



India's Digital Public Infrastructure

This editorial is based on [Pathways for digital inclusion](#) which was published in The Indian Express on 31/07/2023. It talks about challenges and benefits of the digital public infrastructure (DPI).

For Prelims: [Digital Public Infrastructure](#), [Aadhaar](#), [UPI](#), [Account Aggregators](#), [India Stack](#).

For Mains: [Data Protection](#), Challenges and Benefits of Digital Public Infrastructure

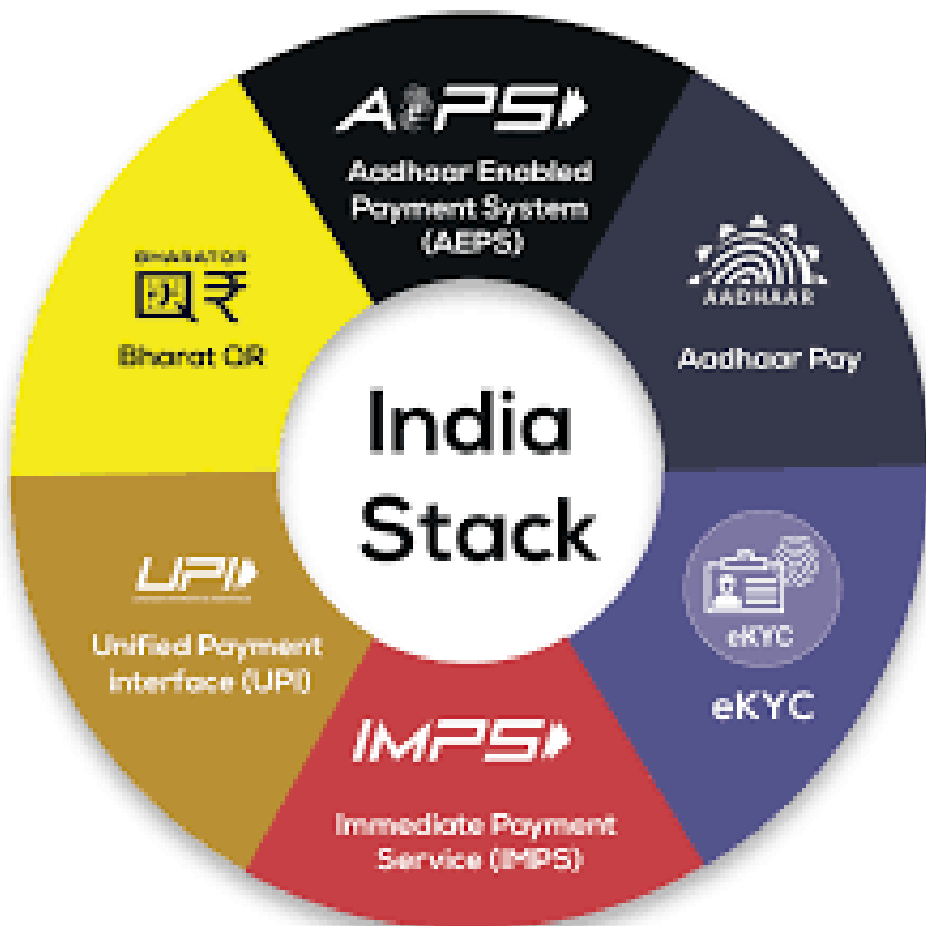
Digital Public Goods (DPGs) are digital pathways that **play a crucial role in providing essential services**, benefiting society as a whole. These DPGs are **built on Digital Public Infrastructure (DPI)**, which **consists of open and interoperable platforms**, accessible to anyone for usage and development.

India, being a pioneer in the field, has successfully **implemented various DPI experiments, including Aadhaar, UPI, and account aggregators**. These initiatives have **revolutionized the digital landscape**, enabling financial and social inclusion across different sectors. India's DPI ecosystem, known as **"India Stack"**, consists of **interconnected yet independent "blocks"** that serve as identity, payment, data sharing, and consent mechanisms. The modular layers of India Stack create opportunities for **innovation, inclusion, and competition** in the digital realm.

What is India Stack?

- India Stack is a set of APIs (Application programming interface) that allows governments, businesses, startups and developers to utilize a unique digital Infrastructure to solve India's hard problems towards presence-less, paperless, and cashless service delivery.
- It aims to unlock the economic primitives of identity, data, and payments at population scale.
- The vision of India Stack is not limited to one country; it can be applied to any nation, be it a developed one or an emerging one.
- This project was conceptualized and first implemented in India, where its rapid adoption by billions of individuals and businesses has helped promote financial and social inclusion and positioned the country for the Internet Age.

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What are the Key Elements Essential for Inclusive DPIs?

- **User-Centric Design:**
 - Prioritizing user needs and preferences, **reducing technology risks, and catering to diverse groups**, including those with limited smartphone access or low digital literacy.
- **Policy Objective:**
 - Embedding inclusion as a key policy objective within the regulatory framework, **ensuring [data protection](#) and privacy for all users**, and avoiding information disparities between regions or communities.
- **Developing Use Cases:**
 - Identifying underserved segments and **developing use cases tailored to their specific needs.**
 - Regularly monitoring the impact on vulnerable consumers through disaggregated **data collection and feedback mechanisms.**
- **Engagement:**
 - Building engagement with users **through offline channels, institutional capacity building, trust-building**, and awareness generation. Leveraging trusted human points of contact, such as business correspondents or community leaders, to foster digital comfort among vulnerable consumers.

What are the Benefits of Inclusive DPIs for India?

- **Equitable Digital Economy:**
 - Inclusive DPIs foster a more equitable and accessible digital economy that **provides essential services** to all citizens and organizations.

- **Wealth Gap Reduction:**
 - Bridging the **wealth gaps and building an efficient and resilient digital economy** that drives economic growth and social development.
- **Digital Inclusion and Empowerment:**
 - Inclusive DPIs ensure that **all segments of society**, including marginalized and underserved communities, **have access to essential digital services**. This fosters digital inclusion, empowering individuals to participate in the digital economy, access information, and avail themselves of various online services.
- **Enhanced Service Delivery:**
 - Inclusive DPIs **improve the delivery of public services such as healthcare, education, and governance**. Through digital channels, government agencies can reach citizens more efficiently, reducing bureaucracy and ensuring better service outcomes.
- **Reduced Transaction Costs:**
 - Digital transactions through inclusive DPIs often have **lower transaction costs** compared to traditional methods. This benefits businesses, consumers, and the government by reducing the cost of conducting various transactions.
- **Data-Driven Governance and Decision Making:**
 - Inclusive DPIs facilitate the collection and analysis of data from various sources. This **data-driven approach enables more informed decision-making** in governance, public policy, and service delivery.
- **Improved Agricultural Practices:**
 - Inclusive DPIs can **provide farmers with real-time information on weather, market prices, and agricultural best practices**. This empowers them to make better decisions, leading to improved agricultural productivity.
- **Disaster Management and Emergency Response:**
 - Inclusive DPIs can **play a crucial role in disaster management** and emergency response. They enable authorities to disseminate information quickly and coordinate relief efforts more effectively.

What are the Challenges of DPIs in India?

- **Lack of Access to Infrastructure:**
 - In many regions, **especially rural and remote areas**, there is inadequate or no access to reliable internet connectivity and digital infrastructure. Limited access to **electricity and the absence of necessary digital hardware** like computers and smartphones further exacerbate the problem.
- **Digital Divide:**
 - India faces a **significant digital divide between urban and rural areas**. While urban centers generally have better access to digital infrastructure and services, rural regions often lack reliable internet connectivity and face technological disparities.
- **Affordability:**
 - Even if digital infrastructure is available, **the cost of internet access and digital devices can be prohibitive** for many individuals and families, particularly in low-income communities.
- **Language and Content Barriers:**
 - The dominance of content in a few major languages can exclude non-English speakers or those who are not proficient in the predominant language. The **lack of localized and relevant content** can hinder access to vital information and services.
- **Physical and Cognitive Disabilities:**
 - Persons with disabilities might face challenges in accessing and using digital technologies due to **limited accessibility features and design considerations** in digital platforms.
- **Privacy and Security Concerns:**
 - Fear of **privacy breaches and data security issues** can deter individuals from embracing digital technologies, especially when it comes to sensitive personal information.
- **Geographical Disparities:**
 - Urban areas often have better access to digital infrastructure and services compared to rural and remote regions, leading to disparities in digital inclusion.

What Should be the Way Forward?

- **Policy and Regulatory Support:**
 - The government should formulate and implement policies that prioritize digital inclusion as a key objective. Regulatory frameworks should **ensure data protection, privacy, and non-discriminatory access to digital services**. Encouraging public-private partnerships can help mobilize resources and expertise.
- **Investment in Digital Infrastructure:**
 - There should be increased investment in digital infrastructure, particularly in rural and remote areas, to improve internet connectivity and access to digital services. This includes **expanding broadband networks** and ensuring affordable and reliable internet services.
- **Localized Content and Language Diversity:**
 - Efforts should be made to promote digital content in **regional languages to cater to diverse linguistic communities**. This will ensure that information and services are accessible to a broader audience.
- **Targeted Use Cases and Services:**
 - Identifying and developing targeted use cases and services that address the needs of underserved communities can drive digital adoption.
 - For example, **digital healthcare solutions, agricultural advisories**, and digital education platforms can benefit rural populations.

Drishti Mains Question:

Discuss the significance and potential benefits of inclusive Digital Public Infrastructures (DPIs) in achieving digital inclusion and fostering socio-economic development in India.

UPSC Civil Services Examination Previous Year's Question (PYQs)

Prelims:

Q. Consider the following statements: (2018)

1. Aadhaar card can be used as a proof of citizenship or domicile.
2. Once issued, 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.

