



Success story | South East Asia | National ID Issuance

# 75 million records ABIS for National Biometric ID System

The largest and most  
complete biometric  
database in the country

Fingerprint and Face  
modality

## To support the upgrade of the new national ID featuring face biometrics, Innovatrics has supplied bimodal finger and face ABIS for civil register.

### Challenge

Create a **secure ID system**

Upgrade **Existing infrastructure**

The government was committed to deploying a secure ID ecosystem with biometric identification as early as 2019. The primary goal was to enhance digital security to facilitate online transactions, financial inclusion, as well as better physical interactions with banking and financial institutions. Given government's vision of promoting

online transactions through the National Digital ID platform, the existing ID system, which uses only fingerprints, needed an upgrade. The integration of facial recognition modality into the existing ABIS was a requirement. It led to the review of the minimal viable infrastructure setup of the existing solution that was prone to frequent downtimes.

### Solution

**Face and fingerprint modality**

**108 servers**

**ICAO compliance check**

The new Innovatrics ABIS with facial biometrics modality was integrated on site with the existing ID management system using various third-party legacy hardware. To support the upgrade of the new national ID featuring face biometrics, Innovatrics has supplied bimodal finger and face ABIS. It features face photo ICAO compliance check for enrollment, face and fingerprint deduplication

for identity fraud prevention. It also offers the possibility to update existing records with missing biometric data. A high-throughput and high availability system for 75 million records was deployed on 108 servers in an active-active setup. Moreover, 54 servers for the production environment and 54 servers for disaster & recovery environments are always available.



## Results

75 million records

2000 searches per minute

Zero downtime

The largest and most complete biometric database in the country was launched in November 2019.

Featuring fingerprint and face recognition, new national civil register consisted of 65 million successfully deduplicated and migrated legacy records.

National ID project now counts 75 million records and boasts a high-throughput performance of 2000 searches in entire database per minute while maintaining high availability system architecture with 0 downtime of the service.

## The power of efficient algorithm

### Accurate matching for mixed children and adults fingerprint dataset

Both legacy and new enrolments contain mixed records from children and adults, generating a significant amount of either false positives or false negatives. During the 2nd year of operation, Innovatrics deployed a customized extraction algorithm that estimates the shape of an adult fingerprint from a child's scan with impressive accuracy.

As a result, the matching algorithm works with the same biometric template for all combinations of datasets: children, adults and mixed. It enables the use of existing Innovatrics ABIS installations while maintaining a high level of accuracy and low latency.

### Zero downtime and high availability

Since Home Credit operates globally, the system had to be trained to perform optical character recognition (OCR) involving multiple national IDs and other documents. Innovatrics OCR technology only required a short time to read up to 9 identity documents per country for efficient verification.

#### Before

65 million records in fragmented identification system

Low capacity & throughput

Frequent downtimes of existing setup

Fingerprint modality

#### After

The largest and most complete biometric database in the country

2000 full searches per minute

Zero downtime using active – active infrastructure setup

Fingerprint and Face modality

### Migration of poor quality legacy data

Legacy fingerprint and face data of poor quality made the requirement of zero FTE (failure to enrol) during legacy data migration very challenging. We applied a special face recognition algorithm (designed for wild face images and CCTV) to recognize faces in poor quality legacy photos. The new enrolments are subjected to

Innovatrics quality assessment during enrollment to guarantee the quality of the data for future operations.

## About us

We are an independent EU-based provider of multimodal biometric solutions. Our algorithms consistently rank among the fastest and most accurate in fingerprint and face recognition. Since 2004, we have partnered with all types of organizations to build trusted and flexible biometric identification solutions. Our products are being used in more than 80 countries, benefiting more than a billion people worldwide.

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