Task Force 2
Our Common Digital Future: Affordable, Accessible and Inclusive Digital Public Infrastructure

DEFINING THE DIGITAL PUBLIC INFRASTRUCTURE APPROACH

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Abstract

This policy brief aims to lay out a common definition of digital public infrastructure (DPI), as understood through India's experience, but one that must be applied and adopted across jurisdictions. The brief argues for the immense merit of building a shared vocabulary on DPI, and its use, values, and governance. It suggests that the G20 is an immensely important forum to give meaning to this approach, and institutionalise it through various means, allowing the DPI approach to flourish in different contexts while building collaborations between G20 countries and their partners.

The Challenge

1

There is significant agreement on the value of digital public infrastructure (DPI) in development and welfare. For instance, Nigeria's[1] foundation ID programme now allows citizens to access multiple public provisions, India's CoWIN platform produced 2.2 billion vaccine certifications during the pandemic,[2] and in Togo, over 500,000 informal workers were able to access Covid-19 relief benefits from the government through a digital identity platform.[3] India's DPI approach is also increasingly finding mention in multiple multilateral and bilateral conversations including the Shanghai Cooperation Organisation, which recently adopted India's approach to DPI.[4] India-EU's Trade and Technology Cooperation also talks about adopting DPI for development[5] and India-US joint statements also mentioned a collaboration on deploying DPI in low income countries.[6]

However, defining DPI is contested terrain. With multiple concepts and uses embedded within them, DPIs have been defined through the prism of their form, values, and what they seek to do. Germany's GovStack defines DPI as solutions and systems, which enable the effective provision of essential society-wide functions and services in the public and private sectors.[7] The World Bank's Identification for Development project defines[8] DPI as digital platforms – including the institutional and legal frameworks around them – that enable the provision of essential society-wide functions and services. Co-Develop, an organisation working toward catalysing the adoption of DPI globally, defines it as a stack, with individual DPI systems playing specific functions as layers and interfacing with each other, and acknowledges the need to contextualise these layers to local realities.[9]

At the highest level, the DPI creates exponential societal outcomes through open, interoperable technology building blocks, along with transparent, accountable, and participatory governance frameworks. DPI are anchored in a robust ecosystem of public, private, and civil society stakeholders that drive innovation, but also ensure accountability of the infrastructure. Digital railroads are a commonly used analogy to refer to DPIs, laid down by the government to accelerate development and used by different service providers (the private sector) and users (citizens). However,

the different layers of DPI need to be unpacked considering DPI can be dynamic and shape-shifting based on context, and hard to capture in a fixed definition.

Given both the value of DPI and the difficulty in defining it, it is imperative for a multilateral forum such as the G20 to put forth a consensus driven understanding of DPI that can be adopted and adapted globally. This can be done from a common starting point which facilitates collaboration and sharing. Therefore, this policy brief aims to expand on the definition of DPI and asserts that the G20, under India's presidency, should adopt a framework of thinking within which the concept of DPIs can evolve and reflect the different needs and build avenues for collaborating and sharing between G20 countries and beyond.

Definition of the DPI approach

The development problem has increasingly become a digital one. It is clear that breakdowns in access to services, private and government, can be made more efficient through digital means. It is also apparent that digital services are not accessed equitably, and development, especially for those on the margins of society can be challenging. In this context, the DPI approach aims to create societal outcomes through open and interoperable technologies, implemented on the basis of transparent, accountable, and participatory governance frameworks for public, private, and civil society participation and innovation. A DPI approach allows nation states to exercise agency over their own digital journeys[10] and build digital sovereignty such that proprietary technologies don't lock-in users.[11] It also helps governments unlock market innovation and entrepreneurship through competition and ensure delivery of services at the last mile. Ensuring the whole of government approach to facilitate coordination across sectors, technical standards, and planning is essential for a meaningful implementation of the infrastructure. For its successful implementation, the DPI approach goes beyond just the technological aspects of digital infrastructure and takes a broader perspective of the ecosystem of governance, capacity, innovation, and stakeholder participation.

Therefore, there are three key pillars to the DPI approach:

- first, open interoperable technology designed to ensure that DPI are resilient, adaptable, and capable of evolving to meet the changing needs of the market;
- second, robust governance mechanisms including policies, regulation, and institutions, which can embed values of privacy by design, inclusivity, and security into the technology; and
- finally, strengthening private sector led local digital ecosystems to fuel innovations on one end and supporting civil society organisations and citizen groups to ensure accountability.

To further elaborate, there are five core DPI categories[12] that create interoperable technical ecosystems which can be built upon for multiple use cases. Each of these core DPI consist of the following building blocks:

Verifiable identity and registries: This consists of individual digital identity for authentication, business tax identification for digital certificates, health registries, and public credit registries.

Electronic signature, Public Key Infrastructure (PKI) and consent: This consists of e-signatures for signatures on the move, PKI to make documents tamper proof, and consent artefacts to electronic standard for consent.

Payments: This includes P2P payments for interoperable payments, G2P benefits transfer, bill payment protocols, and electronic toll collection.

Data and credentials: This comprises of open finance for sharing APIs, standards and schema for government issued IDs, and artificial intelligence models for more open re-use.

Discovery and transactions: This includes open and interoperable e-commerce, mobility and transport, and tax filing.

While the building blocks under each of the core DPI categories keep evolving, the five categories are an exhaustive description of the DPI universe. To build DPI from definition to implementation, it is crucial to think about critical governance foundations and should be embedded into the idea of the DPI approach. These include strategic leadership and capacity necessary to champion DPI within the country, align policy, financing and other moving parts, independent institutions to regulate and oversee the implementation of

DPI, policy frameworks to promote inclusion and innovation, legislative and regulatory frameworks to maintain and resolve privacy and citizen rights, and stakeholder collaboration to maintain bridges with user feedback and accountability.

The G20's Role

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As mentioned above, India is a part of several conversations on the DPI approach. Avenues such as the Global Digital Compact[13] which are under discussion this year also reflect nuances of the DPI approach. In this context, a multilateral forum such as the G20 offers an institutional framework for knowledge sharing, consensus building, and adaption of the DPI approach to new contexts of both member and non-member states. A collaborative forum such as the G20 is critical in ensuring the growth of the conversation on DPIs. India, a pioneer in the DPI discourse, is positioned to emerge as a hub of excellence and collaboration between countries that are building and using DPIs. Given the fervent energy of innovation and the urgent need for DPIs there are opportunities to finance efforts in states looking to develop and deploy DPIs, build tools that help identify needs and discover appropriate governance structures.

Recommendations to the G20

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The G20 can therefore play an important role in building some of the ideas suggested below:

Common framework for DPI

Most critically, the G20 needs to agree on a common framework and understanding for the DPI approach, not just the technical architecture but also the broader ecosystem of support. Holding DPIs to one definition is not possible nor is it feasible. It is however possible to outline a framework that creates an essential intellectual structure to understand DPIs. This framework can also provide flexibility to evolve into versions that differ from its current form. A consensus must be built around the different perspectives on DPI, from member and non-member countries, and align them such that there can be collaboration between states in building and using DPI. At the moment there are multiple, different, and potentially orthogonal perspectives on DPI, which reduce the space for cooperation. A multilateral forum like the G20 is a critical space to ensure open conversations and alignment.

Continuity of agenda

The G20 must ensure that DPI remains on the agenda even as the presidency moves to Brazil and South Africa. Given the criticality of the DPI agenda and its links to the Global South, it is important to build linkages with the different working groups of the G20. DPI can serve as a lens through which multiple G20 issues of health, infrastructure, and mobility can be examined. Several organisations such as the World Economic Forum are working towards it but it is an effort that needs to be championed by G20 members themselves. Brazil, who will be taking on the G20 presidency in 2023-24, developed Pix in collaboration with its central bank,[14] a digital payments infrastructure solution for banks, businesses, governments, and individuals to transfer money. The Pix helped banks lend to small businesses during the pandemic. It offers a unique opportunity to interpret the DPI approach in a new context, and continue considering it as part of the G20.

Research and learning

The G20 secretariat can establish a separate working group to share

insights and evolving lessons from the adoption and adaptation of DPI globally. A centre of excellence has been established in India[15] and the Centre for DPI[16] is also building knowledge and collaboration on DPI but it would be imperative to escalate the DPI issue to a working group status to ensure that conversation is sustained. An official working group will give the essential G20 sign off to DPI agenda and will serve as an official convenor for DPI related conversation. This working group will foster not just learning but also collaboration through engagement with governments, researchers, technologists, implementing agencies, and civil society stakeholders.

Capacity building and sharing

One of the most critical areas of needs and challenges to scaling DPI is capacity. Therefore, for G20 to make a significant contribution to the DPI story, it is important to create avenues for capacity diagnosis, building, and sharing. This can be done through a centre of excellence or a technical university established to focus on DPI capacity building. Again, the intervention of the G20 in facilitating this exchange of capacity will help add significant wind to the journey of DPI globally.

In conclusion, there are multiple examples of DPI globally, each defined in their own specific way. Therefore, it is imperative to think through the DPI approach, a way of working and thinking that includes technical, governance, and societal perspectives and doesn't push as one-size fits all solutions. Given the similarities and differences that the DPI approach is able to straddle, it is important for the G20 to invest resources and capacity in ensuring that this critical conversation remains on the agenda and is able to unlock different types of value for member and non-member states.

Attribution: Astha Kapoor and Erin Watson, "Defining the Digital Public Infrastructure Approach," *T20 Policy Brief*, August 2023.

Endnotes

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