

# ***Trusted Identity in India – A Government Driven Model***



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***A 12-Digit Unique Identity for Every Indian Individual,  
Including Children & Infants***



# The Agenda

**What is Aadhaar and need for it**

**The Process Flow**

**The Benefits Derived**

**The Service Delivery Potential**



# The Context



**1.27 billion** Indian Population, **640,000** villages, **~74% literacy**,

- **2.77%** pay **Income Tax**, **59%** **household banking**, **~0.9 billion** mobiles
- **~300-400m** **migrant workers**

**~50 million** hold **passport**, **~100 million** hold **pan card**, **~100 million** have **driving license**



**\$70 Bn**

Government of India spends **\$20 Bn** **annually** on social services

Most programs plagued with **ghost and multiple identities** causing **leakage of 20-40% (estimated)**

**30%**



Source:

1. Indian Population, villages, literacy: <http://www.indiaonlinepages.com/population/india-current-population.html>
2. Pan Card - <http://taxguru.in/income-tax/pan-cards-exceeds-number-tax-payers.html>
3. Driving License - <http://timesofindia.indiatimes.com/india/Push-for-digitization-of-driving-licences-vehicle-registration-papers/articleshow/17069599.cms>
4. Passport - [http://zeenews.india.com/news/nation/50-million-indians-have-passports\\_756161.html](http://zeenews.india.com/news/nation/50-million-indians-have-passports_756161.html)
5. Social Services: <http://www.downtoearth.org.in/content/social-sector-spending-upa-regime>



# UIDAI's Mandate

## Vision

*“To **empower** residents of India with a **unique identity** and a digital platform to authenticate anytime, anywhere”*

- Biometric backed “**unique**” identity to eliminate duplicates and ghosts and give a **trusted identity**
- “**Verifiable online identity**” for portability
- Built as pure identity “**platform**”

## Mission

*“To issue a unique identification number (UIDAI) that can be **verified and authenticated** in an online, **cost-effective manner**, which is robust enough to eliminate duplicate and fake identities”*



# Objectives

1

Providing a **unique trusted identity** proof to millions of residents

2

Streamline government expenditure – **cut wastage and leakage**

3

**Social inclusion** with a developmental focus

4

**Transparent** and **accountable** system of public expenditure

5

Identity proof would be a gateway to **access services**



# What is Aadhaar?

**Unique, lifetime, biometric based Trusted Identity**



9 8 7 2 0 9 8 1 7 8 4 2

- “Aadhaar” number is a unique 12-digit identification number
- Linked to the resident’s biometric data (photograph, fingerprints and iris scans) and limited demographic information.

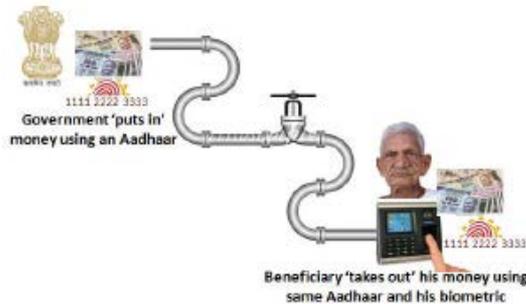
***It is not a proof of citizenship. It only guarantees a trusted identity, not rights, benefits or entitlements***



# Foundation to effective Government Service Delivery



*Collection of Demographic and Biometric data*



*Aadhaar acts as a Payment Bridge*



*Issues unique 12 digit number to a resident*



*Used for effective and efficient service delivery*



*Provides Real time Authentication*



*Aadhaar as a KYC and the e-KYC service*



# Trusted ID program



- All current valid PoI documents issued for specific purposes
- Used as PoI in the **absence** of a pure ID



- Aadhaar is a pure ID scheme operated by the Government of India
- Designed to be a primary ID



# Empowerment, Choice and Convenience

## Identity

- **Unique trusted identity to every resident of India which is nationally valid – especially useful for those who have no proof of identity**

## Mobility

- **Aadhaar authentication because of its on-line nature can also be verified anytime, anywhere.**

## Gateway to Services

- **KYC for a whole range of products and services (bank accounts, mobile connections, LPG connections, state Govt. services, insurance, etc.)**



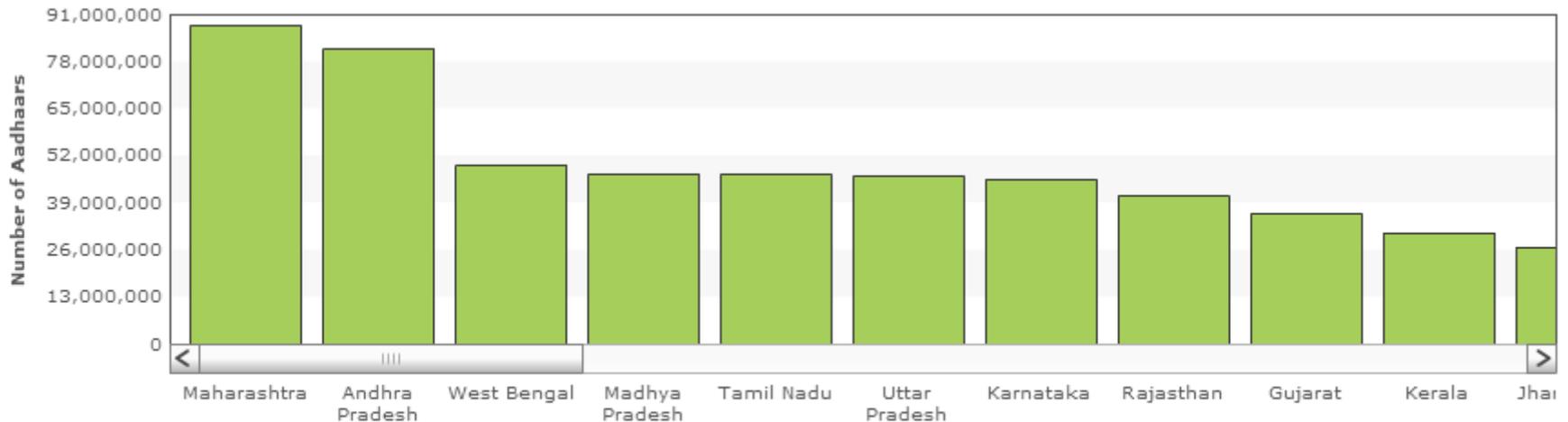
## Progress so far. . .

- Program launched on the ground in **Sept 2010**
- Enrolment
  - First **10 million** enrolled by **June 2011** (~270 days)
  - Second **10 million in 35 days** and **third in 24 days**
  - Now at **10 million every 10 days!!**
  - **667 million Aadhaars issued so far**
- Authentication & e-KYC online services
  - **Authentication launched in 2012 and eKYC in 2013**
  - Several million authentications done so far
- Live analytics data available at [portal.uidai.gov.in](http://portal.uidai.gov.in)

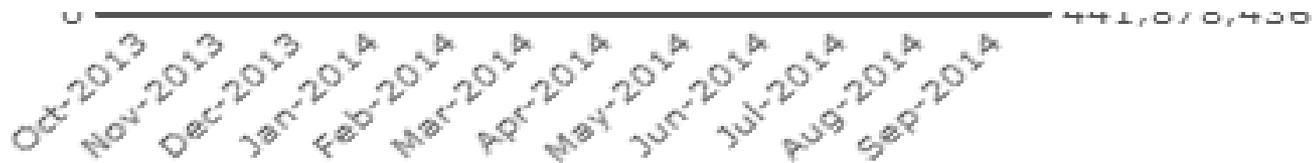


# Work so far. . .

- 25+ States, 60+ Central Registrars and 200+ Enrolment Agencies
- Over 667 million Aadhaar issues till date



Click on state to show district view



Period

■ Month Values    ■ Cumulative Values



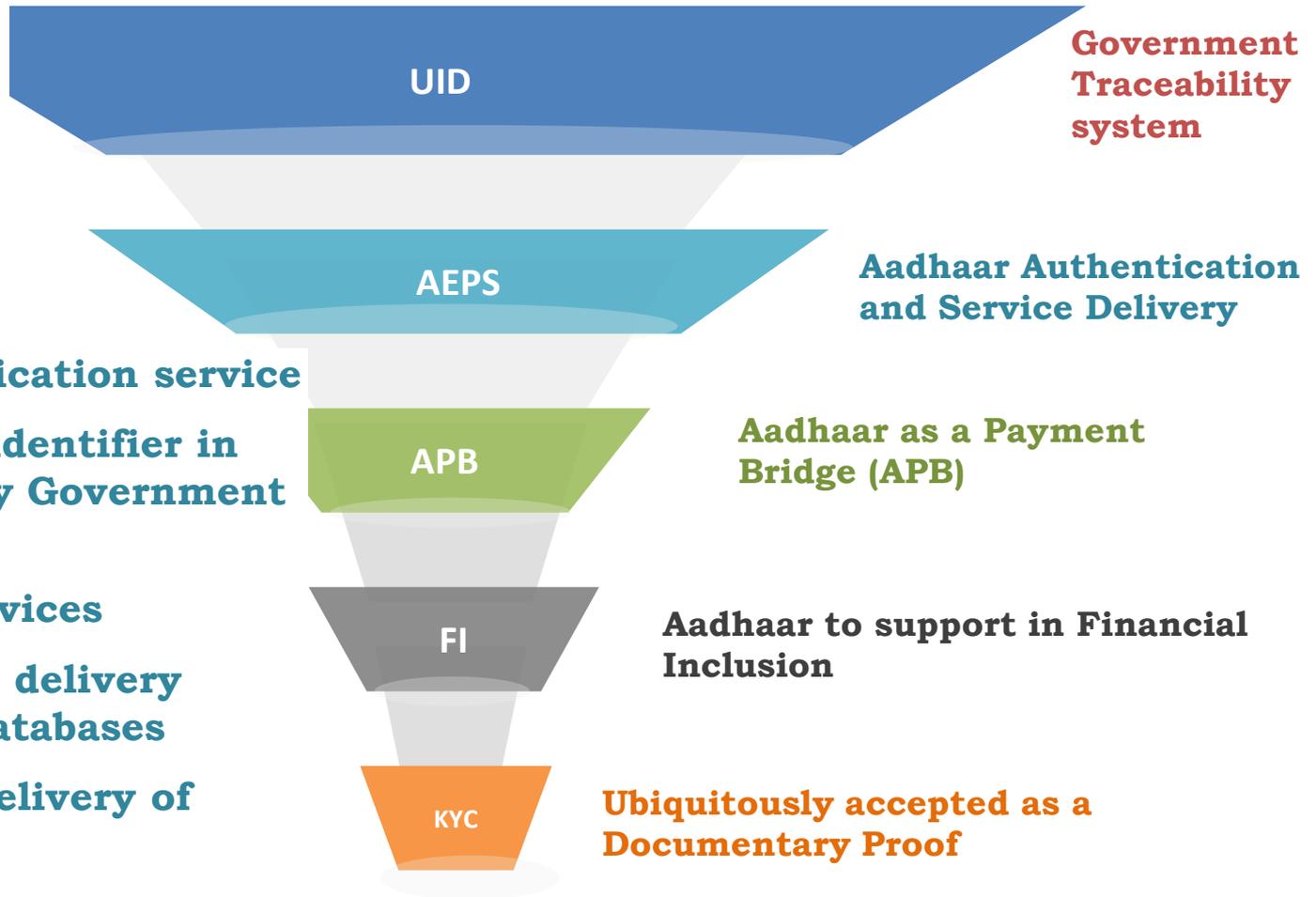
# Work so far. . .

- Original target - **600 million UIDs in 4 years (DONE!!)**
  - Now processing **1 million a day**
  - 600 trillion biometric matches every day!!!
- **~3-5MB per resident**
  - Maps to about **20 PB of raw data** (2048-bit PKI encrypted!)
  - **About 30 TB I/O every day**
  - Replication and backup across DCs
  - Lifecycle updates and new enrolments will continue for ever
- Additional process data
  - Several million events on an average moving through asynchronous channels (some persistent and some transient)
  - **15+ billion records** in analytics system already
  - Needing complete update and insert guarantees across data stores



# Possible Uses

- End to end traceability of Govt. Funds
- Check on diversion and pilferage
- Movement of goods at market price
  - Realtime Authentication service
- Used as a unique identifier in service delivery by Government & Private entities
- Provide e-KYC services
- Integrated service delivery through linking databases
- Ensure targeted delivery of services
- Expected transactions ~ 100 million every day



# Features

- 1 **Standard Attributes – No Profiling**
- 2 **All residents – Including children**
- 3 **Flexibility to partners**
- 4 **No sharing of transaction records**
- 5 **No Guarantees to Rights, Citizenship, Entitlements**
- 6 ***De-novo* creation of database**
- 7 **Secure authentication – Anytime, anywhere**
- 8 **Ensuring security and privacy of information**
- 9 **Uniqueness – Ensured through biometric attributes**

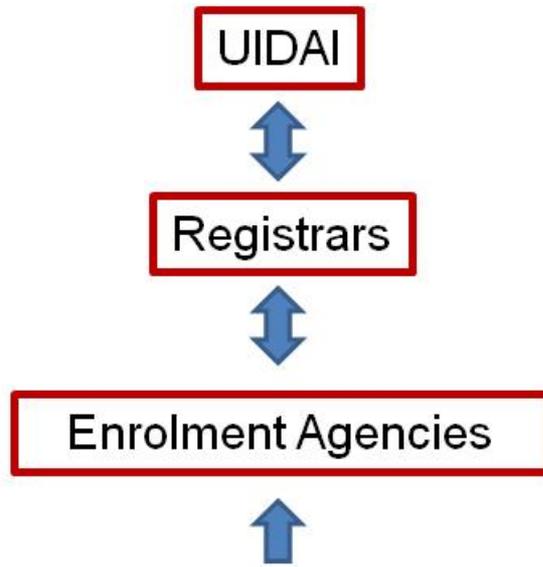


# Why Aadhaar... Benefits for the Government

Program / Entity	Better Reach & Targeting	Reduced Leakages / fraud	Reduced Cost of Service Delivery	Widen Tax Base	Greater efficiencies & effectiveness
<b>Employment</b> - MNREGA, SGSY, IAY, KVIC, PMEGP	✓	✓	✓		✓
<b>Education</b> - SSA, Right to Education	✓	✓	✓		✓
<b>Food &amp; Nutrition</b> - PDS, Food Security, Mid Day Meals, ICDS	✓	✓	✓		✓
<b>Inclusion &amp; Soc Security</b> - JSY, Dev ofPTGs, IGNOAPS	✓	✓	✓		✓
<b>Healthcare</b> - RSBY, Janshri BY, Aam Aadmi BY	✓	✓	✓		✓
<b>Financial Services including Insurance</b>	✓	✓		✓	✓
<b>Property Transactions</b>		✓		✓	✓
<b>Voter ID</b>	✓	✓			✓
<b>PAN Card</b>		✓		✓	✓



# How is Aadhaar built?



- 1) Aadhaar will be built in **partnership with Registrars**
- 1) Registrars will collect **demographic & biometric data** from residents through **Enrolment Agencies**/directly
- 2) UIDAI empanelled enrolment agencies can be used by Registrars
- 3) Aadhaar will be issued by the UIDAI to residents after **de-duplication of data**

- **Scalable model to maximize reach and inclusion**
- **Strong Process & Technology backbone to standardize the model and drive controllership & consistency**



# Information Collected

1 KYR Fields – Name, Address, Gender, DOB

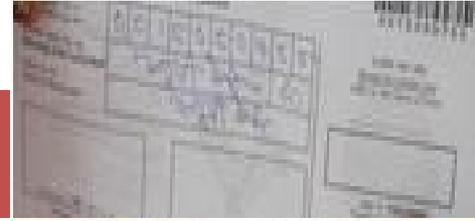
2 Photo & Address Verification

3 Photo

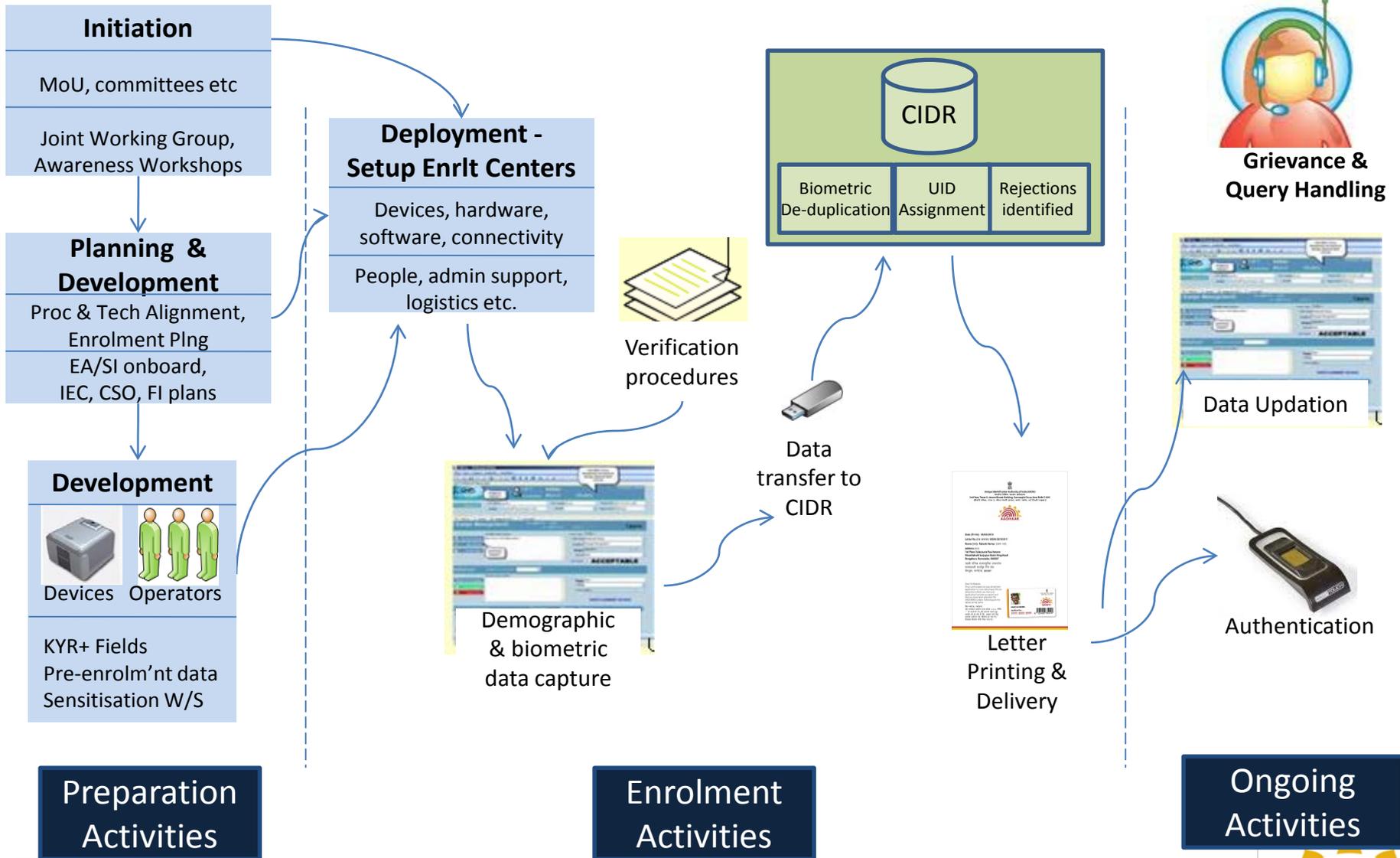
4 10-fingerprints on Slap scanner

5 Iris Scan

6 KYR + Fields (basic Registrar requirements)



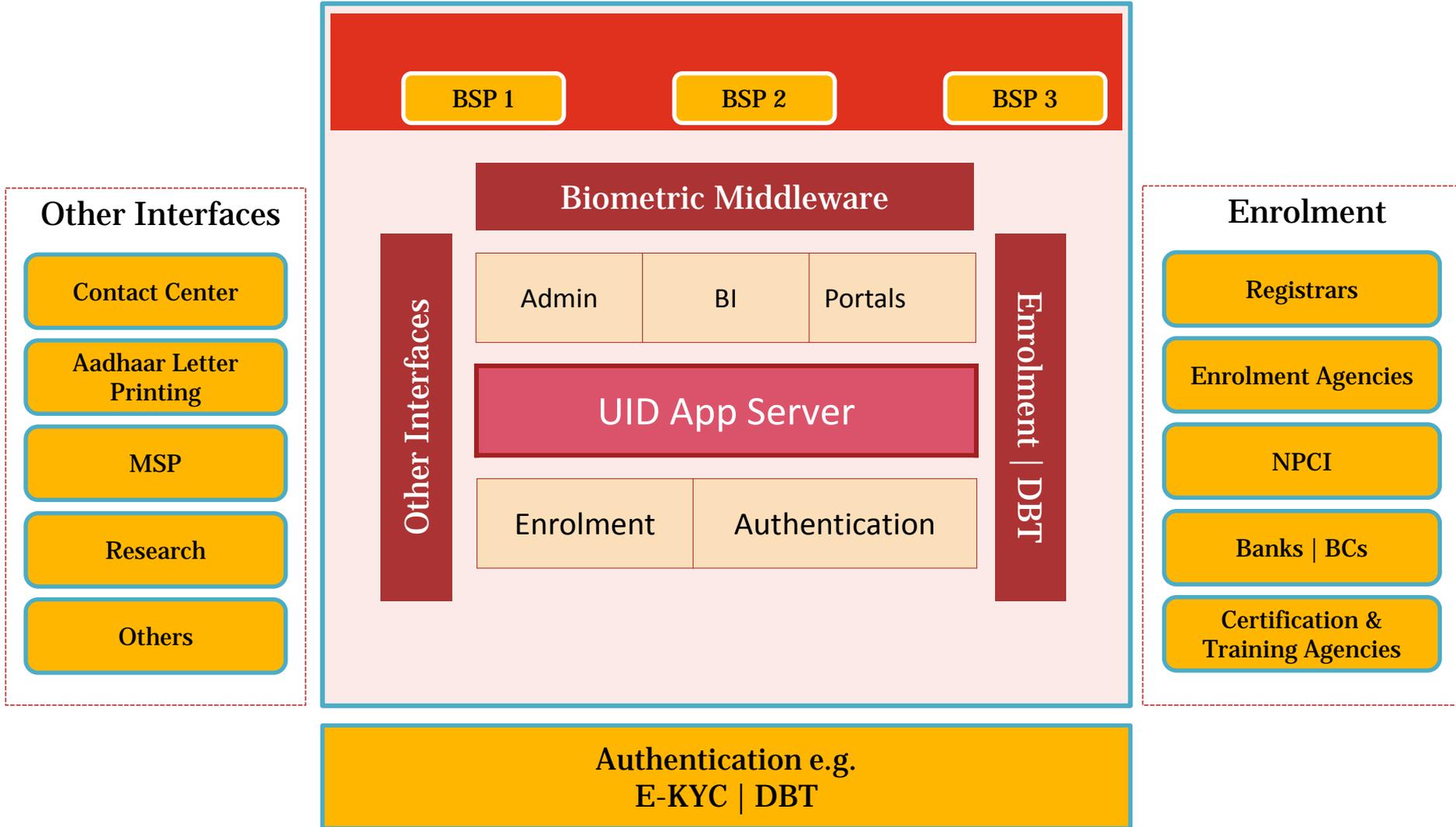
# The Process-flow



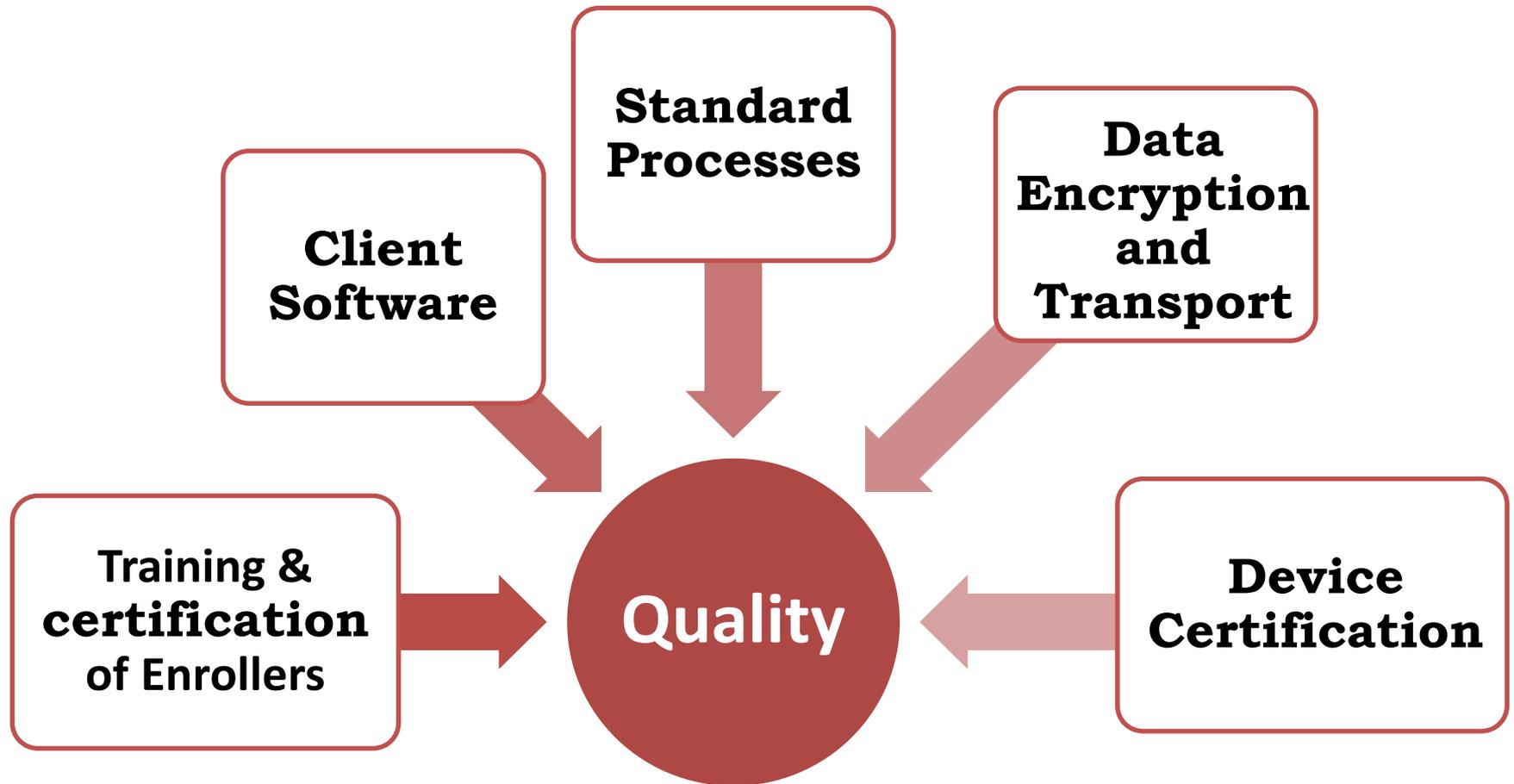
# Glimpse of how it is happening



# Ecosystem



# Ensuring Quality and Driving Standardization



**Quality is Crucial for Aadhaar !!**



# Architecture Principles

## 1 Design for Scale

- Every component needs to **scale to large volumes**
- **Millions of transactions**, billions of records, trillions of computation
- Assume failures and design for recovery

## 2 Open Architecture

- Use **of open standards** to ensure **interoperability**
- If there are no standards, **create one**
- Allow the ecosystem to **build libraries to standard APIs**
- Use of open-source technologies whenever prudent

## 3 Security

- **End to end security** of resident data
- **Data privacy** handling (API and data anonymization)



# Open Architecture

## Multi Platform Client & Server

- Enrolment Client supports “any” standard laptops/OS
- Supports commodity hardware from “any” vendor
- Server on Linux from “any” vendor
- Multiple **biometric vendors**

## 3rd Party Interfaces Abstracted using API Layer

- **Aadhaar Biometric Capture Device** interface
- Automated Biometric Identification System (ABIS)
- **Biometric SDK API**
- **Transliteration and Matching API**
- **Authentication API, eKYC API**
- **Authentication Device Specification**



# Learnings from Open Architecture

## Design for Scalability

- Open scale out is the only way you should go.
- Heterogeneous, multi-vendor, commodity compute, growing linear fashion. Nothing else can adapt!

## Standardize for Vendor and Technology Neutrality

- Define process standards
- Define technology standards and APIs
- Create certification and let ecosystem scale
- Multi-vendor, multi-modal approach for every component
- Embrace open source heavily

**BELIEVE IN DATA**

**Use Analytics for transparency and continuous improvement**



# Innovations

1

## **Platform Approach**

Build a platform, keep it generic and allow innovations on top

2

## **Minimalistic**

Simplicity and minimal data

3

## **Ecosystem Approach**

Standardize, Partner, Scale

4

## **Incentive Aligned Design**

Residents and Partners

5

## **Openness and Vendor Neutrality**

Standards, APIs, Open source

6

## **Security and Privacy**

By design, in everything

7

## **Transparency and Continuous Improvement through Analytics**

Measure everything in data, decisions based out of actual data

# Aadhaar Benefits



**Payments through Micro-ATMs**



**Food Delivery**



**LPG Delivery**



**Old Age Pension Payments**

# Leveraging Aadhaar



# Service Delivery Potential of Aadhaar

- **Transactions** normally require verification of **identity**
- Aadhaar online authentication will provide a **common platform** which can be used across all transactions and other applications.
- Entitlements should reach the intended **beneficiary** – **non-transferability** can be ensured
- This can be effectively done by **authentication at the point of service** delivery
- Many sectors will be able to use as a **proof of presence** for the beneficiary



# Ease of Bank Account Opening

## Aadhaar Platform for Banking

### Access

- Open Bank Accounts using Aadhaar – Sufficient KYC
- Existing Bank Account can be linked to Aadhaar number

### Address

- Transfer funds to Aadhaar Enabled Accounts
- Simplifies disbursement of funds – uses only one account for all disbursements – Convenience for the beneficiary

### Transactions

- Withdrawal and deposit, check balance
- End to end auditability, traceability, interoperable, portable anytime anywhere



# Aadhaar accepted as KYC for various services



**1** Mobile connections



**2** Bank A/Cs, Insurance, etc.



**3** LPG Connections



**4** State Government Services



**5** Train Travel



**6** Many other services...



# Aadhaar as e-KYC services

1. **“Instant” Opening of Bank Account** through a Micro-ATM based on Aadhaar authentication – hugely empowering to the unbanked
2. The Aadhaar e-KYC service instantaneously provides **basic data (name, address, date of birth, gender, photograph)** of the beneficiary to the Bank upon successful Aadhaar authentication.
3. The e-KYC service can scale up to **lakhs of transactions** on a daily basis
4. Provides **convenience to the unbanked**. Enables opening of large number of bank accounts on scale.



# Pradhan Mantri Jan Dhan Yojna

- Only **58% Indian households** have access to banking services
- **Open 75 million bank accounts** by January 2015
- **Each household** to have a bank account
- People can open **zero balance** accounts
- **Aadhaar card is proof enough** to open account on the spot

*Easier for the Government to directly pay all subsidies into the accounts of the poor, instead of dispensing them through the vast, leaky network of government agencies*



Source:

1. Jan Dhan Yojana: <http://www.thehindubusinessline.com/opinion/all-you-wanted-to-know-about/article6370254.ece>



# Aadhaar Enabled Payments



# Step by step process to Financial prosperity

**1. Give unique identity to residents**

**2. Include residents in the financial sector by easing bank account opening process**

**3. Kick start the ecosystem by funding bank accounts through Government schemes**

**4. Enable banks (and other institutions) to provide cheap and secure token-less authentication methods to customers**

**5. Enable banks (and other institutions) to provide cross-sector services to customers via Business Correspondents (BCs)**



# Residents Payment system and Aadhaar

State Governments



Government of India



Employers

Family, Friends

Governments, organizations, and individuals can transfer money to residents by specifying the Aadhaar number and amount.



Any Accredited Bank

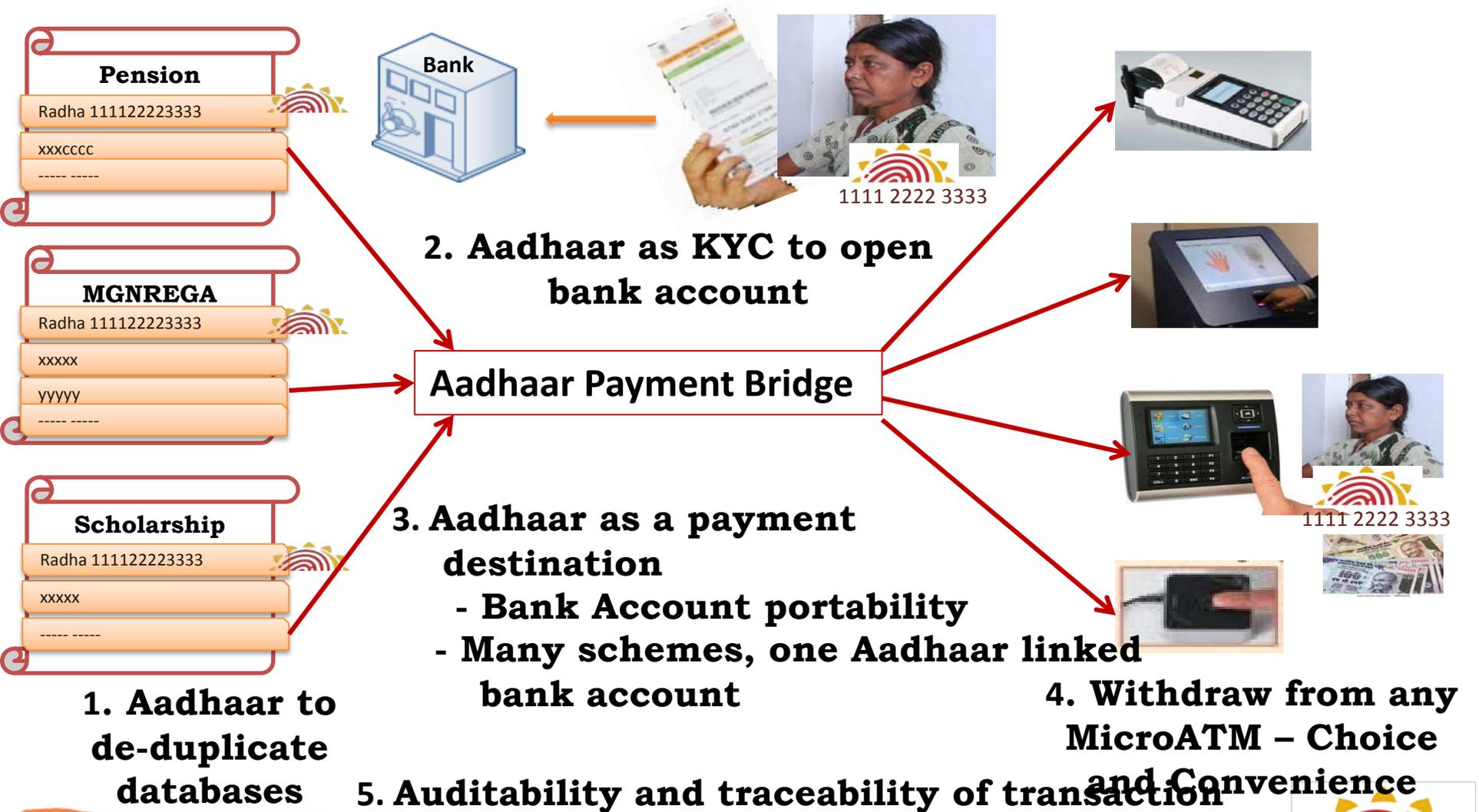
Aadhaar Payments Bridge

**Existing Account or Instant Account!**

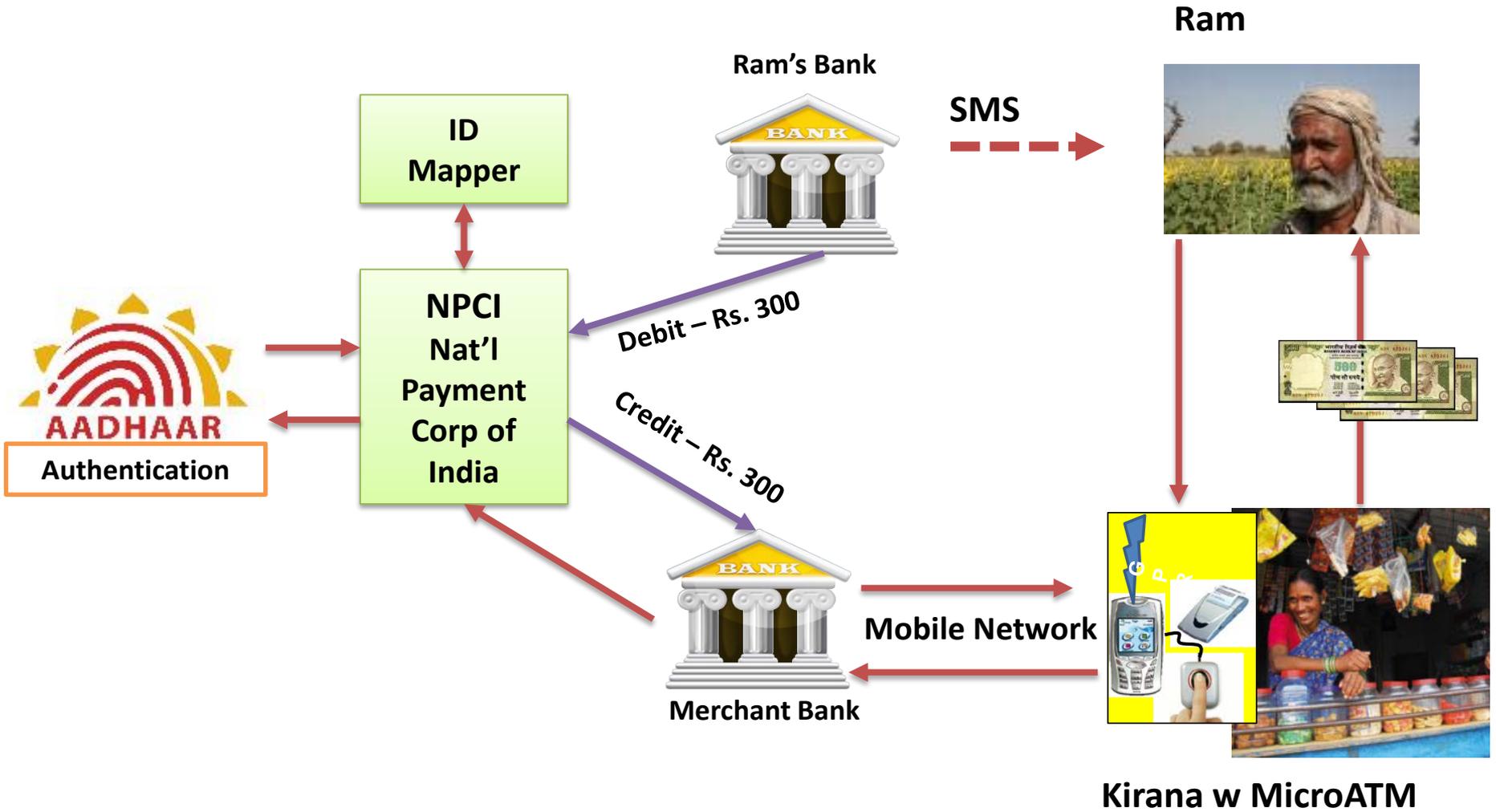
Aadhaar	Account
8384 8239 5837	27390239
4390 9203 9593	397802232



# End-to-End Residents Benefit Transfer Enabled by Aadhaar



# Ram withdraws cash at his own village



# The Impact. . .



Aadhaar identity platform and Aadhaar enabled applications can help a billion people to participate in digital economy and avail services tailored to them!



THANK YOU !

