprised members of the Beckn team and experts in the social entrepreneurship ecosystem. Conversations with the Beckn team across tiers delineated the process by which network weavers are discovered and onboarded to the Beckn community. Conversations with experts in social entrepreneurship indicate their typical journey and help identify pathways to enable and bolster their capacity.

Documenting the Journey of Existing Beckn Network Weavers

Aapti initiated in-depth conversations with existing Beckn network weavers who lead initiatives in mobility, education, and IoT. The conversations were documented to understand their experience of advocating the protocol, the challenges encountered, and their vision for the community.

Understanding network weavers and the need to build their capacity

Who are Network Weavers?

Network weavers are changemakers who believe in open-source technology to solve population-scale problems. They amplify change-making by leveraging technology through a communitybased approach. They are members of the DPG community, who take the responsibility to build micro-communities, which are essentially self-run and are offsprings of existing DPG communities.

Why Does Beckn Need to Build the Capacity of Network Weavers?

• Capacity building fosters appreciation and adoption of Beckn, beyond awareness: Our discussions with people across the industry indicate that the FIDE team has created a fairly broad funnel by generating awareness of Beckn. This has resulted in numerous inbound inquiries from those seeking to understand the protocol better. The challenge is to convert this awareness into appreciation and adoption. We propose a process for discovering and empowering Beckn Network Weavers by moving interested participants across three stages – awareness, appreciation, and adoption.

- Capacity building helps address the varied scaling requirements of network weavers: As Beckn expands globally, there is a growing inbound interest to champion it. However, the scaling requirement for a network weavers is different from the requirements of a community member. Capacity building of network weavers addresses the differences in scaling requirements, enabling network weavers to imagine and implement a multitude of Beckn use cases.
- Capacity building ensures a sustainable model of community engagement: The broader objective is to 'light a thousand lamps' and scale from a community of ten to a thousand, with less friction, in a shorter period. Capacity building helps Beckn to move community engagement from an unscalable, hightouch activity, to a scalable model.

Why Build Capacity for Network Weavers? Reflections from Pillar I: Learnings From Legacy Open-Source Communities

Experts have noted that while several people are interested in contributing to a community, there are varying levels of contribution. While all members contribute voluntarily, most contribute to sharpen their skills and add value to their learning pathways. However, certain members are intrinsically motivated to contribute with a vision to solve problems that have an impact on the population. There is a need to identify such people and build their capacity.

Templatizing the Process of Discovery of Network Weavers

Based on conversations with experts in the social entrepreneurship ecosystem and Beckn's existing network weavers, Aapti conducted a gap analysis to identify specific pathways that help

- Accurately identify network weavers
- Enable network weavers to find new use cases and create micro-communities

The process involves:

- Understanding Network Weavers: In this section, we aim to understand the archetype of network weavers and shed light on their journeys of being integrated into the Beckn ecosystem. This will bolster the existing efforts of Beckn in discovering network weavers.
- Mapping the Persona of Network Weavers: In this section, we understand the key qualities, roles, and functions of network weavers. Further, the section outlines the key takeaways for network weavers as they build micro-communities.
- Building the Capacity of Network Weavers: Network Weavers require various types of support from the DPG creator – knowledge of operations, partnerships, and networking – as they navigate the process of building the community. Conversations with existing network weavers present pathways for Beckn to adopt as they think more critically about the institutional support they would like to lend to network weavers in the future.

C. Results

Interventions have led to a substantial impact on the communitybuilding efforts of Beckn. Our engagement in building capacity for network weavers has:

- Enabled the Beckn team to build its playbook on DPG-led models for social entrepreneurship
- Allowed the formulation of guidelines for a protocol-aware governance framework that enables Beckn to think critically about public value generation via partnerships that leverage their DPG

D. Next Steps

Conversations with Beckn have been instrumental in shedding light on its priorities, among which community strengthening measures prominently.

To do so, Beckn conducted their first convening, designed as a 'Community Meet-up', in March, 2024. Despite its pilot status, the Meet-up brought together critical community members under one roof to deliberate the future of Beckn itself.

Consequently, Beckn seeks to:

- Institutionalise community engagement initiatives with periodic convening of existing members. The convenings are meant to serve as spaces that foster collective action and roadmapping - so crucial to the evolution of DPGs
- Grow in-bound interest from new community members through mechanisms such as peer matching, developer brews and expert interactions.

III. Templates

A. Volunteer Engagement Program Onboarding

Phase I: Elicit Interest in Volunteers

Good onboarding processes must include the provision of comprehensive onboarding material and easier learning curves.

- 1. Enable easier and more accessible learning curves to garner interest from diverse backgrounds and skill sets:
 - Create good first issues in a tiered approach (easy, mid, and complex) to attract volunteers with varied levels of expertise
 - Curate broad problem statements and build on relatable or commonly known use cases
 - Use simple language and clearer documentation when you write for a wider audience
 - Build front ends that are accessible and easy to navigate
- 2. Actively reach out to non-technical persons and those from under-represented communities

- 3. Communicate incentives (personal and societal)
- 4. Streamline entry points to avoid applications to volunteer from multiple channels, for instance, through volunteer forms

Phase II: Kickstart Volunteer Engagement Program

Conduct an open house to provide in-depth context to interested volunteers about the program. There are three stages in this phase:

- Pre-open house
- Open house day
- Post-open house

The measures to be undertaken in the pre-open house and postopen house stages are mentioned below. Measures to be taken on the open house day are available in the **Open House template**.

Pre-open house measures include:

- Gathering baseline information from the volunteers (including their skills and interests), to assess which projects have the potential for volunteer contribution
- 2. Mapping broad interests, categorising flows of interest, and outlining anchor points to identify potential projects for volunteer contribution
- Identifying projects suitable for volunteer contribution.
 Ideal projects for volunteer contribution:
 - Projects that are considered important to the DPG but not categorised as urgent or high-priority
 - Projects that are not too complex, yet interesting
 - Projects that can be completed in short durations
 - Projects with defined goals, outcomes, and deliverables or outputs
 - Projects that do not have a broad scope, so that project progress is not decelerated by creating dependencies on internal teams

Ideal projects for non-technical volunteers:

- Research wing of identified projects
- Documentation
- Areas of interest that can be incorporated into the program, if it gathers sufficient momentum (which will be made visible through the communication channels and discussion pages)
- 4. Designating SPOCs for all projects
- 5. Allocating a Volunteer Engagement Program Manager
- Setting up relevant communication channels such as Discord and GitHub, and creating dedicated channels for potential projects and general discussions
- 7. Getting the preliminary documentation in order by assessing what kind of documentation is required and creating a one-stop destination for these resources. These resources include, but are not limited to the 'getting started' documentation, such as onboarding kits, community guidelines, and volunteer rights

Post-open house measures include collating key takeaways and devising pathways for action that structure the program better:

- Conducting internal debrief sessions with the core team and mentors to understand whether outlined objectives were met. Some key metrics recorded are:
 - The number of signups vs. the actual turnout
 - The actual turnout vs. the turnout on communication channels after the event
 - The turnout on general communication channels vs. the turnout in specific project channels
 - The physical vs. the online turnout (if the event is hybrid)
 - The average number of minutes attended by online members
 - The presence of sufficient technical and nontechnical skills
- 2. Conducting internal debriefs with the mentors to check the response to the program, understand their concerns and apprehensions, and devise pathways for action and next steps
- 3. Uploading well-curated problem statements to relevant channels to keep the conversation going
- 4. Building the momentum after the open-house day by being active on the communication channels
- 5. Reiterating and incorporating volunteer feedback, as reasonably as possible, into the program.

Phase III: Onboard Mentors

Mentor onboarding is critical, especially when the exercise of the volunteer engagement program is being undertaken for the first time by the DPG creator. It is important to address mentor apprehensions and concerns and guide them through the process of engagement. Further, the exercise of mentor onboarding ascertains bandwidth and capacity constraints, which can be used to structure future programs. The outcome is to assess whether the volunteer program should be made a part of mentor KRAs.

There are three stages to this phase:

- 1. Identify the mentor
- 2. Understand the mentor
- 3. Prepare the mentor

1. Identify the Mentor

The following criteria are the minimum requirements of a mentor:

- Familiarity with the DPG organisation
- Relevant domain expertise based on the project identified
- Soft skills such as emotional intelligence, leadership, communication, team building, management, active listening, and ability to mobilise

Note: While relevant expertise and familiarity with the organisation are key, soft skills can be built over some time.

2. Understand the Mentor

It is necessary to understand mentor expectations, needs, apprehensions and concerns, and other constraints to avoid conducting a volunteer engagement program that is burdensome and time-consuming.

- a. Understand mentor expectations both, personal and program-level
- b. Communicate the incentives of mentorship, such as leadership and managerial skill development and overall career growth
- c. Understand mentor constraints regarding bandwidth
 - Discuss how much time a mentor has on a daily or weekly basis to dedicate towards the program
 - Allow mentors to choose projects that they are currently working on or are interested in working on to help reduce additional bandwidth constraints
 - Learn whether mentorship can be made a part of their KRAs. This acts as an incentive for mentors to give time to the project

- d. Understand mentor needs and capacities
 - Understand mentor apprehensions and concerns regarding the mentorship journey
 - Conduct internal debriefs with the mentors post the openhouse to further gauge their opinion about the program and devise pathways for action and next steps

"I had to deliver this project as it is a part of my project plan. I chose to work on this project through the volunteer route, as there was an internal bandwidth issue. This was a significant incentive for me that nudged me to explore the community approach." – eGov Foundation Mentor.

3. Prepare the Mentor

It is critical to prepare mentors and address issues regarding capacity by building their skills, equipping them with tools, and instituting processes for smooth everyday activities.

a. Build relevant skills required to ensure a smooth mentorship journey

• Conduct a mentorship workshop to impart preliminary insights about the mentorship journey and address primary concerns. **The mentorship workshop template is available on the next page.**

b. Provide necessary tools to help the mentor function effectively

- Curate a dashboard of relevant training material and knowledge repositories
- Create onboarding kits comprising community guidelines, codes of conduct, and volunteer rights
- Establish appropriate and relevant communication channels

c. Institute relevant processes enabling the mentor to conduct the program efficiently

- Collaborate with mentors to outline program details including project identification, program outputs, outcomes, and modes and manner of engagement
- Conduct check-ins with mentors to track the progress of the program by ensuring the achievement of outputs and

KEY ROLE OF MENTORS

- 1. Be open to working with the community and have a mindset to 'go together to go far'
- 2. Motivate volunteers and communicate incentives
- 3. Be a buddy, not just a mentor in the strict sense. Allow volunteers to ideate and ask them about their opinions
- 4. Be mindful of volunteer bandwidth. Remember they are also volunteering and not working for any structured monetary incentives
- 5. Be active and interactive. Respond quickly and keep feedback loops shorter. If you are unresponsive, then volunteers will not spend their time on the project
- 6. Conduct check-ins and set up regular cadences
- 7. Actively encourage volunteers to join meet-ups
- 8. Track project progress and outcomes, and ensure adherence to timelines
- 9. Document clearly to convert tacit knowledge into explicit knowledge
- 10. Collect feedback on documentation to simultaneously work on improvising knowledge repositories
- 11. Rope in members from the internal team to demonstrate the DPG creator's interest and strength
- 12. Invest time in onboarding volunteers. Direct them to resources and communicate with them. A personal touch allows you to leverage their skills most effectively
- 13. Create champions and nudge volunteers to become SPOCs. This enhances accountability for the project outcomes, setting a precedent of distributed ownership. This further encourages other volunteers to contribute more effectively

adherence to timelines. These check-ins can be used to brainstorm new ideas and redress grievances related to the program

• Ensure mentors conduct regular check-ins with volunteers to track program progress by ensuring achievement of outputs and adherence to timelines

d. Create opportunities at the organisational level, by institutionalising processes for mentors to engage with volunteers more effectively

- Make participation in volunteer engagement programs part of employee KRAs and project plans, and organisational annual and quarterly plans
- Ensure that contribution to volunteer programs is

maintained – either as a mentor, as part of the broader team, or through a certain percentage of employee time

 Ensure that each project is run by cross-functional internal teams and not just one mentor hailing from one expertise area

Institutionalisation of processes at the organisational level is key to the success of the program. Making volunteer engagement an organisational priority aligns the goals of the internal team with the needs of the program. Internal teams are willing to contribute their time when appropriate opportunities are created.

"Though I was leading the volunteer project, I required support from other team members as knowledge of volunteers about DIGIT is limited. Institutionalising processes can go a long way in garnering commitment from other internal team members." – eGov Foundation Mentor

B. Open House Structure

Broad Guidelines:

- 1. Volunteer Centric: While it is important to give an overview of the DPG to the volunteers, the focus of the open house should be on them. Volunteers need clarity on their incentives, journey, engagement with the DPG creator, and their role in potential projects. They need to understand whether their profile and experience match the requirements of the volunteering work. Therefore, this must be addressed in the open house.
- 2. Community Centric: An introduction to why the DPG creator wants to build a community is imperative. The DPG creator must highlight the societal utility of the DPG, as well as the significance of communities in the amplification of societal good.
- 3. Interactive Engagement: Design the sessions in ways that foster interaction garnering volunteer attention and interest. Keep it active and vibrant through hands-on, iterative formats

- 4. Collaborative Outcomes: Seek volunteer inputs and actively learn from them. This makes them feel more integral to the volunteering process. Use the open house to set the tone of the relationship between the volunteers and the DPG creators as equal partners in the development of the DPG.
- 5. Next-Steps Articulation: Outline the next steps and end the open house to demonstrate intention and pathways to continue the engagement. The DPG creator must not look at the open house as an end but as a part of the entire onboarding process.

Step-Wise Guide:

1. Outline Objectives for the Open House:

Every open house must have a definite purpose. There are a variety of goals that DPG creators can set for open houses depending on the needs of the DPG creator and the duration of the open house. Some of the key objectives are:

- Gaining a sense of whether the volunteers are aligned with the overall vision and mission of the DPG
- Understanding volunteer backgrounds

Objectives Checklist:

- i. What are your intended objectives from the open house?
- ii. Is there anything specific you would like to communicate to the volunteers?
 - Would you like to communicate the vision and mission of the DPG?
 - Would you like to communicate the incentives of volunteering to both the DPG creator as well as the volunteer?
 - Would you like to communicate the volunteering journey and what the program entails?
- iii. Is there any specific information you would like to gather from the volunteers?
 - Would you like to understand what attracted volunteers to contribute to the DPG?
 - Would you like to understand their perspective about the DPG?
 - Would you like to understand what their interests are?
 - Would you like to understand what their expectations are from the program?

2. Create a specific plan of action according to the objectives and share the agenda to the volunteers in advance with the volunteers

Unpack interventions that could be undertaken to structure the open house in ways that fulfil the dual-key objectives by:

- Communicating DPG overview, potential project overview, volunteering incentives and journey
- Gathering information critical to the success of the program

Session Guidelines Checklist:

i. Content:

- Communicate the content in a simple, non-esoteric language
- Avoid technical jargon and information overload
- Do not delve into specific issues
- Curate broad problem statements

ii. Duration: Keep sessions short and crisp

iii. Formats: Use these session formats to facilitate active and vibrant interaction amongst DPG creators, mentors and volunteers

- Interactive session formats: breakout sessions, Q&A sessions after every session, focus group discussions
- Displays: hands-on experience and display of products, demo of platforms, visual representation by using more pictures and videos
- Interactive tools: use of chat boxes effectively, if conducted in the online or hybrid mode
- Informal sessions: refreshments and networking sessions, office tours
- Formal sessions: dedicated volunteer speaker sessions to elicit personal volunteer journeys

3. Proposed Session Structure Checklist:

i. A brief introduction to DPG, the DPG creator, and communities. In this session, facilitators should:

- Articulate the need for a community
- Give real-life or relatable examples to explain the impact, present use cases, and explain the relevance of the DPG at the individual and social level

ii. Volunteer engagement program overview. In this session, facilitators should:

- Communicate the goal, incentives, and benefits of the engagement for the volunteers and the DPG creator.
 For instance, are volunteers bringing bandwidth, skill, and capacity?
- Communicate the volunteering journey including timelines, manner of engagement (such as through the mentorship model), mode of engagement (online or offline), expectations, outcomes, and outputs
- Give insights into potential projects open for volunteer contribution, based on prior assessment of volunteer interests, and internal assessment of what projects are open for volunteer contribution
- Highlight the role of volunteer contribution in these potential projects
- Introduce SPOCs and highlight their role. Direct volunteers continuously to SPOCs to increase familiarity among volunteers
- Curate problem statements by building on use cases to interact with the volunteers

iii. Volunteer background information gathering. In this session, facilitators should:

- Understand the motivations of volunteers to join or contribute to the DPG
- Understand the interests of volunteers
- Understand the expectations of volunteers from the program
- Ascertain the time and bandwidth constraints
- Seek inputs on preferred timelines, modes, and manner of engagement
- Learn from volunteer experiences

iv. Next steps. In this session, facilitators should:

- Encourage volunteers to join established communication channels such as Discord ('get to know the community better', 'stay updated with interesting conversations')
- Walk them through the high-level introduction about the communication channels, other repository pages, and key information or resources such as Community Guidelines and onboarding kits
- Articulate the next steps concerning projects and encourage interaction with SPOCs

C. Mentorship Workshop Structure

1. Workshop guidelines checklist:

The DPG creator must be mindful of these key considerations to conduct the workshop effectively:

- a. Workshop facilitators: Rely on experienced people who are well-versed in community engagement
- b. Duration: Keep sessions short and precise (about two hours depending on the nature of the activity)
- c. Formats: Use these workshop formats to facilitate active and vibrant interaction among mentors and workshop facilitators
 - Use interactive session formats such as breakout sessions, Q&A sessions
 - Disseminate surveys before the workshop to understand the mentor's needs, expectations, and concerns

2. Workshop Structure Checklist:

The workshop facilitator must conduct the workshop in the suggested structure, seeking to address the following key questions:



AGENDA	KEY ACTION ITEMS AND QUESTIONS	
Share Experiences and Interact	 Workshop facilitators to share their personal experience in building communities and working with volunteers What excites me about the journey? Why should eGov mentors look forward to it? Encourage mentors to share their experience in the mentorship program (until the workshop day) What excites mentors? What has been their concern or challenge? 	
Provide Insights on the Mentorship Journey	 Highlight key challenges encountered Explore pathways to resolution <u>(Resource on Culture of Community</u> and Open Source) Elaborate on the practice and culture of open source? 	
	 What are the benefits of moving to open source-first development? (technology, people, cost, product, adoption benefits) How do you build a community around open-source technology? Why a community is important What motivates people in the open-source community Key components of a community program for open-source 	
	 What success looks like 4. Use examples and case studies that resemble the journey of the DPG creator so that there is more relatability 5. Address questions, if any 	

D. Annual Conference

The Annual Conference is an opportunity for community stakeholders such as developers, implementers, ministry representatives, technical partners, donors, and other experts to present their work, share experiences and insights, learn about ongoing developments, and discuss next steps. It is a great way to witness the vibrancy of the community, facilitate cross-learning and gain feedback about the functioning of the community. This conference template, inspired by the DHIS2 Annual Conference, is an excellent example of how DPGs should conduct events in participatory ways, creating avenues for interaction, hands-on learning, and discussion.

Session Structure

- 1. Duration: Short and precise sessions
- 2. Type: Each session can have a combination of elements, such as integration of presentations, lightning talks, panel discussions, and open questions
- 3. Participation: Small groups of audiences and maximum community participation in each session

Session Content

- 1. Focus on technical, as well as, non-technical sessions. Include topics related to social sciences, equity, inclusion, and others
- Expand the discussion on new and emerging topics nudging community members to think more deeply and creatively about new use cases
- 3. Conduct sessions that allow community members to identify problems

Key Guidelines for the Annual Conference

- Use apps and platforms to disseminate important information, including the agenda, conference structure, and in-depth session details including making available presentations. This allows people to connect
- 2. Facilitate meaningful engagement, with a focus on enhancing diversity, interaction, and learning, through innovative and interactive conference structures:
 - Ensure diverse representation by accommodating moderators and presenters from varied backgrounds. Set session topics that cater to technical and non-technical aspects of DPGs, such as diversity, inclusion, and other social science topics
 - Create avenues for interaction and learning through interactive conference structure and session types

CASE STUDY

The Annual DHIS2 Conference, 2023, created several avenues to facilitate community engagement:

- 1. Activity-based workshops
- 2. Use case bazaars, which were like experience centres facilitating direct interaction
- 3. Expert lounges, allowing community members to reach out to experts directly
- 4. Demo presentations, allowing developers to gain feedback on their work-inprogress projects from the community
- 5. Informal sessions, such as social events, networking, and refreshment breaks
 - 3. Use tools and platforms to facilitate transparency, agency, and engagement or interaction.

CASE STUDY

The Annual DHIS2 Conference, 2023, provided an opportunity for the participants of the competition to make a presentation. Thus, they received feedback on how to improve their product. This encouraged a culture of support, and healthy competition, which facilitates learning.

4. Allow as many community members to present as possible

CASE STUDY

The Annual DHIS2 Conference, 2023, relied on several platforms:

1. Dryfta: Provided session information and a platform to connect with other community members

2. Mentee: Enabled a real-time collection of on-ground feedback, making it less cumbersome to collect feedback post-conference. Feedback on the overall conference was collected during the closing ceremony

3. Simple QR code: QR codes were used as a method to find out in real-time who the winners of the competitions were, by allowing community members to vote on final presentations

E. Qualities and Role of a Community Manager

QUALITITES

- Can listen keenly
- Can adapt to dynamic environments
- Has high emotional intelligence
- Is an effective and innovative problem solver (e.g.: usage of technology like video calls to cater to the needs of community members)
- Has the patience to mediate (as they need to read a lot of posts every day)
- Is highly familiar with the DPG (as they need to understand the subject matter of the post to be able to direct queries to the right team member)
- Has a deep understanding of core team members and their expertise (e.g.: directing posts to the right team members for resolution)

ROLE

- Mediate and facilitate communications actively and quickly
- Keep the community active and engaged
- Share the community guidelines and other necessary documentation for new community members
- Direct community members to the right set of resources
- Recognise the efforts of community members
- Arrange local and in-person meet-ups
- Ensure the good health and reputation of the community
- Build trust through repeated transactions. For instance, Mozilla deployed people in India to engage with the local population to build trust
- Collect feedback on documentation to simultaneously work on improvising knowledge repositories

Resource Guide

For detailed insights on the role of a community manager, refer to Sections 3.7, 3.8, and 3.9 of the <u>Communities of Practice Playbook.</u>

F. Building Capacity for Beckn's Network Weavers

A Roadmap for Beckn and Network Weavers

This research intends to chalk out a roadmap of interventions for Beckn and potential network weavers who intend to engage with Beckn. For Beckn, these interventions help them discover and identify network weavers accurately, outlining pathways to effectively engage and build capacity. For network weavers, these interventions guide the building of micro-communities.

1. Understanding Network Weavers

In this section, we aim to understand the archetype network weaver and shed light on their journey of being integrated into the Beckn ecosystem. This bolsters Beckn's existing efforts to discover network weavers.

"No one told me to join Beckn. I was intrigued to leverage Beckn and amused by how many problems it could solve for the masses." – Existing Beckn Network Weaver.

Conversations with existing network weavers have elicited that these people are intrinsically motivated to leverage Beckn to solve problems that have an impact on the larger population. Across our conversations with internal and external stakeholders, there was a broad consensus that network weavers had a high level of intrinsic motivation to make a difference in their selected fields.

"The Beckn team showed me all the possibilities that there were and helped me imagine endlessly." – Existing Beckn Network Weaver.

The key pull factor for network weavers was to think endlessly about the diverse possibilities to solve problems. Early conversations with the Beckn team revolved around understanding problem statements and exploring the diverse use cases, even before understanding the technicalities of Beckn.

Takeaways for Beckn:

a. Create Open Channels of Discovery

Network weavers hail from diverse backgrounds (socioeconomical, educational, and professional), grappling with varied problems. The common thread amongst them is the motivation to solve. Channels of discovery should not be limited or closed.

How do we enable open channels of discovery?

Over the last few years, the FIDE has evangelised the possibilities of Beckn across the world. The Beckn Protocol is slowly gaining recognition among technology insiders, though it remains unknown among outsiders. This is similar to how common users are unaware of the fact that UPI powers apps like Paytm, PhonePe, and Google Pay. Beckn too powered networks like ONDC, Namma Yatri, Unified Energy Interface, and others.

Since Beckn is meant to enable interoperability across networks, we recommend that every Beckn-powered network prominently display a 'Powered by Beckn Protocol' message. This allows Beckn adopters to recognise each other, and enable combinatorial innovation across networks. Public acknowledgement of Beckn (with links to the Beckn website) by ONDC, Namma Yatri and others, will increase awareness of Beckn at this early stage.

b. Imagine with Network Weavers

The DPG creator must help them imagine all the use cases, giving them an idea of what can be done with the DPG, rather than what the DPG is.

How can we imagine with network weavers?

The key value from Beckn seems to be in visualising new possibilities of how they can use Beckn. For example, in the energy sector, can we entice the customer with a bundled offer of a coffee or a meal while charging their EV? Network weavers from a tech background usually need help in imagining the business possibilities that are enabled by Beckn, and to help people break out of their silos.

• **Present challenging problems** :The problems presented to network weavers must be problems that if solved, have an

impact at scale, are costly to solve, and are frequent in occurrence. Problem statements must be framed in ways that respond to unmet needs, driving equality, opportunity, and agency.

"We leveraged Beckn to create an application that empowered end users, facilitating their agency and decision-making power over the design and implementation of the app." – Existing Beckn Network Weaver

"You need to be responding to an unmet need. You cannot create a need or problem. You need to only discover an existing problem. Technology shouldn't solve problems that don't exist." – Existing Beckn Network Weaver

- Articulate the problem statement simply, realistically, and specifically: There is a need to nudge the imagination by articulating problem statements by breaking them down in a simple, easily digestible language or formats, and realistic by pandering to logical real-life problem statements. The problem statement must also be specific, to attract the right people.
- Demonstrate the value of the DPG:
 - Highlight challenges that one could face in solving problems through a platform approach. These may include issues relating to capacity, such as a lack of technical expertise, and adoption, such as the inability to rally the State
 - Elaborate on the values of collaboration and co-creation that are enhanced by open source. More insights on the <u>culture of communities and open source</u> can be found here
 - Highlight the journey of other network weavers to inspire and stir innovation

"I found Beckn very interesting, as I saw it as a vehicle to increase equality amongst all, not just the underserved. Problem solving is not just directed for the people, but also a product by the people. DPGs, in this context are digital democracies that accelerate contribution from all." – Existing Beckn Network Weaver.

- Focus on the problem statement, rather than the technical underpinning of the DPG: Network weavers are those who understand a problem statement and are motivated to solve it. They may not always be technology experts and software developers. Therefore, there is a need to equip them with the ability to leverage technology to create an impact at scale, rather than focusing on making them understand the technology. Creating a cadre of Beckn Technology Service Providers (BTSPs) and creating marketplaces like the <u>MOSIP</u> <u>Marketplace</u> helps network weavers cut down their time-tomarket.
- **Debunk myths and fix the narrative :**There is a need to identify and debunk myths, relating to the potential of the DPG that may discourage participation or hinder adoption. Efforts must be made periodically to understand the unwillingness to contribute and build.

"ONDC is the UPI of commerce – this is the wrong narrative that is floating around. It is important to break this myth because it is discouraging – UPI has only five big players – thus people don't want to build on ONDC. Instead, we want to sell ONDC as the internet of commerce and the internet has space for everyone." – Existing Beckn Network Weaver

2. Mapping the Persona of Network Weavers

In this section, we understand the key qualities, roles, and functions of network weavers. Further, the section outlines the key takeaways for network weavers as they build micro-communities.

a. Key Qualities of a Network Weavers

"Network weavers need to tell the Beckn story better." – Existing Beckn Network Weaver.

Network weavers are intrinsically motivated persons who intend to solve problems at accelerated rates, looking at amplified change-making. Other Qualities:

- Driven by passion
- Has the perseverance to problem-solve
- Is resilient and biased towards action
- Has the patience to mediate
- Can identify the right stakeholders
- Has strong leadership abilities
- Can balance between taking ownership and leading the build, without being entitled
- Open to work collaboratively with all external stakeholders, as well as internal team
- In the 30+ age group, with a deep understanding of problem statements in their domains
- b. Roles and Functions of Network Weavers

Network weavers are key enablers in the process of community building. They amplify the process by independently taking charge of building micro-communities.

Building micro-communities entails several functions, such as:

- Believing in the power of the open source, DPGs and communities to solve problems at scale
- Investing resources in researching the DPG to understand how best it can be adopted and the context for adoption
- Identifying relevant stakeholders
- Mobilising diverse stakeholders
- Attracting key network groups to provision resources
- Simplifying the language of the DPG and breaking down the context to the identified stakeholders
- Mediating between diverse stakeholders and balancing their conflicts of interests

Takeaways for Network Weavers:

Conversations with existing Beckn network weavers entail insightful learnings:

a. Understanding initial requirements to build micro-communities

Stories of Beckn network weavers highlight that having certain requirements in place enables the process of building microcommunities:

- A proof of concept to indicate that the idea is implementable
- Active sponsorship
- Identifying stakeholders to begin outreach
- A sufficient knowledge about the principles of technology, not necessarily about the functionality of the technology

b. Understanding the process of amplification to build micro-communities

Understand the stakeholder to outline appropriate channels
 of communication: Stakeholders are diverse and prefer varied
 types of communication channels depending on their
 familiarity with technology. If stakeholders are accustomed to
 certain modes of communication, it is preferred to adapt to
 stakeholder needs, rather than inducing them to join other
 communication channels. For instance, certain stakeholders,
 aged 35 and above, are not familiar with existing DPG
 communication channels, such as Discord, and preferred
 in-person meet-ups or other communication applications, such
 as WhatsApp (creation of WhatsApp geo-specific groups).
 The principle is, 'Go where the people are', such as WhatsApp
 and StackOverflow, instead of herding them to our
 platform (Discord).

While in-person communication is personal and more engaging, it cannot replace digital modes of communication entirely. However, digital modes of communication have to be supplemented with in-person communication and cannot be the only mode of communication with stakeholders.

• Communicate with the stakeholders effectively:

Communication must be structured in ways that most effectively fulfil the purpose of community engagement. For instance, when in-person meet-ups were set up casually, in informal settings – i.e., not in the form of a communitysponsored formal event, such as a conference – through popular personal messaging platforms, the turnout is better and more frequent.

Communicate to the stakeholders in small groups, rather than individual meet-ups. It is important to mobilise like-minded

stakeholders, who intend to solve the same problem. Organising in-person meet-ups in this manner helps stakeholders to see the benefits of the community.

The problem must be pitched in the form of open propositions, i.e., in ways, that nudges stakeholders to think towards collaboratively solving the problem. The stakeholders must be informed of successful precedents that highlight the power of the community. For instance, the icebreaker for driver-partners in Namma Yatri in Bangalore included interacting with the driver-partners of Kochi Open Mobility.

• Interact with the stakeholders deeply:

There is a need to interact with the stakeholders proactively and iteratively. Outreach and interaction through social media channels of communication is not adequate. Hands-on learning is very important and is a form of quantitative measurement. For instance, where the stakeholders were children and young adults, hands-on experimentation is a driver in building micro-communities.

• Identify changemakers and allocate responsibilities: It is important to identify single-side leaders, allocate responsibility, and ascertain targets. For instance, conversations with Namma Yatri revealed that each driver partner took upon the duty of onboarding 10 other driver partners, and set targets to complete a certain number of rides per day.

Impact:

- No knee-jerk reactions to ideas proposed by network weavers. Stakeholders are more open to listening to different perspectives, with lesser resistance when placed with multiple like-minded people, who want to solve the same problem
- Ideas proposed by the network weavers gained positive feedback
- After meetings, network weavers observed a lot of on-ground action undertaken by stakeholders

3. Building the Capacity of Network Weavers

Network weavers require various types of support from the DPG creator as they navigate the process of building the community. This includes knowledge of operations, partnerships, and networking. Conversations with existing network weavers present pathways for Beckn to adopt as they think more critically about the institutional support they would like to lend to network weavers moving forward.

Key Question 2| How do you discover social champions?



Figure 1: Snapshot of inputs from workshop participants at the Annual DHIS2 Conference, 2023. [Workshop on Community Building hosted by Aapti]

a. Building Knowledge Capacity:

- Discuss possibilities and opportunities with network weavers: Every network weaver has a problem in mind that they are keen to solve. However, there are cold-start problems, usually related to their inability to imagine the possibilities of the technology. The DPG creator must start by discussing opportunities that lie at the intersection of the network weaver's experience and the problem they intend to solve.
- Help network weavers frame the problem statement: Network weavers need to be nudged to imagine the scale of the problem and the exponential impact of resolving the problem. There is a need to help them frame their ambition into a precise problem statement to accelerate action. For instance, spaces must be created to discuss, deliberate, and provide feedback on ideas by the DPG creator and also external experts in social entrepreneurship. These discussions can also be disseminated in creative formats, enabling the socialisation of the idea as well as the DPG.
- Simplify the technology: Network weavers are not expected to be technology experts. However, conversations with existing network weavers indicate that they have sufficient knowledge about the context of the problem that they intend to solve, along with a certain level of expertise in the relevant field. As network weavers are not technology experts, there is a minimum level of technical capacity building that is required. Network weavers can understand the technology at a basic level to navigate conversations with stakeholders, easing the process of explaining the possibilities to them.
- Equip network weavers with the language and the ideas to communicate: Network weavers need to be able to think from macroscopic perspectives to be able to build micro-communities. A possible pathway is to curate interactions through exposure to experience centres where they interact and use various tools, including other DPGs. This helps them understand the ecosystem and its capability to solve problems that have an impact at scale, thereby making it more relatable.

b. Provide Operational Support:

- Convert tacit knowledge to explicit knowledge: The need to convert tacit knowledge into explicit knowledge is aggravated in the context of DPG communities given the broad scope of potential use. Conversations have highlighted that beyond an internal bandwidth issue to build the capacity of network weavers, there are organisational issues such as the lack of repository and documented knowledge. Resolving these issues transforms a high-touch process of empowering network weavers into a low-touch, highly scalable process.
- Encourage meaningful interaction: There are several modes to communicate and engage with stakeholders. The DPG creator must encourage network weavers to use diverse modes of interaction to determine what modes of interaction are most preferred by the stakeholder type. There is a need to decentralise communication and initiative to capitalise on existing means of communication.
- Address stakeholder conflicts: As adoption increases, the possibility of stakeholder conflicts arises. Though, navigating stakeholder issues and balancing conflicts of interest is not the primary obligation of the DPG creator; during the initial stages of enabling adoption, managing stakeholder conflicts and issues has great significance in overcoming barriers to adoption. There is a need to align with stakeholders and ensure that the DPG is serving the intended purpose. Stakeholder conflicts can be resolved by defining roles and the relationships between them. Using tools, such as memorandums of understanding, further helps manage conflicting interests.
- Be open to ideas: There is a need to listen and respond appropriately. Conversations have highlighted that most interested persons are likely to drop out in their journey to network weavership when the DPG creator displays resistance to new ideas.
- Enhance internal team diversity: There is a need to enhance the diversity of the team, not limited to gender but also other

forms of diversity. For instance, the team should not be purely tech-focused but also absorb policy experts. A diverse team is likely to cater better to the needs of the network weavers in their journey to build micro-communities.

c. Networking and Partnerships:

The DPG creator should nurture diverse partnerships and facilitate different kinds of networking circles for the network weavers. There is a need to leverage offline networks to optimally use the technology.

- Facilitate meaningful connections: Networking with key stakeholders is critical to the success of building microcommunities. These connections help network weavers arrange the resources for the growth of the community, and also serve as a viable alternative to a lack of internal advisory capacity. For instance, where there is a lack of diversity within the internal team, the DPG creator can facilitate conversations with external domain and policy experts.
- Help identify the change-making network: Accurate identification of accelerated change makers builds the micro-community quickly. The change-makers vary depending on the use case of the DPG. Further, there is a need to nudge network weavers to capacity-building, the one identified as change-makers.
- Create opportunities to network with peers: Building a community of peers bolsters the journey of network weavership in multiple ways. First, the interaction with peers at regular intervals keeps network weavers motivated and inspired to continue their journeys. Second, there is immense learning that is transferred amongst peers, on how to best leverage the technology, communicate with stakeholders, and build the micro-community. Third, a community of peers is a viable alternative to the lack of internal capacity of DPG creators.

These meetings can be facilitated through digital modicums as well as, in-person events such as offsites and brews.

IV. Impact Statement

Resilience for digital infrastructure: Developing impact around non-technical layers

A. Building communities around Digital Public Goods

The open-source communities playbook follows a two-pronged approach of 'learn' and 'engage'. This helps the growth and sustainability of DPGs by enabling DPG collectives to build communities. Community building is a non-technical layer that supports DPG and DPI. It has emerged as a foundational capacitybuilding measure for DPG collectives to undertake to ensure their growth and sustainability. The project intends to codify the best practices of community engagement that DPG collectives can adopt, enabling them to scale their community rapidly.

Aapti worked to:

- a. Learn from legacy open-source communities to document best practices relating to community engagement and expansion, which have evolved over many years through trial and error.
- b. Engage with DPG collectives, that are at varying levels of maturity, to collaboratively and iteratively build a roadmap on how to develop active, sustainable, and open-source communities. For this, Aapti undertook participatory action research with Beckn and eGov to create the OSS4DPGs playbook. This playbook not only captures the scope of the engagement, but contains insights from the interventions undertaken to grow the two collectives.

Aapti's Intervention Within eGov

Problem Statement:

eGov has followed a closed model to DPG development, wherein most of the platforms are created through dedicated teams working in the organisation. This model proves to be neither sustainable nor feasible for the following reasons:

• Inadequate to achieve global scalability: As eGov'e flagship DPG, DIGIT, is poised for adoption and integration across different countries such as Indonesia and Nigeria. Limited capacity and bandwidth decelerate efforts to scale globally.

• Affords limited avenues to engage with external volunteers: Despite volunteers expressing enthusiasm to work on DIGIT, eGov did not have streamlined channels to capture interest. For instance, there was no volunteer application or intake form in their initial years of operation.

Goal:

Kickstart a volunteer engagement program

Aapti's role:

Institutionalised a <u>volunteer onboarding process</u> that comprised several interventions:

- Articulating the need to onboard volunteers in eGov
- Templatising the journey of onboarding, consisting of three phases
- Sharing broad frameworks to conduct open-house days for volunteers
- Facilitating the mentor onboarding process by conducting mentorship workshops

Impact:

Conversations with the eGov team indicate that as a result of the <u>DIGIT Open House</u>, there has been substantial volunteer interest and uptake, as indicated by the growing membership on the community's <u>Discord channel</u>.

"The open house has proved to be extremely valuable and is a sustained measure to engage with volunteers, given that turnout post the open house on communication channels has been substantially high and meaningful. The likelihood of volunteer retention after such an event is greater." – eGov Team Member.

Debrief conversations with the eGov team indicated that:

- 250 volunteer applications were received and 130 volunteers showed up for the event (100 online and 30 in person)
- Around 150 volunteers joined Discord, after the event
- The online audience was present for an average of 220 out of 248 minutes, indicating above-average high engagement
- The online chat was extremely active

The mentorship workshop, facilitated by Aapti and OSS experts, helped create greater motivation and buy-in from DIGIT product managers to work with volunteer contributors.

"Thanks a lot for the session today. Even though some of us couldn't join in person, there was genuine interest in trying to unlock the pain points our team leads are facing in driving volunteer projects. I was especially happy to see participation from managers and can enable and motivate their teams and themselves to drive these initiatives." – eGov's Volunteer Engagement Program Coordinator.

"The discussion was very insightful! Feels real, meaningful, and a pivot to operating from a place of strength rather than scarcity as a non-profit. I will do some research based on the stuff I heard today – like what exactly is the inner source and how we can work internally as an open source – what changes will it require in our management and communications approach. Really stoked about this." – eGov's Product Manager (attendee of the Mentorship Workshop).

Aapti's Intervention With VIDE

Problem Statement:

FIDE built an active <u>Discord</u> community around Beckn. The community, also known as Beckn Open Collective, has members willing to discover and build new use cases using the Protocol and DPG. This indicates the growing popularity of the DPG, though there is little clarity on how to support the members, or network weavers in their advocacy and adoption efforts. Aapti worked with FIDE to:

- Accurately identify network weavers: As there is so much inbound interest to build with FIDE, there is a significant amount of effort invested to work with potential network weavers. Pathways to accurately identify network weavers streamline the efforts of the FIDE team.
- Enable network weavers to find new use cases and create micro-communities: Network weavers are intrinsically motivated to build atop, however, lack a roadmap to build micro-communities. Roadmaps to build micro-communities enable network weavers to build startup networks

across sectors such as energy, education, mobility, and IoT applications.

Goal:

Create a greater sense of ownership by distributing the ability to discover new protocol use cases.

Aapti's role:

Build capacity of network weavers by:

- Initiating conversations with the FIDE team to delineate the process by which network weavers are discovered and onboarded unto the Beckn Open Collective
- Initiating expert conversations with organisations or persons who enable social entrepreneurship or are social entrepreneurs in other fields
- Documenting the journey of existing network weavers of FIDE to understand their experience of advocating around the protocol, the challenges so encountered and their vision for the community
- Conducting a gap analysis and <u>templatising</u> the process of discovery of network weavers, unpacking their archetypes and outlining measures for FIDE to build their capacity

Impact:

Our engagement in building capacity for network weavers has:

- Enabled the FIDE team to build its own playbook on DPG-led models for social entrepreneurship
- Formulate guidelines for protocol-aware governance framework that enable FIDE to think critically about public value generation via partnerships that leverage their DPG









Annexures

I. Expert Conversations

SL. NO	NAME OF EXPERT	DESIGNATION	ORGANISATION
1	Deborah Bryant	US Policy Director	OpenSource Inititaive
2	Kristen Braa Jorn Braa Pamod Amarakoon, Al Gasssim	Director, HISP Centre, UiO Professor, UiO Team Lead Community Coordinator	HISP, DHIS2
3	Sankarshan Mukopadhyay	Director, Customer Experience	Dhiway
4	Vinod Sankaranarayanan Gurpreet Luthra	Head - Digital Public Goods and Infrastructure Principal Consultant - Social Impact Team	Thoughtworks
5	Rahul Kulkarni	Chief Technologist, Samagra	Samagra
6	Anuj Garg	Developer Advocate @ Google, Founder @ Code for Cause	Google
7	Robert MacTavish	Project Lead	Primero (UNICEF)
8	Steve Haley	Director of Market Development and Partnerships, Mojaloop Foundation	Mojaloop Foundation
9	Jennifer Antilla	Director of Community	OpenMRS
10	Supriya Sankaran	Co-Founder	Agami

SL. NO	NAME OF EXPERT	DESIGNATION	ORGANISATION
11	Satish Mohan	Founder and CTO	Dhiway
12	Kanwaljit Singh	Senior Program Officer, Financial Services for Poor	BMGF
13	Sasikumar Ganesan	Head of Engineering	MOSIP
14	Karan MV	Sr. Manager, International DevRel	GitHub

II. Collective Conversations

SL. NO	NAME OF INTERVEWEE	DESIGNATION	ORGANISATION	
Beckn Oj	Beckn Open Collective Conversations			
1	Sujith Nair	CEO and Co-Founder	FIDE	
2	Ravi	Head of Architecture and Technology Ecosystem	FIDE	
3	Ansha Dixit	Community Manager	Beckn Open Collective	
4	Satya Arikutharam	Independent Consultant	Network Weaver, Beckn (Namma Yatri)	
5	Dr. Kumar Vadaparty	Distinguished Engineer, Morgan Stanley	Network Weaver, Beckn (IoT)	
6	Akhil Jayaprakash	Co-Founder, Pulse Energy	Network Weaver, Beckn (Pulse Energy)	
7	Irina Snissar Gopal Garg	Director, Design and Knowledge Director, Ecosystems and Partnerships	Ashoka (ASPIRE)	
8	Susmit Patodia	Director, Global Capital and Leading Digital Public Infrastructure Initiatives	Antler, India	
	Reetik Agarwal	Investment Associate		

SL. NO NAME OF DESIGNATION

eGov Foundation Conversations

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1	Manish Srivastava	Chief Technology Officer	eGov
2	Gautham Ravichander	Head, Strategy	eGov
3	Subhashini Srinivasan	Architect	eGov
4	Varun Basu	Vice President, Growth and Partnerships	eGov
5	Sowmya V	Senior Program Manager	eGov
6	Shashank Bharadwaj	Marketing Communications Specialist	eGov
7	Shashikala K.L	DGM	Bharat Electronics Limited
8	Rakesh Kumar	Managing Director	PwC, India

III. Workshops Conducted

SL. NO	NAME OF WORKSHOP	ROLE OF AAPTI	HOST & LOCATION
1	Brew workshop with the two DPG collective teams	Facilitator	Aapti Institute, Bengaluru
2	Digital Public Goods, Community Building Workshop	Facilitator	The DHIS2 Annual Conference, Oslo
3	Open-House Day	Pre-workshop preparation guidance and observer on the day of the workshop	eGov , Bengaluru
4	Mentorship Workshop	Facilitator	eGov , Bengaluru
5	C4GT Community Building Workshop	Participant	C4GT, Shikshalokam, Bengaluru

(TABLE OF CONTENTS) (ANNEXURES)





Aapti is a public research institute that works at the intersection of technology and society. Aapti examines the ways in which people interact and negotiate with technology both offline and online.

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