



# Digital Public Infrastructure

## A Briefing for Libraries

4 January 2024

- 1) The concept of Digital Public Infrastructure has become prominent in discussions about both digital governance and sustainable development in the last year
- 2) In short, this focuses on putting in place the basic building blocks and networks necessary to build digital services and activities that can help achieve development goals
- 3) As 'public' infrastructures, there is a strong emphasis on being inclusive (i.e. accessible for all) and respectful of rights. Ensuring that this happens is a key aspect of work going forwards
- 4) Libraries have a key role to play, both in ensuring access to the internet, and so digital public infrastructures, but also in supporting the availability of content (digital and data commons) and sharing insights into ethical information infrastructure management.

## Introduction

The concept of Digital Public Infrastructure (DPI) has come to prominence in the past year, to a large extent promoted by India as part of its Presidency of the G20 group of nations. It has also become a key focus for the United Nations (UN), and in particular the UN Development Programme, with a new 'High Impact Initiative' launched at the Sustainable Development Goals Summit in September.

But what are DPIs, why do they matter for libraries, and how might getting involved in work around them fit with our wider work? This briefing aims to provide answers.

## Background

It is not news that the internet and digital tools and services in general are playing a growing role in almost all elements of our lives.

The COVID-19 pandemic in particular made clear the importance of meaningful internet connectivity for education, entertainment, employment and simply maintaining social connections with friends and family.

As a result, while there have indeed been important steps forwards in terms of getting people online, it has remained a significant priority to get everyone connected.

However, the value of the internet does not just come from the fact of connectivity; it is also about the services that are available to people when they get there, such as public services, buying and selling things, learning and more.

### **Definition from the Digital Public Infrastructure Playbook ([link](#))**

*a set of shared digital systems that should be secure and interoperable, and can be built on open standards and specifications to deliver and provide equitable access to public and/or private services at societal scale and are governed by applicable legal frameworks and enabling rules to drive development, inclusion, innovation, trust, and competition and respect human rights and fundamental freedoms*

These are about more than just physical infrastructure, but also a range of other factors that, together, make it possible to realise the potential of the internet – standards, rules and tools that allow computers to talk to each other, and other services to be built on top.

It therefore makes sense to talk about 'infrastructure', because they offer a 'structure' which allows other activities to happen, just as roads and railways allow for travel, electricity grids allow power to be distributed, and cables and satellites make internet connectivity physically possible.

In particular, we can talk about digital public infrastructure. The addition of the word 'public' implies that this works to deliver on wider goals, for public and private actors alike. Importantly, just like other forms of public infrastructure (roads, railways, cables), they are not just for one specific activity, but can make it possible to carry out a variety of tools.

*'DPI has four characteristics: it (1) is interoperable (forms the underlying infrastructure for a variety of use cases alongside a range of tools, technologies and service providers); (2) can be built on open standards (is available to anyone to build on to and integrate services for people); (3) operates at a societal scale (is not restricted by geography or demographic); and (4) has robust enabling rules and regulations (has unified and coherent governance frameworks to safeguard people and prevent misuse).'*

Accelerating the SDGs through Digital Public Infrastructure, UNDP ([link](#))

As explained on the UNDP website and elsewhere, DPIs therefore are part of a 'non-siloed' approach to digital solutions – i.e. they are not just limited to one purpose or theme. They are also interoperable, allowing other services to be built on top.

Furthermore, and as will be explained more further down, there is also a growing focus on ensuring that they operate safely and ethically, both in order to ensure that everyone can benefit, and that they allow human rights to be respected.

DPIs are presented as having significant potential to support the achievement of the Sustainable Development Goals (SDGs), given that they can open the way to different programmes or services, from allowing people to access banking to voting in elections, to gaining qualifications.



## Examples of Digital Public Infrastructures

Coming from a non-technical background, it can admittedly be a little difficult to understand what a digital public infrastructure is. However, there are a growing number of examples which help to illustrate what they mean.

Key overall categories of DPI include digital identity and digital payments systems, or services allowing for the sharing of data with users' consent.

The 'original' example of a DPI was the Aadhar programme in India, which allowed for Indian citizens to have a digital identity. This matters if people are to be able to prove who they are without having to come to an office in person, whether it is in accessing public services, or opening bank accounts for example.

Strongly promoted by the Indian government as part of its G20 presidency, the programme has over 1.31bn users (95% of India's population).

Another case study of a digital identification system is the DigID programme in the Netherlands, a shared digital identity platform that allows for everything from tax declarations to benefits requests to booking doctor's appointments through a single log-in.

A second type of DPI are payment systems. An example of this is the United Payments Interface, also from India, which allows for simple digital payments. This can be used both for payments from the government to individuals, but also paying businesses for services, and allowing for people to open bank accounts. This has indeed been credited with making major progress in extending access to banking services.

At the global level, there is now the G2P Connect initiative, focused on making it easier to make digital payments to citizens, using

### G20 Principles for Digital Public Infrastructure

1. Inclusivity
  2. Interoperability
  3. Modularity and extensibility
  4. Scalability
  5. Security and Privacy
  6. Collaboration
  7. Governance for public benefit, trust and transparency
  8. Grievance redress
  9. Sustainability
  10. Human rights
  11. Intellectual property protection
  12. Sustainable development
- See p5 of the UNDP Compendium

interoperable standards and blueprints for design that can be implemented by countries.

A connected instance from elsewhere is the system implemented in Ukraine to ensure both that payments got to the people that needed them, but at the same time, that duplication of payments can be avoided. Crucially, this is done in a way that preserves privacy, through using anonymisation, controlled access to the system, and not retaining any personal data.

Finally, looking at tools for sharing personal data, India's Data Empowerment Protection Architecture offers a possibility to keep and share key legal documents, for example to allow for buying things, accessing healthcare, or proving qualifications. It has allowed in particular for systems to monitor vaccine take-up, such as the CoWIN initiative.

It is worth noting that DPIs and Digital Public Goods often interact. Digital Public Goods are more specific tools or services – such as the CoWIN initiative set out above – which can work together to create a DPI, or build up on one. They are explained in more depth in our earlier briefing on the topic.

## Goals going forwards

As examples of DPIs become more widely known (or at least talked about as such), and the concept itself becomes more popular as people look for alternatives to 'private' infrastructures, a work programme is emerging for the wider agenda.

These are set out clearly in the 'High-Impact Initiative' on DPI presented at the SDG Summit in September 2023. The five pillars of this work are as below:

**Universal safeguards:** while the idea of DPI is spreading, there are no shared principles and standards for ensuring that they work in ways that are inclusive, and which respect rights, in particular around privacy. Work is already underway to build consensus around definitions as soon as possible.

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**Affordable and open:** this focuses on how to share the expertise and knowledge necessary to allow countries to implement and use DPIs, as well as open digital and data commons – i.e. materials that can be used to make DPIs useful.

**Sustainable and green:** this focuses more on the goals that DPIs can help achieve, and in particular transparency, data sharing and innovative green financing. The idea is to look more concretely at how DPIs can deliver here.

**Financing DPI for sustainable development:** finally, and in addition to the skills mentioned above, there are financing needs. The idea here is to look at how to use planned development spending to support DPIs that help achieve goals.

The idea is to promote a transition, from lack of integration and reusability to open protocols and APIs, from poor regulatory oversight to participatory and consultative practices, and from high barriers to entry and low coverage to wide coverage and easy entry.

## Why does this matter for libraries?

As mentioned above, there is growing alarm at the realisation that so much of our digital environment is currently owned by private (foreign for most) actors, and a desire to ensure that critical infrastructures are protected and available for all.

A first key angle for libraries is in the second of the five areas of focus set out above – last-mile connectivity, or in other words, what it takes to connect everyone.

With digital (public) infrastructures contributing to the digitalisation of more and more aspects of life, it seems clear that not having an ‘on-ramp’ to them is likely to be an increasingly major factor of exclusion into the future.

It is therefore essential that people have the possibility not just to get online, but also the skills and confidence to use the possibilities open to them.

This is an area of traditional library strength, with plenty of evidence existing not just about how libraries bring people online, but how they do so in a way that allows them to make the most of the internet.

A good specific example is the work in Australian libraries, supported by the government and others, to work through libraries to build knowledge and comfort in using digital health records.

What is particularly interesting here is the explicit call for partnerships with community-based actors, 'to integrate intermediaries into local digital ecosystems and facilitate greater scale services for inclusion'.

A second angle is around the work of libraries in building the wider digital and data commons, in particular in areas likely to contribute to wider sustainable development.

The example of the UN Biodiversity Lab, now formally recognised as a digital public good, is interesting. This aims to bring together and make available public datasets to support decision-making, curate collections, and stimulate further work on data availability and transparency. In doing so, it can provide the raw data that can work through DPIs, for example for environmental monitoring or supporting sustainable agriculture.

These are areas where libraries have an obvious role to play, from the government and special libraries involved in managing and curating data from public sources to the academic and research libraries managing research outputs and often running repositories.

A third is in what libraries can do to help people become confident in engaging with wider questions around internet and digital governance. A key theme throughout proposed work on DPI is that it should involve a range of stakeholders in order to fulfil the goal of being inclusive and rights respecting.

In this space, of course, libraries can also apply their own experience of gathering and giving access to information and services in ways that meet the needs of all users, while safeguarding rights such as to privacy. This could be highly relevant to work on universal safeguards.



## Conclusions and actions

The concept of Digital Public Infrastructure is still a relatively new one, and definitions are still coming into focus. However, the concept fits well with the wider idea of ensuring that that internet works in ways that support development, and not just private interests.

Just as libraries should be at the table in any discussion of digital and internet governance, they also have a role to play here, in terms of the practical support they offer in making a reality of digital inclusion, the support they can offer in making content available, and their wider experience of managing information in ways that protect rights.

Interested in knowing or doing more? Try one of the following!

1. Read more about DPI on the [UN Development Programme website](#). This includes lots of links off to different aspects of UNDP's digital work, as well as a [compendium of examples](#) and a [Playbook on DPI](#).
2. See if your country has a UNDP office (follow the link to your region from [this page](#)). Take a look at the work they are already doing, in particular around digital issues. Maybe they are already working with libraries?
3. Make contact with your local UNDP office and suggest a meeting or call in order to think through how libraries can support this work. Make sure that you have a good argument to make and story to tell, potentially using the ideas above, or match your inputs to their [Digital Transformation Framework](#).
4. Think more broadly about who you could work with, such as [Internet Society chapters](#), [IEEE sections](#), or [national Internet Governance Fora](#) (to note, some are more active than others). You might also look at the network of UNDP Accelerator Labs (see our [story of a successful engagement in Türkiye](#) for example!).