

MULTOS Case Study

The Government of Hong Kong Special Administrative Region completes four-year Smart ID card replacement programme and launches ePassport

Smart ID card with Biometric and e-Cert applications boost citizen convenience and online business. e-Passport facilitates international travel.



The Hong Kong Special Administrative Region (HKSAR) Immigration Department has completed its four-year Smart Identity

Card replacement programme: one of the largest and most innovative biometric smart/identity card replacement scheme in the world. By using a MULTOS-based, multi-application smart card, the HKSAR government has increased public and commercial convenience, boosted e-business and ensured that confidential information is always secured.

The four-year scheme started in 2003 and has involved the biometric enrolment of all seven million Hong Kong citizens and foreign residents. The HKSAR Immigration Department established 9 enrolment centres across the region, and advertised the appointments schedule and booking procedures to allow citizens to replace their existing identity card at their convenience. HKSAR Immigration Department successfully enrolled about 150,000 Hong Kong citizens per month, and by using advanced fingerprint comparison technology, were able to ensure the uniqueness of every citizen's identity – a measure essential to protect citizens against identity theft.

The main objective of the programme was to replace the non-chip ID card with a biometric smart identity card that could be used to automate and speed up the process of immigration clearance, and to introduce multiple value-added applications such as "eCert" for internet transactions, library card, and more.

Most recently, in 2007, a new secure document - the "e-Passport" - was issued to international travellers to ensure compliance with the International Civil Aviation Organisation (ICAO) standard for biometric passports. Eventually, ePassports will enable the swift secure clearance

of passengers at all airports – not just Hong Kong's.

Automated Passenger Clearance using Biometrics

Once all eligible citizens and foreign residents had been issued with their Smart ID card, HKSAR Immigration Department was able to fully automate the border control process at all Hong Kong's borders: at Hong Kong International Airport, at the ferry terminals, and at all the land boundary control points with mainland China. Many Hong Kong citizens commute or regularly visit family in mainland China. At peak periods, half a million travellers cross the border every day.

By automating passenger clearance using the Smart ID card, the process now only takes about twelve seconds per passenger, thereby greatly shortening passengers' waiting time for immigration clearance, as opposed to the previous queues of half an hour or more waiting time at peak times. After entering the autogate using the Smart ID card, the passenger places his thumb on the fingerprint scanner, allowing the system to compare the thumbprint image captured by the scanner, with the thumbprint template stored on the Smart ID card. Once the biometrics have been matched, the passenger is cleared. To address hygiene concerns, a UV light sterilises the scanner surface, whilst an air-jet cleans the dust on the scanner.

Mrs Jacqueline Kwan, Head of Information Systems at HKSAR Immigration says, "Fast passenger clearance was a key goal behind this project. With 218 million passengers crossing our control points in 2007, it is crucial that we invest in technologies that enable efficient customer service and enhance security. Since issuing the Smart ID card, we have saved considerable staffing resources, which represents a huge saving for Hong Kong tax payers."

e-Cert

With the introduction of the Smart ID card, the HKSAR government saw an opportunity to add the e-Cert digital certificate application. The e-

MULTOS Case Study



Cert is a voluntary option and is a X.509 v3 compliant digital certificate issued by the Hongkong Post Certification Authority which enables card-holders to conduct e-business transactions securely by using the Smart ID card for securing two factor authentication and transaction signing. It is a key part of the information infrastructure to support the e-government and e-business development in Hong Kong.



Applications that make use of the e-Cert digital certificate application include e-Government services, such as registering to vote, applying driving licence and submitting tax returns etc, and an ever growing list of private sector applications, such as secure home banking, share dealing and betting.

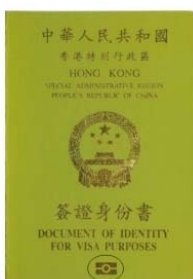
In order to increase the uptake of the optional e-Cert and, ultimately, boost e-business, the Government of the HKSAR wanted to ensure ease of use for the card holder. With the MULTOS-based secure multi-application Smart ID card, card-holders can easily initiate an e-business session by inserting their Smart ID card into a card reader and inputting their e-Cert PIN to sign a message. So far, over 200 public computers with a Smart ID card compatible smart card reader are available at public libraries, post offices and public enquiry service centres, and tens of thousands of Hong Kong citizen can now use their ID card at home, in smart card readers connected to their PCs.

e-Passport

The biometric enrolment and smart card issuing infrastructure established for the Smart ID card is a solid foundation on which to build the infrastructure for the e-Passport, a passport book embedded with a radio frequency MULTOS chip, for international travel. In February 2007, The Immigration Department introduced the electronic passport (e-Passport) and electronic Document of Identity for Visa Purposes (e-Doc/I). Since the roll-out on 5 February 2007 and up to end February 2008, over 540,000 e-Passports have been issued.



e-Passport



e-Doc/I

The e-Passport and e-Doc/I are compliant with the International

Civil Aviation Organization (ICAO) standard. As this standard evolves, the HKSAR Immigration Department can update the chip and functionality of the e-Passport application in order to remain compliant with the latest version. The identification document contains advanced security features, including:

- ID cover comes equipped with the addition of an electronic travel document symbol
- The holder's personal details and photograph are engraved into the polycarbonate data page by laser engraving technology; and
- The back cover contains a contactless MULTOS chip storing digital data including holder's personal data and facial image

Why MULTOS?

MULTOS was chosen as the operating system for the Smart ID card and the e-Passport because of its secure, open standard operating system. The openness of the MULTOS standard is ensured by the Consortium that controls the evolution of the specification, and is responsible for the compliance testing of products to ensure multiple sources of interoperable supply are available to the HKSAR Immigration Department.

Chips running MULTOS have been evaluated to the highest IT security assurance rating of any product in the world (ITSEC E6 High), ensuring that citizen data in each of the applications on the card is securely segregated from other applications. The ability to add new applications safely and securely allows the uses of the card to be extended over time.

With advanced security features and strong cryptographic technology, the personal data on the chip is well protected from unauthorized access. The data are protected with strong partitions and different access keys. The Smart ID card will authenticate the devices with which it interacts, thus prohibiting unauthorized parties from accessing the data.

The HKSAR has full sovereignty of its key management and processes controlling the issuance of Smart ID cards and ePassports, and the applications that can be downloaded to them. For more information visit: www.smartid.gov.hk