Bounded Case Study of India’s Social Welfare: Aadhaar
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Primary Reference:
The Unique Identification Authority of India
Retrieved from http://www.uidai.gov.in
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**Aadhaar Enabled Payment Systems (AEPS)**
- What is AEPS?
- Pre-requisites for AEPS Readiness
- AEPS Processes
- Roles & Responsibilities
Bounded Case Study: Aadhaar

- Identified as the world's most immensely colossal biometric identification system in the world, India just recently promulgated that its goal of 750 million people has been realized in the form of their unique biometric identification convivial welfare system called Aadhaar.

- 50 scholarly sources were reviewed in an effort to investigate, review, and analyzes the strengths and limitations of the innovative and cost-efficacious digital welfare system in India, commonly known as Aadhaar.

- At multiple points since the program began in 2010, the country of India has digitalized their country’s population with a unified system of biometric indicators that has completely revamped and re-defined what social welfare policies are defined. It addresses security, authorization verification, and ensures that every person who is/was supposed to get benefits received them accurately (The Unique Identification Authority of India, 2016).

- Over 750 million people in India are now registered (as of November 1, 2016)

- The most controversial aspect is the Unique Identity (UID) project, which registers biometric and demographic information about its citizens/residents. “A Bounded Case Study of Aadhaar: Converting Traditional Social Welfare Systems into the Digital Age” is the full title of this Bounded Case Study.
Bounded Case Study: India’s National Social Assistance

- Indira Gandhi National Old Age Pension Scheme
- Indira Gandhi National Widow Pension Scheme
- Indira Gandhi National Disability Pension Scheme
- National Family Benefit Scheme (NFBS)
Definition of a Bounded Case System: Case as a Bounded System

- The case selected for study has boundaries, usually by time, place, or some activity (The Aadhaar Program from 2010 – 2014)
- The common denominator is that each (single person, village, program, etc.) is a bounded system (The Country of India)

**Things to Consider in Defining the Case**

<table>
<thead>
<tr>
<th>Who</th>
<th>Identify the case among a host of possible candidates and whether to study a single case or multiple cases.</th>
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</thead>
<tbody>
<tr>
<td>What</td>
<td>What about this individual, group of individuals, site, program, event etc. are they studying? What bounds this case?</td>
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<tr>
<td>Where</td>
<td>If location is important, what bounds this case in terms of location?</td>
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<tr>
<td>When</td>
<td>If time is important, what bounds this case in terms of time?</td>
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<tr>
<td>Why</td>
<td>Why is this case or these cases being selected? Are they being selected because they share an experience or characteristic? Because they are unique in some way?</td>
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The Importance of this Study

The Aadhaar platform is an important tool that social workers use in India to verify recipients in an effort to prevent fraud through a national social welfare program - the National Social Assistance Programme (NSAP) through a digital mechanism called Direct Benefit Transfer (DBT).

The primary focus of DBT is to ensure that a digital system (Aadhaar Enabled Payment System (AEPS)) is an accountable, cost-effective and transparent Social Welfare Tool.
Basic Terms/Concepts (1/2)

- **Aadhaar Payments Bridge (APB)** – A common infrastructure through which money can be transferred to beneficiaries of various govt. Schemes using just the Aadhaar number and amount

- **Micro-ATM** – A standard handheld device for BC-based transactions capable of using UIDAI’s authentication system

- **Aadhaar Enabled Payments System (AEPS)** – An inter-operable network using which people can conduct basic banking transactions by using online biometric authentication of UIDAI in real time via Digital Secured Processes (DSP)
Basic Terms/Concepts (2/2)

- **Authentication** – Matching of Aadhaar no. and biometrics with the data maintained in the UIDAI’s back-end system to enable residents to prove their identity electronically for availing services and benefits

- **Sponsor Bank** – Bank where the State/District maintains their account

- **Destination Bank** – Bank where the beneficiary account is maintained
Preparatory/One-Time Steps

- **Government Departments**: Digitize Beneficiary database and Seed Aadhaar numbers. This will clean up databases and make departments ready to use APB.

- **Banks**: Open bank accounts or link existing accounts with Aadhaar number. Populate NPCI’s mapper (Aadhaar No – Bank ID).

- **National Payments Corporation of India**: Maintain the Mapping of Aadhaar no and Bank.
**Aadhaar Enabled Direct Benefits Transfer**

**Government Departments / User Agency**
- Ensure digitized/electronic database of beneficiaries
- Seed Aadhaar to clean up databases and act as financial address
- Generate payment advise file – Aadhaar no & amount to be transferred
- Electronically share file with the Sponsor bank of Department
- Receive confirmation from Sponsor bank on transfer status / further action

**Banks**
- All Banks communicate Aadhaar no of all AEBA to Central Mapper
- Sponsor Bank posts payment advise file to Central Mapper for all OFF-US transactions
- Sponsor Bank updates Department and takes corrective action, if any

**Central Mapper / NPCI**
- Maintain an updated Central Mapper and Aadhaar Payment Bridge (APB)
- Facilitate transfer/settlement across banks
- Update Sponsor Bank of status & failures, if any

**Resident**
- Open/Link Aadhaar Enabled Bank Account (AEBA) with any bank of choice
- Use Aadhaar authentication (AEPS) or other channels to withdraw money

**Legends:**
- One-time activities
- Recurring activities
Govt. Department prepares an electronic file containing Aadhaar no and amount

Govt. Department sends the file to the bank where scheme account is maintained

Bank sends to Aadhaar Payments Bridge (APB) (owned and operated by NPCI)

APB routes money to the concerned banks. Banks credit the money in beneficiaries’ accounts

Department can send SMS informing the beneficiary about the money being sent. Banks can also send when the money arrives in the accounts
1. Routing of Aadhaar Payments Bridge will be done basis Institute Identification Number (IIN) provided by National Payments Corporation of India (NPCI) to participant banks
2. Sponsor Banks will upload APB File onto NPCI server
3. File will contain Aadhaar Number, Bank IIN, Amount & Job Reference Number
4. NPCI will process uploaded files, prepare drawee bank files and generate settlement file
5. Settlement file will be posted to bank accounts with RBI
6. Destination banks can download the incoming files for credit processing after the settlement file has been processed
Advantages of APB to Departments

• Removes fakes/duplicates from the beneficiaries list leading to savings
• Eases the entire process for transferring benefits as the Govt. just needs to know the Aadhaar numbers of the beneficiaries without seeding bank account details in every scheme database
• Eliminate Errors/Frauds as the resident is in control of his data at both ends (Department and Bank). Direct linking (of Domain ID with Bank Account) without Aadhaar is a non-trivial problem.
• Ensures Scalability as each scheme does not require to populate their database with bank account details. APB is a platform
• Bank account changes do not affect the transfer systems for various schemes
• Resident-centric view of payments under various schemes. This will enable weeding out those people who may be availing LPG as well as Kerosene subsidy and benefits of multiple schemes.
• Digital audit trail & Transparency
• Real time monitoring and efficient funds & program management
Aadhaar linkage in the Government and Bank databases provides end-to-end visibility of subsidy and benefits payments from Government to the beneficiaries.
Advantage of APB to Beneficiaries

- There is not a need to open multiple accounts. Everything gets synchronized and compacted into one Aadhaar number.

- Residents are documented through multiple social work research questionnaires and studies since its inception in 2012 to be far more comfortable in disclosing only the Aadhaar number to Govt. Agencies rather than bank account/banking account details.

- In case of changes in the Aadhaar client’s banking account, the resident does not need to convey account details or change in bank details to each department that he deals with as it is done instantly and automatically by Aadhaar’s servers.
APB - Important issues

• State/ District to monitor that the files uploaded to banks are processed the same day

• Sponsor Bank is liable to provide a return file to State/ District on a daily basis as NPCI generates a daily file

• Procedure to be firmed up for records returned basis the reason codes

• NPCI charges 20 paise per transaction from Sponsor Bank for inter-bank transactions. Number of banks in the country are willing to absorb this charge

• Push Sponsor Banks to send all transactions including intra-bank through APB in order to ensure end-to-end visibility
APB - Important issues

• Aadhaar Numbers don’t start with 0 and 1
• State are requested to incorporate Verhoeff algorithm to ensure structural validity of the Aadhaar number
Convenient Cash Withdrawal Through AEPS

Beneficiary approaches a BC of any Bank with her Aadhaar number

BC feeds the Aadhaar number, fingerprints and amount in the micro-ATM

Aadhaar server authenticates the ID of the resident.

After successful Aadhaar authentication, beneficiary can carry out the transaction
1. A resident is required to provide their Aadhaar Number and fingerprint impression at the microATM Level
2. Leveraging GPRS Data Connectivity Signal, data packets are transferred to Bank Switch to NPCI to UIDAI in a digitally signed and encrypted manner
3. UIDAI Authentication Server decrypts the data packet and performs a 1:1 match against the Aadhaar Number
4. Based on the matching of fingerprint impression in data packet versus the fingerprint impression in backend, UIDAI Authentication Server will return a Yes or No response only
5. Using the same route a digitally signed and encrypted response will be sent back to Banks, wherein depending upon the response they can proceed to conclude the financial transaction
6. In case of residents with Biometric Exception, the software deployed by banks at microATM level provides an interface to perform financial transaction after fulfilling the pre-requisite policies in place, thus providing an opportunity to mail electronic trail of data
Advantages of AEPS

• Beneficiary (Client) can receive money via their Smartphone/Direct Bank Account Transfer Immediately

• Inter-operable system ensures that the customer is not tied to one specific bank

• Network of BCs, bank branches and Post Office can leverage a single biometric authentication system accessible through microATMs

• There is high efficiency in cost savings for India Gov. primarily because the banks do not need to separately capture biometrics and develop their own de-duplication and Authentication systems
# Roles and Responsibilities

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<tr>
<th>Banks (AUA)</th>
<th>Domain Aggregator (ASA)</th>
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<tr>
<td>1. Sign Agreement with UIDAI</td>
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<td>2. Sign Agreement with ASAs</td>
<td>2. Integrate with UIDAI</td>
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<td>3. Integrate with ASAs</td>
<td>3. Define Escalation Matrix</td>
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<tr>
<td>4. Procurement of microATMs</td>
<td>4. Certify AUAs</td>
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<td>5. Deployment of BCs</td>
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<tr>
<td>6. Define Escalation Matrix</td>
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<td>7. 24X7 Automated Monitoring</td>
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<th>UIDAI</th>
<th>Government</th>
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<tr>
<td>1. Provide Authentication Infrastructure</td>
<td>1. Sign Agreements with Banks</td>
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<tr>
<td>2. Define Escalation Matrix</td>
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Three Steps to Enable Direct Cash Transfer

1. Issue notification to use Aadhaar as Financial Address and Aadhaar Enabled Payment
2. Digitization of data and Linking Aadhaar to Scheme Identifier
3. Notification to Banks on opening Aadhaar Enabled Bank Accounts and Aadhaar Linking
Support from UIDAI

1. Enrollment centers in target districts
2. Banks and Departments are Registrars and can facilitate enrolment

1. Aadhaar Partnerships
2. ICT Assistance & Advisory services to State Governments

1. Facilitate Banks for adopting APB & AEPS
Political Legislation

Awareness, Orientation & Training

Training of Social Workers

Education
Collected and verified beneficiary details with AADHAAR Number.

IF NO AADHAR NUMBER THEN EID NUMBER WILL BE ENTERED.

WITH AADHAR CARD

ULB Office

Data Uploading
References


