



भारत 2023 INDIA

# Digital Public Infrastructure: Sharing Implementation Experiences of Digital Identity

Presentation by: CEO, UIDAI



AADHAAR  
Mera Aadhaar, Meri Pehchaan

वसुधैव कुटुम्बकम्

ONE EARTH • ONE FAMILY • ONE FUTURE

# Introduction to Aadhaar

**Features, Ecosystem, Process, Current State & The Impact**



# Features of Aadhaar

## Key to its Acceptance & Use



**Anywhere, Anytime,  
Online authentication and  
Offline Verification**

**Truly Portable Identity**



**Uniqueness Ensured:  
Biometrics-led ID**

**Lifetime Identity: from Birth  
until Death**

**Inclusive: All Residents, all ages**



**A Random 12-digit number  
with no intelligence & no  
profiling: Voluntary Id**

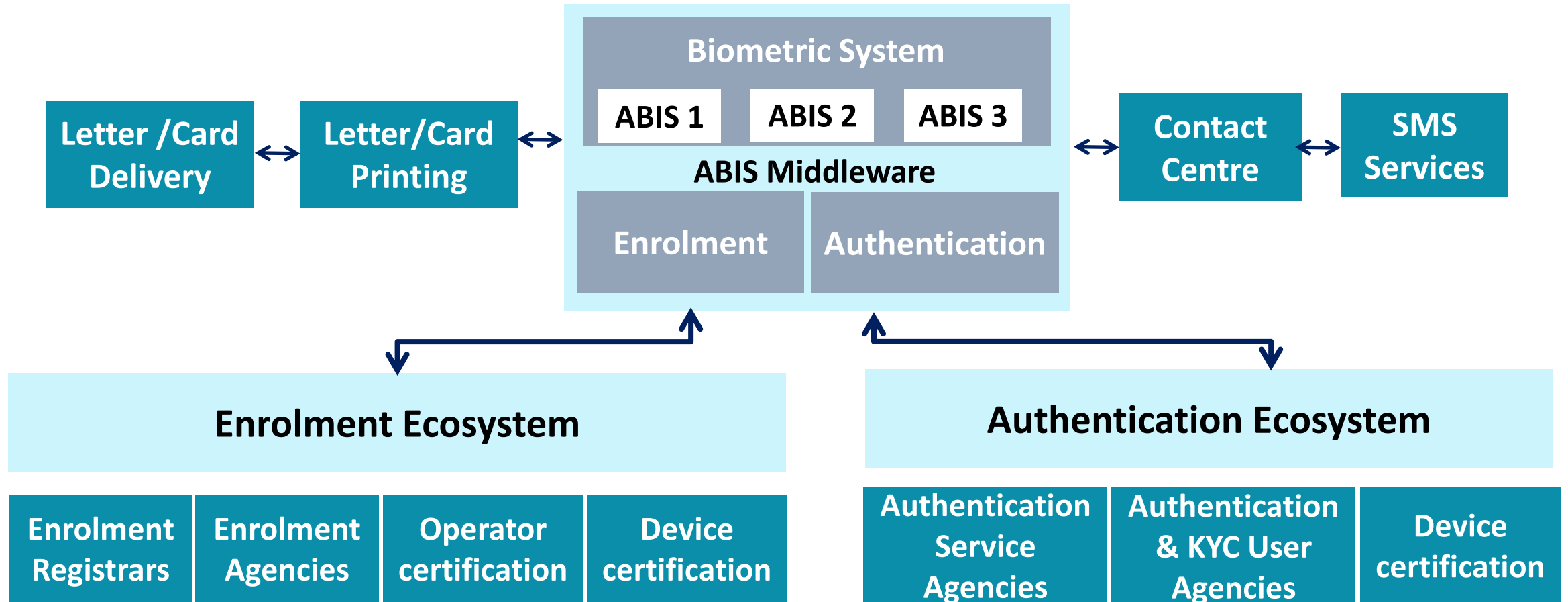
**Primacy of Consent in Usage**

**Minimal Resident data  
collected & One-way  
linkages with User Agencies**

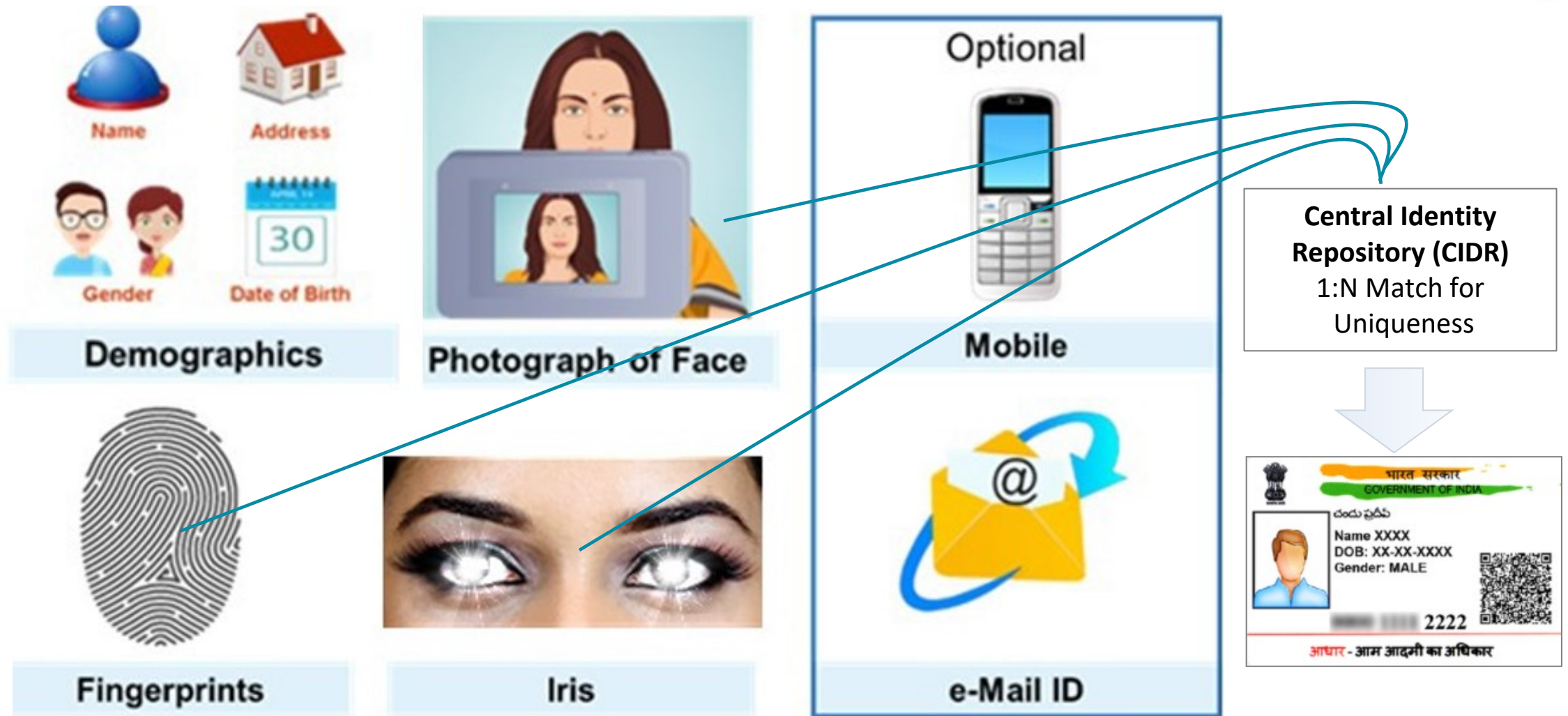
**Security & Privacy of  
Resident data ensured**



# UIDAI's Partner Ecosystem



# Aadhaar Generation



# Enrolment Landscape & Saturation Rates

**1.35 Bn**  
**Aadhaar Generated**  
**Till Date**

**Aadhaar Updates now**  
**> 4 times the new**  
**Enrolments**

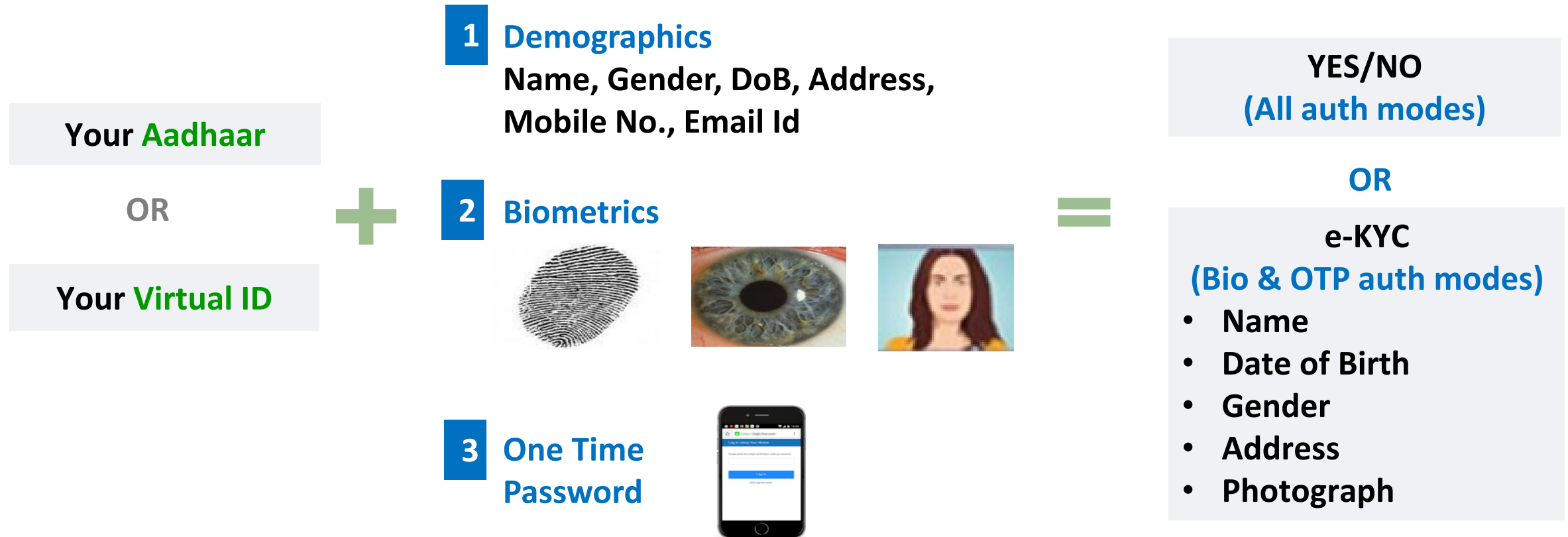
## 'Live' Aadhaar Saturation

Age Group	Saturation
Overall	94.5 %
Adult (>18 years)	~ 100 %
5-18 years	95.3 %
0-5 years	37.2 %

- All central & state government agencies authorized to become Enrolment Registrars/Agencies
- UIDAI-operated Centres, Banks, Department of Post, Indian Railways, Birth Registrar
- Enrolment of children at Hospitals, Schools
- Enrolments/ Updates by Last mile Common Service Centres



# Authentication (Online)



**The Law provides for conditions and boundaries for use of online authentication**



# Online Authentication Landscape

70+ Mn Authentication transactions a day & Growing

More than 500 Public & Private Authentication User Agencies

All major scheduled commercial banks and a few Cooperative banks and regulated NBFCs

All major central & state government agencies

All Telecom Firms

Another 300 Non Banking Financial Companies notified to use Aadhaar

5+ Mn Last Mile Authentication Devices





# Offline Verification



## Digitally Signed Secure QR Code

Present on Aadhaar letter, e-Aadhaar, PVC card and m-Aadhaar mobile App)

UIDAI's QR code scanner application freely available on all App stores

## Other Digital Formats of Aadhaar

- XML/PDF
- Preferred format for high quality photo
- Can be shared online also

**The Law provides for Voluntary use of Aadhaar by a Resident**

# The Impact

- USD 100 Bn in-cash **welfare benefits directly transferred** to Aadhaar-seeded bank accounts
- Estimated **savings** of USD 30 Bn (until Mar' 21): >1000 government welfare schemes
- **Enabling Efficient Governance**: 133 good governance schemes
- **Universal Financial Inclusion**: 470 Mn bank accounts opened in 7 years using Aadhaar eKYC
- Cost of on-boarding of a banking customer reduced (*WB estimate*) from USD 23 to USD 0.15 through use of Aadhaar-based eKYC
- **Aadhaar Enabled Door-step banking** for the marginalized and the less-literate: 400 Mn transactions every month via a network of more than 5 Mn micro ATMs
- **195 Mn families** (99.4%) eligible receive **subsidized grains & fuel** securely (without pilferage) via Aadhaar-based biometric authentication
- **Tax Compliance**: 500 Mn individual Tax Numbers seeded with Aadhaar



# Global Recognition of Need for a Digital Identity

**McKinsey Global Institute, 2019 report on "Digital Identification - A Key to inclusive Growth":**

**A full Digital ID coverage could unlock economic value equivalent to 3 to 13 % of GDP**

**UN Sustainable Development Goal (SDG) Target 16.9:**

**By 2030, a legal identity for all**

**"Principles of identification", 2018 by UN and World Bank:**

**Recognized an official identification system as "a gateway to access services, benefits and opportunities"**

**Articles 7 and 8 of the UN Convention of the Rights of Child (CRC):**

**Right to an identity starting from birth is guaranteed**



# Aadhaar & India Stack: DPLs from India

**Aadhaar provides the Foundational Identity Layer to the India stack**



**1.35 Bn**  
Aadhaar

**86.2 Bn**  
Authentications



**55 K+**  
Buyer Orgs.

**4.6 Mn**  
Sellers



**5.96 Bn**  
Transactions

**\$ 133.3 Bn**  
Value



**13.7 Mn**  
Indirect Tax  
Payers

**\$ 607.6 bn**  
Payments via  
Portal



**1.96+ Bn**  
Doses

**1.09+ Bn**  
Registrations



**140 Mn**  
Users

**5.6 Bn**  
Documents

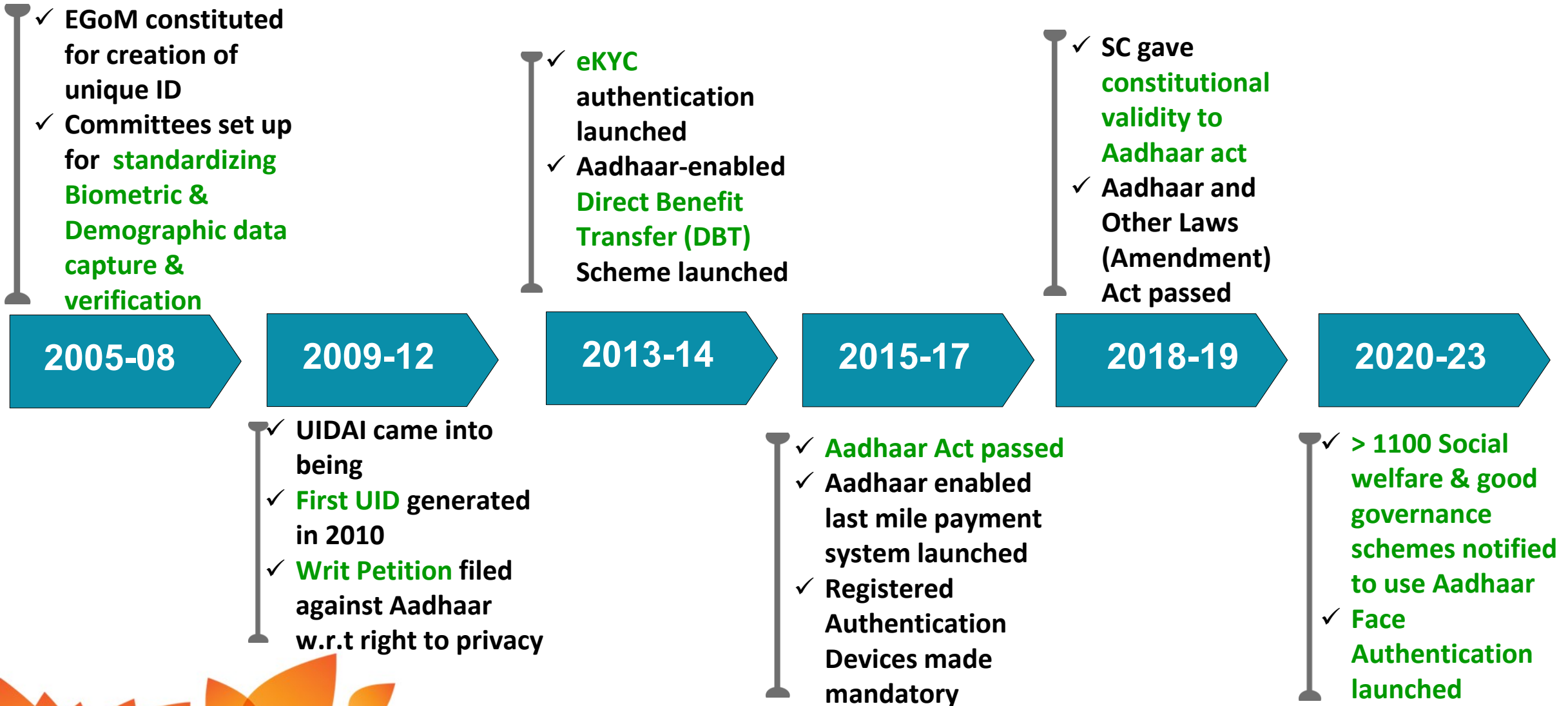


# Journey of Aadhaar

## Key Milestones, Challenges overcome



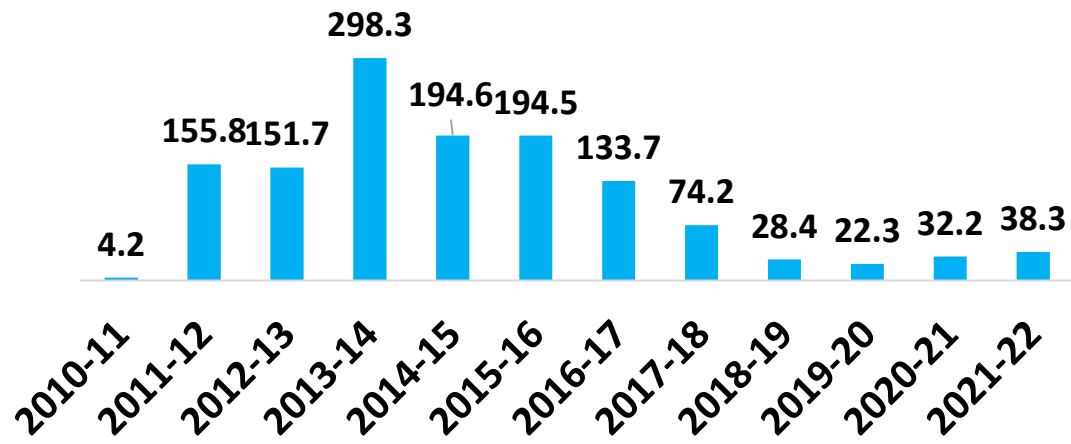
# Journey of Aadhaar: Key Milestones



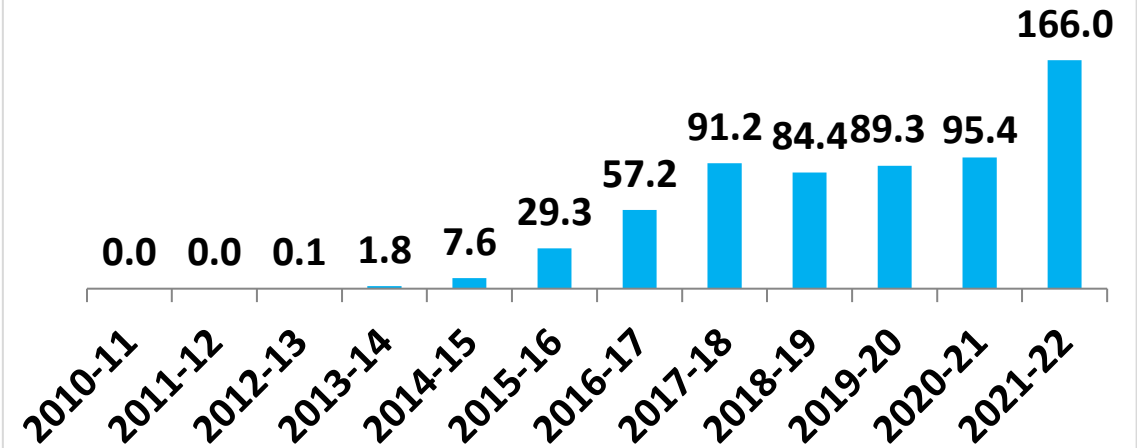


# Enrolments, Updates & Authentications: Year-wise

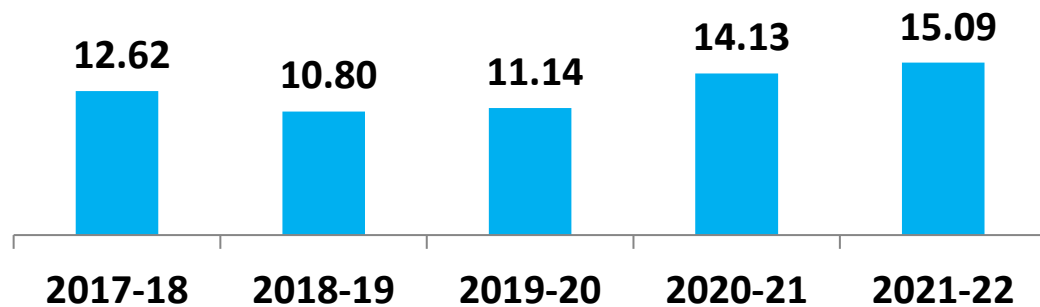
## New Enrolments (Mn)



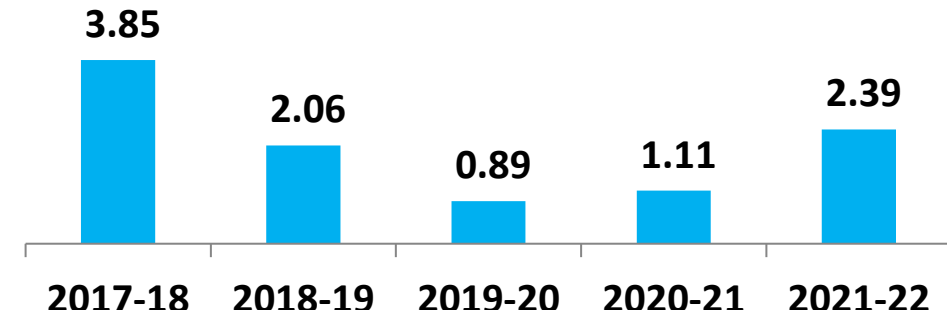
## Updates (Mn)



## Authentication Transactions (Bn)



## e-KYC Transactions (Bn)





# Challenge of Inclusion

- People with no existing ID  
Esp. PoA
- Orphans, Street-dwellers



- Differently-abled
- Very Old / Bedridden
- Worn out Fingerprints



- Multiple acceptable PoI, PoA, PoR docs
- Concept of Introducer
- Certification by eminent public figures
- Surveys for address verification
- Registration with civil society orgns, orphanages etc.

- Multimodal biometrics (FP, Iris & Face)
- Exception handling for missing biometrics
- Home enrolment for old/bedridden
- Best Finger Detection based on Biometric Quality Scores



# Challenge of Coverage



- Vast population: Need for Speed
- Limited manpower with the state
- Uniformity of coverage across geographies
- Inaccessible/remote pockets
- Incentive to enroll: Voluntary Id
- Cost Burden



- All arms of the government involved: federated effort
- Different types of centres for uniform coverage: UIDAI-operated centres, scheduled banks, schools, angadwadis, medical institutions, post offices
- Campaign-mode enrolment
- Private enrolment agencies procured by state agencies: under a standard & controlled operational framework with built-in incentives & disincentives to ensure quality, compliance and reduced cost
- < USD 1.5 cost of an Aadhaar to UIDAI: No card management; just a number
- Special enrolment drives for remote areas
- DBT program launched for social benefit transfers to Aadhaar-seeded bank accounts
- Simultaneous financial inclusion drives based on Aadhaar e-KYC: Instant zero-balance account opening



# Challenge of People, Process & Technology



- Attracting the best talent
- Providing an environment for innovation



- Institutional mechanism for collaboration among govt. & private professionals/firms
- Hackathons on challenges in Indian context
- Experts on sabbaticals, secondment/deputation
- Tie-up with consultancy firms for global expertise



- No global precedence to processes on a large scale



- Expert committees for building standards for devices, technologies, processes and operations, customized to country's needs



- Constant battle with Technology obsolescence
- Infrastructure constraints



- Migration from paper-based documentation to inline scanning, offline to online enrolments/updates: parallel to country's progress in spreading network connectivity
- Migration from on-premise to private cloud; VMs to containers; waterfall to agile; use of AI/ML



# Challenge of People's trust & credibility of the ID

- Balancing ID usage and individual privacy



- Security of resident ID data held in trust by UIDAI
- Threats of frauds from within and outside ecosystem



- Privacy safeguards enshrined in the law
- Privacy by design
- Purpose-blindness and data minimalism
- Limited set of use-cases for mandatory use of ID
- Every use backed by explicit resident consent
- DLT-based User consent registry in the offing

- Multi-layer security through technology and governance
- liveness check of biometrics during authentication
- 'Verify Aadhaar' campaign for 100% authentication/verification before any use of ID
- Use of secure registered authentication devices
- Focus on multi-factor authentication
- Process & security controls around enrolment & updates
- In-house Forensic Lab for Fraud Management



# Challenge of maintaining centrality of ID to user

Expanding usage and utility value of Aadhaar



Focus on Resident experience



- Aadhaar on its way to becoming foundational Id
- The ever-expanding bucket of Aadhaar-based services along with guarantee of ease of service
- Banking, Insurance, Tax returns, Telecom, trade
- Offline Verification for areas and services not yet on online Aadhaar platform
- UIDAI sandbox for innovations in use-cases

- Focus on mobile based services: mAadhaar, face authentication, offline KYC, services on feature phones, research on touch-less biometrics
- Dynamic resident feedback collection
- Omni-channel grievance management
- On-demand Home Enrolment being deployed
- Doorstep Aadhaar services via postmen network



# DPIs for the World

**Developing Global Standards for  
Digital ID/ Digital Public  
Infrastructure (DPI)**

**Creation of multi-stakeholder DPI-  
specific institutions for global  
governance**

**Collaboration for  
synergy in the DPI  
Ecosystem**

**Key to addressing  
developmental  
challenges before  
the World**





**Thank You**

