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ИЗДАТЕЛЬСТВО

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AADHAAR (INDIA): A NATIONAL BIOMETRIC IDENTIFICATION PROGRAM (EXPERIENCE AND IMPLEMENTATION)

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ААДНААР (ИНДИЯ): НАЦИОНАЛЬНАЯ ПРОГРАММА БИОМЕТРИЧЕСКОЙ ИДЕНТИФИКАЦИИ (ОПЫТ И РЕАЛИЗАЦИЯ)

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The scope of this paper is to paint a word picture of the National Biometric Identification Program in India, its benefits and its challenges. This paper is to help implement and improve existing Identification Programs in India and all over the world.

Keywords: Aadhaar, Biometric Identification, UID.

India, with a censused population of 1.35 billion, is the 2nd largest in the world. The GOI (Government of India) in general has a lot of problems managing and providing for its citizens. After their independence, in 1947 till the year 2000 there were various identification methods (PAN – Permanent Account Number, Voter Identification Card, Rural Birth Record, etc.). These methods are rendered useless due to the overflowing population of our country. A serious refresh was needed for the identification system, thus the inception the UID (Unique Identification) system, which is targeted to unify and integrate all of the previously used methods of identification.

Entities Involved

UIDAI: The **Unique Identification Authority of India** is a statutory authority established under the provisions of the Aadhaar Act, 2016 on 12 July 2016 by the Government of India, under the Ministry of Electronics and Information Technology (MEITY) with the primary role of improving the overall digital-ecosystem of the country.

Ministry of Electronics and Information Technology (MEITY): This is a part of the Government of India which deals with the Information Technology Services in India.

Implementation of the Aadhaar system

Nandan Nilekani, being the major player in the implementation of the UID System, the cofounder set to find his team for the said project. He spent time consulting friends like Srikanth Nadhamuni, an engineer who had spent a decade and more in the Silicon Valley and ran e-Government Foundation, T. Koshy, who ran India's premier securities depository, the NSDL, and Sriram

Raghavan of Comat Technologies, all of whom knew the challenges of inducting technology to improve the delivery of government services.

He needed people who understood the government and understood technology and this combination is very hard to find, as the people interested in technology usually stay away from government matters.

The need for Aadhaar project arose after the discovery of fake and duplicate records and non-existent beneficiaries in government's welfare schemes for the underprivileged. This was mainly due to poor attempts at verification of demographic and biometric information.

The break-down of the Aadhaar-India Programme in terms of Software:

1. **Enrolment application** – The application to receive enrolment requests and receiving the applicant's data. This module logs a new request after verifying the uniqueness of the data. This data is then uploaded to Aadhaar database post-validation. The Registrars include (but are not restricted to) ministries and departments of state and central governments, banks and other financial institutions, telephone companies, etc. Once this is done, the Aadhaar number is generated for the request.

2. **Authentication application** – On request, it will query the online database for people similar to the given query by using Biometric and contact data, and return an integer ranging from 0 to 100 depending on the similarity percentage. This is used to instantly transfer data from the UIDAI database to the Querying database. This is used to authenticate users and enable them to purchase telecom operator connections, fulfil bank applications, Funds Remittance Requests (Currency Conversion) etc.

3. **Fraud detection application** – detects identity fraud by catching fraud scenarios. Few examples: registration for non-existent applicants, misrepresentation of information, multiple registration attempts by same applicant, user impersonation, etc.

4. **Administrative application** – provides user management, role-based access control, automation and status reporting.

5. **Analytics and reporting application** – provides enrolment and authentication statistics for both public and partners.

6. **Information portal** – provides administrative access for internal users, partners, and general information/reports/ grievance requests details to public.

7. **Contact centre interface application** – provides query and status update functionality.

8. **Logistics interface application** – interfaces with the logistics provider for letter printing and delivery management.

Vendors for the UIDAI are shown in the table.

Solution type	Vendor(s)
Application development, maintenance and support	Application Software Development, Maintenance and Support Agency for UIDAI -Mindtree. Intranet and knowledge management portal -HCL Infosystems Re-design, maintenance and support of UIDAI portal - Tata Consultancy Services.
Reprographics solution	HP India Sales
Biometric solution implementation	Solution implementation - Satyam Computer Services. (Mahindra Satyam), L1 Identity Solutions Operating Company, Accenture Services. Biometric authentication devices - Sagem Morpho Security., Totem International, Linkwell Telesystems., Sai Infosystems., Geodesic, HCL Infosystems, ID Solutions. Biometric devices - Tata Consultancy Services, HCL Infosystems, 4G Identity Solution., Base Systems.
Contact centre	Intelenet Global Services
Data centre	Space - Bharti Airtel. (Bangalore), Wipro (Delhi/NCR) Hardware/Blade servers/Storage - National Informatics Centre Services Disk Array Enclosures, SATA Disk Drives and Upgrade Pair 4G FC Ports - HCL Infosystems. Piped Data Connectivity - Aircel, Bharti Airtel, BSNL, RailTel Corporation of India, Reliance Communications, Tata Communications Supply, Installation, Commissioning for Hardware & Software - Wipro Audit – STQC

Enrolment Process

The following Fig. 1 shows the enrolment process in Aadhaar.

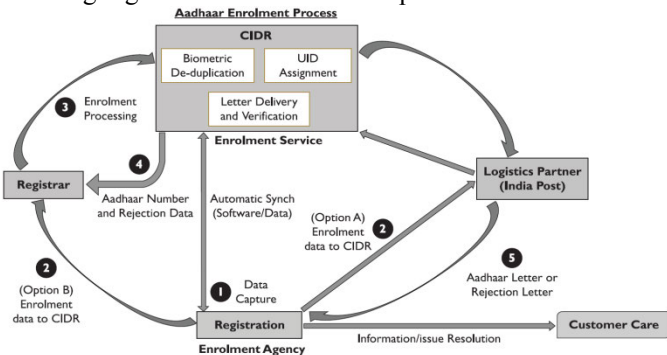


Fig. 1. Aadhaar Enrolment Process

To better explain Integration, Fig 2. describes the integration in Aadhaar.

Data Capture. A kiosk is set up in every city and village to enrol for KYC or Know Your Customer Services. Where the individual is expected to come with his available documents (mentioned later). The data includes a picture, biometric data of all the fingers and iris scans.

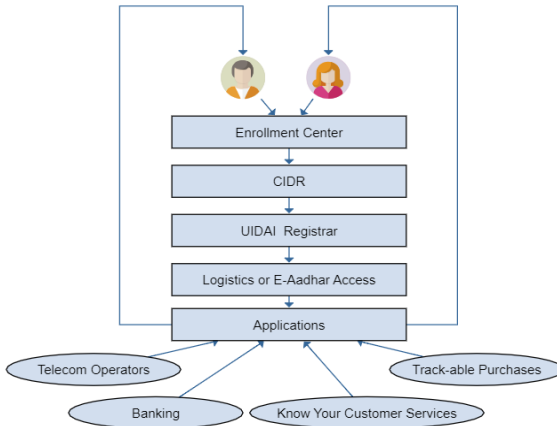


Fig. 2. Aadhaar Integration

Enrolment. The data collected from the kiosk is verified and sent to the CIDR or Central Identities Data Repository which is an organization which manages the data for the UIDAI organization. This is where the verification takes place.

Assignment. After the verification, a Unique Identification Number is assigned to the given data and hence the person. **The UID is valid for lifetime.**

Delivery and Logistics. In the early stages of Aadhaar-India, UIDAI used to post the card physically, which the customers would have to laminate it. Now, post 2015, they only serve electronically. The customer is asked to enter his phone number and his assigned request number, where he will receive a onetime password (OTP). This OTP can be used to login to the UIDAI portal and download an electronic copy of the card, which the customer has to print and laminate on their own.

Updates and Complaint Resolution. UIDAI has outsources various agencies in different cities to listen to grievances of the native people and resolve their problems. The major function of these of agencies is to resolve complaints of customers and

update the information of the present customers. A request can be made online in the UID portal.

The card contains address, date of birth, the enrolment number and the UID number which links to the CIDR database of biometric records (Fig. 3).

The Aadhaar card can be obtained by any citizen of India, but his biometric details have to be enrolled at the age of 5 years (updated at the age of 15 years.).

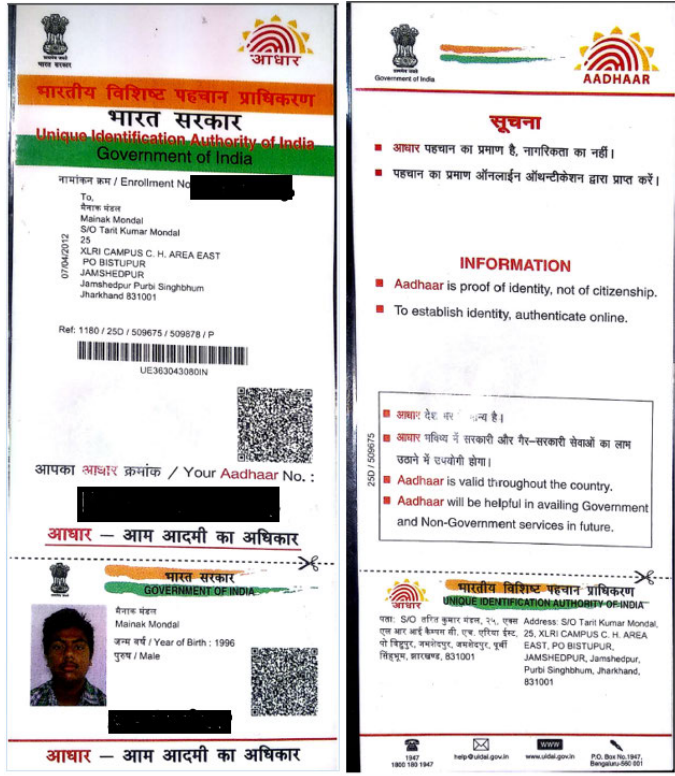


Fig. 3. The Aadhaar Card

Applications of the Aadhaar-India System.

Personal Account Number (PAN) Integration: For Tax Payments Services.

Bank Accounts: All bank accounts in India are required to be authenticated with Aadhaar or UID Numbers.

Telecom Operator Connection: For ease of use all telecom operator in India have switched to a document less method of providing connections with the Aadhaar Number.

Provident Funds: The provident funds of an employee can be tracked and accessed using the Aadhaar number and verification.

Ration Subsidies: The basic necessities like food and Liquid petroleum gas for cooking are subsidised by the government for the people below poverty line.

Scholarship: State scholarships can be applied for using the Aadhaar card for subsidies and waiver of fees in reputed universities.

Crop Insurance: being a country run by farmers, the Aadhaar card enables them to get an insurance for their crops, practically for free.

One of the main problems in implementation of this project is the corruption and delegation of the services to companies for a meagre fare. The corruption can't be helped with a simple solution, but the services delegated to the third party vendors can be improved drastically by regular audits and quality checks.

The GOI should ensure that the funds released for the specific third party vendors, are utilized properly by using frequent quality checks and timely audits to ensure that the customers are having their grievances resolved. Again, with the world's 2nd largest population, it's very hard to execute and manage a program like the Aadhaar but the process of grievance resolution and information update (Customer Support), needs serious changes.

It is recommended to implement the UID-based schemes and similar government projects on a small scale before nation-wide implementation. UID project needs to be made more robust in both enrolment and scheme linking phase. The findings of this study are expected to have significant implications on streamlining the existing processes in Indian context involving variability across different geographies/culture/different political environment. It also suggests ways to improve the success rate of similar projects.

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