**For discussion
on 6 January 2009**

Legislative Council Panel on Security

Implementation of Information System Strategy Projects
by the Customs and Excise Department

Purpose

This paper seeks Members' support for the proposal to implement five Information System Strategy (ISS) projects by the Customs and Excise Department (C&ED).

Background

2. On 16 June 2006, the Finance Committee approved funding for the design and construction of the new Customs Headquarters Building at Tin Chiu Street, North Point. This project will put the offices and facilities of C&ED's existing Headquarters in Harbour Building, Central and over 20 formations under one roof. This will optimize the sharing of departmental resources, improve intra-departmental communication and enhance work efficiency. The installation of an information technology (IT) infrastructure at the new Headquarters Building is essential to C&ED's effective operations at both the new Headquarters and other offices at different locations[1]. However, the approved funding for the new Customs Headquarters Building does not cover the costs of such an IT infrastructure.

The Need for Implementing the ISS Projects

3. In September 2006, C&ED completed a consultancy study to review its IT infrastructure and computer systems, and formulate a strategic implementation plan that will enable the Department to cope with its existing operational needs and future developments. The consultancy study concluded that C&ED's existing IT infrastructure was inadequate in terms of functionality and capacity. In particular, the consultancy study revealed the following problems and limitations –

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[1] The IT infrastructure at the new Headquarters Building will be interconnected with C&ED's other offices at different locations in the territory to facilitate departmental communication, management and information sharing.

(a) C&ED has over 5 000 staff spread over about 40 locations in the territory. Over the decades, C&ED has developed its IT infrastructure and computer systems at different stages on a project-by-project basis without overall strategic planning. As a result, there are various small-scale computer systems dedicated to serve specific user groups at different locations with limited sharing capacity. C&ED's existing fragmented IT infrastructure is difficult to maintain and support, and limits the scope for the Department to enhance its performance through the use of proven information technology;

(b) The existing systems have no centralized management system for security administration (e.g. updating of operating system settings, virus signature and software patches of all networked servers and workstations). They rely on outdated manual mode for security administration, which is ineffective and relatively risk-prone;

(c) The network bandwidth of the existing systems has been fully utilized and is not capable of supporting the growing information needs at control points. The existing network equipment also requires upgrading to support the transmission of large-size data files (e.g. X-ray images) over the network at a higher speed;

(d) Currently, C&ED runs four data centres (i.e. two production data centres and two disaster recovery data centres) at different locations which are costly to operate and maintain. Moreover, the scattered data centres prevent the shared use of manpower, storage devices and system monitoring tools;

(e) The existing C&ED systems do not provide users with access to a single source of corporate data. For example, to perform background check of trader information for risk assessment and enforcement, users need to go through different systems with data stored in different formats. Historical operation data are stored in offline media in individual application systems. The data access process is time-consuming and thus adversely affects operational efficiency. Moreover, it is difficult to perform data analysis in the absence of a single repository for corporate data; and

(f) The lack of a centralized and secured information exchange platform entails extra efforts for exchange of operationally essential data between C&ED's systems and external systems (e.g. those in other government departments). This is operationally inefficient.

The Proposed Projects

4.   In the light of the above findings, the consultant recommended implementing, among others, five ISS projects from 2009 onwards to put in place a new, integrated and centralized IT infrastructure to support the efficient and effective operations of C&ED. The implementation of the five projects will tie in with the completion of the new Headquarters in 2010. The Office of the Government Chief Information Officer supports this proposal.

5.   Details of the five ISS projects are set out below −

(a) The **Centralized Data Centre** project will consolidate the four existing data centres into two new data centres (i.e. one primary data centre and one disaster recovery data centre) and install a backbone network infrastructure in the new Headquarters to support 24-hour operations of C&ED systems;

(b) The **Network and Server Infrastructure** will connect the backbone network infrastructure in the new Headquarters with offices at other locations, thus linking up all servers and workstations in C&ED. All C&ED users at remote locations will be provided with high-capacity network connection to support their daily operations. Moreover, the security standards of the IT systems in C&ED will be enhanced with the centralized security management and support for the networked servers and workstations as well as centralized authentication mechanism for accessing C&ED's computer systems;

(c) The **Central Information Repository System** is a central information repository that consolidates all operational data shared among various application systems in C&ED. The new System will not only allow efficient access by C&ED staff to operational data to facilitate more efficient decision-making, but is also capable of performing analysis of the data stored in the repository;

(d) The **Secured Communications Gateway** is a secure platform which will enable efficient exchange of operationally essential data between C&ED's computer systems and the systems in other partner government departments. It is also capable of supporting secure data exchange with other external parties (e.g. overseas customs counterparts);

(e) The **Enterprise System Management** project will establish a department-wide framework for monitoring and managing C&ED's overall computing environment, including the computer network and servers.

Anticipated Benefits

6.   The implementation of the five projects will bring the following benefits –

(a) The five projects will form a reliable, secure and scalable IT network with a department-wide connection to serve more than 5 000 C&ED staff.   They will consolidate and rationalize C&ED's IT infrastructure, and form the integrated backbone for connecting C&ED's computer systems at different locations. The new IT infrastructure will enable the Department to enhance its performance through effective use of updated IT facilities and applications, and will cater for the Department's future IT needs;

(b) The new Centralized Data Centre in the new Headquarters will provide integrated connection for all the computer systems in C&ED and physically house all critical IT resources and equipment under one roof. This will also allow the shared use of manpower resources, storage devices and system monitoring tools;

(c) With an expanded network bandwidth, the new Network and Server Infrastructure will support the use of new IT applications and multimedia facilities, which will in turn assist customs officers at remote offices/control points in carrying out their daily operations more efficiently. By enabling system-wide automatic updating of virus signature and software patches as well as configuration of workstation settings, the system security level of all networked servers and workstations will be enhanced;

(d) The new Central Information Repository System will standardize the data format and allow access to frequently updated operational data to facilitate decision-making. In some cases, the time required for data access can be considerably reduced from hours to minutes with the introduction of this new System. Data analysis can be performed on all stored data, including historical data, to identify trends in C&ED's performance and achievements. This will facilitate the formulation of enforcement strategy and operational planning;

(e) The new Secured Communications Gateway will provide C&ED with more efficient interfaces with the systems of other government departments to facilitate sharing and exchange of essential operational data. The Gateway is also capable of supporting secure information exchange between C&ED and its overseas customs counterparts. More efficient information exchange with other law enforcement agents, either locally or overseas, will enhance C&ED's capability to detect and combat smuggling activities and transnational crimes; and

(f) The new Enterprise System Management will provide a single console to monitor all systems and network components, allowing effective measurement and tuning of system performance. The new infrastructure will enable IT support staff to maintain IT facilities at a high level of availability and provide highly responsive support services to end users.

Cost Savings/Avoidance

7.   We estimate that The successful implementation of the proposed five projects will result in realisable savings of $4.361 million a year. This includes savings of $3.459 million on maintenance costs and dataline charges for the existing system and equipment, and staff savings of $0.902 million arising from the deletion of two Computer Operator posts and one contract IT staff post after the consolidation of the data centres.

8.   Apart from realizable savings, there will be annual notional savings of $4.825 million resulting from productivity gains through more efficient operations brought about by the new IT projects and related savings in staff costs. C&ED staff will have more efficient access to computer systems and data to facilitate their planning and decision-making.

9.   The implementation of the proposed projects will also bring about annual cost avoidance of $2.913 million, which would otherwise be required for extra staff efforts to support corporate data analysis.

Financial Implications

Non-recurrent Expenditure

10.   We estimate that the implementation of the five ISS projects will incur a total non-recurrent expenditure of $114.157 million over a four-year period from 2009-10 to 2012-13. A detailed breakdown is at **Annex A**. The costs are calculated on the basis that all usable and compatible hardware and software

will be reused as far as possible.

11.　　In addition, in-house staff costs of $15.723 million will be incurred for system development and implementation during the same period.　C&ED will absorb these costs from within its existing resources.

Recurrent Expenditure

12.　　The proposed projects will entail an annual expenditure of $27.448 million in a full year as from 2012-13 upon the full implementation of the five projects.　This includes $20.250 million for the maintenance of computer hardware and software, on-going system support services, rental of communication lines, procurement of consumables; and $7.198 million in-house staff costs for on-going project management.

13.　　After offsetting the realisable savings of $4.361 million mentioned in paragraph 7 above, the net additional recurrent expenditure for implementing the five projects will be $23.087 million a year.　C&ED will absorb this additional recurrent expenditure from within its existing resources.

Implementation Plan

14.　　Subject to Members' views on the proposal, we plan to seek funding approval from the Finance Committee in February 2009 with a view to implementing the five ISS projects in accordance with the timetable at **Annex B**.

Security Bureau
Customs and Excise Department
December 2008

Non-recurrent Expenditure of the Proposed ISS Projects

HK$'000

	2009-10	2010-11	2011-12	2012-13	Total
1. Centralized Data Centre	2,768	33,992	2,615	-	39,375
• *Headquarters Data Centre and Backbone Network Infrastructure*	*2,768*	*24,931*	*-*	*-*	*27,699*
• *Disaster Recovery Data Centre*	*-*	*9,061*	*2,615*	*-*	*11,676*
2. Network and Server Infrastructure	15,835	8,362	-	-	24,197
• *Network Support Services*	*-*	*5,510*	*-*	*-*	*5,510*
• *Security Services*	*15,835*	*1,106*	*-*	*-*	*16,941*
• *Network Connectivity Services*	*-*	*1,746*	*-*	*-*	*1,746*
3. Central Information Repository System	460	8,540	20,409	1,802	31,211
• *Operational Master Database*	*460*	*7,532*	*-*	*-*	*7,992*
• *Data Warehouse*	*-*	*1,008*	*20,409*	*1,802*	*23,219*
4. Secured Communications Gateway	-	6,253	-	-	6,253
5. Enterprise System Management	-	11,983	1,138	-	13,121
Total :	**19,063**	**69,130**	**24,162**	**1,802**	**114,157**

Implementation Plan for the Proposed ISS Projects

1. Centralized Data Centre

(a)	Planning	October – December 2009
(b)	Site preparation for primary data centre	November 2009 – March 2010
(c)	Relocation to primary data centre	April – September 2010
(d)	Site preparation for disaster recovery data centre	October 2010 – March 2011
(e)	Relocation to disaster recovery data centre	April – June 2011

2. Network and Server Infrastructure

2.1. Network Support Services

(a)	System analysis and design	April – May 2010
(b)	Procurement	May – July 2010
(c)	System installation	August – December 2010
(d)	Production	December 2010

2.2. Security Services

(a)	System analysis and design	July – August 2009
(b)	Procurement	August – October 2009
(c)	System development and installation	October – December 2009
(d)	System commissioning	January – June 2010
(e)	Production	June 2010

2.3. Network Connectivity Services

(a)	Procurement	May – June 2010
(b)	System installation	July – September 2010
(c)	Production	September 2010

3. Central Information Repository System

3.1. *Operational Master Database*

(a)	System analysis and design	January – April 2010
(b)	Procurement	April– July 2010
(c)	System development and installation	July – September 2010
(d)	User acceptance test	October – November 2010
(e)	Production	December 2010

3.2. *Data Warehouse*

(a)	System analysis and design	January – May 2011
(b)	Procurement	May – August 2011
(c)	System development and installation	August – December 2011
(d)	User acceptance test	January - February 2012
(e)	Production	March 2012

4. Secured Communications Gateway

(a)	System analysis and design	April – May 2010
(b)	Procurement	May – July 2010
(c)	System development and installation	August 2010 – January 2011
(d)	Production	January 2011

5. Enterprise System Management

(a)	Procurement	June – September 2010
(b)	System development and installation	August 2010 – March 2011
(c)	Production	March 2011