For discussion on
6 March 2018

Legislative Council Panel on Security

Next Generation Application and Investigation Easy Systems of the Immigration Department

PURPOSE

This paper seeks Members' support for the proposal of the Immigration Department (ImmD) to implement three systems, namely Systems related to Visa Automation (VISAS); Assistance to Hong Kong Residents, Births, Deaths and Marriage, Right of Abode Decision Support (ABROADS); and Enforcement Case Processing (ENCAPS), collectively known as the Next Generation Application and Investigation Easy Systems (APPLIES-2).

BACKGROUND

2.   At present, a wide range of core businesses and services carried out by ImmD is supported by the Application and Investigation Easy System (APPLIES), including –

(a)   processing of visa and permit applications of visitors or Hong Kong residents;

(b)   provision of practical assistance to Hong Kong residents in distress outside Hong Kong;

(c)   processing of birth, death and marriage registrations;

(d)   assessment of right of abode applications; and

(e) processing of enforcement and investigation cases in relation to those immigration offenders, removees, deportees, etc..

APPLIES was implemented by phases from 2007 to 2008. In 2017, over 2.5 million applications or cases were processed by the system.

3. In order to formulate its long-term information systems strategy, ImmD engaged in March 2010 an external consultant to conduct its third Information Systems Strategy (ISS-3) Review, which recommended ImmD to revamp its information technology infrastructure (ITI) to upkeep service quality and enhance handling capacity to cope with the substantially growing service demands. The ISS-3 consultant also recommended ImmD to ride on the revamped ITI to gradually replace its core computer systems, which were developed and implemented between late 1990s and 2000s and would hence become obsolete approaching the late 2010s, in order to ensure quality and uninterrupted delivery of ImmD's critical services to the public. It recommended, amongst other things[1], the implementation of APPLIES-2 to address the obsolescence of hardware and software of the existing APPLIES and to cater for new business needs. ImmD subsequently completed a feasibility study on the implementation of APPLIES-2 in March 2016.

4. APPLIES-2 will consist of VISAS, ABROADS and ENCAPS, each of which will support different businesses of and services provided to Hong Kong residents and visitors by ImmD. In gist –

(a) VISAS will support the processing of visa or permit applications for entry into Hong Kong for visit, employment, investment, training, residence and study;

(b) ABROADS will support birth, death and marriage registrations, assessment of right of abode applications and cases requiring assistance to Hong Kong residents in distress outside Hong Kong; and

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[1] Including the implementation of the new ITI, the Immigration Control System, the Next Generation Smart Identity Card System, the Next Generation Electronic Passport System and the Human Resources Management System.

(c)   ENCAPS will support the handling of law enforcement cases related to investigation, detention, assessment and removal by ImmD.

5.   While the three systems will ride on the new ITI and run independently, they are inter-connected as they will share network infrastructure, storage and document management system, common functions for workflows, system monitoring, and data processing, etc., and will be designed and developed in one-go with a view to achieving synergy in the utilisation of information technology resources. For example, many of the businesses to be supported by APPLIES-2 require the management of a large amount of document images, such as scanned application forms and supporting documents. The leverage of a common infrastructure can reduce implementation cost and improve efficiency, thereby achieving synergy.

JUSTIFICATIONS

Ageing and obsolescence of the existing system

6.   As the existing APPLIES is soon becoming obsolete and there will soon be hardly any maintenance services for the sytem available in the market, there is an imminent need for replacing APPLIES with new systems. Timely development of APPLIES-2 is necessary to ensure the continued provision of the wide range of services set out in paragraph 2 above in an effective manner.

7.   As with other major computer systems, APPLIES was designed for optimal use for about 10 years. Implemented by phases from 2007 to 2008, the hardware and software of APPLIES[2], which were built on technologies prevailing more than a decade ago, are becoming obsolete.

8.   The current maintenance contract of APPLIES will expire in February 2019. ImmD has made strenuous effort in securing extension of the maintenance services of APPLIES for another three years until February 2022, despite that it has become increasingly difficult to secure

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[2] Such as workstations, servers and operating system.

system maintenance and technical support due to limited and dwindling market supply of the outdated technologies. Further extension of maintenance services beyond 2022 will not be possible as supply of hardware parts, software updates such as security patches as well as professional support in daily system operation will no longer be available.

9.   Without suitable and on-going maintenance and technical support, there is an increasing risk of substantial deterioration of system performance or system failure, which may cause large-scale disruption (e.g. severe delays) or even suspension to the provision of public services by ImmD, including the processing of visa and permit applications, birth, death and marriage registrations, and enforcement cases as outlined in paragraph 2 above. The failure of timely replacement of APPLIES may also threaten information security in the absence of software updates and security patches. Furthermore, APPLIES was built on technologies prevailing more than a decade ago. Its system design (including hardware and software) has been stretched to its limit and can hardly be enhanced further to cater for growing and new business needs[3]. There is therefore an imminent need to replace the existing system in a timely manner.

Enhancement of Service Delivery

10.   Subject to detailed design in system development stage, implementation of APPLIES-2 will bring the opportunity for service enhancement through, among other things, the provision of new electronic services and enhancement of existing services. More user-friendly services and greater convenience can be provided to service users. For example –

(a)   submission of applications by electronic means, which is available for use by only selected types of application at present, may be extended to cover more types of application. For instance, amongst visa applications (e.g. student or employment visas), at present primarily only extension of stay applications can be applied electronically due to constraints on existing system capacity. With APPLIES-2 and the widespread

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[3] ImmD projects that APPLIES will reach its processing capacity limit by 2021.

availability of broadband services in the market, we envisage that electronic applications (from form-filling, uploading of photos and supporting documents, enquiries to payment) for visas may be extended further to entry cases, in which applicants are often required to upload a large amount of documents;

(b) web-based application forms (instead of portable document format (PDF) files at present) for data input may be introduced, so as to save the applicants' efforts and time such as scanning and uploading of the application forms. Electronic notification of application result as well as more options in online payment services may also be provided insofar as feasible;

(c) apart from the Internet website, with the prevailing use of mobile devices, access to online services through mobile applications may be provided. Applicants may be allowed to use most of the services via mobile applications ubiquitously ranging from appointment booking, submission of applications to payment of application fees. They can also submit supplementary documents for assessment as requested by the case officer, check the progress of applications and obtain information such as case result through mobile means; and

(d) self-service kiosks may be introduced to enable members of the public to submit applications and supplementary documents (e.g. the search of birth, death and marriage records, and visa applications), and to collect documents (e.g. search results and visas), without queuing for services over the counters.

Enhancement of system resilience and communication with other systems

11. Apart from service enhancements, implementation of APPLIES-2 will also bring about the following improvements –

(a) system resilience – due to the addition of resilient components (such as servers to enable more efficient recovery in the event

of system failure), the system resilience of APPLIES-2 will be enhanced compared with the existing system. This will in turn ensure continuity of business operations as well as public services; and

(b) communication with other ImmD's systems – the new ITI, based on which ImmD re-engineers and re-organises its computer application systems to meet anticipated increase in business needs and requirements, was rolled out in July 2015. Systems running on the existing network infrastructure and the new ITI cannot communicate directly. Implementation of APPLIES-2 is therefore necessary to ensure smooth and efficient communication with other mission-critical computer systems running on the new ITI (e.g. the Immigration Control System), for avoidance of unnecessary delay in its daily operation. For example, the visa information in APPLIES-2 may be directly communicated to the Immigration Control System during immigration clearance.

Enhancement of Case Assessment and Management process

12.   Pre-defined business rules including validation of eligibilty criteria and referral of case will be enabled in APPLIES-2 with a view to expediting the assessment on applications or in investigations. It will be able to provide case officers a holistic view of each and every case with background, chain of records and progress electronically.

Personal Data Privacy Protection

13.   There has been no known case of leakage of personal data stored in APPLIES since its introduction in 2007. That said, ImmD will conduct Privacy Impact Assessments at critical stages of the implementation of APPLIES-2, including system analysis and design stage, and prior to system rollout in order to ensure the data protection principles, as promulgated in the Personal Data (Privacy) Ordinance (Cap.486), are observed and complied with. Relevant reports will be passed to the Office of the Privacy Commissioner for Personal Data, whose comments will be duly taken into account before the

implementation of the systems. In addition, a Privacy Compliance Audit will be conducted after system rollout. ImmD will also engage an independent auditor to conduct information technology security risk assessment and security audit at different stages to ensure the effectiveness of those security measures in protecting information in APPLIES-2.

FINANCIAL IMPLICATIONS

Capital Expenditure

14.   It is estimated that the implementation of APPLIES-2 will incur a total capital expenditure of $452,968,000 over five financial years from 2018-19 to 2022-23. The breakdown is as follows-

		($'000)				
Items	**2018-19**	**2019-20**	**2020-21**	**2021-22**	**2022-23**	**Total**
(a) Hardware	-	-	-	85,573	20,543	**106,116**
(b) Software	-	-	-	69,818	16,643	**86,461**
(c) Implementation Services and Contract Staff	791	38,960	23,472	80,184	55,536	**198,943**
(d) Site Preparation	-	1,321	1,321	9,768	684	**13,094**
(e) Communication Network	-	-	1,081	2,292	1,459	**4,832**
(f) Consumables	-	-	-	126	2,217	**2,343**
(g) Contingency	79	4,028	2,588	24,776	9,708	**41,179**
Total	**870**	**44,309**	**28,462**	**272,537**	**106,790**	**452,968**

Other Non-recurrent Expenditure

15.   The proposed implementation of the APPLIES-2 will require a project team for project management, procurement of hardware, software and services, system analysis and design, site preparation, user acceptance tests and implementation support, etc.. This will entail a non-recurrent staff cost of around $170,227,000 from 2018-19 to 2022-23. ImmD will review the staffing requirement as the project progresses.

Recurrent Expenditure

16. The proposal will entail an annual recurrent expenditure of $6,022,000 in 2022-23, increasing to $69,471,000 from 2025-26 onwards. This covers the cost for hardware and software maintenance, on-going system support services, communication network and consumables. Such requirements will be reviewed nearer the time when the system is commissioned, with the breakdown as follows –

($'000)

Items	2022-23	2023-24	2024-25	2025-26 and onwards
(a) Hardware Maintenance	-	7,989	16,320	16,744
(b) Software Maintenance	-	7,904	15,806	15,806
(c) On-going System Support Services	403	13,248	25,688	25,688
(d) Communication Network	4,413	8,823	8,823	8,823
(e) Consumables	1,206	2,410	2,410	2,410
Total	**6,022**	**40,374**	**69,047**	**69,471**

Savings and Cost Avoidance

17. It is estimated that the implementation of APPLIES-2 will bring about the following cost savings and avoidance upon decommissioning of the existing APPLIES and full implementation of the new system –

(a) **non-recurrent cost avoidance** of $508,338,000 in 2021-22, being the cost required to revamp the existing systems, that would soon become obsolete, for sustaining the current business operations;

(b) **recurrent cost avoidance** of $2,551,000 in 2021-22 and increasing to $42,280,000 in 2031-32, being the annual staff cost avoidance and additional maintenance cost required as set out in item (a) above;

(c) **recurrent realisable savings** of $2,333,000 in 2021-22 and increasing to $22,967,000 from 2022-23 onwards, being the annual maintenance cost of the existing systems, and annual cost required for the on-going system support services and procurement of consumables under the existing system; and

(d) **recurrent notional savings** of $1,626,000 in 2021-22, $20,019,000 in 2022-23 and $24,846,000 from 2023-24 onwards, being the annual notional staff savings arising from the new and enhanced system functions.

IMPLEMENTATION PLAN

18.　　　Subject to Members' views on the proposal, we plan to seek funding approval from the Legislative Council according to established mechanism in the second quarter of 2018 and implement the proposed APPLIES-2 with the following schedule –

Activity	Target Completion Date
Tendering and award of contract	Q4/2018
System Development and Implementation	
System Analysis and Design	Q4/2020
System Development and Testing	Q3/2021
User Acceptance Test	Q1/2022
Infrastructure Setup	Q4/2021
Production Rollout	
VISAS and ABROADS	Q4/2021
ENCAPS	Q2/2022

ADVICE SOUGHT

19.   Members are invited to comment on the above proposal.

Security Bureau
February 2018