Driving Innovation and Inclusion at Scale
via Digital Public Infrastructure (DPI)

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🐦 **@rssharma3**

Countries around the world have been creating **Digital Public Infrastructure (DPI)**

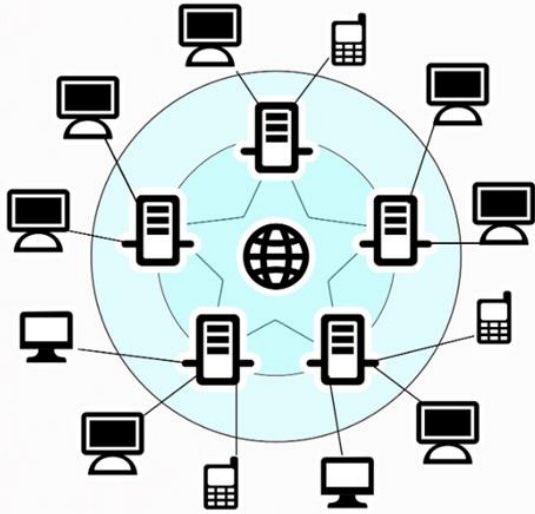**Physical Infrastructure** → **Railways, Roads, Cell Towers, Internet cables**

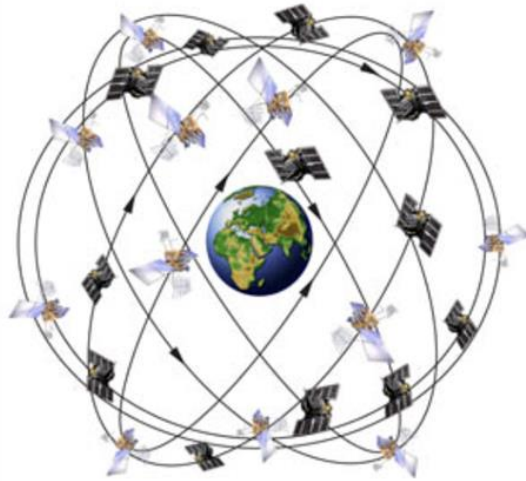**Digital Public Infra** to catalyse digital services → **Open tech standards & systems** for Identity, Digital Payments, Data & Credentials Exchange, Discovery & Fulfillment, etc.

Both drive **Private Innovation**

Inspired by the original digital infrastructure: **Internet, GPS, and Mobile…**

Internet

GPS

Mobile/GSM

You're familiar with prominent DPI building blocks
that drive inclusion & competition
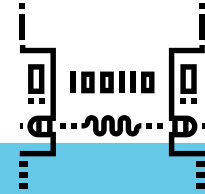
What makes it DPI?

Identity of Individuals and Entities
eKYC; Registries

Faster Payments
G2P; P2P/P2M; B2B

Data & Credentials
eLockers; eCertificates; Open Banking

Verifiable. Electronic auth & eKYC

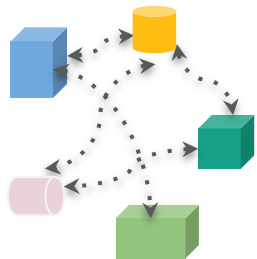**Many IDs.** Both functional & foundational

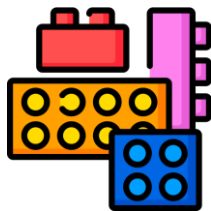**Interoperable.** Single rails, many innovators

Federated, but unified. Public & pvt data access & sharing at the <u>user's request</u>!

5 Common **<u>Architecture Principles</u>** drive scalable impact
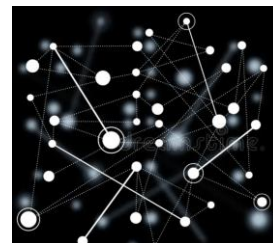
1.

Interoperability driven by open specifications

2.

Minimalist, Reusable building blocks – not full solutions

3.

Diverse, inclusive innovation by the ecosystem via open & multi-modal access
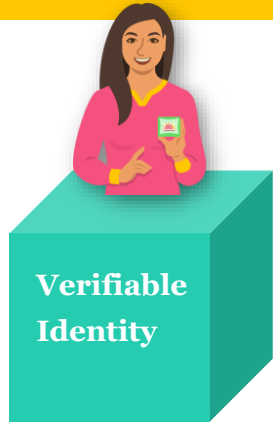
4.

Federated and Decentralized by design

5.

Security & Privacy by design

When designed as DPI, these blocks drove inclusion, innovation, & competition in India

Verifiable Identity

Accelerated India's **financial inclusion** from 47 years to 9 years

Supported **COVID vaccination** to help deliver 2+ billion doses

Faster Payments

Direct G2P Benefit payments to **860 Million** beneficiaries Across 1000+ state/central programs

Interoperable payments at value of **9 Billion USD** per month, with over 300+ banks and 50+ fintech apps

Data & Credentials
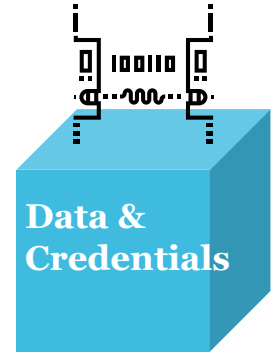
1 Billion+ bank accounts live on Open Finance for transaction data sharing & access to credit

5 Billion+ documents on digilocker across education, health, business licenses, identities, etc.

Diversity of experiences allows scale!

14.5 Billion
Identity eKYC transactions

8 Billion+
Monthly mobile digital payments

10 Million
Businesses with verifiable digital ID

860 Million
Beneficiaries of benefits

$322 Billion
Transferred to beneficiaries so far

$4.5 Billion
Benefits disbursed during COVID

DPI are also already deployed around the world!

Verifiable Identity
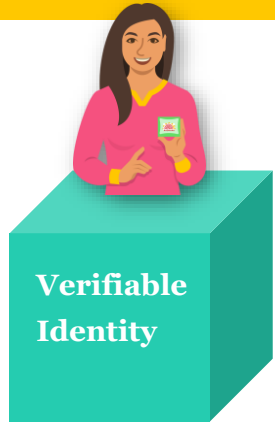
Singapore

Morocco

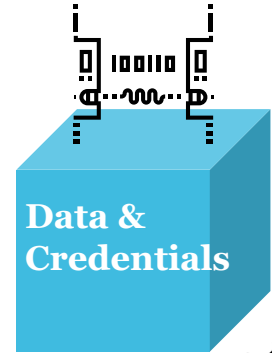France

Kenya

Faster Payments

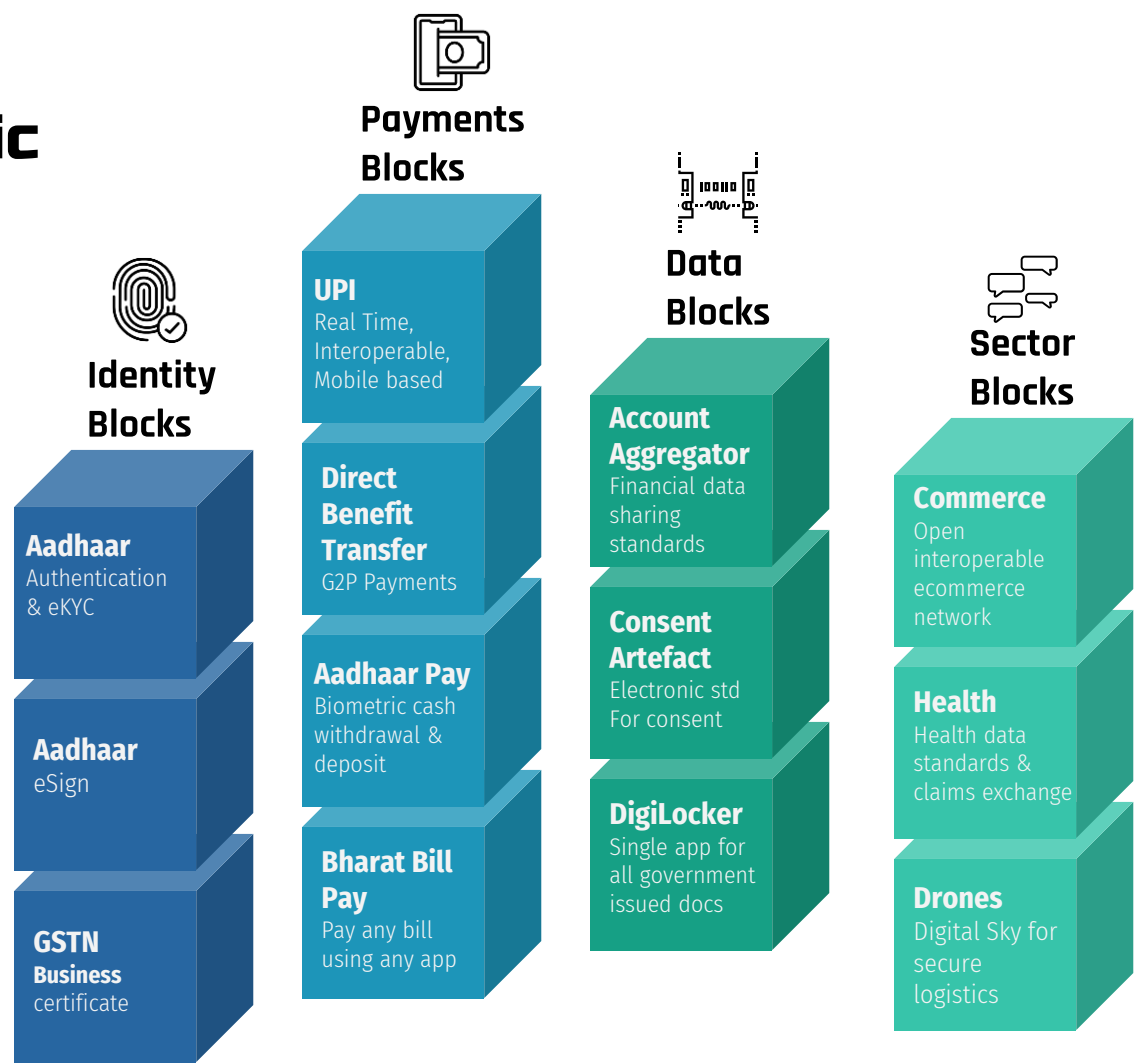Thailand

Turkey

Brazil

Data & Credentials

Estonia

United Kingdom

India's Digital Public Infrastructure is a set of reusable building blocks for identity, payments, data, and each sector

Leveraging open Standards & open APIs

Identity Blocks

Aadhaar
Authentication & eKYC

Aadhaar
eSign

GSTN
Business certificate

Payments Blocks

UPI
Real Time, Interoperable, Mobile based

Direct Benefit Transfer
G2P Payments

Aadhaar Pay
Biometric cash withdrawal & deposit

Bharat Bill Pay
Pay any bill using any app

Data Blocks

Account Aggregator
Financial data sharing standards

Consent Artefact
Electronic std For consent

DigiLocker
Single app for all government issued docs

Sector Blocks

Commerce
Open interoperable ecommerce network

Health
Health data standards & claims exchange

Drones
Digital Sky for secure logistics

There are more digital infrastructure across domains

Health Stack
(ABDM, PHR, UHI)

Digital Infra for
Education
(DIKSHA, NDEAR)

Urban
Governance
(NUS)

Financial Rails
beyond payment
(GSTN)

ETC - FasTag
eWayBill

Open Networks for
Commerce
(ONDC, KOMN)

India Stack

Co-WIN – *A Scalable, Inclusive and Open Platform for Universal Vaccination*

Co-WIN
Covid Vaccine Intelligence Network

Physical + Digital Registration
Offline Walk-ins, Assisted sign-up through Helplines and Digital through portal
Sign-up with Mobile Number and OTP

Track Vaccination Schedule
Guidance on interval between two doses based on vaccine brand
Choose vaccination slot based on convenient time and location

Equitable and Inclusive
Equitable vaccination across multilingual states, with multiple modes for registration to ensure accessibility for all

Evolvability and Scalability
Dynamic architecture capable of evolving and accommodating changes as per circumstances, built for a scale of a billion plus citizens

Single Source of Truth
Unbiased distribution of vaccines through a single source of data to remove information asymmetry and align stakeholders

Feedback and Analysis
Data on vaccination and recording of AEFI helps form data-driven public health policy and evaluate the efficacy of different vaccines

CoWIN Dashboard available Publicly – *Transparency of data for all stakeholders*

Features provided by Dashboard

- Live Vaccinations Centres
- # of Citizens Registered
- # of Vaccine doses Administered
- Split b/w 1st & 2nd Dose
- AEFI reports
- Distribution by States & District
- Split by Age and Gender
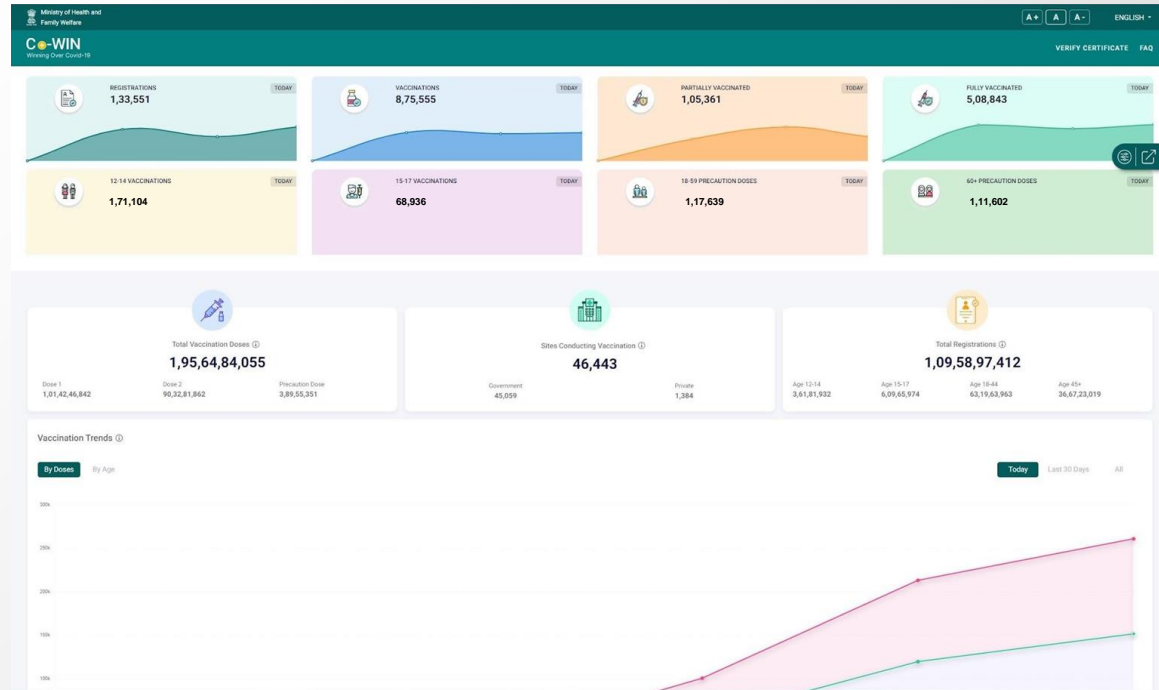- Split by Vaccines brands

Accessible by all

Hospitals Vaccinators

Policy Makers State & District Administrators

All Citizens and foreign entities

Live Co-WIN Dashboard - **https://dashboard.cowin.gov.in/**

Unified Health Interface

Unlocking the power of interoperability in health services

Check availability of medical resources

Discover health services and products

Book health services

Order health products

**Avail** health services and products

Patients and doctors can use ANY app to interact with each other and...

- ➢ Search a common list of doctors
- ➢ Book an appointment
- ➢ Pay fees digitally
- ➢ Share all previous medical records in a paperless format
- ➢ Link summary & prescription back to health records
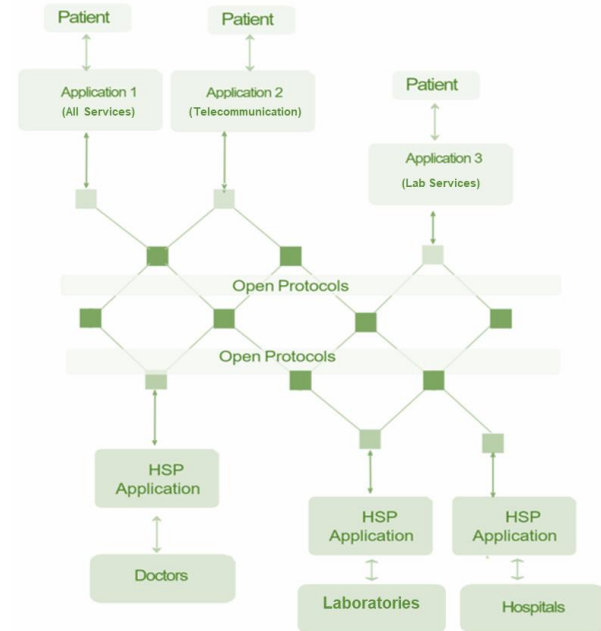- ➢ Get digital prescription & share with pharmacies

UHI - From Platform Centric Model to Network Based Model

Platform Based Systems are siloed
No provision to communicate across platforms
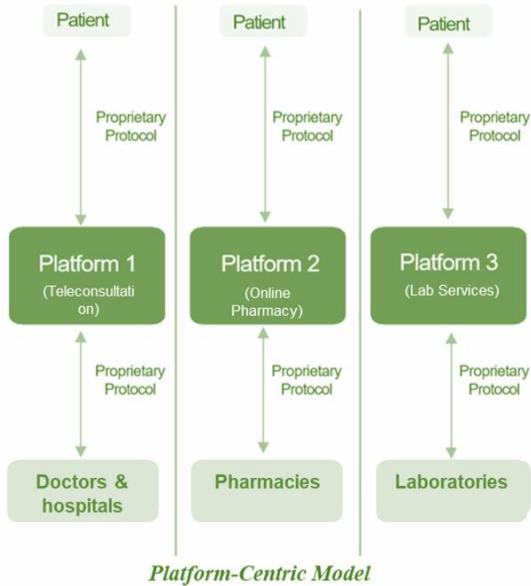
ABDM is providing a Unified Health Interface
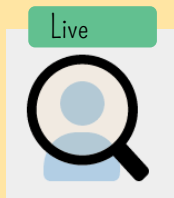An Open Network for Digital Health Services

Multiple DPI building blocks can come together to create a path to inclusive digital health
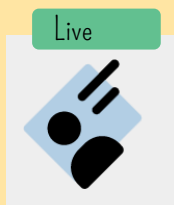
Registries/Credentials

For Doctors, Facilities, Vaccines...

Live

Personal Data Sharing

Standards/Protocols for consented **personal health record** sharing

Live

Anonymised Data

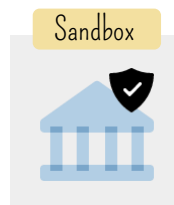Public health data to improve machine learning

design

Access Products & Services

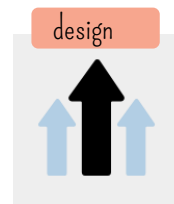**Unified Health Interface** for buying medicines, booking appointments, telemedicine, etc.

Sandbox

Claims Settlement

Protocol to settle any insurance claim post service delivery

Sandbox

Disease Surveillance

for public Health management

design

Digital Public Infrastructure is succeeding because its design is tailored to India's needs

Frugal & Low Cost

Minimalist Public Sector Intervention

Inclusive & Encourage Diversity

Robust & Cutting Edge Technology

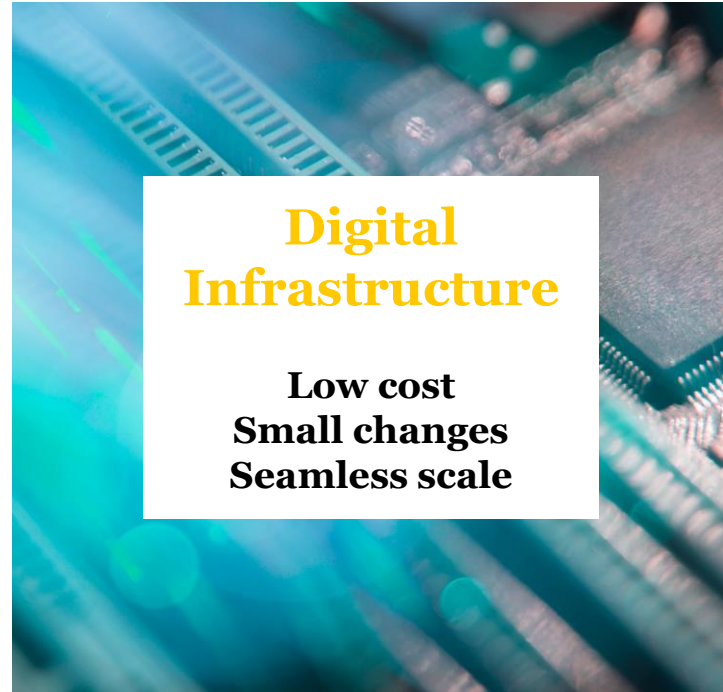**Interoperable:** Open Standards for Private Competition

Scalable by Design for a Billion to access better **services**

DPI has the same transformative impact as physical infra, with some differences....

Physical Infrastructure

High cost
Big changes
Manual to scale

Digital Infrastructure

Low cost
Small changes
Seamless scale

Opportunity to build DPIs rather than just 'digitise' and create equitable opportunity for billions of people is as real as the original idea of Internet!!

How will you enable DPI in your country?

Thank You!