

## **Legislative Council Panel on Commerce and Industry**

### **Upgrading and enhancement of Government's back-end computer system for electronic data interchange services**

#### **Purpose**

This paper seeks Members' support for a proposal to upgrade and enhance Government's back-end computer system for electronic data interchange ("EDI") services.

#### **Background**

2. In 1992, we granted an exclusive franchise to Tradelink Electronic Commerce Limited ("Tradelink") for the provision of front-end EDI services to the trading community 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").

3. Tradelink's franchise has begun from the start of its commercial operation in 1997 and 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 the sender; validating data according to a set of pre-defined rules and, where necessary, consolidate data from several parties; collecting payments; and transmitting the documents to the back-end computer system of Government. Tradelink also provides customers' support services including technical support and training.

5. The Government back-end computer systems consist of an EDI

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

Communication gateway (“EDICOMM”) and a newly developed EMAN gateway. At present, EDICOMM links up Tradelink and various Government departments for handling RTEL, CO, PN, TDEC and DCP. EMAN gateway connects Tradelink and the relevant departments for handling EMAN. A schematic presentation is at Annex 1.

### **The need for enhancement and upgrading**

6. After Tradelink’s exclusive franchise expires in 2003, we plan to appoint two additional front-end service providers to foster market competition. Members considered our plan in February 2001 and supported it in principle. To implement this plan, we invited expressions of interest from the private sector last summer and received enthusiastic responses. We are now preparing tender documentation with a view to inviting formal proposals in the first quarter of 2002.

7. The existing Government back-end computer systems, including EDICOMM and EMAN gateway, have not been fully designed to support multiple front-end service providers. In addition, EDICOMM, being designed some years ago, is based on a traditional EDI standards architecture that cannot support the latest technology standards such as Extensible Mark-up Language (“XML”), which is the most common technology adopted by the business community to support interoperability in e-business. XML also simplifies information handling and reduces software support costs.

8. We propose to upgrade and enhance our back-end computer systems as follows –

- (a) to provide the capability for handling data transmitted from more than one service provider;
- (b) to provide the capability to support XML; and
- (c) to provide the capability for supporting ISO 10646, which is the international coding standard for multiple language support. This standard embraces characters used in all

major languages in the world including traditional and simplified Chinese characters<sup>2</sup>.

9. To facilitate better integration with other non-Government e-commerce applications, we intend to mandate all front-end service providers after 2003 to have the capability to process transactions using XML and ISO 10646 for the three core services - TDEC, DCP and EMAN.

10. The newly developed EMAN gateway has been designed to support XML and ISO 10646 for the EMAN service, and has built in a capability to be expanded to cope with additional service demand. We plan to migrate TDEC and DCP services to the EMAN gateway to meet the objectives in paragraph 8 above. This will involve upgrading and enhancing the EMAN gateway, as well as the relevant back-end sub-systems in Customs and Excise Department (“C&ED”), Trade and Industry Department (“TID”), and Census and Statistics Department (“C&SD”).

11. As RTEL, PN and CO services will be affected by the abolition of quota restrictions on Hong Kong in 2005 under the World Trade Organisation Agreement on Textiles and Clothing, we will not require the new service providers to provide these three services (but they may voluntarily provide them). We will also not compel Tradelink to enhance its systems to support XML and ISO 10646 for the three services given the uncertainty of the need to provide them by 2005.

12. Hence, for RTEL, PN and CO services, there may be a need for upgrading EDICOMM and individual back-end sub-systems in TID to cope with data transmitted from more than one service provider. There may also be a need to modify the systems to take account of new documentation requirements following the abolition of quota restrictions in 2005. Pending the outcome of a review of such future requirements, and confirmation of new service providers’ interest in offering these services, we will keep our options open on the upgrading of our back-end computer system for the three services.

### **Cost and benefit analysis**

13. The normal cost-and-benefit analysis with an estimated pay-back

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

period is not applicable in this case. The project is needed for the new mode of service delivery (i.e. multiple service providers) and to enhance system capability to cope with latest technology standards. The appointment of additional service providers is expected to improve the efficiency of EDI services and reduce user charges. The trading community will benefit from a wider choice of service providers and the adoption of industry standards by Government. The competitiveness of Hong Kong will be enhanced.

## **Financial Implications**

### Non-recurrent Expenditure

14. We estimate that the non-recurrent cost for upgrading and enhancing the EMAN gateway is **\$87.3 million** (Items A-G, Annex 2). This is mainly used to purchase computer hardware and software, communication and networking equipment and the procurement of services for system analysis, design and development.

15. We will require a total of 6 posts at a non-recurrent cost of **\$8.2m** by relevant departments to support project development. According to our past experience in launching EDI services, we will need to work intensively with the vendors and future service providers.

16. We estimate that the non-recurrent cost for upgrading EDICOMM to support additional service providers (i.e. paragraph 8(a) above) for RTEL, PN and CO services is **\$7.3 million** (Items A-C, Annex 3).

### Recurrent Expenditure

17. We estimate that the EMAN gateway enhancement project will entail a recurrent cost of **\$12.2 million** (Items H-K, Annex 2). This is mainly used for the maintenance of computer hardware, system and application software, rental of communication lines and so on. In addition, \$0.4 million will be required to meet the provision for half of a systems manager post for technical support. The departments concerned will absorb other recurrent staffing requirements.

18. We estimate that the recurrent cost associated with the EDICOMM project in paragraph 16 above will be **\$1.1 million**.

## **Way Forward**

19. Subject to Members' support, we intend to submit the proposed EMAN gateway enhancement project to the Finance Committee for approval on 8 March 2002.

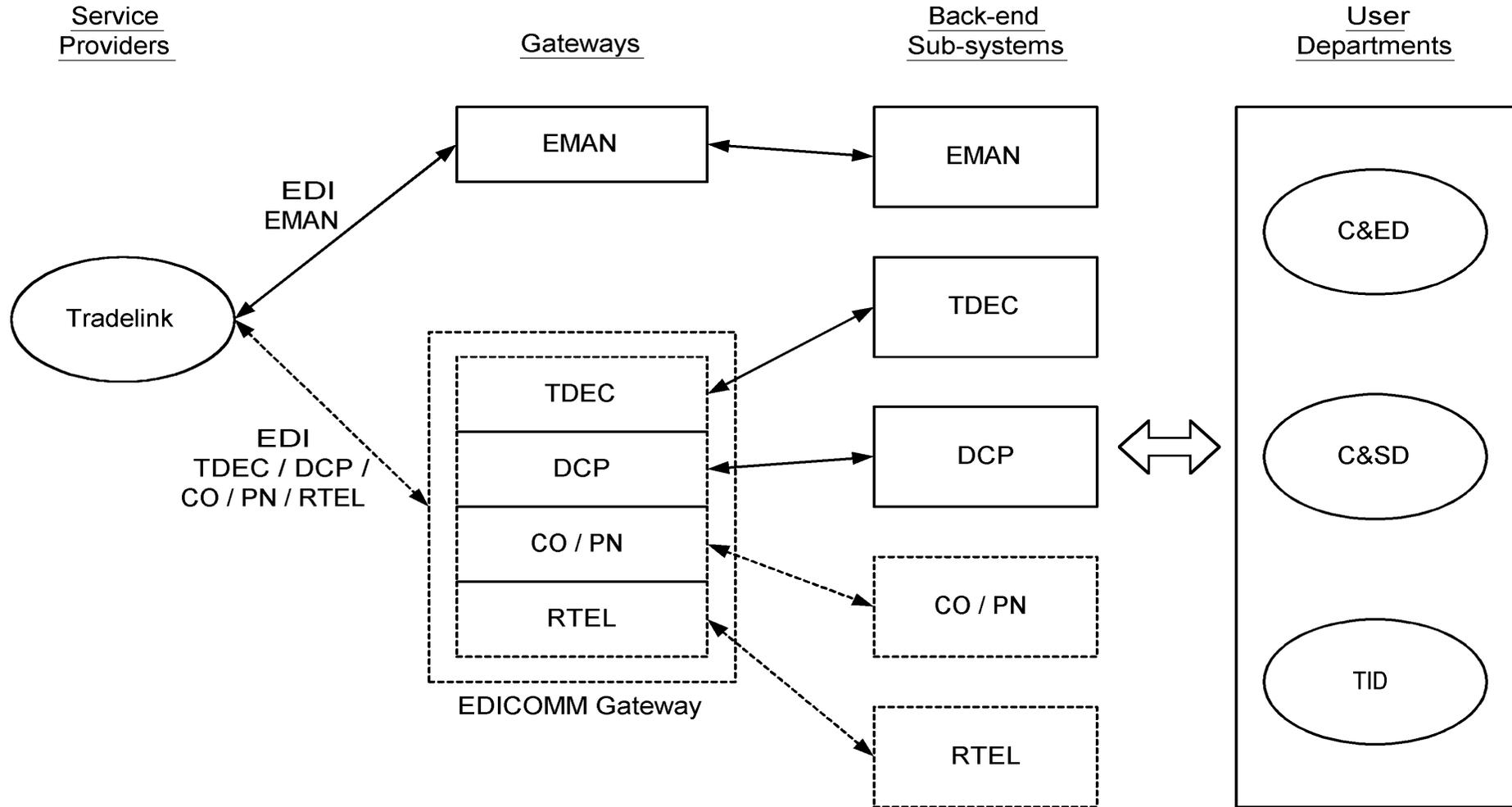
20. We will review the upgrading requirements in relation to the RTELE, PN and CO services later this year.

21. We will ensure that the enhancement projects will tie in well with the tendering exercise for new service providers.

Commerce and Industry Bureau  
January 2002

Existing Model of Electronic Data Interchange (EDI) Services

Annex 1



**Estimated expenditure for upgrading and enhancing EMAN gateway****(I) Non-recurrent expenditure**

	HK\$('000)	HK\$('000)	HK\$('000)	HK\$('000)
	Total	2002-03	2003-04	2004-05
A Computer hardware and software (Note 1)	34,000	7,975	26,025	
B Implementation Service (Note 2)	45,720	20,577	24,143	1,000
C Communication Service (Note 3)	1,200	500	700	
D Start-up Consumables (Note 4)	100	50	50	
E Site Preparation (Note 5)	1,100	750	350	
F Facilities Management (Note 6)	5,000	2,000	3,000	
G Training & documentation (Note 7)	200	100	100	
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Total (A+B+C+D+E+F+G):	87,320	31,952	54,368	1,000

**(II) Recurrent expenditure**

	HK\$('000)	HK\$('000)
	2003-04	2004-05 onwards
H Hardware and Software Maintenance (Note 8)	1,290	4,850
I Implementation Service (Note 9)		4,000
J Communication Service (Note 10)		500
K Facilities Management (Note 11)	750	2,800
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Total (H+I+J+K) :	2,040	12,150

- Note 1** Hardware items consist of acquisition or upgrade of database servers, EMAN Message Gateway servers, application servers, workstations, printers, communication equipment, networking and firewall equipment, development and testing equipment.  
Software items consists of operating system software, database software, EMAN Message Gateway software, ISO 10646 support software, etc, which supplement the hardware components to ensure proper functioning of the whole system.
- Note 2** The acquisition of implementation services for system analysis, design, development, integration, installation, re-configuration, and implementation to upgrade EMAN Message Gateway system, TDEC and DCP back-end systems. It also includes joint testing activities to cater for multiple service providers.
- Note 3** The acquisition of telecommunication service for establishing a wide area network with additional service providers and to cater for higher bandwidth requirement due to XML.
- Note 4** The acquisition of start-up consumables such as printer toners, printing papers, backup tapes and stationery for the project.
- Note 5** The expenditure 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.
- Note 6** The expenditure is for facility management, including the acquisition of management and operation services and the accommodation cost during system development and testing stages before production. New premises as well as a new team of operation staff provided by an external service provider would be required to operate the new EMAN Message Gateway after production.
- Note 7** The expenditure is for provision of training to government staff on using, operating and supporting EMAN Message Gateway and back-end systems.
- Note 8** The expenditure is for maintenance of computer hardware and system software.
- Note 9** The expenditure is for on-going support services for the enhanced system.
- Note 10** The expenditure is for rental of communication lines.
- Note 11** The expenditure is for system management, monitoring, control and 24-hour operation, rental of 2 data centres (one for primary use and the other for disaster recovery) and consumables used therein and provision of helpdesk service.

**Estimated expenditure for upgrading EDICOMM**

<b>(I) <u>Non-recurrent Expenditure</u></b>		<b>HK\$('000)</b>
		<b>Total</b>
A	Computer hardware and software (Note 1)	1,760
B	Implementation Service (Note 2)	5,435
C	Communication Service (Note 3)	55
Total (A+B+C) :		7,250

<b>(II) <u>Recurrent Expenditure</u></b>		<b>HK\$('000)</b>
D	Hardware and Software Maintenance (Note 4)	265
E	Implementation Service (Note 5)	816
F	Communication Service (Note 6)	46
Total (D+E+F) :		1,127

Note 1 Hardware items consist of acquisition or upgrade of communication equipment and network, additional hardware for support of file transfer using TCP/IP includes FTP server, firewall etc. Software items consist of communication software for supporting the communication equipment and network to ensure proper functioning of the whole system.

Note 2 The acquisition of implementation services for system analysis, design, development, integration, installation, re-configuration, and implementation to support services provided by multiple service providers.

Note 3 The acquisition of telecommunication service for establishing wide area network with additional service providers as well as US Customs for ELVIS.

Note 4 The expenditure is for maintenance of computer hardware and system software.

Note 5 The expenditure is for on-going support services for the enhanced system.

Note 6 The expenditure is for rental of communication lines.