Missing Publics in Digital Public Goods: The Need to Build Technologies for Communities

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1 WHO CONSTITUTES THE PUBLIC IN DIGITAL PUBLIC GOODS?

Digital Public Goods (DPGs)[1] are understood as digital artifacts such as software, platforms, datasets, machine learning models, etc. which are made available as public goods in a universally accessible manner and are meant for public welfare. In India, most discussions of DPGs refer to examples such as Aadhaar, the India Stack, and UPI [1–3], and I therefore restrict this current analysis to such platforms and to tools built on these platforms and interfaces.

As any other public good in a country, the "public" in DPGs refers to the citizens of the country, thereby implying that the goods should be accessible to everybody and should have secured a basic democratic consensus about the utility of the goods. Much has been written, however, about gaps in the accessibility and purpose of these goods which raises a question about who is the public afterall for which these goods have been built?

Biometric failures, network connectivity issues, and other problems such as incorrect spellings of names continue to hamper Aadhaar-based authentication to access social welfare benefits and lead to unfair exclusions of specifically marginalized publics who stay in remote locations or are unable to easily rectify their registration errors [4]. Grievance redressal procedures for services that use such DPGs remain hard to diagnose to identify the exact cause of failure, either because the technological interfaces between different components do not cleanly handle exceptions, or the institutions responsible to act upon the exceptions do not follow appropriate procedures [5]. Some publics are able to deal with these issues but many others cannot.

The stated purpose of many DPGs is also debatable. For example, the role of Aadhaar based authentication to reduce inclusion errors at the cost of causing exclusion errors is clearly a priority imposed to reduce leakages under the assumption that leakages happen due to identity fraud. This view does not attach a negative value to the hardship caused to mostly marginalized publics when unfair exclusions occur due to a failure of these DPGs [6]. Such assumptions and priorities clearly emerged from a top-down agenda of the state to formulate technologies for social control and to prevent misuse of public funds, but neither were the assumptions adequately tested nor were other goals debated in a democratic manner for which altogether different technology infrastructures may have been required. The focus to reduce leakages in fact strengthens the neoliberal narrative to cut down on welfare expenditure rather than to universalize and improve the inclusivity of welfare services.

Similarly, the purpose of the India Stack to build eKYC procedures, or the purpose of UPI to improve interoperability for financial transactions, were framed to improve financial inclusion for the poor[2]. But are these marginalized publics actually benefiting from such DPGs? Building digitalization-assisted pathways for financial inclusion using DPGs has helped expand the market for money capital and the formalized financial services provided as a result are possibly safer in some ways than alternative informal services. However, this market expansion to faceless bureaucratic corporations looking for quick profits without investing sufficiently in consumer protection and financial literacy also simultaneously increases the vulnerability of marginalized publics to fall prey to unsustainable debt fueled consumption [7], predatory lending [8], fraud [9], and overall dispossession as a result [10]. This especially becomes a likely outcome when accountability procedures to keep a check on private corporations are weak, as evidenced in several studies in both the financial inclusion domain [11, 12] as well as privatization in general [13]. Many DPGs therefore may actually not be benefiting the public they claim to service.

Further, such technology solutionism distracts from strengthening more fundamental democratic devices to support the public in demanding accountability and transparency in governance and consumer service, and to build community based institutions that can represent the demands of diverse publics in a pluralistic democracy. Most DPG infrastructures in India projected as a huge success have thus neither solved the problems of undemocratic and opaque governance processes, nor prevented the oppression and exploitation of marginalized groups by the elite. Rather, they have added new layers of technological complexity that the public now needs to navigate, without necessarily having made it easier for public demands to be met. This inevitably leads to an increase in inequality when the gains and losses from new technology infrastructures are not equitably distributed among the members of the public.

A different approach is possible to clearly define the public in DPGs and to ensure that DPGs meet the priorities of these publics. Just because DPGs are meant to be used by the public does not imply that the needs and preferences of many publics has been represented equitably.

2 APPROPRIATE TECHNOLOGIES AND TOOLS FOR CONVIVIALITY

In my recent book, *Technology and (Dis)Empowerment: A Call to Technologists*, I explore various aspects of how even technologies designed with the right intent may in fact disempower the people they were meant to support [14]. As a possible pathway for more responsible design and management of technologies, I discuss the need to instead build technology stacks that are conceptualized in

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[1]https://en.wikipedia.org/wiki/Digital_public_goods

[2]https://indiastack.org/

democratic ways and managed by community based institutions to impose social control over technologies, empower citizens, and bring equality. Such an approach can ensure that the technologies are appropriate to the context, can be managed and steered ethically through consensus and debate, their goals are clear, and the technologies are seen as enablers rather than as solutions in themselves. I rely upon the notions of *appropriate technology* as introduced by E.F. Schumacher [15] and *tools for conviviality* as discussed by Ivan Illich [16] to articulate this approach.

Schumacher conceptualized appropriate technology as built using local materials, repaired and maintained by the local community, and meant to support their development. While Schumacher discussed appropriate technology mostly in the context of mechanical implements for agriculture and housing, its interpretation in today's context, according to me, is that the use of (digital) technologies should be understandable and manageable by local communities even if the technologies were not produced end-to-end by them. Different publics can then use these technologies for their own relevant use-cases, steer the use for responsible outcomes, and build strong community institutions for technology governance. Many DPGs imposed by the state in a top-down manner, or private platforms such as for social media and the gig economy, are in contrast built specifically to disallow any local management and which further weakens community institutions.

Illich similarly conceptualized convivial tools as those that can be managed in a convial manner, as well as through this process also build conviviality in society. My interpretation in today's context is that technologies should be meant for collective use rather than individual use, and with values of plurality embedded in them or imposed through their management. In my book, I discuss our work with Gram Vaani[3] as an example of how our federated approach of doing participatory media but which is moderated to ensure plurality and diversity brings this element of conviviality by enabling diverse publics even in local communities to understand one another [17, 18]. Further, many operations of these participatory media forums are managed by local volunteers from the communities [19], which has helped build strong local institutional capacity for information management even in other spheres such as to guard against misinformation and political appropriation of not just the Gram Vaani platforms but other contemporary media as well. This is starkly different from many other platforms that focus on individual personalization of content or DPGs designed for self-service and individual access where no spaces are created for users to discuss problems and solutions and deliberate with one another.

I use these concepts of appropriateness and conviviality to suggest a framework within which technologies, including DPGs, should be built. Such an approach can help change the current perspective of thinking about DPGs in a top-down manner which tends to reflect the priorities of the state, or those of corporations in a neoliberal economic system, to conceptualizing DPGs as infrastructures built for communities and managed through their participation.

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[3]https://gramvaani.org

3 BUILDING TECHNOLOGIES FOR COMMUNITIES

Central to this framework are the ethics that underpin the design and management of technologies. Ethics provides a common language with which to describe the values that appear salient in the design of a technology - whether it is inclusive and appropriate to the context, whether it provides structures for accountability and control by its users, who does it empower and is that equitable, etc. I also differentiate the design of a technology from its management [20]. This distinction between design and management of technologies is important because the management methods to uphold values after a technology has been deployed are often very different from design methods used at a pre-deployment stage to build the technology. Technology management is typically concerned with issues that arise at the socio-technical interface when technologies begin to be used by people and lead to unforeseen situations whereas technology design methods tend to be about values that can be statically baked into the technology itself. As with design, values drive the ethical management of technology too - are exceptions and failures handled fairly, does the management allow a plurality of views and democratic processes of resolution, do these processes promote conviviality within the communities of practice, is the technology truly empowering the weak, etc.

Who should identify such values, and how, to guide the design and management of technologies? The answer clearly lies in leveraging the structures of bottom-up democracy, rather than a small group of elite technologists or the state imposing their worldview in a top-down manner. I discuss here the relevance of networks of public spheres [21] to provide, first, a learning function for society to appreciate the different concerns of diverse publics; second, to democratically arrive at a consensus or an endless series of iterations to serve the interests of especially marginalized publics in priority; and third, to provide a means for technologists who design and manage technologies to discover the context of the communities that use their technologies and thereby effectively collaborate with them to open up technology governance structures to them. Such a mesh of public spheres to define and translate into practice the underlying ethics of a technology can thus serve to put the control of technologies in the hands of communities, as discussed by Schumacher. It can further enable conviviality in society as suggested by Illich, and also between communities and technologists since the latter often tend to belong to different contexts altogether. In contrast, as seen with the example of many DPGs in the Indian context, I argue that the disempowering effects witnessed with their use occurred specifically because the technologists behind these DPGs shut themselves off from acknowledging and reacting to the problems being faced by many publics, and local communities were not provided with tools to participate in solving these problems. Consequently, new and unequal power relationships emerged between different stakeholders rather than the DPGs having nurtured convivial structures among the public.

Following these principles, an alternative way to think about DPGs is to conceptualize them as technologies for communities. This will help clearly acknowledge the diverse publics in DPGs as the different communities that the DPGs are envisioned to service,

understand the values, priorities, and capabilities of the communities, and nurture structures of mutual support and conviviality within these communities to use and steer the DPGs. This will automatically bring democratic consensus to identify relevant DPGs and ensure that they are used towards goals defined by the communities. Such a lens may very well reveal that instead of the Aadhaar infrastructure to reduce leakages, a more relevant DPG would have been for people to track their entitlements [22], provide feedback on the operation of welfare services [23], and get better redressal rates and turnaround times on their grievances to reduce exclusions [24]. Or, to use the Aadhaar infrastructure not just to prevent identity fraud but to use the digital trails created by it to monitor exclusions and address them proactively [25]. Similarly, instead of placing a nationwide priority on financial inclusion to facilitate lending, more urgent requirements may have emerged from the communities such as to tackle agricultural distress and climate change through more scientific and equitable planning of natural resource management[4], responsive extension and advisory services, and prompt and fair assessments and payments of crop insurance. Essential elements in these DPGs for community participation in their governance would further help reflect the values and preferences of the diverse publics that the DPGs aim to serve. Further, to build a conducive policy environment in which appropriate and convivial DPGs are prioritized, meta-level DPGs will be needed, for example, to monitor whether policy debates revolve around structural issues rather than piecemeal relief [26], expose media biases that shape public opinion for policy making [27], find evidence of corporate influence on policy making [28], and provide access to open government data for citizens to audit and track resource allocation [29, 30].

It is a mistaken belief that technology imposed top-down can solve corrupt or exploitative practices on the ground. Such practices can only be solved bottom-up by strengthening community institutions and providing them with the necessary tools that are designed with their participation and managed by them. DPGs built with such a vision as technologies for communities are likely to be more relevant and lead to more equitable empowerment in communities.

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