



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



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BUILDING BRIDGES: ALIGNING DIGITAL PUBLIC INFRASTRUCTURE AND CROSS-BORDER DATA FLOWS

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Abstract



The movement of data across country borders is essential to the global economy, enabling the transmission of information for online communication, tracking global supply chains, achieving sustainable development, ensuring global health security, addressing climate change, sharing research, and supporting technological innovation. Fundamentally, data flows underpin both Digital Public Infrastructure (DPI) and Data Free Flow with Trust (DFFT). This Policy Brief explores areas of synergy to affordable, accessible, and interoperable DPI through the lens of

cross-border data flows, highlighting sectors such as sustainable agriculture and public health, and outlines how data flows can accelerate and enhance the G20 DPI agenda. From a policy standpoint, both DPI and data flows enable local data ecosystem maturation, particularly in data protection, and have received support at the highest levels in the G7 and G20. From the local to the global, this Brief argues that efforts to elevate and operationalise DPI at scale and data flows globally should not take place in parallel but rather, reinforce and, to the extent possible, complement one another.



Introduction

1



Digital Public Infrastructure

Physical infrastructure has historically been the backbone of economic development. Digitisation has transformed the way we interact and collaborate with the economy. In order to meet the scale of economic opportunity brought about by digitisation, digital societies need robust digital and physical infrastructure that is inclusive, collaborative, and ensures social and economic growth with a human-centric approach. One such mechanism is the evolution of Digital Public Infrastructure (DPI). DPI is an ecosystem-wide approach, focusing on universal access, interoperability, and innovation. This is often designated as a ‘stack’—a common concept in software development that consists of “a set of components working together effectively and efficiently to execute an application and for data to flow.”¹

Several countries are leveraging DPI for robust public service delivery and to accelerate innovation and meet their sustainability goals. Estonia’s X-Road data exchange solution streamlines the way in which citizens engage with their government by having a single portal for sharing information that can then

serve different government functions, including receiving permits, storing core documents, paying taxes, and registering for government services. X-Road also has a transparency portal that notifies citizens when their personal data has been shared, by whom, and for what purpose.²

India Stack,³ the DPI in India, has had a multiplier effect on the country’s socio-economic development. With DPI, India has undertaken a journey of 46 years to reach more than 80 percent financial inclusion in less than six years.⁴ India is also developing protocols and incentivising network development for e-commerce (Open Network for Digital Commerce), open banking (Account Aggregator Network), credit to small businesses (Open Credit Enablement Network), agriculture digital services (Agri Stack), and logistics (Unified Logistics Interface Platform). These areas have contributed to a rapidly growing digital economy in India and digitisation supported by DPI.⁵

Data Free Flow with Trust (DFFT)

In 2019, and again at the latest G20 Summit in Indonesia, the G20 members endorsed⁶ Data Free Flow with Trust



(DFFT)—a vision for data flows in which openness and trust in data flows coexist and complement each other.⁷ DFFT envisions promoting cross-border data flows by creating mechanisms for the transfer and verification of data that are trusted and flexible enough to accommodate the values of different countries.⁸ In support of and in alignment with these efforts, the G7 is also developing frameworks to operationalise DFFT, including roadmaps⁹ and action plans¹⁰ that were presented to the G7 in the UK and Germany. From the perspective of interoperable DPI, it is worth noting that these frameworks mention privacy-enhancing technologies (PETs) in the section ‘Continuing regulatory co-operation’.¹¹ The PETs aim to balance the protection of privacy and the use of data, and include differential privacy, secure multiparty computation, and federated analysis.


One common argument against DFFT is that if a country participates in a cross-border data transfer system before domestic data ecosystems are firmly established, its data assets could be stripped by foreign entities.¹² As has been noted, however, both DFFT and DPI enable the maturation of domestic ecosystems, as both would necessitate internal capacity for data exchanges and flow.¹³ The economic cost of inaction on DFFT is also high. Cross-border data flows can have significant benefits for local economic growth and for the digital economy.¹⁴ A recent study models the impact of a rise in cross-border data transfer restrictions around the world on digital services exports, noting an estimated cost of “between \$19 billion and \$36 billion by 2025, spread across exports, investment, productivity and worker income”.¹⁵



The Challenge



2



Digital solutions risk remaining fragmented and unscalable in the absence of frameworks that enable the flow of data across ecosystems and between countries. There are significant gaps and challenges in the deployment and effective utilisation of digital stacks and their core components globally. Chief among these include “inadequate data governance frameworks resulting in limited interoperability between information systems and databases, reduced data quality and accuracy, and insufficient safeguards for and trust in their use”.¹⁶

The primary data-related challenges to the deployment of digital public infrastructure at scale are as follows:

- **Policy and regulatory frameworks lack interoperability:** Data protection laws across jurisdictions are at varying levels of development. Approaches to data protection vary based on jurisprudential evolution, cultural differences, and regional priorities. Such differences create regulatory uncertainties that could cost millions to any economy dependent on digitalisation. This is particularly challenging when a jurisdiction mandates data sharing only with a selected list

of countries (prevalent in the adequacy or white-list approach), as it creates uncertainty in respect of data transfers for DPIs. Lack of technological and infrastructural capacity can exacerbate this issue. This is particularly so for developing countries that do not have the capacity or existing infrastructure to make the open-source stack fit for purpose and will therefore rely on the data capabilities of third-party companies and countries with adequate data infrastructure to house their data and leverage DPI.

- **Fragmented technical standards:** There is a lack of synergy in data standards to support the deployment of DPI between businesses and governments, as well as between businesses. Owing to its digital nature, DPIs drive value by way of data sharing among participants of the network. However, public and private sector authorities, in the absence of an agreed framework, utilise a variety of data standards for the collection, storage, and sharing of data, which inhibits seamless data transfers between jurisdictions in different countries. Initiatives like GovStack, which aim to develop reusable software components to build upon shared data frameworks for DPI and other digital public services, are few and far between.¹⁷

- **Limitations to bilateral agreements:** Due to the pace of development in different jurisdictions, market and technological maturity, as well as geopolitical considerations, building international consensus to exponentially scale DPI and enable data flow remains in the background. Bilateral efforts, while successful, have resulted in a patchwork of one-off agreements that hinder greater regional and global growth. Examples of bilateral agreements also remain limited to the financial sector¹⁸ or trade and business transactions and lack robust data-sharing agreements.¹⁹

DFFT faces similar challenges in these areas. Approaches to solving challenges related to cross-border data flows have been recognised to be effective not only through agreements and policies but also through technologies, standardisation, and certification standards.²⁰ In January 2023, Kono Taro, Japan's Minister of Digital Transformation, proposed an international base registry of regulations on cross-border data transfer and data localisation as one of the projects to operationalise DFFT and better understand complex, ever-changing, and overlapping regulations on data in various countries.²¹ At the

Trilateral Commission in March 2023, Japan, as Chair of the G7, emphasised the importance of strengthening cooperation with India, Chair of the G20, especially in digital fields.²² Japan called for the participation of India and other emerging countries in recognition that the driving forces for growth in the digital economy are particularly salient in emerging economies. Such cooperation necessitates addressing cross-border data flow challenges in the context of DPI, particularly as the application of the India DPI stack globally has been identified as a priority by the Indian G20 presidency.²³

This was further emphasised during the Japanese Prime Minister's visit to India in March 2023, when the strategic importance of advancing the Free and Open Indo Pacific (FOIP) to promote "international public goods" was emphasised²⁴ by building on previous statements made by both governments, acknowledging that, with regard to technology and connectivity, "to succeed, we must not only build infrastructure, we must also build bridges of trust".²⁵

To promote technological collaboration, the Government of Japan leveraged its



G7 presidency to accelerate institutional cooperation and technological responses to DFFT and propose an international framework for public-private partnerships that will serve as the core of this effort through establishing the Institutional Arrangement for Partnership (IAP).²⁶ As outlined in the April 2023 G7 Digital and Tech Track Communique, the IAP would bring together a “broader multidisciplinary community of data governance experts from different backgrounds including the relevant data protection authorities from around the world”.²⁷

While both governments have much work to do in harmonising dialogue on data flows and DPI, India has signalled its willingness to be present in ongoing efforts and negotiations when it comes to DFFT, most recently by attending the G7 Tech and Digital Ministers’ meeting in Japan in April 2023.

DPI and cross-border data flow: Social and economic opportunity

Data is a critical component of any DPI as it allows for networks to develop, leading to a seamless and responsible exchange of information between

nodes, platforms, and devices. Without adequate data flows, DPI would be unable to evolve a robust network or interoperate with other protocols and solutions or draw meaningful insights and analyses. In the context of DPI, which is seen as a key pathway to inclusion, digital solutions risk staying fragmented and unscalable in the absence of frameworks and interoperability that enable the flow of data across ecosystems. Digital systems are integral to various aspects of society, from government services and financial and non-financial sectors, to market participation. Both DPI and DFFT play a crucial role in enabling countries to function effectively and facilitate cross-border exchanges. DPI emphasises domestic preparedness, enabling countries to participate as equal partners in DFFT.²⁸ Thus, “the success of both DPI and DFFT hinge on the common understanding that they are intrinsically linked, with DPI focused on domestic readiness and the ability of countries to engage as equal partners in DFFT”.²⁹

Maximising the potential of DPI requires leveraging, aggregating, and analysing data collected through the infrastructure. Improving and making



DPI more fit for purpose across borders requires data sharing and mechanisms that can integrate learnings from the data collected from the original stack. It also allows countries to adapt DPI to fit their own data regimes and frameworks and to leverage DPI to inform policies that can better serve citizens and contribute to global public goods. In the context of global crises on climate change, food insecurity, and the global economy, creating mechanisms for data insights leveraged from DPI could have significant global benefits. DPI that is built with a future-forward stack, keeping in mind potential use cases where cross-border data sharing within the context of DPI might be required, will help provide solutions that extend beyond any one country's borders.

DPI and data flows reinforce one another in critical areas, including sustainability and health.

Sustainability: Technological advances in data collection and analytics can help smallholder farmers in developing countries meet rising food demands in harsher climate conditions. DPI such as the agriculture data exchange, piloted in Telangana,³⁰ is an example of an open-source interoperable platform enabling

the discoverability and accessibility of important datasets through appropriate consent management mechanisms. Being interoperable, it can connect data providers and users from various sources both nationally and globally. As more users connect to the platform, real-time data on crop yield, crop variety, and market prices from international and local sources combined with real-time analytics can help manage the import and export of agricultural produce and contribute to transparency in supply chains. Doing so further enables collaboration on research and development and in building a coordinated strategy to address climate adaptation.

Other governments have started to harness DPI for agriculture. For instance, the Estonian government has provided a broad range of digital services to farmers, including digital registers.³¹ These registers provide useful practical information flow for farm management decisions (e.g., machine-readable data for precision-farming machinery) and enable more precise farm data collection with less effort, enabling more comprehensive analyses and allowing for greater action to the global challenge of food insecurity.³² In Norway,



the Open Earth Platform initiative aims to establish an open infrastructure for climate adaptation.³³

Global health: Global public health provides perhaps the clearest case for open and free flow of data in the context of DPI. During the COVID-19 pandemic, data flows enabled several critical responses, including data sharing for medical research and response, monitoring and control of vaccine production and distribution, and adoption of digital services for business and public service to prevent disruption. For instance, aggregated health and behavioural data relating to individuals from different countries could allow for the early detection of correlations between living conditions, treatments, and global health trends. During the pandemic, several platforms emerged that collected data from around the world to track and assess these trends.³⁴ These efforts paved the way for several pioneering cross-border data health initiatives. In the European Union, for example, the Health Outcomes Observatory brings together

the public and private sector to create a standardised data governance and infrastructure system across Europe that incorporates patients' experiences and preferences in decisions affecting their individual healthcare and that of the entire patient community.³⁵

Most efforts to mitigate challenges faced in data exchanges in health continue to focus primarily on data exchanges within countries (e.g., sandbox testing guidelines) and between institutions in any one government.³⁶ In the context of a global health crisis, however, it becomes increasingly imperative for hospitals and national health agencies to be able to add inputs to global data platforms as well as exchange aggregated data with one another to arrive at solutions quickly. As much of this data is housed within a platform built on DPI, DPI systems and data nodes must be able to at least communicate with one another. Both integration and interoperability are thus key to realising the potential of DPI, whether that integration occurs “across borders, sectors, or organizations”.³⁷



The G20's Role




3.



Given its size and economic reach, the G20 is a unique forum for international dialogue and cooperation and global policy alignment.³⁸ India is leading in the development and utilisation of DPIs in areas such as identification, payments, agriculture, and logistics, and with India's G20 presidency, there has never been a more opportune time to bring countries together to build consensus on the criticality as well as opportunities presented by DPI,

especially for solving cross-border data transfer challenges.


G20 digital working groups, particularly on digital economy, are well positioned to ensure that key digital agendas are linked between international fora, including the G7 and APEC. The alignment of digital priorities across the presidencies, particularly on data policy, could ensure greater policy coherence and the advancement of an increasingly complex and intertwined digital agenda, including on cross-border data flows and DPI.



Recommendations to the G20



4



The following recommendations are extended to address the above challenges:

Strengthen collaboration and the alignment of data-focused agendas of the G7, the G20, and APEC

- Support for increased collaboration between the G7-G20 digital agendas on data flows and DPI, including through fora such as the Cross-Presidency Dialogue on G20 Digital Agenda;³⁹
- Support for a data track to be embedded in the FOIP to build consensus at a regional level.

Advance multilateral efforts to promote cross-border data flows

- Build multilateral support for an intergovernmental and multidisciplinary body to operationalise DFFT to enable free flow of data across borders and scale DPI solutions globally, inclusive of Global South voices;
- Support the creation of an international base registry of regulations on cross-border data

transfer and data localisation to better understand complex, ever-changing, and overlapping regulations on data in various countries, provide a basis for countries to improve their own systems, and increase legal transparency and stability for industries in each jurisdiction;

- Support multistakeholder collaboration to operationalise data flows in support of DPI, such as the World Economic Forum's Data Free Flow with Trust Taskforce;
- Endorse the creation of an IAP and its focus on addressing challenges related to cross-border data flows in the context of standardisation and certification standards for DPI.

Build frameworks and standards for governments to be able to adapt and scale DPI solutions through the free and open flow of data

- Support the standardisation of a chief data officer (CDO) role for countries and help shape the mandate of the CDO role, including the creation of a standardised template for data protection legislation and interoperability in the context of DPI;




- Develop templates to enable data transfers in the context of DPI that include a minimum baseline of data flow requirements for the transfer of DPI between countries;
- Support sandboxing frameworks for DPI that allow for the interoperability and transfer of data between countries to promote cross-border innovation and SME growth;
- Support international technical assistance for developing countries to build data ecosystem maturity alongside the advancement of DPI and cross-border data flows.



Conclusion

5





The G20 can approach DFFT and DPI by grounding these two agendas in the context of shared global challenges, including global economic sustainability as well as the potential of both to enable robust local data ecosystems and maturation. Both cross-border data flows and DPI are viewed as integral to digitalisation and the delivery of global public goods; both

boost the digital economy, promote inclusion, and address the global climate crisis. Both also require digital trust to be fully leveraged by the government, businesses, and consumers. It is therefore imperative that the policy debates to advance DPI and data flows globally do not operate in parallel with one another but rather, in tandem, with each policy track reinforcing and enabling the other.

Attribution: Priya Vithani et al., “Building Bridges: Aligning Digital Public Infrastructure and Cross-Border Data Flows,” *T20 Policy Brief*, July 2023.

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