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INTEGRATING DIGITAL TECHNOLOGIES: INSIGHTS FROM INDIA

India is among the top 2 countries globally on many dimensions of digital adoption



1.22 BILLION

World's largest unique digital identity program

SOURCE: UIDAI, April 2018



12.1 BILLION

App downloads

SOURCE: App Annie, May 2, 2018



1.14 BILLION

Wireless phone subscriptions

SOURCE: TRAI, as of June 30, 2018



447 MILLION

Internet subscribers

SOURCE: TRAI, as of June 30, 2018



298 MILLION

Smartphone devices

SOURCE: Strategy Analytics, 2017, sourced as of

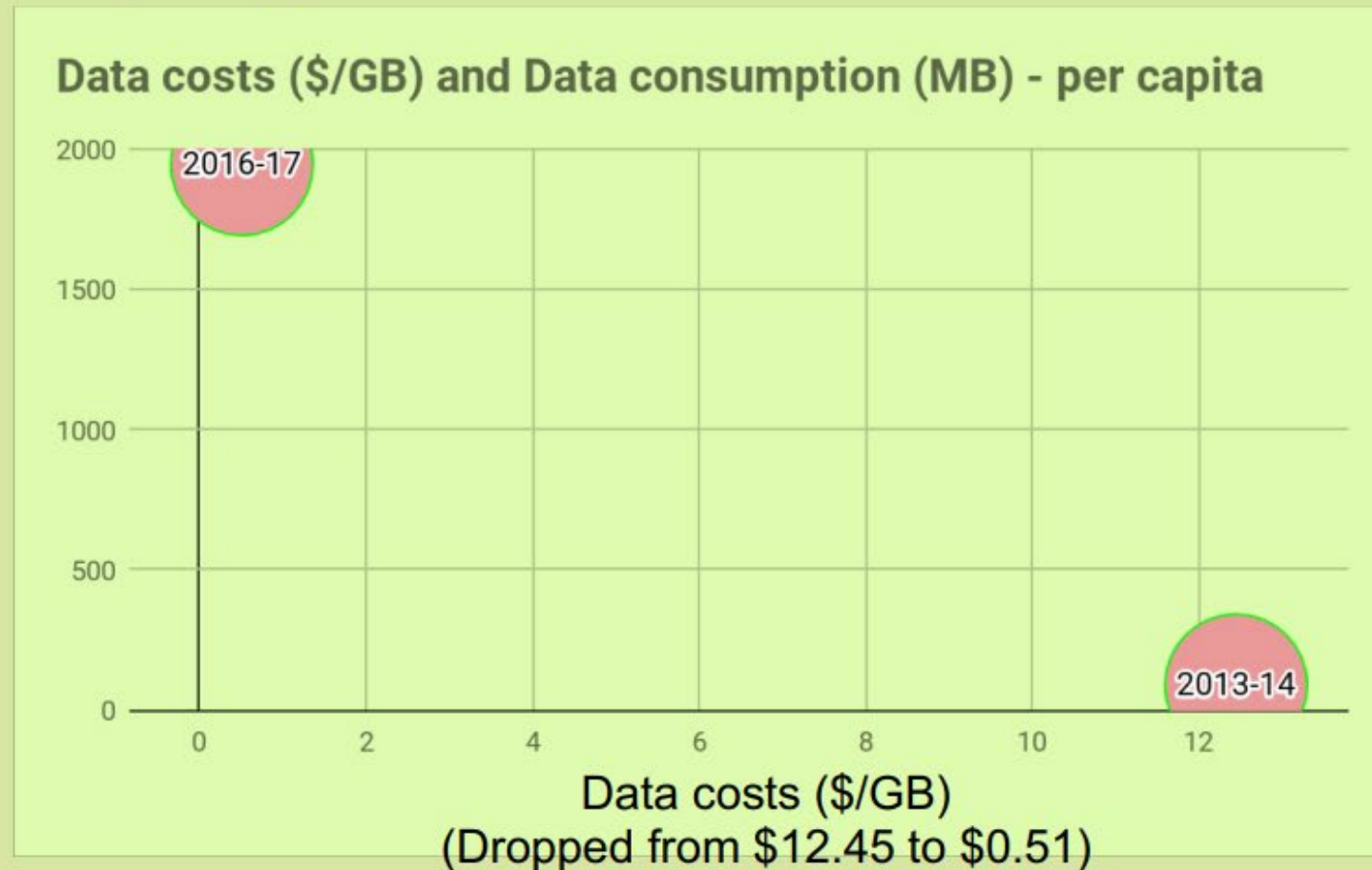


250 MILLION

Number of users engaged in social media

India's digital adoption is growing at a rapid pace

Data consumption (MB)
(Jumped from 89 MB to 1945 MB)



- Mobile data price dropped 25 times
- Data consumption grew 23 times
- Fintech adoption 52% (ranked 2nd after China)
- Global avg 33%

Fintech Adoption Index by EY

Digital Public Goods - Bedrock of Collaborative Innovations



- Over 1 billion identities - fastest digital platform to reach 1 bn users
- Brought down the cost of financial inclusion and service delivery



- Over 330 mn new bank accounts created
- India contributed 55% new bank accounts created globally (World Bank)



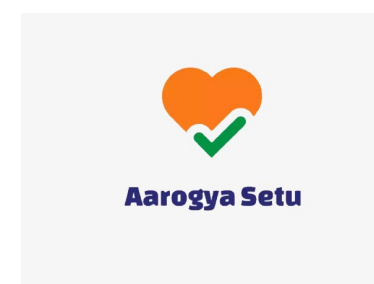
- Open API architecture to provide infrastructural access
- Identity - eSign - Payments - Storage



- “Most evolved, sophisticated public digital payments infrastructure in the world” (Fidelity’s Annual Global Faster Payments Report)
- Has grown to over 482 mn transactions per month (Oct 2018)

Digital Public Goods- India Stack

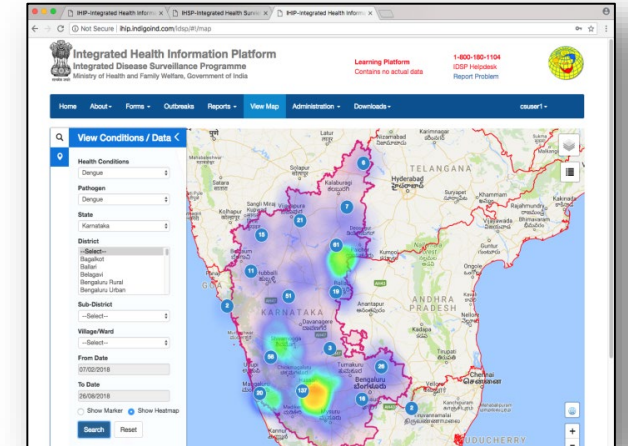
- India's story of Digital Transformation is a story of Innovation, Implementation and Inclusion.
- **Digital India** was launched on 1st July 2015 by Hon'ble Prime Minister with an objective of providing affordable access to Digital Services to all citizens..
- Aadhaar, Unified Payment Interface, Digilocker, UMANG, API Setu, CoWin Vaccination Platform, Government e-Market Place (GeM), DIKSHA, Ayushman Bharat Digital Health Mission,



Digital Health Initiatives

Integrated Health Information Platform (IHIP)

- Web-enabled nation-wide near-real-time electronic information system
- Data entry envisaged from more than **200,000** Health facilities
- covering **33 epidemic** prone diseases
- predicting early outbreaks with advanced **GIS mapping**
- **30% of the Population** covered



Comprehensive Primary Healthcare Program (CPHC-NCD)

- Name based population based screening
- **5 Non-Communicable Diseases** - Hypertension, Diabetes, 3 common cancer (Oral, Breast and Cervical)
- Operational in **20 states**
- **80 million enrolments** done and close to **13 million screened**



Digital Health Initiatives

TB Patient Monitoring System “Nikshay”

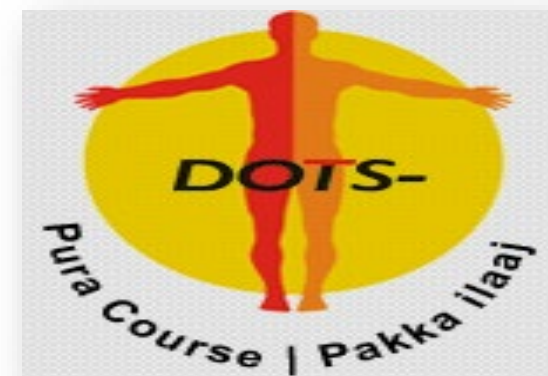
- A **Web-based application** for monitoring TB Patients
- **>95% coverage in public sector**
- **>11 million patients notified** so far

e-RaktKosh

- Centralized **Blood Bank Management System**
- Biometric Donor Management System for **identifying, tracking and blocking donors**
- Track of the blood stock across numerous blood banks – **Web / App based**
- **>2,500** e-blood banks on-board

mCessation

- A **SMS based initiative** to help tobacco users quit tobacco
- Collaboration with WHO
- Currently more than **150,000 users** registered



Digital Health Initiatives

Drug & Vaccine Distribution Management System (DVDMS)

- Automating workflow of supply chain of drugs, sutures, surgical items etc.
- To achieve reliable, accurate information for demand forecasting, ordering
- Centrally hosted web based application
- Implemented in **18 States**



eVIN

- Digitizes vaccine stocks & monitors the temperature of the cold chain through a smartphone application
- providing real-time information on vaccine stocks & flows, and storage temperatures across all cold chain
- Over **26,500 cold chain points** digitized across **32 states**
- Over **4.5 million online transactions** every month



Digital Health Initiatives

Standards:

- Notified revised Electronics Health Record (EHR) Standards 2016 (initially in 2013)
- Procured country license of SNOMED CT
- Notified Health Metadata & Data Standards (MDDS) in August 2018
- National Resource Centre for EHR standards (NRCeS) established by MoHFW for adoption and promotion of standards.

National Health Resource Repository (NHRR)

- With vision to create a comprehensive & robust registry with details on Infrastructure, Services, Patient Load, GIS, manpower, equipment for all public and private health facilities
- ~ 25 Lakh health facilities to be covered across country; Currently 60% health facilities successfully verified with over 1400 data sets per facility.

National Identification Number (NIN)

- a unique identification number & key requirement for achieving inter-operability and creation of EHRs
- ~ 99 % of Public Health Facilities allocated NIN



Digital Health Initiatives

Mobile Apps : for citizen services, health promotion, directory services:

- Immunization Tracker,
- Healthy India
- India Fights Dengue
- Directory Services
- Stress Management
- Mera Astptaal
- Pradhan Mantri Surakshit Matritva Abhiyan- PMSMA



Cyber Security

- Appointed Chief information Security Officer (CISO)
- Conducted sensitization workshop in Ministry and issued advisories for best practices implementation to counter the cyber attacks



eOffice

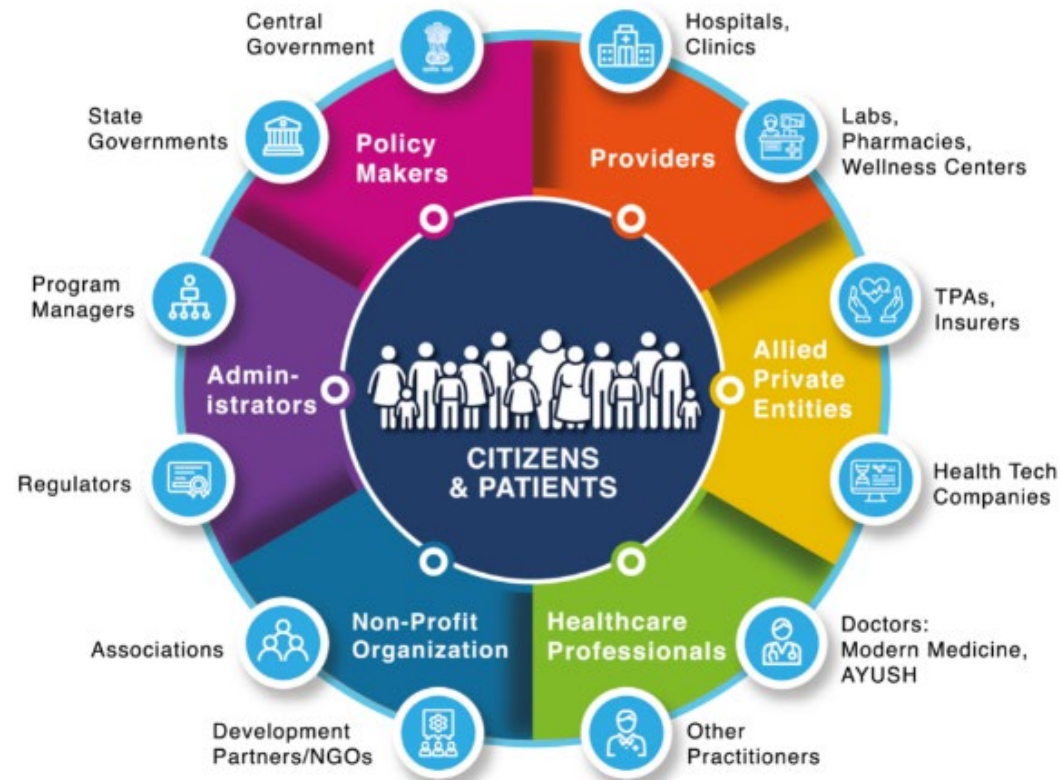
- transitioning to a "Less Paper Office" , to reduce processing delays and to establish transparency and accountability.
- Over 75% of the work in the Ministry has been shifted to electronic mode.
- Support for digitization of old physical file, hand holding support to the staff, allocation of DSCs/ e-Sign and bug fixing

**ACCOUNTABLE
TRANSPARENT
GOVERNANCE**
BECOME A PART OF IT
START USING **eOFFICE**

AYUSHMAN BHARAT DIGITAL MISSION (ABDM)

- ABHA NUMBER
UNIQUE DIGITAL
HEALTH ID

- HEALTHCARE
PROFESSIONAL
REGISTRY (HPR)



- ELECTRONIC
HEALTH
RECORDS (EHR)

- HEALTHCARE
FACILITY
REGISTRY (HFR)

eSanjeevani OPD Patient/Doctor

APPLY ONLINE

Online Registration,
Objectives,
Eligibility & Benefits



Registration & Token Generation

- Verify mobile no. using OTP
- Fill Patient Registration Form
- Request Token
- Upload health records, if any
- Receive Patient ID & Token through SMS

1

2

Waiting Room

- Enter waiting room
- 'CALL NOW' button will get activated in sometime
- Initiate VIDEO CALL

3

4

- Wait for SMS notification to login
- Login with Patient ID

Login

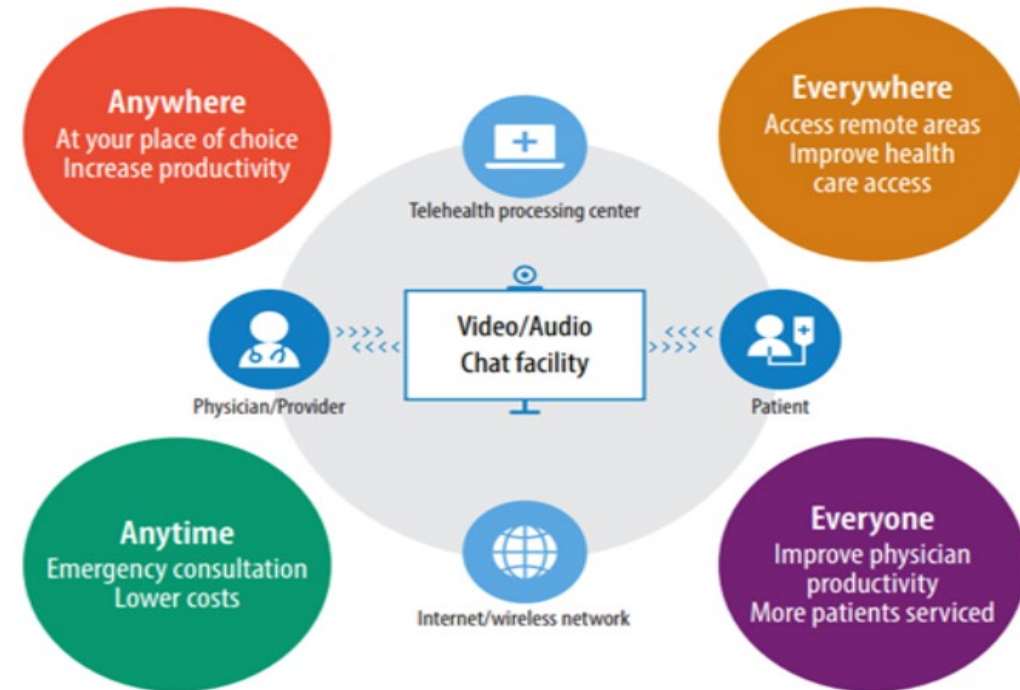
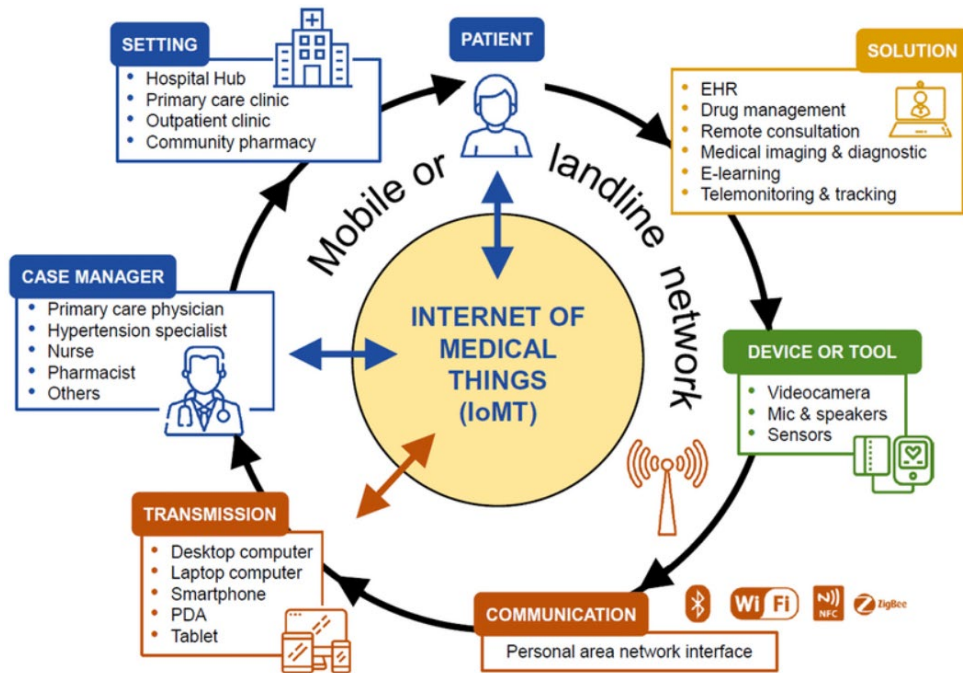
- Doctor will show up
- Consult Doctor
- Get instant ePrescription

Consultation

By 2030, there is expected to be an 18 million shortfall of health workers. The lack of skilled health professionals is heavily constraining the health interventions that are needed to ensure the world meets targets such as the SDGs. Without meaningful action the situation is only going to worsen.



TELEMEDICINE – REMOTE CONSULTATION



- **Telemedicine:** Telemedicine provides patients lower cost healthcare that is accessible at any time and in any location.

eSanjeevani Telemedicine Platform

Telemedicine in Health & Wellness Centres (HWCs)

- **Doctor to Doctor** consultation
- **11 States** have actively rolled out services
- **70+ Doctor HUBs** created by States linked with **3,500+ HWCs**
- More than **100,000+ Consultations** rendered
- More than **12,000 professionals** trained

Telemedicine OPD for COVID Management

- **Patient to Doctor** consultation
- **Board of Governors (BoG)** released '**Telemedicine Practice Guidelines**'
- **Allowing Registered Medical Practitioners (RMPs)** to provide Healthcare services through **Telemedicine**
- **eSanjeevani application** modified for providing **Online consultation** to patients directly



eSanjeevaniOPD
STAY HOME OPD

India's Indigenously developed
National TeleConsultation Service

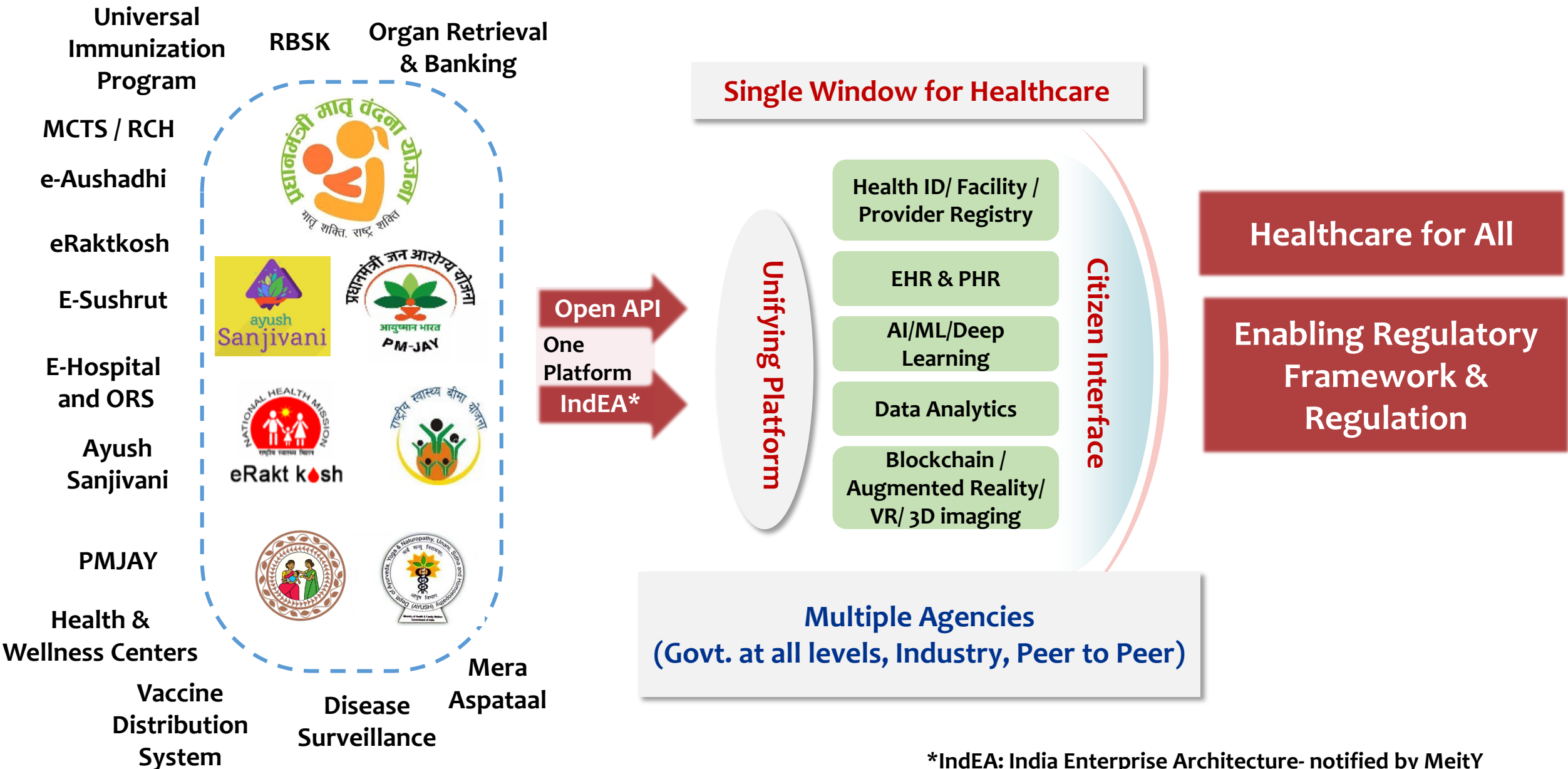


Ministry of Health and Family Welfare
Government of India

ABDM ECOSYSTEM



National Digital Health Mission (NDHM)- Architecture



*IndEA: India Enterprise Architecture- notified by MeitY

Integrated Disease Surveillance Programme



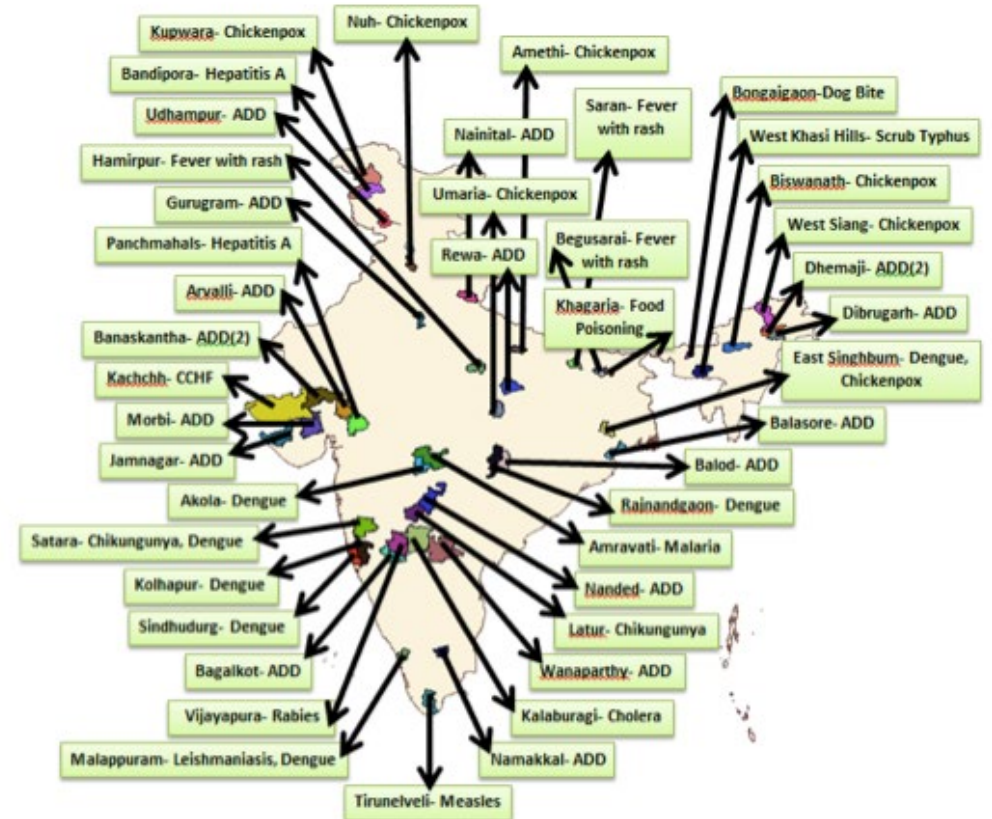
Disease surveillance in the country by establishing a decentralized State based surveillance system for epidemic prone diseases to detect the early warning signals, so that timely and effective public health actions can be initiated in response to health challenges in the country at the Districts, State and National level.

NATIONAL HEALTH MISSION
राष्ट्रीय स्वास्थ्य मिशन

WEEKLY OUTBREAK REPORT
Disease Alerts/Outbreaks reported and responded to by States/UTs through
Integrated Disease Surveillance Program (IDSP)
(3rd July 2023 to 9th July 2023)

27th Week

District wise disease alerts/outbreaks reported in the 27th week 2023
27th Week Map





CHALLENGES



- Privacy & Ethical issues
- Cloud security and interoperability between private & public cloud
- Data analytics integration of AI for predictive analysis
- Wireless sensor Network (WSN) issues like quality of service, standardization of frequency bands & internet protocols, robust architecture and its integration, energy efficient system etc.
- Availability of uninterrupted high-speed connectivity at remote/rural areas.

Barriers to Digital Health Adoption

Other Barriers

- Cognitive Impairment
- Language Barriers
- Financial Concerns.

Barriers to the patient

Fear of using technology
Impersonal Care Technology
Older Age.

Barriers to the Medical Unit

Data Privacy & Security
Time consuming
Financial Concerns
Impersonal Care Delivery
Unreliable technologies.

RECOMMENDATIONS TO ADDRESS THE BARRIERS

Data Security & Privacy

Digital health technologies must adhere to all data governance, privacy, and security regulations

Personalized Care

In-person care should be supplemented by digital health technology (blended model)

Integration/ interoperability

EMRs and existing health system processes should be integrated with digital health technologies

Cost & Access

Digital health technologies should be reasonably priced for their intended users
Patients should be able to make insurance claims for digital health technologies

Patient Support

Patients should be encouraged to join e-patient movements and advocate for themselves
Family members and informal caregivers should interact with patients using digital health

Training

Patients should receive training. Medical students should be educated on digital health technology



National Health
Systems Resource
Center

