



Mindtree

Welcome to possible

Giving 1.2 billion citizens a unique identity.

Aadhaar, an Indian government initiative aims to provide a unique identity for every citizen. This involves managing, authenticating and reporting staggering amounts of data that requires a robust and scalable information management platform.

Here's how we helped the Indian government manage this complex and critical initiative successfully.

The challenge

The Unique Identification Authority of India (UIDAI), envisioned a dedicated 12-digit number as a unique identity for every citizen of the country.

The number would be stored in a centralized database and linked to the basic demographics and biometric information (photograph, ten fingerprints and iris), of every individual. UIDAI needed a partner to design a credible mechanism for identity establishment, authentication, storage and retrieval. The system needed to meet the following objectives:

- Scalability to withstand enormous data volumes and throughput needs
- Availability of information through Business Intelligence (BI) systems and portals to be used by diverse users such as the public, UIDAI and academicians
- Building a data warehouse that has zero knowledge of the resident, thereby ensuring security of data
- Flexibility to store data at the most atomic level, ensuring data aggregation at any level for reporting
- Usage of open source technologies and tools to avoid vendor lock-in

Business impact

- Scalable architecture to handle ten billion enrolments
- Easy monitoring of the enrolment process through dashboards and customized reports
- Informed decision making through a 'self-service' portal with relevant metrics and custom reports
- Prevented potential fraud cases through formidable checks at the enrolment stage

Our solution

Mindtree was chosen by UIDAI as the primary application development partner. We collaborated with UIDAI and devised a solution strategy that comprised the following:

- A data warehouse to capture all enrolment related information except PII (Personal Identifiable Information) data of over 1.2 billion residents of India
- Solution design to effectively manage 8 peta bytes of raw data
- An efficient data management system to handle over 100 million database transactions per day
- Asynchronous data acquisition from transactional systems
- Dataset generation and distribution platform enabling consumption by portals and dashboards, data marts and analysis tools
- Use of technologies that leverage data locality, which support distributed processing for dataset generation

Our approach

- Designed a layered architecture for flexibility and scalability of data collection and information dissemination
- Used big data open-source technologies such as Hadoop, Hive, Pig to handle the scale
- Developed MySQL-based Operational Data Store (ODS) to cater to operational reporting
- Asynchronous data acquisition from transactional systems using an event publish / subscribe framework
 - The framework uses message queues to publish data to the data warehouse without impacting the enrolment process
 - The framework is also used to publish data on authentications

About Mindtree

Mindtree is a global information technology solutions company with revenues of over USD 400 million. Our team of 11,000 experts engineer meaningful technology solutions to help businesses and societies flourish. We enable our customers achieve competitive advantage through flexible and global delivery models, agile methodologies and expert frameworks.