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Panel on Security

**Background brief prepared by the Legislative Council Secretariat
for the meeting on 1 June 2010**

e-Channel service

Purpose

This paper summarizes past discussions of the Panel on Security ("the Panel") on e-Channel service.

e-Channel

2.   On 16 December 2004, the Immigration Department ("ImmD") introduced e-Channels, an automated passenger clearance system, for Hong Kong permanent residents.   Since then, all passenger control points have been installed with e-Channels, including the control points at the Hong Kong International Airport, Hung Hom, Lo Wu, Lok Ma Chau, Lok Ma Chau Spur Line, Man Kam To, Sha Tau Kok, Shenzhen Bay, China Ferry Terminal, Macau Ferry Terminal and Tuen Mun Ferry Terminal.   Hong Kong permanent residents (except those under the age of 11) or Hong Kong residents holding Document of Identity for Visa Purposes can use their smart identity cards to perform self-service immigration clearance.

3.   The e-Channel system deploys fingerprint verification technology for authentication of a person's identity.   A Hong Kong resident using e-Channel service has to insert his Hong Kong smart identity card into a card reader.   The system would verify the fingerprint captured by the scanner on the spot against the fingerprint template stored in the chip of the smart identity card.   The clearance time involving traditional e-Channels is around 12 seconds.   The installation of e-Channels has significantly increased the overall passenger throughput at control points because every two traditional counters could be converted into three e-Channels and manpower could be redeployed to serve visitors and other identity card holders who used traditional counters.

4.   As at February 2010, the Administration has installed 371 e-Channels at various immigration control points.   Among the Hong Kong residents crossing the Lo Wu Control Point ("LWCP"), around 80% had used the service.

Express e-Channels

5.   Since March 2009, the ImmD has launched a pilot scheme on Express e-Channel at LWCP.   It aims to provide faster e-Channel service to Hong Kong residents aged 18 or above.

6.   To use the Express e-Channel service, a resident has to enrol in advance. During the enrolment process, his personal data and fingerprint templates will be retrieved from the chip of identity card and stored in a database at the control point. When the resident uses Express e-Channel, he only needs to place the identity card onto an optical reader.   The system will read the information on the surface of the identity card and retrieve the relevant data required for clearance from the database at the control point.   Since retrieving information from the database at control point is faster, the clearance time can be shortened to eight seconds.

7.   To safeguard the security of the personal data involved, the data collected during enrolment will be transmitted via a closed and secure network to back-end servers for storage.   All the back-end servers are installed at computer rooms purpose-built in compliance with the relevant security requirements.   Only authorized officers of the rank of Immigration Officer or above may gain access to the data at designated computer terminals.   The system will keep track of the records of all access to the database for security auditing.   Moreover, the computer system has protection devices against hacking and intrusion.

8.   Enrolment for using Express e-Channel is voluntary.   A resident interested to enrol is required to indicate his consent to the ImmD, on the screen on an enrolment channel, for the retrieval of his personal data from the chip of the identity card and the storage of such data at the database.   An enrolment office is set up at LWCP to provide necessary assistance to Hong Kong residents on the self-service enrolment process.

Deliberations of the Panel

9.   The Panel discussed e-Channel service at its meetings on 7 December 2004, 6 January 2009 and 2 February 2010.   The deliberations are summarized in the following paragraphs.

10.   Members noted that a total of 20 e-Channels were installed at the Lok Ma Chau Control Point for passengers performing self-service immigration clearance.   They enquired whether the Administration would consider installing more e-Channels at the Lok Ma Chau Control Point, in view of the huge passenger flow at that control point.

11.   The Administration advised that there were space constraints within the Lok Ma Chau Control Point, and the space had already been maximized for the provision of e-Channels as well as traditional immigration counters.   ImmD did not have any plan to install additional e-Channels at the Lok Ma Chau Control Point for the time being.

12.   In response to members' enquiries about the enrolment and clearance processes with the use of Express e-Channels and the automated passenger clearance services provided for Hong Kong and Macao residents, the Administration advised that -

    (a)   since March 2009, ImmD had launched a pilot scheme on Express e-Channel at LWCP to provide faster e-Channel service to Hong Kong residents aged 18 or above. To use the Express e-Channel service, a resident had to enrol in advance through the enrolment e-Channels designated for such purpose. After enrolment, passengers would be able to use Express e-Channels for future immigration clearance;

    (b)   to further enhance immigration facilitation for Hong Kong and Macao residents travelling between the two places, the Governments of the Hong Kong Special Administrative Region and the Macao Special Administrative Region introduced new immigration facilitation measures in December 2009. Under the new arrangement, Macao permanent residents might use the Hong Kong e-Channel service following enrolment upon arrival at the Macao Ferry Terminal in Sheung Wan and the China Ferry Terminal in Tsim Sha Tsui. Likewise, eligible Hong Kong residents could enjoy automated clearance service in Macao. Holders of valid Hong Kong permanent identity cards might enrol for the service at the Macao Outer Harbour Ferry Terminal or the Macao Taipa Ferry Terminal and use the service 15 minutes after enrolment. Alternatively, they might make use of the self-service enrolment kiosks set up in Hong Kong to register for the Macao e-Channel service. After completion of the enrolment process using the self-service enrolment kiosks, an applicant might normally use the service after three working days. As personal data of Hong Kong residents who chose to make use of the self-service enrolment kiosks set up in Hong Kong to enrol for the Macao e-Channel service would be transmitted to the relevant authorities of the Macao Special Administrative Region for validation once a day, a longer lead time was required before the e-Channel service could be used after registration; and

    (c)   to provide more convenience for passengers, ImmD would explore the feasibility of developing e-Channels with multi-application capability in the context of the Third Information Systems Strategy Study which would commence in 2010, such that passengers who wished to enrol for using Express e-Channels, Frequent Visitors e-Channels or e-Channels for Macao residents could complete the necessary enrolment procedures through a single multi-application kiosk.

13.   Some members pointed out that some people could not use their smart identity cards for automated immigration clearance through the e-Channel system due to fingerprint recognition problem. They asked whether the Administration had estimated the number of people who could not use automated immigration clearance

at Express e-Channels, and whether measures would be introduced to reduce failure in fingerprint verification.

14.   The Administration explained that some people with blurred fingerprints might have difficulty in using e-Channels.   It was because the fingerprint scanner used on the spot might not be able to capture a good fingerprint image.   In some circumstances, for example, when the weather was dry, the fingerprint identification problem was more distinct.   Statistics showed that less than 1% of smart identity card holders had such a problem.   To address the problem associated with fingerprint capturing and matching, ImmD was exploring the feasibility of using optical fingerprint scanners in order to get good fingerprint image.   ImmD was in the process of testing these devices.   As a trial measure to improve the flow of cross-boundary passengers, a small quantity of optical fingerprint scanners had been installed at LWCP.   Passengers who had persistent difficulties in using the e-Channels due to fingerprint recognition problem could visit the enrolment office located at LWCP to provide better fingerprint image for future verification purpose at the Express e-Channel.   If optical fingerprint scanners were found to be more effective, ImmD would consider wider use, by phases, of these devices in other boundary control points.

15.   Members asked about the kind of personal data that would be retrieved and stored in ImmD's back-end servers should a smart identity card holder opt to enrol for using Express e-Channels, and how ImmD would ensure that information newly added to the chip of the Hong Kong smart identity card could be updated to the database kept in the servers.

16.   The Administration advised that when a passenger inserted his identity card into the card reader at an enrolment e-Channel, the passenger would be invited to give his consent regarding the transfer and storage of his personal data.   The relevant data required for performing self-service immigration clearance through Express e-Channels, which were stored in the chip of his Hong Kong smart identity card, included Hong Kong identity card number, name, sex, date of birth, date of registration of the identity card, status of Hong Kong residency and fingerprint templates.   On obtaining the passenger's consent, these data would then be transferred via a closed and secure network to ImmD's back-end servers for storage.   New information thereafter added to the chip of the passenger's smart identity card, except updated information on limit of stay, would not be required for immigration clearance purpose through the Express e-Channel system.   Regarding the procedures for participants to withdraw from using Express e-Channels, the Administration explained that a passenger who had given consent to enrol in the Express e-Channel system might withdraw from the scheme by completing and returning to ImmD a purposely designed form.   On receipt of his written notice, ImmD would delete the relevant data stored in the back-end servers.

17.   Members noted that ImmD had appointed an independent contractor to carry out a security audit on its information technology system.   They asked whether the IT Security Report issued by the contractor on 15 September 2006 had proved to the

satisfaction of the Privacy Commissioner for Personal Data that ImmD had put in place sufficient measures to protect data privacy in launching the pilot scheme on Express e-Channel. They also enquired about the difference in terms of security level between the existing e-Channel system and the Express e-Channel system.

18.   The Administration explained that -

(a)   the security audit was carried out by an independent contractor. After examination of the said report, the Privacy Commissioner was of the view that the privacy concerns appeared to have been properly addressed in the system design of the Express e-Channel system;

(b)   ImmD had commenced another round of information technology security audit in December 2008 to confirm that the security of the system and data as well as access control were in compliance with the Government's security requirements and the personal data protection principles under the Personal Data (Privacy) Ordinance; and

(c)   the security level of the new system would be comparable to that of the e-Channel system. The authentication procedures built into the e-Channel system in relation to retrieval of fingerprint template and identity verification were strict security measures to safeguard the security of data and protect them from unauthorized access or change. Regarding the Express e-Channel system, the back-end servers would be installed at computer rooms purpose-built in compliance with the relevant security requirements. Only authorized officers of the rank of Immigration Officer or above could gain access to the data at designated computer terminals. The new system would keep records of all access to the database for security auditing. Moreover, the computer system of ImmD would have intrusion detection system to prevent hacking and intrusion.

19.   Members were concerned that many past incidents indicated that the major cause of data leakage was a lack of awareness and understanding among the staff of the security regulations and the risk of compromising personal data. They sought information on the safeguards to be put in place to ensure that data stored in the back-end servers at LWCP were afforded appropriate protection.

20.   The Administration advised that it attached great importance to the protection of personal data privacy. Apart from the use of security token, password and user name, personal particulars would be encrypted before storage in the servers. The Administration assured members that there was no question of data leakage from back-end servers. As USB connectivity was not provided in the design of the system, all personal data stored in the servers, including fingerprint templates encoded in strings of binary digits, could not be downloaded to portable electronic storage devices.

21.   Some members asked whether and when the pilot scheme on Express e-Channel would be extended to other boundary control points, such as the Macao Ferry Terminal in Sheung Wan or the Lok Ma Chau Control Point.

22.   The Administration advised that statistics showed that LWCP had the heaviest cross-boundary passenger traffic among all 11 control points, and about 15 000 passengers making cross-boundary journeys to and from LWCP were daily users of the e-Channel system.   As Express e-Channels could shorten the processing time for immigration clearance by about four seconds for each passenger, the installation of Express e-Channels at LWCP would greatly enhance the handling capacity of this particular control point.   The Administration further advised that since the launch of the pilot scheme at LWCP, over 900 000 Hong Kong residents had enrolled for using Express e-Channels.   ImmD would keep reviewing the pilot scheme.   The Administration would consider extending the scheme to other control points if the passenger traffic justified installation, subject to availability of space for installation.

Relevant papers

23.   Members may wish to refer to the following minutes and papers for further details -

(a)   minutes of the meeting of the Panel on Security on 7 December 2004 (LC Paper No. CB(2)666/04-05);

(b)   Administration's paper entitled "Implementation of Phase II of the Updated Information Systems Strategy for the Immigration Department - the Automated Passenger Clearance System and the Automated Vehicle Clearance System" (LC Paper No. CB(2)286/04-05(01));

(c)   supplementary information provided by the Administration on the Automated Passenger Clearance System and the Automated Vehicle Clearance System (LC Paper No. CB(2)893/04-05(01));

(d)   Administration's annual report on the implementation of government computer systems (FCRI(2007-08)16);

(e)   minutes of the meeting of the Panel on Security on 6 January 2009 (LC Paper No. CB(2)963/08-09);

(f)   Administration's paper entitled "Pilot Scheme on Express e-Channel" (LC Paper No. CB(2)555/08-09(03));

(g)   minutes of the meeting of the Panel on Security on 2 February 2010 (LC Paper No. CB(2)1153/09-10); and

    (h)   Administration's paper entitled "Review of e-Channel Service" (LC Paper No. CB(2)832/09-10(07)).

24.   The above minutes and papers are also available on the website of the Legislative Council (http://www.legco.gov.hk).

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