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# Case Study: Hong Kong Smart Identity Card



## A Keycorp MULTOS Solution for Secure Identity

In 2001 the Hong Kong SAR Government announced a plan to revamp the ID Card System, using the latest advancements in identification technology, based around highly secure multi-application smart cards and biometrics.



The HKSAR Government embarked on the Smart Identity Card (SMARTICS) project with the key objectives to:

- Stop identity theft by providing ultimate security and privacy for citizens' personal data

- Minimize illegal immigration and illegal use of various social and work entitlements
- Put in place key enabling technology for online services requiring trusted ID and secure authentication.

### Key Requirements

#### Functional

The Hong Kong SAR Government required a card that could provide:

- Secure Proof of Identity
  - Faster clearance of Immigration at Border Controls
  - Prevention of Illegal Immigration with Fake ID
- Proof of Entitlement
  - to work
  - to vote
- Secure Access to On-Line E-Govt Services
- Addition of new services

#### Security

The sensitive nature of the personal information stored on the card, and the risk of identity theft that exposure of that data would cause, demanded the highest levels of security.

#### Flexibility

Hong Kong SAR Government has been globally recognized for its innovative and advanced e-Government program — over 1200 e-services are offered online by over 50 Government departments and agencies, representing almost 90% of all Government services that can be offered in an online format.

Flexibility was required of the solution to ensure that it would be able to match future requirements.



#### Confidence

The HK SAR needed confidence of:

- On time delivery
- Cost effective solution
- Proven technology
- Surety of supply
- Reliable performance
- Low technical risk

## The Solution

MULTOS was chosen as the smartcard platform for this critical project because of its outstanding match to the requirements.

- MULTOS is a true multi-application smartcard platform. Low OS overheads and compact applications maximise the space available for multiple applications
- Highest levels of security guaranteed. Keycorp's MULTOS platform has achieved ITSEC E6 (high) security evaluation. This covers application and data firewalls and the loading and deleting of applications – thus allowing multiple applications to reside on a single card
- One of the key features of MULTOS is the issuer-centric model for controlling the card enablement and applications on the card.
- Full smartcard lifecycle management. The MULTOS specification covers a complete smartcard platform, not just the OS or the APIs, but extending to card and application management. This means a complete system can be developed for the HKSAR with flexibility in the supply chain, in the applications and any future requirements can be easily managed.
- Open and interoperable platform. The MULTOS specification is open to any party and is controlled by a consortium of the industry's leading players. Importantly, each MULTOS implementation undergoes an independent Type Approval to ensure inter-operability and compatibility to specifications.

- A proven solution with low risks. The MULTOS platform is well-suited to applications requiring high levels of security (such as EMV banking and ID). Many millions of MULTOS smartcards have been deployed in project with similarly tough requirements

## The Smart Identity Card



The SMARTICS provides a truly multi-application smartcard, with applications for:

- Personal Details: Name, Birth date, ID number, fingerprint templates and photo
- Storing X509 Certificates for on-line authentication and Private Keys for Digital Signature
- Public Library Card
- Booking sport & leisure activities at self-service kiosks

## Implementation

The international consortium led by PCCW, the principal contractor assisting the Hong Kong Immigration Department, implemented the Smart ID Card System end-to-end solution by integrating state-of-the-art components from international partners:

- Keycorp implementation of MULTOS smart card technology
- Infineon's 32K crypto-controller solution
- Trüb's personalization systems with counterfeit-proof card body

- Digimarc's Photo Capturing System
- COGENT's fingerprint biometric technology
- Thales' Data Preparation hardware & software security systems
- ACI Smart Chip Manager for card and application management
- MULTOS Key Management System

Hong Kong residents are now using the SMARTICS to secure their access to e-Government services. They are now able to fill and lodge forms online from their smart card reader-equipped home PC or from any of the 400 public kiosks.

The same enthusiastic take-up has been shown by residents for the implementation of *e-channel*, the SMARTICS-enabled self-service immigration clearance solution, introduced in December 2004. To perform immigration clearance the cardholder inserts the card in the reader and then presses their thumb against the biometric reader. If a positive match is made against the thumbprint templates stored on the card they are cleared to pass.

The issuance of the first Smart ID Card commenced in August 2003 and today there are over 4 million cards in circulation. This puts the HKSAR Government on track to complete the rollout to all 6.9 million eligible HKSAR residents in 2007.

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