INDIA DIGITAL TRANSFORMATION – SCIENCE & TECHNOLOGY

NEWS: India's digital infrastructure has undergone a **transformative evolution in recent years**, positioning the country as a global leader in digital adoption.
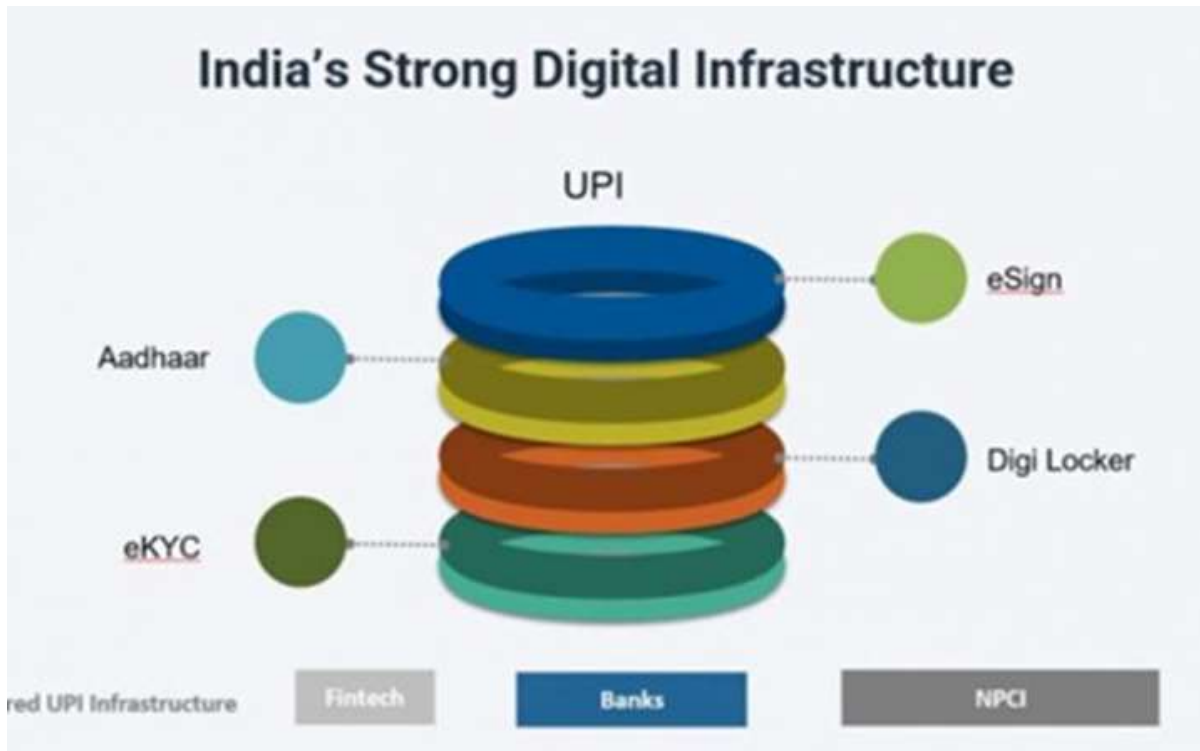
WHAT'S IN THE NEWS?

About

- With a rapidly expanding digital economy, driven by **innovations in cloud computing, artificial intelligence (AI), machine learning (ML)**, and digital governance, India's infrastructure is continuously evolving to meet the **growing demands of the public and private sectors.**
- **Key initiatives** and projects have been rolled out to strengthen the country's digital backbone, ensuring accessibility, scalability, and security in delivering government services, fostering economic growth, and enhancing citizens' lives.
- **Digital Public Infrastructure (DPI)** refers to foundational digital systems that are accessible, secure, and interoperable, supporting essential public services.

India's Digital Infrastructure Landscape

- In India, DPI has been instrumental in transforming the digital economy, much like traditional infrastructure for industrial growth.
- **Key Platforms and Achievements**
  - **Aadhaar:** World's largest digital identity program.
    - Over 138.34 crore Aadhaar numbers issued, ensuring identity authentication.
  - **Unified Payments Interface (UPI):** Facilitated 24,100 crore financial transactions as of June 2024.
    - Enhances financial inclusion and cashless transactions.
  - **DigiLocker:** Over 37 crore users, providing digital document verification and storage.
  - **DIKSHA:** World's largest education platform, delivering 556 crore learning sessions.
  - **National Knowledge Network (NKN):** Links National and State Data Centres, enabling resource sharing and collaborative research.
- **Additional Platforms**
  - **GeM:** Streamlines government procurement.
  - **UMANG:** Offers 2,077 government services across 32 states/UTs with over 7.12 crore users.
  - **Co-WIN and Aarogya Setu:** Revolutionized health services through vaccination tracking and contact tracing.
  - **e-Sanjeevani and e-Hospital:** Transform healthcare delivery through telemedicine and hospital management.
  - **Poshan Tracker and e-Office:** Enhance nutritional monitoring and digitize government workflows.
  - **MeriPehchaan:** A single sign-on platform for seamless access to government services.
  - **API Setu:** Facilitates data exchange through 6,000+ APIs, enabling 312 crore transactions.

- **MeghRaj (GI Cloud):** Promotes cloud ecosystems across central and state governments, enabling:
  - Digital payments.
  - Identity verification.
  - Consent-based data sharing.

Figure: India's Strong Digital Infrastructure — UPI, Aadhaar, eSign, eKYC, Digi Locker, Shared UPI Infrastructure (Fintech, Banks, NPCI)

Impact on Economy and Society

- **Economic Growth:** Boosts financial inclusion (via UPI, Aadhaar), reduces IT costs, and fosters innovation with data centres and cloud services. Infrastructure spending yields a GDP multiplier of 2.5-3.5 times.
- **Global Leadership:** India's digital solutions, like India Stack, are aiding the Global South.
- **Efficient Governance:** Faster, transparent, and paperless delivery of services through platforms like DigiLocker, UMANG, and MeghRaj.
- **Social Impact:** Improves education (DIKSHA), healthcare (Co-WIN, e-Sanjeevani), and skill development (SIDH).
- **Inclusivity:** Common Service Centres (CSCs) enhance rural access to e-services.

Challenges

- **Digital Divide:** Limited connectivity and affordability in rural areas.
- **Cybersecurity Risks:** Data breaches and privacy concerns due to large-scale data collection.
- **Infrastructure Gaps:** Insufficient bandwidth and data centre capacity to meet rising demand.
- **Skill Deficit:** Lack of digital literacy and expertise in advanced technologies like AI and cloud computing.

- **Policy and Coordination Issues:** Slow inter-departmental coordination and outdated regulatory frameworks.

Way Ahead

- **Expand Infrastructure:** Invest in rural connectivity and scale up data centre capacities.
- **Ensure Cybersecurity:** Strengthen data protection laws and implement robust cybersecurity measures.
- **Promote Digital Literacy:** Launch targeted programs to bridge skill gaps, especially in rural areas.
- **Streamline Policy:** Simplify regulatory frameworks to keep pace with technological advancements.

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