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The India Stack: A Foundation for Digital India

India's digital journey has been nothing short of remarkable, driven by a robust Digital Public Infrastructure (DPI) framework known as the India Stack. Over the past decade, the government, in collaboration with public and private entities, has built this digital ecosystem to empower citizens, improve governance, and foster economic growth.

The India Stack is a set of open APIs and platforms that provide a foundation for large-scale public service delivery and innovation. It enables governments, businesses, startups, and developers to leverage technology to offer services to millions of Indians, especially those in underserved areas.

The India Stack is viewed as a layered infrastructure, addressing identity, payments, data, and services.
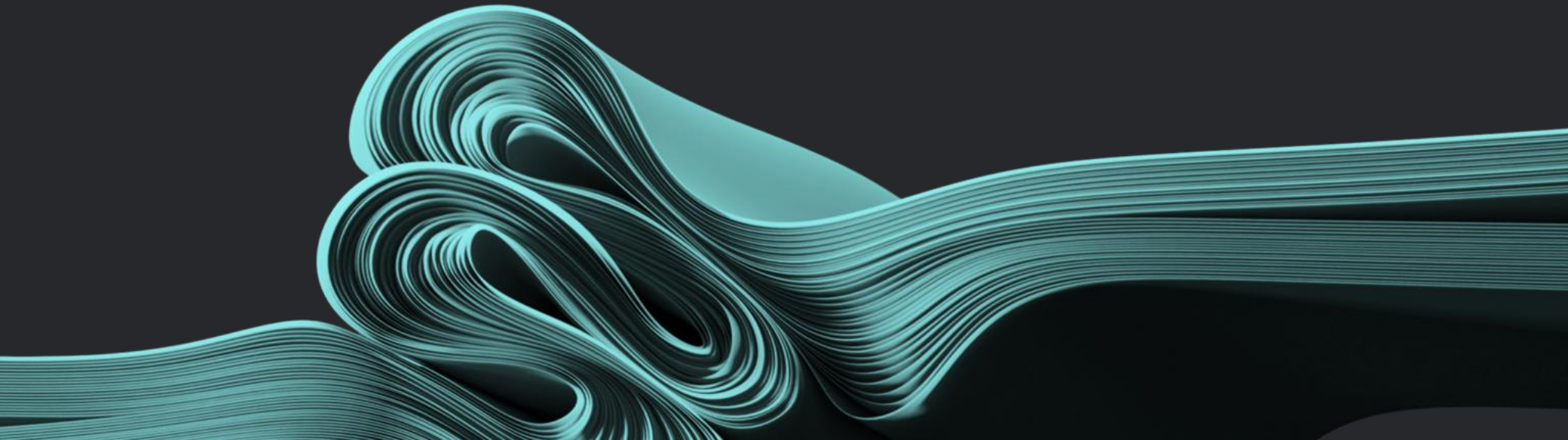
Four Pillars of the DPI

The four layers of India Stack include:

1. **Presenceless Layer**

Aadhaar enables remote authentication, providing a digital ID that requires only a 12-digit number and a fingerprint or iris scan, eliminating the need for physical documents. It prevents duplicate and fake identities.

2. **Paperless Layer**

Reliance on digital records, using Aadhaar eKYC, eSign, and Digital Locker. It enables secure digital storage and retrieval, creating a paperless system for verifying and accessing documents anytime, on any device.

3. **Cashless Layer**

Led by NPCI, this aims to universalise digital payments. UPI enables instant, secure money transfers between bank accounts using a simple Virtual Payment Address (VPA), moving transactions into the digital age for transparency and ease of use.

4. **Consent Layer**

Enables secure, user-controlled data sharing through electronic consent, allowing data to flow freely. The Account Aggregator ecosystem gains significantly, with AA serving as a streamlined data layer between Financial Information Providers (FIPs) and Financial Information Users (FIUs).

The Impact of the India Stack

The India Stack has played a pivotal role in the country's rapid digitalisation:

Financial Inclusion
Aadhaar-enabled payment systems (AePS) and UPI have significantly expanded financial access, increasing inclusion from 25% in 2008 to 80% in 2024, particularly benefiting rural and underserved communities.

Boost to Digital Payments
The India Stack has fuelled exponential growth in digital payments, with UPI processing 10 billion monthly transactions. This has driven the rise of digital wallets, fintech platforms, and digitisation of small businesses.

Better Government Services
Aadhaar authentication has improved the delivery of government schemes like Direct Benefit Transfers (DBTs), Public Distribution System (PDS), and pensions, ensuring transparency and reducing leakages.

The India Stack: A Catalyst for Startup Success

The India Stack is fuelling startup innovation by providing a robust digital infrastructure. It enables entrepreneurs to build services like digital payments, eCommerce, and financial solutions for underserved populations. Platforms such as Aadhaar and UPI have paved the way for businesses to offer secure, seamless transactions, allowing startups like Paytm and BharatPe to thrive. These innovations are driving financial inclusion, empowering rural entrepreneurs, and creating opportunities in sectors like lending and healthtech, supported by global and domestic investments.

"India's digital public infrastructure ecosystem is fuelling market innovation and value creation, accelerating the emergence of new startups, and enabling them to challenge incumbents."

NANDAN NILEKANI, CO-FOUNDER OF INFOSYS

From Local Success to Global Inspiration

The impact of the India Stack's success is being felt worldwide. Global giants such as Google Pay, WhatsApp, and Amazon Pay are drawing inspiration from it to enhance their global payment systems. Alphabet CEO Sundar Pichai plans to apply lessons from Google Pay's Indian experience to other markets.

While India Stack has achieved significant success, there is still room for improvement. Strengthening data privacy and security is crucial as personal data collection continues to expand. The Digital Personal Data Protection Act aims to address these issues, but balancing innovation with privacy protection remains a challenge.

Bridging the digital divide by expanding Internet access and improving digital literacy, especially for rural and older populations, is key to ensuring that everyone can benefit from the India Stack's advantages.

Big5
CIO priorities '25

Find out more about the impact of Digital India on enterprises

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