Digital Public Infrastructure

Source: TH

Why in News?

Recently, Nasscom and Arthur D. Little have jointly released a report titled-**Digital Public Infrastructure of India - Accelerating India's Digital Inclusion,** which stated that India's **Digital Public Infrastructures (DPIs)** are likely to propel India towards a USD 1 trillion digital economy by 2030.

What is a DPI?

- **About:** DPI refers to blocks or platforms such as **digital identification, payment infrastructure and data exchange solutions** that help countries deliver essential services to their people, empowering citizens and improving lives by enabling digital inclusion.
- **DPI Ecosystem:** DPIs mediate the flow of people, money and information. These three sets become the foundation for developing an effective DPI ecosystem:
  - First, the flow of people through a digital ID System.
  - Second, the flow of money through a real-time fast payment system.
  - And third, the flow of personal information through a consent-based data sharing system to actualise the benefits of DPIs and to empower the citizen with a real ability to control data.
- **IndiaStack: It is a set of APIs** (Application programming interface) that allows governments, businesses, startups and developers to utilise an unique digital Infrastructure to solve India's hard problems towards presence-less, paperless, and cashless service delivery.
  - India, through India Stack, became the **first country to develop all three foundational DPIs,** Digital identity (Aadhar)**,** Real-time fast payment (UPI) **and** Account Aggregator **built on the** Data Empowerment Protection Architecture (DEPA).
  - DEPA creates a digital framework that allows users to share their data on their own terms through a third-party entity, who are known as Consent Managers.

What are the Key Highlights of the Report?

- **Economic Impact:**
  - DPIs are projected to play a significant role in propelling India towards a USD 1 trillion digital economy by 2030, helping the country to become a **USD 8 trillion economy.**
  - DPIs are expected to enhance citizens' efficiency and promote social as well as **financial inclusion.**

- **Scalability and Reach:**
  - Mature DPIs like **Aadhaar**, **UPI**, and **FASTag** have already witnessed exponential adoption by 2022, and they are anticipated to further scale up over the next 7-8 years, reaching even the remotest segments of the population.
  - Mature DPIs have already generated a significant economic value equivalent to 0.9% of India's **GDP (Gross Domestic Product).** By 2030, this value is projected to increase to ~2.9%-4.2% of GDP, considering both direct and indirect impacts.
    - The **Ayushman Bharat Digital Mission (ABDM)**, which aims to support India's digital health infrastructure, will drive much of the increase in value.
- **Global Leadership:**
  - **India is currently a global leader in developing DPIs,** utilising them to implement widespread adoption of digital payments, data-sharing infrastructures, and bolstering domestic businesses, spurred entrepreneurship in the country.
- **Government Support and IT Ecosystem:**
  - The success of DPIs is attributed to the relentless support by the government and enabled by the IT intellectual capital and startup ecosystem, creating a favourable environment for innovation and growth.
- **Evolution and Superior User Experience:**
  - Existing digital entities are expected to evolve to deliver superior user experiences, leveraging new age technologies such as AI, **Web 3**, and others.
  - **Aadhaar is expected to continue to be a major contributor** as its use cases expand to a broader range of services, further solidifying its role within India's digital infrastructure.
- **Foundation for Digital Revolution:**
  - The foundation of India's digital revolution has been strengthened by DPIs or India Stack, enhancing the country's ability to utilise digital technologies at a population scale to drive societal changes and economic growth.
  - DPIs form the cornerstone to shape the **"tech-ade"** and ultimately drive India's growth path, aiming for the **"India@47" milestone.**
- **Challenges and Suggestions:**
  - While DPI provides opportunities, challenges remain. These include the **lack of connections** between stakeholders, **no real-time data, limited language options,** and **little reach** beyond government services.
  - The governments must provide policy support and regulatory clarity, and set up **task forces to drive adoption of DPI.** They must also look to **partner with startups and enterprises.**

What are the Pillars of India's DPI Ecosystem?

- **Aadhaar:**
  - Aadhaar is a strategic policy tool for social and financial inclusion, public sector delivery reforms, managing fiscal budgets, increasing convenience and promoting hassle-free people-centric governance.
  - Aadhaar holders can voluntarily use their Aadhaar for private sector purposes, and private sector entities need not seek special permission for such usage.
- **DigiYatra:**
  - **DigiYatra** is a Biometric Enabled Seamless Travel (BEST) experience based on a **Facial Recognition System (FRS).**
  - It envisages that **travellers pass through various checkpoints at the airport through paperless and contactless processing**, using facial features to establish their identity, that is linked to the boarding pass.
- **DigiLocker:**
  - **DigiLocker** has 150 million users, six billion stored documents, and done with a tiny budget of RS 50 crore over seven years.
  - The users can store their documents such as insurance, medical reports, PAN card, passport, marriage certificate, school certificate and other documents in the digital format.
- **UPI**:
  - Unified Payment Interface (UPI) has crossed 8 bn transactions per month and transacts a value of USD 180 billion a month.
  - UPI is currently the biggest among the **National Payments Corporation of India (NPCI)**

operated systems including National Automated Clearing House (NACH), IMPS, **AePS**, Bharat Bill Payment System (BBPS), RuPay etc.

Note

- DPIs align with core **UN Sustainable Development Goals** by providing citizen-centric solutions.
- India's interoperable and open-source DPIs are now being **adopted or considered by over 30 countries** to enhance social and financial inclusion.

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 centres 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 localised and relevant content can hinder access to vital information and services.
- **Physical and Cognitive Disabilities:**
  - **Persons with disabilities often 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.

UPSC Civil Services Examination, Previous Year Questions (PYQs)

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)