

## **ITEM FOR FINANCE COMMITTEE**

### **CAPITAL WORKS RESERVE FUND**

#### **HEAD 710 - COMPUTERISATION**

**Government Secretariat : Commerce and Industry Bureau**

**Subhead A008XV Electronic data interchange system**

Members are invited to approve an increase in commitment from \$304,902,000 by \$87,320,000 to \$392,222,000 under Subhead A008XV Electronic data interchange system for upgrading the Government's computer systems to improve the delivery of electronic data interchange services.

### **PROBLEM**

We plan to appoint more than one service provider for the delivery of front-end electronic data interchange ("EDI") services to the trading community. However, our current back-end computer systems cannot support multiple front-end service providers. Furthermore, some of these systems cannot support the latest technology standards used by the business community for e-business.

### **PROPOSAL**

2. The Secretary for Commerce and Industry, with the support of the Secretary for Information Technology and Broadcasting, proposes to upgrade the Government's back-end computer systems to cope with the operation of multiple service providers and to support the latest technology standards.

**/JUSTIFICATION .....**

**JUSTIFICATION**

3. In 1992, we granted an exclusive franchise to Tradelink Electronic Commerce Limited (“Tradelink”) to provide front-end EDI services for six types of Government trade-related documents. These are Restrained Textiles Export Licence (“RTEL”), Import and Export Declaration (“TDEC”), Production Notification (“PN”), Certificate of Origin (“CO”), Dutiable Commodities Permit (“DCP”) and Cargo Manifest<sup>1</sup> (“EMAN”). The franchise will expire on 31 December 2003. RTEL, TDEC, PN, CO and DCP have been rolled out in stages since 1997. EMAN will be launched in the first half of 2002.

4. Tradelink’s front-end EDI services include receiving electronic submissions of documents from traders; confirming the identity of senders; validating data according to a set of pre-defined rules and, where necessary, consolidating data from several parties; collecting payments; and transmitting the documents to the Government’s back-end computer systems. Tradelink also provides customer support services including technical support, helpdesk and training.

5. The Government’s back-end computer systems consist of two central gateways and a number of departmental application sub-systems. The gateways are an EDI Communication gateway (“EDICOMM”) and a newly developed EMAN gateway. At present, EDICOMM links up Tradelink and various departmental sub-systems for handling RTEL, CO, PN, TDEC and DCP. EMAN gateway connects Tradelink and the relevant departmental sub-systems for handling EMAN. The gateways provide firewall protection, authenticate and translate messages received from Tradelink, and forward them to the relevant departmental sub-systems (and vice versa). A schematic presentation is at  
Encl. 1 Enclosure 1.

6. On the expiry of Tradelink’s franchise in 2003, we plan to appoint two additional front-end service providers to foster competition. We invited expressions of interest from the private sector in August 2001 and received enthusiastic responses. Subject to Members’ approval of this item, we plan to invite formal proposal towards the end of the first quarter of 2002.

*/Limitations .....*

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<sup>1</sup> Cargo manifests for the road mode of transport are excluded from the franchise agreement.

*Limitations of existing back-end computer systems*

7. At present, our back-end computer systems cannot support multiple front-end service providers. In addition, EDICOMM and some departmental sub-systems cannot support the latest technology standards such as ISO 10646 and Extensible Mark-up Language (“XML”). ISO 10646 is the international coding standard for multiple language support, which embraces characters used in all major languages in the world including traditional and simplified Chinese characters<sup>2</sup>. XML is the most common technology adopted by the business community nowadays to support inter-operability in e-business.

*Future requirements*

8. Under the planned new franchise arrangement in 2004, we intend to require all front-end service providers to provide TDEC, DCP and EMAN services, and to have the capability to process transactions using ISO 10646 and XML.

9. As for RTEL, PN and CO services, they will be affected by the abolition of quota restrictions on Hong Kong in 2005 under the World Trade Organisation Agreement on Textiles and Clothing. Given the uncertainty of the future of these three documents after 2004 and pending completion of a review, Tradelink will continue to be the exclusive provider of the services in connection with these documents, and we will not require Tradelink to enhance its systems to support ISO 10646 and XML for the three services.

*Need for upgrading*

10. As EDICOMM was designed seven years ago based on a traditional EDI architecture, it will not be cost-effective to upgrade EDICOMM to support ISO 10646 and XML. The newly developed EMAN gateway already supports ISO 10646 and XML for EMAN service, and has been designed with the capability to be expanded to support other services. We propose to migrate TDEC and DCP services to the EMAN gateway to meet the objectives in paragraph 8 above. This will involve increasing the capacity of the EMAN gateway and the supporting network for –

/(a) .....

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<sup>2</sup> At present, most of our systems cannot support simplified Chinese characters.

- (a) handling data transmitted from multiple front-end service providers for TDEC, DCP and EMAN services; and
- (b) supporting ISO 10646 and XML for TDEC and DCP services.

In addition, the relevant application sub-systems in Customs and Excise Department (“C&ED”), Trade and Industry Department (“TID”), and Census and Statistics Department (“C&SD”) will need suitable upgrading.

11. Regarding RTEL, PN and CO services, the need for upgrading EDICOMM and relevant application sub-systems in TID to support multiple service providers and the latest technology standards will be assessed in the light of the review on post-2004 requirements. We will also ask new service providers to indicate their interests in providing these three services. We will keep our options open for the time being. Should there be a need for additional funding to further upgrade the systems, we shall revert to Members for approval of funding as necessary.

**FINANCIAL IMPLICATIONS**

**Non-recurrent Expenditure**

12. We estimate that the proposed upgrading of the back-end computer systems will require non-recurrent expenditure of \$94,546,000 over three years from 2002-03 to 2004-05. This consists of \$87,320,000 for system development and \$7,226,000 for staff cost. A detailed breakdown is as follows –

	<u>2002-03</u>	<u>2003-04</u>	<u>2004-05</u>	<u>Total</u>
	\$'000	\$'000	\$'000	\$'000
<b>System development</b>				
(a) Hardware and software	7,975	26,025	0	34,000
(b) Implementation service	20,577	24,143	1,000	45,720
(c) Communication service	500	700	0	1,200
(d) Start-up consumables	50	50	0	100
(e) Site preparation	750	350	0	1,100

/(f) .....

	<u>2002-03</u>	<u>2003-04</u>	<u>2004-05</u>	<u>Total</u>
	\$'000	\$'000	\$'000	\$'000
(f) Facilities management	2,000	3,000	0	5,000
(g) Training and documentation	100	100	0	200
Sub-total	31,952	54,368	1,000	87,320
	=====	=====	=====	=====
<b>Staff cost</b>				
(h) C&ED	667	667	0	1,334
(i) C&SD	395	395	0	790
(j) ITSD	1,793	1,793	0	3,586
(k) CIB	758	758	0	1,516
Sub-total	3,613	3,613	0	7,226
	=====	=====	=====	=====
Total	35,565	57,981	1,000	94,546
	=====	=====	=====	=====

ITSD : Information Technology Services Department  
CIB : Commerce and Industry Bureau

13. As regards paragraph 12(a) above, the expenditure of \$34,000,000 is for acquisition of hardware and software. Hardware items consist of database servers, message gateway servers, application servers, workstations, printers, communication and networking equipment, firewall equipment, development and testing equipment. Software items consist of operating system software, database software, message gateway software, ISO 10646 support software, etc. A brief description of the hardware and software items together with their functions is at Encl. 2 Enclosure 2.

14. As regards paragraph 12(b) above, the expenditure of \$45,720,000 is for acquisition of implementation service for system analysis, design, development, integration, installation, re-configuration, and implementation. It also includes joint testing activities with multiple service providers.

15. As regards paragraph 12(c) above, the expenditure of \$1,200,000 is for acquisition of telecommunication service for establishing a wide area network with the additional front-end service providers and to cater for the higher bandwidth requirement due to increased message length.

16. As regards paragraph 12(d) above, the expenditure of \$100,000 is for acquisition of start-up consumables such as printer toners, printing papers, back-up tapes and stationery for the project.

17. As regards paragraph 12(e) above, the expenditure of \$1,100,000 is for site preparation work such as installation of conduits and power sockets, and cabling work at the offices of C&ED, C&SD, TID and ITSD.

18. As regards paragraph 12(f) above, the expenditure of \$5,000,000 is for facility management, including acquisition of management and operation services and accommodation cost during system development and testing.

19. As regards paragraph 12(g) above, the expenditure of \$200,000 is for provision of training to government staff on operating and supporting the new systems.

20. As regards paragraphs 12(h) and (i) above, the staff costs are for one Senior Inspector and one Statistical Officer I for 24 man-months respectively in C&ED and C&SD for supporting the tendering exercise, liaison with new service providers, monitoring system development, participating in system testing, and user training.

21. As regards paragraph 12(j) above, the cost of 3,586,000 represents ITSD staff cost for project management and monitoring, technical management of the tendering exercise and system implementation activities and liaison with new service providers. This comprises 24 man-months of one Senior Systems Manager and 24 man-months of one Systems Manager.

22. As regards paragraph 12(k) above, the cost of \$1,516,000 represents the staff cost to be incurred by CIB for overall management of the tendering exercise, including tender evaluation, contract negotiation, liaising with parties concerned (user departments, stakeholders and service providers), monitoring of the system enhancement work and financial control. This comprises 24 man-months of one Senior Executive Officer.

### Recurrent Expenditure

23. We estimate that the project will incur the following recurrent cost –

	<u>2003-04</u>	<u>2004-05 and onwards</u>
	\$'000	\$'000
(a) Hardware and software maintenance	1,290	4,850
(b) On-going support service	0	4,000
(c) Communication service	0	500
(d) Facilities management	750	2,800
Sub-total	<u>2,040</u>	<u>12,150</u>
	<u>2003-04</u>	<u>2004-05 and onwards</u>
	\$'000	\$'000
<b>Staff cost</b>		
(e) ITSD	0	400
Sub-total	<u>0</u>	<u>400</u>
Total	<u>2,040</u>	<u>12,550</u>

24. As regards paragraph 23(a) above, the expenditure of \$4,850,000 from 2004-05 onwards is for maintenance of system hardware and software.

25. As regards paragraph 23(b) above, the expenditure of \$4,000,000 from 2004-05 onwards is for on-going maintenance and support service of the upgraded systems.

26. As regards paragraph 23(c) above, the expenditure of \$500,000 from 2004-05 onwards is for rental of communication lines.

27. As regards paragraph 23(d) above, the expenditure of \$2,800,000 from 2004-05 onwards is for system management and 24-hour operation services, rental of two data centres (one for primary use and the other for disaster recovery) and consumables used therein, and provision of helpdesk service.

28. As regards paragraph 23(e) above, the cost of \$400,000 from 2004-05 onwards represents additional staff cost for ITSD to dedicate 6 man-months of a Systems Manager for technical management.

29. Subject to Members' approval of this item, we shall include the provision for the purpose of paragraph 23(a) to (e) in future annual Estimates of Expenditure.

### **Cost and benefit analysis**

30. The normal cost-and-benefit analysis with an estimated pay-back period is not applicable in this case. The project is needed for a new improved mode of service delivery with three front-end service providers, and to upgrade system capability to cope with the latest technology and industry standards. The appointment of additional service providers is expected to improve the efficiency of EDI services and, as a corollary, reduce user charges under a more competitive environment. The trading community will benefit from a wider choice of service providers and the adoption of business inter-operability standards by the Government. The competitiveness of Hong Kong will be enhanced.

### **IMPLEMENTATION PLAN**

31. Subject to Members' approval, we plan to implement the proposal according to the following schedule -

**/Major .....**

<b>Major Activity</b>	<b>Expected Completion Date</b>
(a) Issue of Tender for Upgrading Government's Back-end Systems	June 2002
(b) Award of Tender	October 2002
(c) System Design and Development	May 2003
(d) Joint Testing with Service Providers	December 2003
(e) Roll-out	1 January 2004

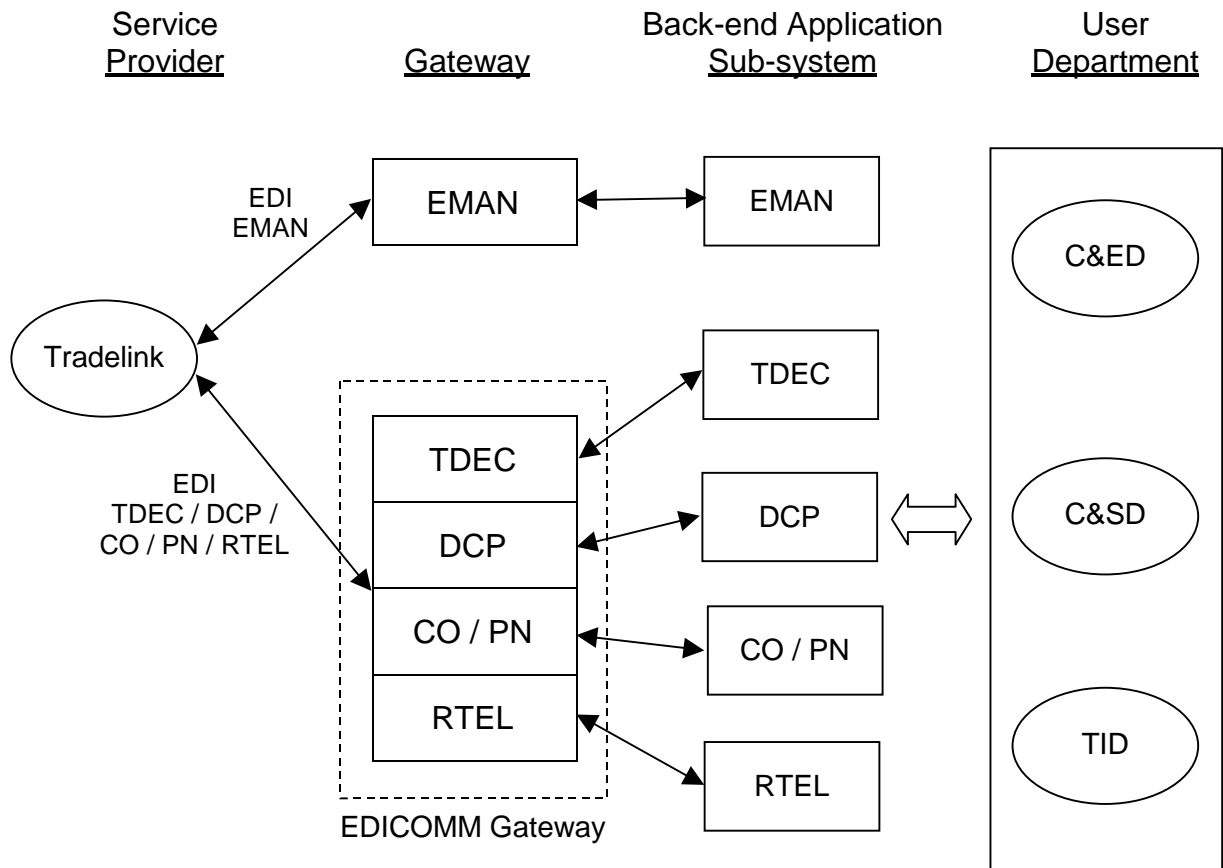
## **CONSULTATION**

32. At its meeting on 4 February 2002, the Legislative Council Panel on Commerce and Industry supported the proposed upgrading of the Government's back-end computer systems.

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Commerce and Industry Bureau  
February 2002

**Existing Model of Electronic Data Interchange (EDI) Services**



C&ED : Customs and Excise Department  
 C&SD : Census and Statistics Department  
 TID : Trade and Industry Department

**Enclosure 2 to FCR(2001-02)66**

**Description on Hardware and Software Items**

<b>Item</b>	<b>Description</b>
Message gateway servers	The gateway servers perform XML/EDI message translation, validation, and forward the valid messages for database storage.
Database servers	The database servers function as the central repository of electronic messages for subsequent processing by user departments.
Communication and networking equipment	The communication and networking equipment are used to link up the computer systems and to allow the transmission of messages.
Firewall equipment	The firewall equipment is to allow the implementation of security measures such as message filtering, and to protect the system from being intruded through the network.
Application servers	The application servers are the repository of programs and business rules for the processing of messages.
Workstations and printers	The workstations and printers are for officers at user departments to process the trade-related documents.
Development and testing facilities	A separate computer system to facilitate the development and testing of modifications and enhancements to the system.
Operating system software	The software that drives and controls the central processor and peripherals of a computer system such as a server. It will also support ISO 10646.
Database software	The software that manages the retrieval, storage and manipulation of data. It will also support both ISO 10646 and XML.