



India's Digital Public Infrastructure

This editorial is based on "[India's DPIs, catching the next wave](#)" which was published in the Hindu on 30/03/2023. It discusses India's digital public infrastructure.

For Prelims: Digital India Mission, Digital Public Infrastructure (DPI), Data protection Bill

For Mains: Concept of digital public goods and its utility, Aadhaar and associated utility, Good Governance through Digital Means, Challenges of Cybersecurity

Over the last few years, the world has been troubled by many challenges, like the pandemic, the [war in Ukraine](#) and its aftermath, the climate crisis, the sovereign debt crisis, and the recent cost of living crisis. Through this, our societies have been challenged to the core. However, there has been one silver lining on the horizon: The power of carefully designed **Digital Public Infrastructure (DPI) to provide transformational solutions**. The potential for DPI to contribute to positive change in the world has now become a major focus of India's G20 leadership.

The **DPI initiative, also known as the India Stack**, is a collection of digital platforms such as **Aadhaar, Digital Locker, DigiYatra, UPI**, and technologies that have been developed through collaboration between different entities, including governments, regulators, the private sector, volunteers, startups, and academic institutions. The goal of DPI is to provide a seamless and efficient way for citizens to access government services and promote inclusive development.

What are the Related Initiatives?

▪ Initiatives for Development of Digital Public Infrastructure in India:

- **Aadhaar:**
 - The [Aadhaar program](#) is a unique identification system that provides a 12-digit identification number to Indian residents. It serves as a digital identity and is used to authenticate individuals for various services, including financial services.
- **DigiLocker:**
 - The [DigiLocker](#) program is a digital locker that enables Indian citizens to store and share their documents online. It provides a secure and convenient way to store and access important documents such as Aadhaar, PAN, and driving license.
 - The platform provides a secure and cloud-based repository for these documents, which can be accessed from anywhere and shared with government agencies or other entities when required.
- **DigiYatra:**
 - It is a digital initiative launched by the Indian government to **provide a seamless and hassle-free travel experience to air passengers**. The initiative aims to leverage digital technologies to **minimize physical contact and provide a**

contactless travel experience to passengers.

- Under **DigiYatra**, passengers can pre-register themselves using their Aadhaar or passport and avail a range of digital services such as **self-bag drop, e-boarding pass, biometric verification, and self-identification at check-in and security points.**
- **Unified Payments Interface (UPI):**
 - The **UPI** is a mobile payment system that enables instant fund transfer between bank accounts using a mobile device. It has transformed the digital payment landscape in India and has facilitated the adoption of digital payments across the country.
- **BharatNet:**
 - The **BharatNet program** aims to **connect all villages in India with high-speed internet connectivity.** It is a crucial initiative that aims to bridge the digital divide and bring the benefits of digital infrastructure to rural India.
- **AarogyaSetu:**
 - It is a mobile application launched by the Government of India in April 2020 as a part of its **efforts to contain the spread of COVID-19.** The app is designed to **help users assess their risk of contracting COVID-19 based on their interaction with other individuals and provide information on COVID-19 related health services.**
 - It also provides users with **real-time updates on the number of COVID-19 cases in their area and alerts them if they have been in close proximity to someone who has tested positive.**
- **CoWIN :**
 - It is an online platform developed by the Government of India to facilitate the registration and scheduling of **COVID-19 vaccination appointments for Indian citizens.** The platform was launched in January 2021 as a part of India's vaccination drive against COVID-19.
 - Through the **CoWIN** portal, Indian citizens can register themselves for the COVID-19 vaccine and **schedule an appointment at a vaccination centre near their location.**
 - The **platform allows citizens to search for vaccination centres based on their location and availability of the vaccine. CoWIN also provides information on the types of vaccines available at each centre.**
- **Data Protection Initiatives for Digital Public Infrastructure:**
 - **Aadhaar Act, 2016:**
 - The Aadhaar Act provides a legal framework for the Aadhaar program and sets out provisions for the collection, storage, and use of personal data. It also establishes the Unique Identification Authority of India (UIDAI) as the central authority responsible for managing the Aadhaar program.
 - **Personal Data Protection Bill, 2019:**
 - The **Personal Data Protection Bill** aims to protect the privacy of personal data and establish a framework for its processing and transfer. It seeks to establish a Data Protection Authority of India to oversee and enforce data protection regulations.
 - **National Cyber Security Policy, 2013:**
 - The National Cyber Security Policy provides a framework for the protection of critical information infrastructure and the prevention of cyber-attacks.
 - **Cyber Swachhta Kendra:**
 - The **Cyber Swachhta Kendra** is a project launched by the government to secure digital devices and networks by providing free tools and security solutions.

What are the Challenges Related to Digital Public Infrastructure India?

- **Political challenges:**
 - The development and implementation of digital public infrastructure require **significant political will and support**, as it often involves **substantial investments of public funds.** Governments may face challenges in securing the necessary resources and gaining

public buy-in for such initiatives.

▪ **Funding challenges:**

- The **creation and maintenance of a robust digital public infrastructure require significant investment**, and governments may face budget constraints in funding these projects. Additionally, financing models that support the long-term sustainability of the infrastructure may be difficult to establish.

▪ **Privacy and security challenges:**

- Digital public infrastructure involves the **collection, storage, and use of large amounts of sensitive data, which increases the risk of privacy and security breaches**. Governments must ensure that the infrastructure is designed and implemented with strong privacy and security measures to protect citizens' information.

▪ **Digital divide challenges:**

- There is a risk that digital public infrastructure could widen the digital divide, as those who do not have access to digital technologies will not be able to benefit from the services provided. Governments must ensure that the **infrastructure is accessible to all citizens, including those in rural or remote areas and those with disabilities**.

▪ **Legal challenges:**

- The creation of digital public infrastructure may require changes to existing legal frameworks to enable the sharing of data and the provision of digital services. Governments must navigate complex legal issues such as data protection, intellectual property rights, and liability for data breaches.

What Should be the Way Forward?

▪ **Strengthen Cybersecurity:**

- The Government needs to invest in [cybersecurity](#) measures to protect digital systems from cyber threats. This includes developing robust security protocols and implementing regular audits to identify vulnerabilities.
- Cyber security can be strengthened by building a comprehensive legal and regulatory framework to combat cyber threats, including laws on data protection, [cybercrime](#), and information security.

▪ **Expand Digital Infrastructure:**

- To reach the maximum population, there is a need for the government to expand the digital infrastructure across the country. This includes improving internet connectivity, building data centres, and providing digital access points.
- Investing in emerging technologies, such as **5G, artificial intelligence, the Internet of Things (IoT) and, Blockchain Technology** can be very much helpful for expanding digital infrastructure.

▪ **Increase Access to Digital Services:**

- The government must ensure that digital services are accessible to all citizens, regardless of their socio-economic status or geographic location.
 - **Expanding internet connectivity to rural and remote areas** using innovative technologies such as [satellite broadband](#), [Gigamesh networks](#).
- Creating **user-friendly digital interfaces and supporting the creation of local language applications** and content will **increase the accessibility of digital services to non-English speaking populations** so that even those with low levels of digital literacy can use them.
- Establishing community centres and digital literacy programs to educate and train people on how to use digital services.

▪ **Promote Data Protection:**

- The government must enforce strict data protection regulations to protect personal information from misuse. This includes establishing clear guidelines on data usage, storage, and sharing.
- Implementation of [Data protection bill](#) to regulate the collection, storage, processing, and sharing of personal data of individuals can be very much helpful in data protection.

▪ **Encourage Digital Skills:**

- The digital economy requires a workforce with the necessary digital skills. The government must promote digital literacy and provide training and upskilling opportunities to create a skilled workforce.

▪ **Improve Interoperability:**

- The government must ensure that digital systems are interoperable with each other, enabling seamless integration between different digital platforms.

▪ **Foster Public-Private Partnerships:**

- The government must collaborate with the private sector to drive innovation, investment, and knowledge-sharing, to develop more effective and sustainable digital public infrastructure.

Drishti Mains Question

Discuss the significance of Digital Public Infrastructure (DPI) in India for achieving the goal of inclusive growth and digital transformation. Highlight the challenges faced by India in the development and implementation of DPI.

UPSC Civil Services Examination, Previous Year Question (PYQ)

Prelims

Q1. Which of the following is/are the aim/aims of “Digital India” Plan of the Government of India? (2018)

1. Formation of India’s own Internet companies like China did.
2. Establish a policy framework to encourage overseas multinational corporations that collect Big Data to build their large data centres within our national geographical boundaries.
3. Connect many of our villages to the Internet and bring Wi-Fi to many of our schools, public places and major tourist centres.

Select the correct answer using the code given below:

- (a) 1 and 2 only
- (b) 3 only
- (c) 2 and 3 only
- (d) 1, 2 and 3

Ans: (b)

Q2. Consider the following statements: (2018)

1. Aadhaar card can be used as proof of citizenship or domicile.
2. Once issued, the Aadhaar number cannot be deactivated or omitted by the Issuing Authority.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Ans: (d)

Exp:

- The Aadhaar platform helps service providers authenticate identity of residents electronically, in a safe and quick manner, making service delivery more cost effective and efficient. According to the Gol and UIDAI, **Aadhaar is not proof of citizenship.**
- However, UIDAI has also published a set of contingencies when the Aadhaar issued by it is liable for rejection. An Aadhaar with mixed or anomalous biometric information or multiple names in a

single name (like Urf or Alias) can be deactivated. **Aadhaar can also get deactivated upon non-usage of the same for three consecutive years.**

Mains

Q. “The emergence of the Fourth Industrial Revolution (Digital Revolution) has initiated e-Governance as an integral part of government”. Discuss.

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