

ABOUT DPIS

Decoding digital public infrastructure for India's future

As the country marks 10 years of Digital India, its future approach to DPI will be determined by critical privacy laws. India differs from the routes to digitalisation adopted by other big economies. India's DPI is neither led by state nor by tech sector but by a collaboration between the two.



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Speaking at the AI Action Summit in Paris in February 2025, Prime Minister Narendra Modi declared, "India has successfully built a digital public infrastructure (DPI) for over 1.4 billion people at a very low cost. It is built around an open and accessible network. It has regulations, and a wide range of applications to modernise our economy, reform governance and transform the lives of our people."

Indeed, DPIS and related digital goods and services have proven their potential for driving digital inclusion, boosting service delivery and innovation, and ensuring digital human rights without compromising on trust and security. Encouraged by the scale of success, several other states in the Global South have begun to build their DPIS with India's support.

The enthusiasm around DPIS goes well beyond the South. The European Union is working

with India to make their respective DPIS more interoperable, and the two have "pledged to promote DPI solutions to third countries." Similarly, the United States has made a commitment with India to enter into a Global Digital Development Partnership to pool technology and resources and help build DPIS in developing nations. The G20 too, has been promoting the uptake and benefits of DPI since the Indian presidency of 2023, through the Brazilian presidency of 2024, and the ongoing presidency of South Africa.

WHAT ARE DPIS?

DPIS refer to "a set of shared digital systems which are secure and interoperable, built on open standards, and specifications to deliver and provide equitable access to public and private services at societal scale, and are governed by enabling rules to drive development, inclusion, innova-

tion, trust, and competition, and to respect human rights and fundamental freedoms."

They adhere to the basic principles of public infrastructure, i.e. they are indivisible, non-exclusionary, and offer opportunities for public value capture. Leading examples of DPIS in India include the Aadhaar unique digital identity; the Unified Payments Interface (UPI)—a real-time payments system; and the Data Empowerment and Protection Architecture (DEPA)—a secure consent-based data-sharing framework. These and other DPIS have been instrumental in shaping India's digital economy, in much the same way that physical infrastructure like roads or ports have contributed to its economic growth and development.

DPIS are composed of building blocks such as software code, platforms, applications and application programming interfaces (APIs) that are in-



Representational image.

teroperable and generic. Because these blocks are modular in nature, they can be combined to create a stack of technologies that constitute the DPI's architecture.

THE INDIAN APPROACH

India's approach to DPI implementation differs from the routes to digitalisation adopted by other big economies. In some countries, private technology platforms have created "walled gardens" of tech infrastructure, algorithms, and services. These large platforms typically operate in—and dominate—winner-takes-all markets.

At the other end of the spectrum are certain states that are driven primarily by government-tech: governments take end-to-end responsibility for selecting technologies, building infrastructures, and providing products and services.

The Indian DPI approach lies midway between these two extremes. Here, the government and regulators have provided the basic techno-legal framework and undergirding, and the digital infrastructure is provisioned according to a public-private partnership model. In such a system, there are market incentives for the private sector to invest in and innovate

around products, service development, and user engagement. This ensures a synergistic balance between government investments in technology, the private provisioning of public infrastructure, and the need for citizen-centricity in implementation.

A metaphor often used to describe the functioning of DPIS is that of a digital railroad. At its foundation is the infrastructure layer laid by the government (which is akin to a railway track), upon which the DPI's building blocks are placed (much like signalling systems and traffic management algorithms). Atop these two layers run the consumer

applications and services developed by the private and public sectors (i.e. the trains in the metaphor).

The impact of DPI in India has been extraordinary, and it is measurable in both quantitative and qualitative terms. For example, 96.8 percent of the population now have Aadhaar digital IDs, and some 99.9 percent of all Indian adults use the Aadhaar to avail of a service at least once every month. Seeding Aadhaar with bank accounts and payment systems has led to a dramatic increase in the number of bank accounts. In 2011, only 15 percent of the Indian population above 15 years of age had bank accounts, but this increased to 77.5 percent in 2022. Moreover, UPI enabled 70 percent of all digital payments in India in FY 2023-24, and had processed some 16.6 billion transactions by October 2024.

FUTURE CONSIDERATIONS

With the passage of the Digital Personal Data Protection (DPDP) Act in August 2023, India now has a data protection law in place. While the enforcement of the Act is yet to begin, public and private entities that deal with personal data are working to make themselves DPDP-compliant. Going forward, the potential friction between DPI and the DPDP Act will need to be negotiated.

India's National Health

Authority has, for instance, integrated the DPI model into its Ayushman Bharat Digital Health Mission (ABDHM) to create an interoperable digital health ecosystem. This national health stack includes digital health IDs and electronic health records, and seeks to advance access to quality healthcare. Given the sensitivity of health data, however, stringent compliance with the DPDP Act will be crucial, especially around the receipt of explicit consent for collecting and processing personal data.

Similarly, in the transport sector, the National Highway Authority of India's FASTag system allows for efficient cashless toll payments, and has reduced operational costs and congestion across highways. Under the DPDP regime though, FASTag will have to meet substantial data localisation and privacy requirements. These will increase as it finds new use cases such as parking and fuel payments.

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