

POLICY BRIEF



# The DPI Approach to Building Accessible and Resilient Health Systems

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Digital  
Transformation



# Abstract

Digital Public Infrastructure (DPI) has demonstrated transformative potential across sectors, including health. Mapping user journeys for key stakeholders (such as patients, healthcare providers, and health system managers) reveals the pivotal role that DPIs can play in improving critical functions within global health systems such as care service discovery, continuity of care, remote consultations, outbreak management, etc. Recognising the value, efforts have been made around the globe to build DPIs for health. This includes India's Ayushman Bharat Digital Health Mission (ABDM), Europe's eHealth Digital Service Infrastructure (eHDSI), Brazil's National Health Data Network, etc. Maturity level of these initiatives varies across geographies and also present different types of challenges. This includes underdeveloped technical capabilities in Africa, lack of enabling regulations, standards and interoperability in Asia and Latin American countries.

The policy brief proposes a set of recommendations for the G20, focusing on a common assessment framework for design and implementation of DPI for health, that address these challenges. It recommends assisting countries in building technical capacity as well as multilateral arrangements for monitoring progress across countries.

# Diagnosis

## DPI-H Approach for Transforming Health Systems

Digital Public Infrastructure for health (DPI-H) is a new and evolving approach for transforming health systems in countries. It refers to a country's digital infrastructure that enables the creation of inclusive, scaled and user-driven applications in a health system.<sup>1</sup> The technical design is open, interoperable and based on reusable digital building blocks including health IDs, shared health registries, open health networks, etc. that provide a foundation for diverse use cases.<sup>2</sup> The DPI-H approach is gaining traction across countries such as India, Brazil and Kenya primarily to substitute traditionally siloed and fragmented digital health solutions with integrated and interoperable systems. Examples in Table 1 illustrate how various service areas in a health system have benefitted from a DPI-H approach. Telemedicine applications provided by India's Unified Health Interface break data silos and unbundle patient facing apps, resulting in expanded user choice, customised and improved access.<sup>3</sup> In Mozambique and Liberia, eGov Foundation's Digital Transformation for Governance, Inclusion and Transformation- Health Campaign Management (DIGIT-HCM) provides an integrated platform to improve the outcomes for different health campaigns (malaria, polio, measles) by building common registries. Modular building blocks and open APIs help customise solutions for different campaigns and facilitate coordination at scale.<sup>4</sup>

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<sup>1</sup> Vital Wave. "Digital Public Infrastructure for Health: Charting a path to implementation in LMIC health systems." *Vital Wave*, October 25, 2023. Accessed April 7, 2025. [https://vitalwave.com/wp-content/uploads/2023/11/Digital-Public-Infrastructure-for-Health\\_Final.pdf](https://vitalwave.com/wp-content/uploads/2023/11/Digital-Public-Infrastructure-for-Health_Final.pdf).

<sup>2</sup> Centre for Digital Public Infrastructure, "Digital Public Infrastructure Approach to Healthcare | DPI for Healthcare," n.d., <https://cdpi.gitbook.io/dpi-for-healthcare>.

<sup>3</sup> Centre for Digital Public Infrastructure, "Interoperable Telemedicine and More | DPI for Healthcare," n.d., <https://cdpi.gitbook.io/dpi-for-healthcare/dpi-blocks-for-health/health-care-services/interoperable-telemedicine-and-more>.

<sup>4</sup> eGov Foundation. "Reimagining Health Campaigns in Mozambique With DIGIT HCM," July 1, 2024. Accessed April 7, 2025. [https://digit.org/wp-content/uploads/2024/02/Egov-Casestudy\\_English.pdf](https://digit.org/wp-content/uploads/2024/02/Egov-Casestudy_English.pdf).

The patient-centric DPI-H approach, with real-time data sharing and coordinated service delivery, is gaining support in several multilateral fora. Most recently, health ministers under the Brazilian G20 Presidency, supported targeted investment for building DPIs and promoting interoperability standards in digital health systems.<sup>5</sup> Moreover, the Brazilian Presidency’s Task Force on ‘Inclusive Digital Transformation’ recommended developing a non-binding common set of principles for DPIs, especially concerning data justice, interoperability, and openness<sup>6</sup>, which have been taken into consideration in developing proposals in this policy brief to take the DPI-H agenda forward.

**Table 1: Examples of a DPI response to challenges of traditional digital health**

Service Area	Drawbacks of traditional digital health approach	DPI example	DPI value proposition
Telemedicine	Siloed apps hinder wider discoverability, choice and access to services	Unified Health Interface <sup>7</sup> (India)	A decentralised network built on open protocols enables supply and demand side players to be connected through apps of their choice and ensures better accessibility and wider coverage of services.
Health Campaign Management	Fragmented applications for different disease verticals hinder coordination, and limit coverage of beneficiaries. <sup>8</sup>	DIGIT-HCM <sup>9</sup> (India, Mozambique, Liberia)	Shared data registries eliminate data redundancies and duplication of processes. This enables faster rollout, planning precision and scalability.

<sup>5</sup>“Rio De Janeiro Declaration of the G20 Health Ministers,” G20 Information Centre, G20 Research Group, October 31, 2024, accessed April 7, 2025, <https://www.g20.utoronto.ca/2024/241031-health-declaration.html> .

<sup>6</sup> “T20 Brasil: Communiqué and Implementation Roadmaps”, T20 Brasil, November, 2024, accessed May 8, 2025, [https://www.t20brasil.org/media/documentos/arquivos/T20\\_Communique\\_Roadmaps.pdf](https://www.t20brasil.org/media/documentos/arquivos/T20_Communique_Roadmaps.pdf)

<sup>7</sup> National Health Authority, “Consultation Paper on Unified Health Interface,” March 2021, accessed April 7, 2025, [https://abdm.gov.in:8081/uploads/UHI\\_Consultation\\_Paper\\_60a9201c1d.pdf](https://abdm.gov.in:8081/uploads/UHI_Consultation_Paper_60a9201c1d.pdf) .

<sup>8</sup> eGov Foundation, “Reimagining Health Campaigns in Mozambique With DIGIT HCM,” July 1, 2024, accessed April 7, 2025, <https://egov.org.in/case-studies/reimagining-health-campaigns-in-mozambique-with-digit-hcm/>.

<sup>9</sup> DIGIT, Public Health, “Introducing Health | DIGIT Docs,” n.d., <https://docs.digit.org/health> .

Integrated Care	Information silos hinder holistic view of patient history and aggregated planning	National Health Data Network (RNDS - Brazil) <sup>10</sup>	Secure data exchange on patient history helps avoid repetition of tests and creates an interconnected ecosystem for improved public health management.
Continuity of Care	Limited accessibility and interoperability of health data across borders disrupts care for patients seeking cross-border medical care	eHealth Digital Service Infrastructure (Europe) <sup>11</sup>	A secure information gateway enables smooth exchange of patient summary including e-prescriptions. This promotes seamless cross-border healthcare services

Source: Compiled from multiple websites

## Challenges in scaling and successful implementation of DPI-H

The successful implementation of this approach rests on a convergence of various factors that include appropriate technical architecture, governance framework and an enabling regulatory landscape that are accompanied by appropriate policy plumbing and leadership at the back-end. However, countries don't get all dimensions right at once. This hinders the scale-up of DPI-H projects. For instance, despite access to advanced technological infrastructure and leadership in regulatory governance, EU faces the challenge of language diversity, lack of standardisation in Electronic Health Record (HER) systems and staggered implementation of regulations among member states. This affects the cross-border exchange of health data and effectiveness of interoperable service delivery systems.<sup>12</sup> In Africa, inadequate capacity results in lack of investment, both by private and public sector, as well as poor strategic thinking. This is over

<sup>10</sup> "National Health Data Network," Ministry of Health, Government of Brazil, n.d., <https://www.gov.br/saude/pt-br/composicao/seidigi/rnds>.

<sup>11</sup> European Commission, "Electronic Cross-border Health Services," March 28, 2025, accessed April 7, 2025, [https://health.ec.europa.eu/ehealth-digital-health-and-care/digital-health-and-care/electronic-cross-border-health-services\\_en](https://health.ec.europa.eu/ehealth-digital-health-and-care/digital-health-and-care/electronic-cross-border-health-services_en)

<sup>12</sup> Gabriel Seidman et al., "Strengthening Digital Public Infrastructure for Health," T20 Policy Briefs, G20 India, July 2023, accessed April 7, 2025, [https://www.t20ind.org/wp-content/uploads/2023/07/T20\\_PolicyBrief\\_TF2\\_DPI-Health.pdf](https://www.t20ind.org/wp-content/uploads/2023/07/T20_PolicyBrief_TF2_DPI-Health.pdf).

and above the gaps in quality of infrastructure. Many Asian and Latin American countries suffer from poorly designed or missing regulatory frameworks.

While DPI-H solutions require tailoring to local contexts, a readiness tool can help design and implement digital health systems, that are benchmarked to global standards of access, inclusivity and safety. This policy brief proposes a common assessment framework for implementing and monitoring DPI-H solutions. It also provides capacity building measures to achieve DPI-H's full potential for scalable, sustainable and resilient health systems. The proposed recommendations are aligned to the G20 Digital Economy Working Group's current priority to develop instruments that support DPI implementation. This includes self-assessment tools, roadmaps and DPI blueprints that reflect regional contexts for sector-specific DPIs.<sup>13</sup>

## Recommendations

### **1. G20 to propose that the WHO managed Global Initiative on Digital Health (GIDH) develops a common framework for DPI-H assessment**

An assessment framework to guide countries through DPI-H implementation and also enable dynamic monitoring within and across countries. This framework can build on the Health Information System Interoperability Maturity Toolkit<sup>14</sup> developed by MEASURE Evaluation, that has been successfully used in Ghana, Uganda and Kenya. Some key features of this framework should include the following: (i) synergistic with the country's broader digital transformation agenda and leverage the foundational building blocks of the national DPI, inter alia encourage the use of open standards, open software, open architecture and

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<sup>13</sup> "Sherpa Track Issue Note: Digital Economy Working Group," *G20 South Africa, 2025*, December 2024, accessed April 7, 2025, [https://g20.org/wp-content/uploads/2024/12/Issue-Note\\_Digital-Economy-WG-1.pdf](https://g20.org/wp-content/uploads/2024/12/Issue-Note_Digital-Economy-WG-1.pdf).

<sup>14</sup> MEASURE Evaluation, "Health Information Systems Interoperability Maturity Toolkit: Assessment Tool," 2017, accessed April 7, 2025, [https://www.measureevaluation.org/resources/publications/tl-17-03b/at\\_download/document](https://www.measureevaluation.org/resources/publications/tl-17-03b/at_download/document)

open data.<sup>15</sup> (ii) ensure solutions are developed with user-centred design principles to improve accessibility and minimise exclusion (iii) incorporate a set of measurement indicators and diagnostic surveys for monitoring impact of DPI-H enabled services for specific user-segments (such as women, differently abled, etc.) and for understanding and addressing their existing barriers to adoption. (iv) Ensure strong data governance mechanisms that follow cyber security protocols and data privacy norms. Patient data management should be aligned to the Health Data Governance Principles (Appendix 1).<sup>16</sup>

## **2. G20 to task the World Health Organisation (WHO), Africa Centres for Disease Control and Prevention (Africa CDC), Association of Southeast Asian Nations (ASEAN) and other multilateral regional organisations to assist and guide development of technical capacity for health system actors to design, develop, implement and maintain DPI-H.**

Implementation of DPI-H requires specialised digital health skills that blend technology and health-related expertise, including knowledge of health data standards and design of DPI architecture, data engineering and network security. These technical skills often do not exist within the public sector in many LMICs as there are insufficient training and education opportunities that cover digital health for the in-service health workforce. In many LMICs, there are no national pre-service training programmes with well-defined curricula focused on DPI-H, leading to an insufficient pipeline of talent with the required technical skills entering the job market from tertiary institutions.

Technical assistance should prioritise the development of in-house technical capacity within governments to design, develop and implement DPI for Health.

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<sup>15</sup> Garrett L Mehl et al., "A full-STAC Remedy for Global Digital Health Transformation: Open Standards, Technologies, Architectures and Content," *Oxford Open Digital Health* 1 (January 1, 2023), <https://doi.org/10.1093/oodh/oaad018>.

<sup>16</sup> "Health Data Governance - Health Data Governance Principles," Health Data Governance, n.d., <https://healthdatagovernance.org/principles/>.

This would reduce the reliance on external technical assistance and enable long-term ownership and control over DPI infrastructure.

### **3. G20 to agree on a monitoring system for better implementation and adaptation of the DPI-H ecosystem**

It will be critical to establish a multilateral administrative system for cross-country monitoring of DPI-H and a harmonised toolkit similar to the Global Digital Health Monitor<sup>17</sup>. A good example is Kenya's Digital Health Agency<sup>18</sup>, a semi-autonomous government agency that is responsible for building the national DPI-H ecosystem, providing oversight of data governance and regulation of digital health initiatives. Alternatively, this can be managed by WHO globally or by regional health bodies and should enable the generation of insights that will feed back into the implementation process to inform adaptations, optimisation and course correction. A repository of case studies can be developed by the G20 for knowledge-sharing among countries.

Implementation should adopt a phased and incremental approach that embraces iterative development and continuous improvement and is responsive to the emerging needs and challenges identified during each phase. Canada, Estonia, Israel and Republic of Korea that have made significant progress in maturity of their digital health systems, embody this approach.<sup>19</sup>

The global system should adapt and learn from mature systems but also allow for incorporation of the local context to gain political and administrative buy-in and fast-tracking implementation.<sup>20</sup>

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<sup>17</sup> "Global Digital Health Monitor," Global Digital Health Monitor, n.d., <https://digitalhealthmonitor.org/>.

<sup>18</sup> Kenya Health Ministry, "THE DIGITAL HEALTH BILL, 2023," 2023, accessed April 7, 2025, <https://health.go.ke/sites/default/files/Digital%20Health%20Bill%20Final.pdf>.

<sup>19</sup> World Bank Group, "Digital-in-Health: Unlocking the Value for Everyone," August 2023, accessed April 7, 2025, <https://documents1.worldbank.org/curated/en/099081723223033632/pdf/P17507505033520b109f180abcad94cfd14.pdf>.

<sup>20</sup> Diana Sang, Jane Munga, and Nanjira Sambuli, "Digital Public Infrastructure: A Practical Approach for Africa," Carnegie Endowment for International Peace, February 2025, accessed April 7, 2025, <https://carnegie-production->

# Appendix 1

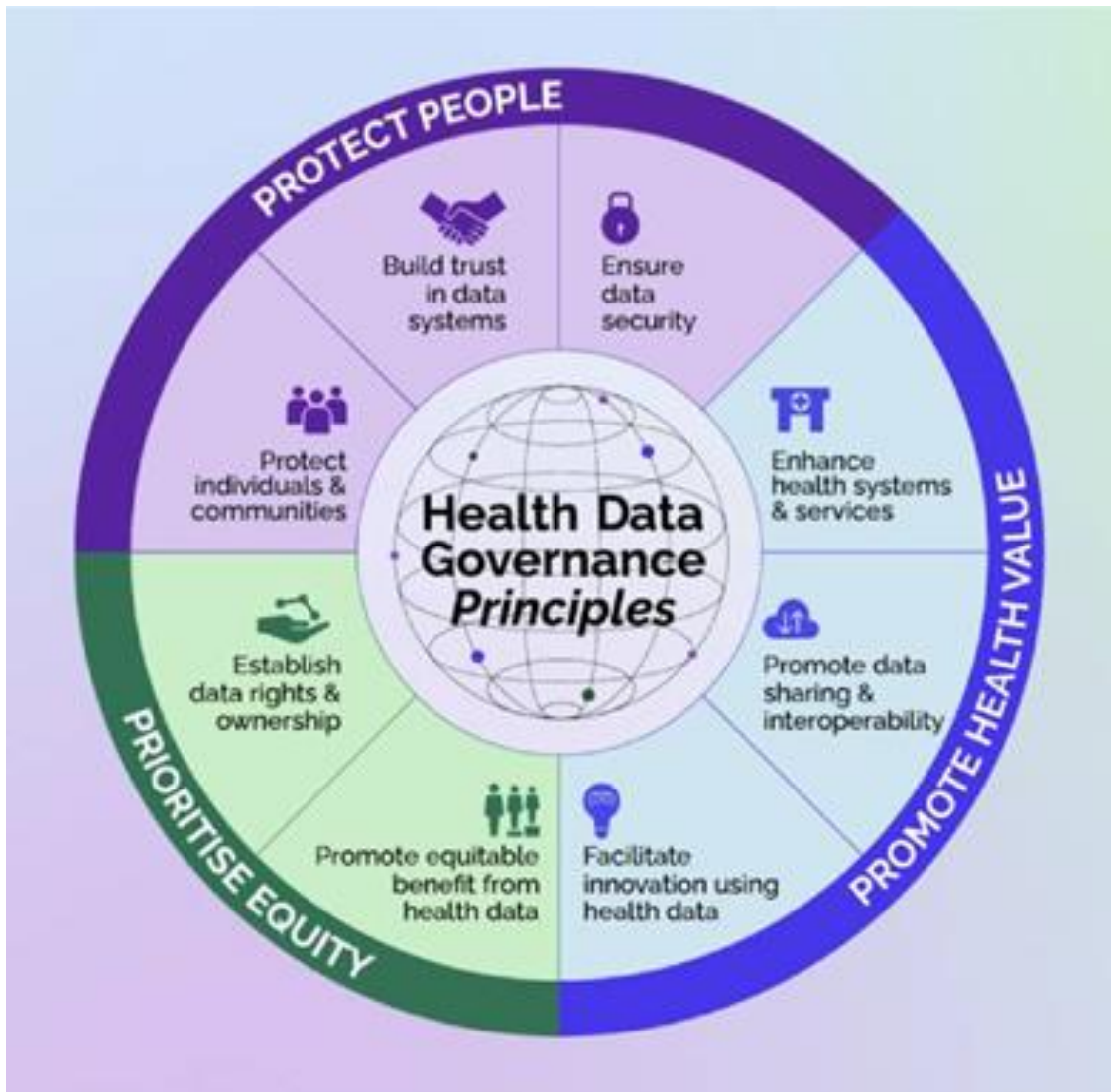


Figure 1: Health Data Governance Principles. Source: <https://healthdatagovernance.org/principles/>

## T20 South Africa Convenors

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The Institute for Global Dialogue (IGD)



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