CHAPTER 9

THE GOVERNMENT OF THE
HONG KONG SPECIAL ADMINISTRATIVE REGION

GENERAL REVENUE ACCOUNT

GOVERNMENT SECRETARIAT

Information Technology and Broadcasting Bureau

Commerce and Industry Bureau

Home Affairs Bureau

GOVERNMENT DEPARTMENTS

Hongkong Post

Government Supplies Department

Government's efforts to promote e-business in Hong Kong

Audit Commission
Hong Kong
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GOVERNMENT'S EFFORTS TO PROMOTE E-BUSINESS IN HONG KONG

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PROMOTE E-BUSINESS IN HONG KONG

Summary and key findings

A.   **Introduction.**   Electronic business (e-business) can transform the way business is conducted.   It is the Government's information technology (IT) strategy to lead by example in practising e-business.   In the 1999 Policy Address, the Government indicated its commitment to creating a favourable environment for e-business to take hold and flourish in Hong Kong.   The Government restated its commitment in the 2000 Policy Address.   The Information Technology and Broadcasting Bureau (ITBB) is the policy bureau responsible for formulating and implementing government strategies to promote electronic public service delivery and the development of e-business in Hong Kong (paras. 1.2 to 1.6).

B.   **Audit review.**   Audit has recently conducted a review on the Government's efforts to promote e-business in Hong Kong (para. 1.7).   The audit findings are summarised in paragraphs C to H below.

C.   **Government's efforts to establish a legal framework for conducting e-business and areas requiring further attention.**   Audit notes that the ITBB has taken prompt and timely action to establish a legal framework for the conduct of e-transactions.   By 7 April 2000, the whole of the Electronic Transactions Ordinance (ETO) had come into effect.   However, Audit notes that the following areas warrant the ITBB's attention and further efforts:

   (a)   the need to obtain periodic feedback from bureaux/departments (B/Ds) on their experience in dealing with transactions involving the acceptance of e-submissions, particularly the problems they have encountered and how these problems have been tackled;

   (b)   the need to alert B/Ds to common problems encountered; and

   (c)   the need to ask B/Ds to review their laws, policies and regulations in order to ensure that they align with the Government's objective of promoting e-business (paras. 2.3, 2.7 and 2.8).

D.   **Government's efforts to establish a public key infrastructure for conducting e-business and the low popularity of e-Cert services.**   In January 2000, the Hongkong Post (HKP) began

operation as the first recognised Certification Authority (CA) in Hong Kong. Audit notes the HKP's accomplishment in developing a public key infrastructure (PKI) within a timeframe of 18 months. However, Audit also notes that the HKP's digital certificate (e-Cert) services have so far not been popular as reflected by the small number of e-Certs issued (paras. 3.10 to 3.12).

E.   **The need to review the strategy for funding the HKP's CA service.** The HKP's CA service is intended to be financially self-sufficient. As the CA service is making a significant loss, Audit considers that its financial viability needs to be critically assessed. Similarly, the Government's strategy for funding the CA service also needs to be reviewed in order to resolve any conflict between the Government's financial objective and its broader objective of promoting e-business (paras. 3.15 and 3.16).

F.   **Implementation of the Government's e-business initiatives.** In reviewing the Government's various e-business initiatives, Audit has the following findings:

(a) *Community Electronic Trading Service and the need to introduce competition.* Traders collectively have to pay transaction charges of about $255 million a year for the front-end services provided by Tradelink for handling the submission of trade documents to the Government. In the light of developments in Internet technology and e-business, and in order to introduce competition, the Commerce and Industry Bureau has concluded that additional service providers should be engaged upon the expiry of the Tradelink's franchise in 2003. In Audit's view, careful forward planning and close monitoring are crucial to ensure that competition is introduced successfully (paras. 4.8 to 4.13);

(b) *Government's homepages and scope for reducing the time required for their downloading.* Audit notes that the Government has made significant efforts in setting up homepages for disseminating government information. Continued efforts are being made to further improve the homepages. However, Audit considers that there is scope for improvement in the time required to download government homepages (paras. 4.22 and 4.25);

(c) *The Electronic Service Delivery Scheme and the need to promote its use.* The Electronic Service Delivery (ESD) Scheme is a key initiative under the Government's IT strategy. In order to make the ESD Scheme a success, Audit considers that vigorous and continued efforts are necessary to enhance the public awareness of the Scheme and to promote its use. It is also necessary for the ITBB to closely monitor the transaction volume in order to assess the public's receptiveness of the Scheme, and to set up a mechanism to effectively coordinate and monitor the efforts of B/Ds to achieve savings and productivity gains (paras. 4.37 and 4.38);

(d) *The Electronic Tendering System and the need to promote its use.* Audit notes that, for the ten-month period ending early February 2001, only 6.6% of the Government Supplies Department (GSD)'s tenders were submitted to the GSD through the Electronic Tendering System (ETS). Audit's survey in December 2000 on the ETS subscribers has indicated that, while 39% of the respondents were satisfied with the overall performance of the ETS, 19% of them said that they were not satisfied. Audit considers that vigorous and continued efforts are needed to promote the use of the ETS. There is also a need to help users overcome their difficulties in using the ETS (para. 4.48);

(e) *Purchasing card programme and the need to closely monitor utilisation.* Purchasing cards have good potential for supporting electronic procurement. Audit notes that, for the five months from September 2000 to January 2001, only 12% in number of low-value purchase transactions were made by purchasing cards. To ensure success of the purchasing card programme, Audit considers it necessary for the GSD to closely monitor the utilisation level, ascertain the reasons for the low utilisation and, where necessary, take action to ensure that B/Ds use the purchasing card as the normal means of effecting low-value purchases (paras. 4.52, 4.59 and 4.60); and

(f) *Low business volume of the logistics service provided by the HKP.* Audit notes that the business volume of the logistics service provided by the HKP has fallen far short of expectations. This could be due to a lack of competitiveness of the HKP's service, compared with similar service providers in the private sector (para. 4.68).

G.   **ITBB's strategy for the development of e-government and areas requiring further attention.** In November 2000, the ITBB presented a paper outlining the strategy for developing e-government for discussion by the Information Infrastructure Advisory Committee (IIAC). The strategy includes securing top management commitment, enhancing the Government's internal IT infrastructure, strengthening civil servants' readiness and implementing proper IT management practices. Audit supports the ITBB's strategy and its proposal to establish a two-tier monitoring mechanism (para. 5.4). However, Audit notes that the following areas warrant the ITBB's attention and further efforts:

(a) there is a need for setting a target for the full implementation of e-government in Hong Kong, taking into account the practices of countries leading in this field (paras. 5.6 and 5.7);

(b) there is a need for the ITBB, in conjunction with the Information Technology Services Department (ITSD) to help B/Ds, particularly those without sufficient IT expertise, conduct IT planning (para. 5.10);

(c) it is necessary to draw B/Ds' attention to the need to conduct surveys on customers' needs and, if necessary, to coordinate the B/Ds' efforts in this regard (para. 5.13); and

(d) vigorous and continued efforts by the ITBB/ITSD are needed to provide B/Ds with adequate technical support and guidance, in order to help them perform their IT security tasks (para. 5.19).

H.   **Common challenges associated with the growth of e-business.** Audit's research indicates that, with the growth of e-business, other governments are facing new challenges in areas such as trade and tariff, taxation, intellectual property protection, security, law enforcement against Internet crimes, and privacy and consumer protection. Hong Kong is facing similar challenges. Audit notes that the ITBB and relevant B/Ds are aware of the risks and challenges, and have been taking actions to address them. However, as technology and the e-business environment continue to develop and change rapidly, Audit considers it necessary for the ITBB and the relevant B/Ds to keep abreast of international developments, maintain close contact with the relevant authorities abroad and be well prepared for the challenges ahead (paras. 6.2 to 6.5).

I.   **Audit recommendations.** Audit has made the following main recommendations that:

Establishing a legal framework

—   the Secretary for Information Technology and Broadcasting should:

(a) obtain periodic feedback from B/Ds on their experience in dealing with transactions involving the acceptance of e-submissions (para. 2.22(a));

(b) where problems have been identified by a department in implementing the ETO, take prompt action to alert other B/Ds and, where appropriate, hold experience-sharing forums to help B/Ds identify and address similar problems at an early stage (para. 2.22(b)); and

(c) draw B/Ds' attention to the need to critically review the laws, policies and regulations within their purview, in order to ensure that they align with the Government's objective of promoting e-business (para. 2.22(c));

Establishing PKI

— the Postmaster General should closely monitor the usage level of e-Certs and make vigorous and continued efforts to promote the wider use of e-Certs (para. 3.19);

— the Secretary for Information Technology and Broadcasting should:

(a) critically assess the short-term and long-term financial viability of the HKP's CA service and review the Government's strategy for funding the service (para. 3.20(a)); and

(b) closely monitor the business performance of the HKP's CA service, paying particular attention to its impact on the overall development of e-business in Hong Kong (para. 3.20(b));

Implementation of the Government's e-business initiatives

— the Secretary for Commerce and Industry should take early action to draw up a definite action plan to ensure that, upon the expiry of the Tradelink's franchise, competition is introduced successfully and the provision of essential services will not be disrupted. The Secretary should also closely monitor progress against the action plan to avoid possible slippage (para. 4.14);

— the Secretary for Home Affairs should make continued efforts to improve the Government's homepages to provide users with relevant information in an efficient and effective manner. In making these improvements, the Secretary should examine whether there is a need to reduce the time for downloading government homepages (para. 4.27);

— the Secretary for Information Technology and Broadcasting should make vigorous and continued efforts to promote the use of the ESD Scheme, closely monitor its actual transaction volume, and set up a mechanism to effectively coordinate and monitor the efforts of participating B/Ds to achieve savings and productivity gains (para. 4.39);

— the Director of Government Supplies should:

(a) make vigorous efforts to promote the use of the ETS, and explore ways and means to help users overcome their difficulties in using the ETS (para. 4.50); and

(b) closely monitor the utilisation of purchasing cards, ascertain the reasons for the low utilisation, and make positive and continued efforts to improve the effectiveness of the purchasing card programme (para. 4.61);

— the Postmaster General should critically reassess the business viability of the HKP's logistics service (para. 4.69(a));

Strategy for developing e-government

— the Secretary for Information Technology and Broadcasting should:

(a) in considering the need for setting a target for the full implementation of e-government in Hong Kong, take due account of the practices of those countries which are leading in this field (para. 5.20(a));

(b) make vigorous and continued efforts to help B/Ds conduct their IT planning (para. 5.20(b));

(c) draw B/Ds' attention to the need to conduct surveys to ascertain customers' needs for e-government services (para. 5.20(c)); and

(d) make vigorous and continued efforts to provide B/Ds with the necessary technical support and guidance to help them perform their IT security tasks (para. 5.20(e)); and

Common challenges

— the Secretary for Information Technology and Broadcasting, in conjunction with the B/Ds concerned, should make vigorous and continued efforts to address the common challenges associated with e-business, and keep the IIAC informed of the progress and seek its advice on a regular basis (para. 6.6).

J.   **Response from the Administration.**   The Administration has accepted all the audit recommendations.

PART 1: INTRODUCTION

1.1   This PART describes the background to the audit and outlines the audit objectives and scope.

Background

1.2   Electronic business (e-business) is the process of using electronic methods to conduct business activities.   There are three major categories of e-business, namely business-to-business (B2B), business-to-consumer (B2C) and intra-organisational transactions.

1.3   E-business has many potential benefits.   It can transform the way business is conducted. With the speed and interconnectivity offered by the Internet, improvements in operational efficiencies and customer service delivery can be significant.   With the exponential growth in recent years in the use of the Internet worldwide, the potential market of e-business is enormous.

The Government's e-business policy

1.4   In the 1997 Policy Address, the Government stated its vision to make Hong Kong a leader in the information world of tomorrow.   In the 1998 Policy Address, the Government stated the importance of using information technology (IT) to help Hong Kong retain its competitive edge and drive its economic expansion.   Under the Digital 21 IT Strategy promulgated in November 1998, the Government set out a programme of initiatives to make Hong Kong a leading digital city. **An integral part of the Strategy is for the Government to lead by example in practising e-business, both in conducting its internal operations and in delivering public services.   By taking the lead in the use of IT, the Government aims to drive the wider adoption of e-business in the private sector, thus raising the overall competitiveness of Hong Kong.**

1.5   **In the 1999 Policy Address, the Government stated its commitment to creating a favourable environment for e-business to take hold and flourish in Hong Kong (Note 1).**   In the 2000 Policy Address, the Government restated its commitment to making full use of IT in the provision of efficient and quality public services.   In November 2000, the Information Technology

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Note 1:   *According to a survey conducted in May 2000 by the Economist Intelligence Unit of the Economist Group (which is the publisher of The Economist newspaper in the UK), Hong Kong ranked Number 9 in order of e-business readiness.   The Economist Intelligence Unit produces analyses and forecasts of the political, economic and business environment in more than 180 countries.*

and Broadcasting Bureau (ITBB) set out a strategy for developing e-government (Note 2) initiatives and an implementation mechanism to take forward the various initiatives.

1.6   The ITBB is the policy bureau responsible for formulating and implementing government strategies to promote electronic public service delivery and the development of e-business in Hong Kong. The Information Technology Services Department (ITSD) assists the ITBB in the implementation of such strategies.

Audit review

1.7   Audit has recently conducted a review on the Government's efforts to promote e-business in Hong Kong. The audit has focused on the following areas:

(a)   the Government's efforts to establish a legal framework for conducting e-business (see PART 2 below);

(b)   the Government's efforts to establish a public key infrastructure (PKI — Note 3) for conducting e-business (see PART 3 below);

(c)   the Government's progress in implementing various e-business initiatives, both in conducting internal operations and in delivering public services (see PART 4 below);

(d)   the ITBB's strategy for developing e-government (see PART 5 below); and

(e)   the Government's efforts to meet common challenges associated with the growth of e-business (see PART 6 below).

Note 2:   *E-government refers to the provision of government services through electronic means, including access to government information and the completion of transactions with the Government on an "anywhere, anytime" basis. Typical users of e-government include citizens, businesses and government departments acting in their capacities as consumers, suppliers and internal users. E-government involves various kinds of business relationship, namely government-to-citizen (G2C), government-to-business (G2B), government-to-government (G2G), inter-departmental and intra-departmental e-business.*

Note 3:   *PKI refers to the set of hardware, software, people, policies and procedures needed to create, manage, store, distribute, and revoke digital certificates based on public key cryptography and the operation of a certification authority. Public key cryptography involves the use of a private key and a public key. A message that is encrypted with a public key can only be decrypted with its corresponding private key, and vice versa.*

**PART 2: THE GOVERNMENT'S EFFORTS TO ESTABLISH
A LEGAL FRAMEWORK FOR CONDUCTING E-BUSINESS**

2.1   This PART examines the Government's efforts to establish a legal framework for conducting e-business.

The need for a legal framework

2.2   *Key principles.* In 1998, the ITBB recognised the need and started action to establish a legal framework to provide certainty in the conduct of electronic transactions (e-transactions). In December 1998, in a consultation paper submitted to the Information Infrastructure Advisory Committee (IIAC — Note 4), the ITBB set out the key principles for establishing the legal framework, as follows:

(a)   the framework should remove any legal impediments to the conduct of e-transactions;

(b)   the framework should provide certainty and security in the conduct of e-transactions, thereby enhancing the confidence and trust of the public in carrying out such transactions;

(c)   the framework should adopt a technology-neutral approach to cope with rapid technological changes; and

(d)   the framework should adopt a minimalist regulatory approach so as not to unnecessarily constrain the development of e-business in the private sector.

Enactment of the Electronic Transactions Ordinance

2.3   *Electronic Transactions Ordinance.*   In July 1999, the Electronic Transactions Bill (ETB) was introduced into the Legislative Council (LegCo). In January 2000, the Electronic Transactions Ordinance (ETO — Cap. 553) was enacted. By 7 April 2000, the whole of the ETO had come into effect. It serves two primary functions, as follows:

(a)   it gives electronic records (e-records) and digital signatures used in e-transactions the same legal status as that of their paper-based counterparts; and

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Note 4:   *The IIAC is an advisory body set up in August 1998 to advise the Government on major policy issues relating to IT and telecommunications development in Hong Kong. Members of the IIAC, who are appointed by the Chief Executive, include Members of the Legislative Council, leading figures in the IT and telecommunications fields, academia and government officials. A Working Group on E-commerce Environment and Technologies Exploitation has been formed under the IIAC to examine the following issues: development and enhancement of the infrastructure to facilitate e-commerce development; promotion of greater adoption of e-commerce; and promotion of Hong Kong as the e-commerce hub in the Asia-Pacific Region.*

(b)   it provides a legal framework for the operation of certification authorities (CAs) in order to build up a local PKI and a secure and trustworthy environment for the conduct of e-transactions.

2.4   *E-records and digital signatures.*   To give legal recognition to e-records and digital signatures, the ETO stipulates that:

(a)   where a rule of law requires or permits information to be given or presented in writing, the use of e-records will satisfy the rule of law;

(b)   where a rule of law requires a signature of a person, that requirement is met by a digital signature that is supported by a recognised certificate;

(c)   where a rule of law requires information to be retained, or to be presented or retained in the original form, that requirement is met by retaining or presenting the information in the form of e-records;

(d)   contracts shall not be denied legal effect solely on the ground that e-records are used in their formation; and

(e)   e-records shall not be denied admissibility as evidence in court on the sole ground that they are e-records.

2.5   *Application to the Government.*   The ETO binds the Government.   By giving legal recognition to e-records and digital signatures, government agencies will have to accept information that is submitted electronically under the legislation within their purview, unless arrangements have been made to exempt such transactions under the ETO (see paragraph 2.17 below).

Undertaking to review the ETO

2.6   In November 1999, at a meeting of the Bills Committee on ETB, the ITBB undertook to review the ETO 18 months (i.e. in mid-2001) after its enactment in the light of operational experience.   In January 2000, the ITBB restated its undertaking to LegCo during the debate on the second reading of the ETB.

General audit observations on the Government's efforts to establish a legal framework for conducting e-business

2.7   *General audit observations.*   Audit notes that the ITBB has taken prompt and timely action to establish a legal framework for conducting e-transactions.   As a result, the ETO was enacted within less than two years after the need for legislation had been recognised.

2.8   *Areas for attention.*   Audit also notes that there are specific areas which warrant the ITBB's attention and further efforts. These specific areas are:

(a)   the need to obtain periodic feedback from bureaux/departments (B/Ds) (see paragraphs 2.9 and 2.10 below);

(b)   the need to alert B/Ds to common problems encountered (see paragraphs 2.11 to 2.14 below);

(c)   the need to ask B/Ds to review their laws, policies and regulations in order to ensure that they align with the Government's objective of promoting e-business (see paragraphs 2.15 and 2.16 below); and

(d)   the need to closely monitor withdrawals from the ETO exemption list (see paragraphs 2.17 to 2.21 below).

Audit observations on the need to obtain periodic feedback from B/Ds

2.9   *Limited success in stimulating e-submissions.*   Since the operation of the ETO, the ITBB has been collecting quarterly returns from government agencies to monitor the number of e-submissions received in respect of information required under specific ordinances. Audit notes that, in the two quarters ending 30 September 2000 (i.e. the first six months of the operation of the ETO), government agencies together had received some 7,900 e-submissions. However, the vast majority, i.e. 7,100 (or 90%), of the e-submissions were received by the Hong Kong Monetary Authority (HKMA) and the remaining government agencies together received only 800 (i.e. 7,900 less 7,100) e-submissions. In fact, the HKMA had been receiving e-submissions for some years before the enactment of the ETO. **This shows that, for the submission of information required by law, in terms of stimulating more e-submissions from the public, the ETO had only limited success during the initial months of its operation.**

2.10   *The need to obtain periodic feedback from B/Ds.*   Audit appreciates that the ETO is still at an early stage of operation, and that the ITBB will review the ETO in mid-2001 in the light of operational experience (see paragraph 2.6 above). **In order to provide useful input for the review, Audit considers it necessary for the ITBB to obtain, in addition to the number of e-submissions received, periodic feedback from B/Ds on their experience in dealing with transactions involving the acceptance of e-submissions, particularly the problems they have encountered and how these problems have been tackled.** For example, it will be worthwhile to ask B/Ds to find out why so few e-submissions have been received from the public. Such feedback will help the ITBB assess the effectiveness of the ETO in achieving the e-business objectives of the Government.

**Audit observations on the need to alert
B/Ds to common problems encountered**

2.11   *E-submissions cannot substitute for submissions "in person or by post".* From the ITBB's records, Audit notes that the Rating and Valuation Department (R&VD) had encountered problems in accepting e-submissions from the public. In September 2000, the R&VD raised the question as to whether, pursuant to the ETO, the requirements stated in the Landlord and Tenant (Consolidation) Ordinance (LTO — Cap. 7) for information to be submitted **"in person or by post"** could be satisfied by submitting the information through electronic means (e.g. by e-mail). The Department of Justice (D of J) advised the R&VD that it was the form of document, not the delivery mode, that triggered the ETO. Therefore, if there was a legal requirement for information to be submitted in person or by post, the information had to be submitted in the mode stipulated by law. **Electronic delivery (e.g. by e-mail) did not satisfy the legal requirement in such cases.**

2.12   *ITBB advised R&VD to amend the LTO.* In October 2000, the ITBB informed the R&VD that the issue of the mode of delivery had been considered when the ETO was drafted. The ITBB had no immediate plan to stipulate that a requirement for information to be submitted in person or by post could be satisfied by submitting the information through electronic means, having regard to the fact that B/Ds might have their own unique operational consideration for the "in person or by post" requirement. Moreover, there was no similar stipulation in the electronic transactions legislation of other countries. **The ITBB considered that it would be more appropriate for the R&VD to make a specific amendment to the LTO rather than a sweeping amendment to the ETO which would apply to all legislation (Note 5).**

2.13   *Other B/Ds may have similar problems.* In considering the R&VD's problems, the D of J identified at least 167 similar provisions in the laws of Hong Kong which contained the "by post" requirement. **In October 2000, the ITBB advised the B/Ds concerned of the legal position. The ITBB also advised the B/Ds that they should consider making amendments to their own legislation if they wished to allow such information to be submitted through electronic means as early as possible. The ITBB undertook to consider, in the course of reviewing the ETO in mid-2001, whether a general provision should be added to the ETO so that the electronic mode of delivery could be used.** In October 2000, the R&VD decided not to seek amendment to the LTO for the time being but to await the result of the ITBB's overall review of the ETO in 2001. In the interim, the R&VD would not accept e-transactions under the LTO.

2.14   *The need to alert B/Ds to common problems encountered.* The R&VD's case illustrates that problems which have been encountered by one department may be common to other B/Ds. This case also illustrates that the ITBB has acted appropriately by alerting other B/Ds to the R&VD's problems and by advising them of the legal position. **Audit considers it necessary for the ITBB to continue with the practice of advising B/Ds common problems that have come to light. Audit also considers it necessary for the ITBB to hold experience-sharing forums, where**

Note 5:   *In February 2001, the ITBB informed Audit that the ITBB did not consider it prudent to amend the ETO soon after its enactment when it did not have the necessary operational experience. The ITBB considered it more appropriate to deal with possible amendments in the mid-2001 overall review of the ETO.*

appropriate, for the benefits of B/Ds. This will help B/Ds identify and address similar problems at an early stage, and learn from others' experiences in tackling such problems.

Audit observations on the need to draw B/Ds' attention
to the need to review laws, policies and regulations

2.15   *Laws developed before the advent of e-business.*   Most of the existing laws that are applicable to business activities were developed before the advent of the Internet and e-business. With the growth of e-business, governments face a common challenge that the existing laws, policies and regulations may not align with the new electronic environment.

2.16   *The need to review existing laws, policies and regulations.*   Hong Kong faces a similar challenge.   In this connection, Audit notes that problems may arise when B/Ds receive e-submissions from the public, and that such problems may fall outside the scope of the ETO**. Audit considers it necessary for the B/Ds to critically review the laws, policies and regulations within their purview, so as to ensure that such laws, policies and regulations align with the Government's objective of promoting e-business.**   The R&VD's case, mentioned in paragraphs 2.11 to 2.14 above, is a good case in point.

Audit observations on the need to closely
monitor withdrawals from the ETO exemption list

2.17   *Exemptions from accepting e-submissions.*   While government agencies are obliged to accept e-submissions from the public, the Government recognises that there are transactions which should preferably be conducted through conventional means because of their solemnity, complexity or other factors.   Following a comprehensive study conducted in consultation with B/Ds from May 1999 to March 2000, the ITBB identified 195 statutory provisions in 40 ordinances (out of a total of about 650 ordinances in the laws of Hong Kong) that should be exempted from accepting e-submissions.   The purpose of the exemption is to ensure that the departments concerned continue to operate smoothly.

2.18   *ITBB's undertaking to regularly review the position.*   In March 2000, the ITBB sought LegCo's negative vetting of an Exclusion Order that would exempt those 195 statutory provisions from the application of the ETO for accepting e-submissions.   In the relevant LegCo paper, the ITBB undertook to regularly review the statutory provisions excluded and to examine when the exclusions could be withdrawn in future.

2.19   *Reasons for exemption.*   In November 2000, Audit analysed the reasons for granting exemptions to the 193 statutory provisions in the exemption list as at that time (Note 6).   The results of Audit's analysis are shown in Table 1 below.

Note 6:   *Of the 195 statutory provisions exempted from the application of the ETO for accepting e-submissions as at March 2000 (see paragraph 2.18 above), three statutory provisions were subsequently removed and one provision for a newly enacted ordinance was added.   Therefore, as at November 2000, there were 193 provisions in the exemption list of the Exclusion Order.*

Table 1

**Audit's analysis of 193 exempted statutory provisions
classified under the reason for exemption
(position as at November 2000)**

	Reason for exemption	Number of provisions
(a)	Solemnity of the matter or document involved (e.g. provisions concerning the electoral process)	32
(b)	Operational reasons (e.g. provisions concerning the production of documents to government authorities on the spot)	72
(c)	Involvement of voluminous submissions and complex plans which would be difficult to handle electronically (e.g. provisions concerning submission of documents and plans to works departments)	77
(d)	The need to follow international practices (e.g. provisions concerning documents to be kept by the flight crew for air navigation purposes)	9
(e)	To enable the Government to meet its contractual obligations (e.g. provisions on the submission of trade-related documents which concern Tradelink's franchise — see paragraph 4.6 below)	3
	Total	**193**

Source: ITBB's records

2.20　　*ITBB's efforts to reduce the number of exempted statutory provisions*.　With regard to the 77 statutory provisions (i.e. 40% of the total 193 provisions) shown in item (c) in Table 1 above, the ITBB:

    (a)　　has recognised that there is good potential for many of these exempted provisions to be removed from the exemption list in future; and

    (b)　　has allocated funds for conducting feasibility studies in several B/Ds to examine the feasibility of receiving electronically voluminous submissions and complex plans, in order to reduce the number of exemptions in this category.　In the light of the results of these studies, the ITBB will determine how best to take the matter forward in other B/Ds.

2.21　　*The need to keep in view progress*.　**Audit considers it necessary for the ITBB to closely monitor the B/Ds' progress in preparing themselves for the acceptance of e-submissions.　As soon as B/Ds are ready, the ITBB needs to take prompt action to remove the relevant statutory provisions from the exemption list.**

**Audit recommendations on the
Government's efforts to establish a legal framework**

2.22   Audit has *recommended* that the Secretary for Information Technology and Broadcasting should:

(a)   obtain periodic feedback from B/Ds on their experience in dealing with transactions involving the acceptance of e-submissions (particularly the problems they have encountered and how the problems have been tackled), in order to assess the effectiveness of the ETO and to provide useful input for the overall review of the ETO in mid-2001(see paragraph 2.10 above);

(b)   where problems have been identified by a department in implementing the ETO, take prompt action to alert other B/Ds and, where appropriate, hold experience-sharing forums to help B/Ds identify and address similar problems at an early stage (see paragraph 2.14 above);

(c)   draw B/Ds' attention to the need to critically review the laws, policies and regulations within their purview, so as to ensure that such laws, policies and regulations align with the Government's objective of promoting e-business (see paragraph 2.16 above); and

(d)   make continued and vigorous efforts to help B/Ds prepare for the acceptance of e-submissions, closely monitor their progress and, as soon as they are ready, take prompt action to remove the relevant statutory provisions from the exemption list (see paragraph 2.21 above).

Response from the Administration

2.23   The **Secretary for Information Technology and Broadcasting** has accepted the audit recommendations mentioned in paragraph 2.22 above. She has said that:

*The need to obtain periodic feedback from B/Ds and
to alert B/Ds to common problems encountered*

(a)   the ITBB will collect periodic feedback from B/Ds on the operation of the ETO. It will also invite them to carry out customer surveys to examine how to further encourage the public to make use of electronic means for carrying out transactions with the Government;

(b)   in order to further encourage the public to submit information to the Government required by law through electronic means, the ITBB will:

(i)   produce publicity materials for broadcast on television and radio;

(ii)   publish publicity pamphlets for distribution to the public; and

(iii)   ask departments to appeal to their clients who can be readily identified (e.g. members of a particular association or profession, or businesses in a particular trade) to make e-submissions;

(c)   the quarterly statistics, mentioned in paragraph 2.9 above, refer only to the submission of information by the public to the Government for meeting requirements under specific legal provisions. There are many other e-transactions carried out between the public and the Government which are not related to the submission of information under law. With the enactment of the ETO and the launching of e-government initiatives such as the Electronic Service Delivery (ESD) Scheme, the ITBB has seen an increase in the use of electronic means by the public for transacting government business. For example, the number of payments of government bills made through the Internet had increased from 29,000 in October 2000, by some 140%, to 70,000 in January 2001 (Note 7);

(d)   the ITBB will soon hold a departmental forum to seek the views of B/Ds on the operation of the ETO. The views received will be examined in the context of the review of the ETO scheduled to be conducted in mid-2001;

The need to draw B/Ds' attention to the
need to review laws, policies and regulations

(e)   regarding the need for B/Ds to review their legislation, Audit has made the point clearly in paragraph 2.16 above;

The need to closely monitor the ETO exemption list

(f)   the reduction in the number of statutory provisions exempted from 195 to 193 (see paragraph 2.19 above) clearly demonstrates the ITBB's commitment to reviewing the need for exemptions; and

(g)   the ITBB will continue to make efforts to review the need for the remaining exemptions. This will be fully addressed when the ETO is reviewed in mid-2001.

Note 7:   *Other examples cited by the ITBB included the following: (a) during the period from December 2000 to February 2001, over 1,500 persons had made use of the ESD Scheme to apply for registration as volunteers with the Social Welfare Department; and (b) the utilisation of the Labour Department's Interactive Employment Services had increased to over 120,000 hits per day in January 2001 (i.e. an increase of 25% compared with December 2000, or 100% compared with January 2000).*

**PART 3:   THE GOVERNMENT'S EFFORTS
                TO ESTABLISH A PKI FOR CONDUCTING E-BUSINESS**

3.1   This PART examines the Government's efforts to establish a PKI for conducting e-business.

The need for a PKI

3.2   E-business will succeed when the parties concerned have confidence in using electronic means to conduct e-transactions. The development of the PKI technology provides a useful tool for this purpose. A proper PKI can provide the assurance that:

(a)   the parties to an e-transaction are really the entities they claim to be;

(b)   the information has not been altered; and

(c)   none of the parties will be able to wrongfully deny that they have taken part in the transaction.

3.3   As mentioned in paragraph 2.3(b) above, the ETO provides a legal framework for the operation of CAs in order to build up a local PKI for the conduct of e-transactions. To encourage the early establishment of a local PKI, the Government assumed the lead role in providing the services of a CA.

The role of Hongkong Post

3.4   The Hongkong Post (HKP) plays an important role in promoting the PKI technology for e-business in Hong Kong. In August 1998, the HKP accepted the ITBB's invitation to participate in the development of a PKI in Hong Kong. In the same month, it started a project for the establishment of a PKI to support the HKP's CA operation. The project involved setting-up costs of $60 million. The HKP became the first recognised CA in Hong Kong on 31 January 2000, following the enactment of the ETO in January 2000. The ITBB is the policy bureau for the HKP's e-business activities.

3.5   The HKP issues digital certificates (i.e. HKP e-Certs) to individuals and businesses to authenticate the identity of the subscribers over the Internet. The HKP also maintains a certificate repository and directory to allow the public to verify the validity of any HKP e-Cert before carrying out transactions. These services provide a secure and trusted environment for the conduct of e-business.

**Significant variance between estimated
and actual number of e-Certs issued**

3.6   In December 1999, the HKP discussed with the ITBB the pricing for the HKP e-Certs. The HKP estimated that it would issue 171,000 e-Certs for the 15-month period ending 31 March 2001, increasing to 494,000 for the year 2004-05 (Note 8). In the event, the number of e-Certs actually issued was much smaller. Up to December 2000 (i.e. 11 months after the HKP commenced its CA operation), the HKP had only issued some 5,900 e-Certs, representing 3.5% of the estimated number of e-Certs to be issued for the 15-month period ending 31 March 2001.

Surveys on the use of e-Cert services

3.7   According to a survey commissioned by the HKP in April 2000, the public did not use the e-Cert services because of a lack of perceived needs and understanding of the services. Another survey commissioned by the HKP in August 2000 indicated that, although the degree of awareness of the concept of CA among the companies surveyed had improved (compared with a similar survey conducted in 1998), more promotional efforts were needed to educate the general public, especially the small companies, on the use of e-Certs.

3.8   In December 2000, Audit conducted a survey on the e-Cert holders (Note 9). From the respondents' returns, Audit noted that:

    (a)   *55% of the respondents had actually used their e-Certs.* Of this group of respondents, more than half actually used the e-Certs less than 5 times per quarter. The two most important factors, cited by the respondents, that supported the use of e-Certs were "digitally signing e-mail messages to others" and "encrypting e-mail messages to others";

    (b)   *45% of the respondents had not used their e-Certs at all.* "Business applications/services requiring the use of e-Cert not available" and "the procedures were cumbersome and not user-friendly" were cited by the respondents as the two most important factors that inhibited the popular use of e-Certs; and

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Note 8:   *This estimate was also shown in the HKP's Business Plan for the years 2000-01 to 2004-05.*

Note 9:   *Using the information shown in the HKP Directory on the Internet, Audit sent questionnaires to all 2,805 e-Cert holders who had installed e-Certs as at the end of November 2000. Audit received returns from 372 e-Cert holders, representing a response rate of about 13%. (This is considered a satisfactory response rate for surveys of this nature.) With regard to some 2,000 e-Cert holders who had obtained their e-Certs from the HKP but had not installed them, these e-Cert holders could not be covered in this survey because information about them was not available in the HKP Directory.*

(c) ***34% of the respondents considered that it was not easy to install e-Cert.*** 27% of the respondents had spent two to four hours for the installation of their e-Certs in their computers. 7% had spent more than five hours. The main difficulties, cited by the respondents, in installing e-Certs included "the manual was complicated and instructions were not clear", "downloading keys from CA was difficult" and "installation of e-Cert involved a lot of steps and was not user-friendly".

HKP's efforts to promote the use of e-Cert services

3.9   The HKP recognises the importance of promoting the wider use of the e-Cert services and has been taking actions to promote their use. An example of such actions is the pilot testing of using e-Certs in the Stock Exchange of Hong Kong. More examples of the HKP's actions are at Appendix A.

Audit observations on the use of e-Cert services

3.10   ***Establishment of a PKI within 18 months.*** In August 1998, the HKP was tasked with the development of a PKI in Hong Kong. It accomplished this task within 18 months. On 31 January 2000, the HKP began operation as the first recognised CA in Hong Kong.

3.11   ***E-Certs so far not popular.*** However, the e-Cert services have so far not been popular as reflected by the small number of e-Certs issued. Survey results have identified a number of factors (e.g. the lack of PKI-based business applications) which account for the low level of popularity. The HKP has been taking positive actions to promote the wider use of e-Certs. However, it takes time for the HKP's efforts to produce results and, so far, most large-scale PKI-based business applications have been limited to trial runs (e.g. the pilot scheme with the Stock Exchange of Hong Kong), or are still at the initial stage of implementation (e.g. Phase 1 of the ESD Scheme). **It is still too early to say whether or not these initiatives will be successful.**

3.12   ***The need for vigorous and continued efforts.*** The problem of low popularity of e-Certs, if not overcome, could jeopardise the Government's objective of creating a favourable environment for e-business to flourish in Hong Kong. **Audit considers that vigorous and continued efforts by the HKP are necessary to promote the wider use of e-Certs. In particular, continued efforts are needed to increase the public's awareness of the importance of the CA service, identify and develop more PKI-based business applications, and improve the user-friendliness of e-Certs.**

The funding of HKP's CA service

3.13   ***Self-sufficiency intended.*** In a paper submitted in November 1999 to the LegCo's Bills Committee on the ETB, the ITBB informed the Bills Committee that the CA service of the HKP was intended to be financially self-sufficient and there was no plan to subsidise the cost of issuing e-Certs by the operational revenue from the postal services.

3.14   *CA service operating at a loss.*   Because of the small number of e-Certs issued, the revenue earned by the HKP as a CA was small, amounting to $20,000 for the first two months of operation ending March 2000, and $0.7 million for the seven months from April to October 2000. Consequently, the HKP's CA service was operating at a loss of $1.4 million in 1999-2000 and $8 million in 2000-01 (based on the seven months up to October 2000).

Audit observations on the funding of HKP's CA service

3.15   *The need to assess financial viability.*   The HKP's CA service is intended to be financially self-sufficient. **As the CA service is making a significant loss, Audit considers that there is a need for the ITBB, in consultation with the Finance Bureau (FB) and the HKP, to critically assess the financial viability of the CA service.**

3.16   *The need to review funding strategy.* The Government's provision of CA service, as an integral part of the PKI, is essential for ensuring a successful future for e-business in Hong Kong. As such, the HKP may need to continue providing the CA service even if the service is not financially self-sufficient. **Audit considers that there is a need for the ITBB, the FB and the HKP to jointly review the Government's funding strategy in order to resolve any conflict between the Government's financial objective and its broader objective of promoting e-business. Audit also considers that the ITBB needs to closely monitor the business performance (e.g. business volume and revenue) of the HKP's CA service, paying particular attention to its impact on the overall development of e-business in Hong Kong.**

Future challenges

3.17   Apart from the need to address the above issues (i.e. the low popularity level of e-Certs and the funding strategy), there are other significant challenges that the HKP has to meet before the PKI technology can be widely applied. Audit's research indicates that CAs around the world face the following challenges in their business operations:

(a)   because technology is advancing rapidly, CAs may find it difficult to keep pace with the rapid changes in technology and to continue maintaining a high level of security and trust of the users;

(b)   cross-border certification problems among CAs need to be resolved. In doing so, considerations need to be given to technology issues and different countries' business practices and laws;

(c)   although many PKI products are currently on the market, they generally are not inter-operable.   Computer applications using different PKI products often cannot inter-operate efficiently; and

(d)   although smart card technology is increasingly being used to support digital certificates, there are obstacles to the use of smart cards (such as the requirement for a smart card reader, the absence of an open standard for smart cards and the cost of producing smart cards).

Audit observations on future challenges

3.18   Audit notes that the HKP is facing similar challenges as outlined in paragraph 3.17 above and is taking actions to address them.   **Audit considers that, in order to meet these challenges, there is a need for the HKP to continue to liaise with CAs abroad and to keep pace with the technology development in the e-Cert field.**

Audit recommendations on the establishment of the PKI

3.19   **Audit has *recommended* that the Postmaster General should:**

(a)   **closely monitor the usage level of e-Certs (see paragraph 3.11 above);**

(b)   **make vigorous and continued efforts to promote the wider use of e-Certs, focusing on increasing the public's awareness of the importance of the CA service, identifying and developing more PKI-based applications and improving the user-friendliness of e-Certs (see paragraph 3.12 above); and**

(c)   **continue to liaise closely with CAs abroad and keep pace with the technology development in the e-Cert field, in order to meet the future challenges (see paragraph 3.18 above).**

3.20   **Audit has also *recommended* that the Secretary for Information Technology and Broadcasting should:**

(a)   **in consultation with the Secretary for the Treasury and the Postmaster General:**

(i)   **critically assess the short-term and long-term financial viability of the HKP's CA service (see paragraph 3.15 above); and**

(ii)   **review the Government's strategy for funding the HKP's CA service, in order to resolve any conflict between the Government's financial objective (i.e. self-sufficiency of the CA service) and its broader objective of promoting e-business (see paragraph 3.16 above); and**

(b)   **closely monitor the business performance of the HKP's CA service, paying particular attention to its impact on the overall development of e-business in Hong Kong (see paragraph 3.16 above).**

Response from the Administration

3.21   The **Secretary for Information Technology and Broadcasting** has accepted the audit recommendations mentioned in paragraphs 3.19 and 3.20 above. She has said that:

(a)   *The need to promote the use of e-Certs.* The ITBB and the HKP have been taking various steps to promote the wider use of e-Certs (examples are in Appendix A); and

(b)   *The need to assess financial viability and review funding strategy.* She accepts Audit's recommendations on this issue, on the basis that the assessment/review will be conducted when the ITBB and the HKP have more experience in the operation of the HKP's CA service. She is of the view that a conclusion should not be drawn on the financial viability of the HKP's CA service based on only the first year of operation. The situation should be assessed over a longer period of time.

3.22   The **Postmaster General** has said that:

The need to promote the use of e-Certs and monitor usage

(a)   he agrees with Audit that the HKP should make continued efforts to promote the wider use of e-Certs, increase the public's awareness of the importance of the CA service, identify and develop more PKI-based applications and improve the user-friendliness of e-Certs. The HKP has been making great efforts in this regard, as reported in Appendix A;

(b)   the original forecast of 171,000 e-Certs to be issued up to March 2001 was made at the time when the HKP's CA service was launched and when a number of major PKI-based business applications were being developed. It was envisaged that these applications would be launched in 2000-01. However, except for the ESD Scheme which began

operation on 9 December 2000, the full development of all other major applications has been deferred;

(c)   he agrees with Audit that the HKP should closely monitor the popularity level of e-Certs. With the operation of the ESD Scheme and the testing of some other applications, there has been an obvious growth in the number of e-Certs issued. As at 24 February 2001, the total number of e-Certs issued was over 10,000, representing an increase of 70% in less than 2 months. This demonstrates that the increase in number of e-Certs issued is directly driven by the launch of major PKI applications;

The need to liaise with CAs abroad and
keep pace with technology development

(d)   the HKP has all along recognised the need to keep pace with the technology development in the field, and the need to liaise with CAs abroad in order to establish cross-certification arrangements and cooperation. The HKP's efforts and achievements in this regard are summarised in items (c) and (d) of Appendix A; and

The need to assess financial viability and
review the Government's funding strategy

(e)   the purpose of establishing the HKP CA and the PKI is to provide a secure and trusted environment for the conduct of e-transactions in Hong Kong. Furthermore, the viability of the CA service is highly dependent on the development of various business applications that support the use of digital certificates. He considers that the overall financial viability of the CA service should be assessed on a longer term basis rather than on one year's experience.

**PART 4: IMPLEMENTATION OF THE
             GOVERNMENT'S E-BUSINESS INITIATIVES**

4.1   This PART examines the Government's progress in implementing various e-business initiatives.

The Government's e-business initiatives

4.2   *Leading by example.*   According to the Digital 21 IT Strategy, it is the Government's aim to lead by example in practising e-business, both in conducting its internal operations and in delivering public services.

4.3   *Building up a solid IT infrastructure.*   Over the years, the Government has been building up a solid IT infrastructure across government B/Ds that can support future developments of the Government's e-business.   Salient features of this infrastructure include the Government Network which connects all B/Ds, the Government Communication Network which provides e-mail facilities to B/Ds, and the Central Internet Gateway which enables B/Ds to communicate and transact business with the public via the Internet.   More details of the Government's IT infrastructure are at Appendix B.

4.4   *E-business initiatives.*   In addition, the Government has been implementing various e-business initiatives to improve its internal operations and its delivery of public services.   The following are salient examples of e-business initiatives that the Government has implemented:

(a)   the Community Electronic Trading Services (see paragraphs 4.6 to 4.15 below);

(b)   information dissemination through the Government's homepages (see paragraphs 4.16 to 4.29 below);

(c)   Phase 1 of the ESD Scheme (see paragraphs 4.30 to 4.40 below);

(d)   the Electronic Tendering System (see paragraphs 4.41 to 4.51 below);

(e)   the Government's purchasing card programme (see paragraphs 4.52 to 4.62 below); and

(f)   the HKP's logistics service to support e-business (see paragraphs 4.63 to 4.71 below).

4.5   *Audit review.*   Audit has recently reviewed the Government's implementation of the initiatives mentioned in paragraph 4.4 above.   The audit findings are in paragraphs 4.6 to 4.71 below.

The Community Electronic Trading Service

4.6   *Background.*   In December 1992, the Government entered into an agreement with Tradelink (Note 10) requiring Tradelink to develop and provide a Community Electronic Trading Service (CETS) in Hong Kong.   The CETS was expected to lay the foundation for the widespread use of e-business techniques such as electronic data interchange (EDI — Note 11) within Hong Kong's business community to improve efficiency and competitiveness.   The Government granted Tradelink the exclusive right to handle certain electronic trade transactions of the Government for a period of seven years, starting from the date when Tradelink launched a commercial service.   As Tradelink's commercial phase started on 1 January 1997, its exclusive right would end on 31 December 2003.

4.7   *Front-end services provided by Tradelink.*   At present, traders are obliged to use the CETS for submitting four types of key trade documents (see Table 2 below) to the Government. As part of the exclusive services, the computer system at Tradelink receives the data, confirms the identity of the trader, validates the data, charges the account of the trader for the relevant fees and levies, and then transmits the data to the back-end computer systems of the relevant government departments for further processing.   Tradelink also provides customer services such as hotline enquiry and on-site service call to support these front-end services.

4.8   *Charges by Tradelink.*   For the front-end services, Audit estimated that traders collectively have to pay Tradelink transaction charges of about $255 million a year for submitting trade documents.   Table 2 below shows the total charges for the different types of trade document.

Note 10: *Tradelink is a consortium formed by a group of prominent private sector organisations in 1988 for the following purposes: (a) to help Hong Kong maintain its international competitiveness through the use of e-business; and (b) to jump start Hong Kong's adoption of e-business.   At present, it is 42.5% owned by the Government.*

Note 11: *Before the Internet became popular, EDI was one of the e-business techniques used for computer-to-computer communications, between different computer environments.   Data to be transferred have to be structured according to international standards (i.e. the United Nations rules for Electronic Data Interchange for Administration, Commerce and Transport).*

Table 2

**Estimated total transaction charges paid by traders in a year
for front-end services provided by Tradelink**

Trade document	Estimated number of trade documents	Transaction charge per document (Note)	Total charges
	(a)	**(b)**	**(a) x (b)**
	(million)	**($)**	**($ million)**
(a) Restrained Textile Export Licence	0.5	75.0	**37.5**
(b) Trade Declaration	16.0	12.9	**206.4**
(c) Production Notification	0.4	16.1	**6.4**
(d) Certificate of Origin	0.3	15.0	**4.5**
Total			**254.8**
			(say $255 million)

Source: Records of the Commerce and Industry Bureau and the Trade and Industry Department

Note: The transaction charges are quoted from Tradelink's price list effective from 1 January 2001.

4.9   ***Request for extension of the franchise turned down.*** In September 1999, Tradelink submitted an application to the Commerce and Industry Bureau (CIB) seeking a five-year extension of its franchise to the end of 2008. In May 2000, the CIB advised Tradelink that the Government could not accede to the five-year extension because this would go against the Government's general policy of fostering increased market competition.

4.10   ***Future development of the CETS.*** In the light of developments in Internet technology and e-business, the CIB has been studying various options for the future development of the CETS, having regard to the expiry of the Tradelink's franchise in 2003. In October 2000, the CIB concluded that:

(a)   it was no longer necessary for the Government to implement the original plan for the development of the CETS (i.e. to introduce a community-wide EDI service through the setting up of a community gateway);

(b)   the Government should engage two or three service providers to deliver those front-end services upon the expiry of Tradelink's franchise on 31 December 2003; and

(c)   the Government should engage Tradelink, subject to negotiations, as a service provider after 2003, while in parallel appointing other service providers.

4.11   The CIB requested the ITSD to assess the required enhancements to the back-end systems of the relevant government departments, in order to cope with multiple service providers in future.

Audit observations on the CETS

4.12   ***The need to introduce competition.***   Audit notes that the CETS was implemented with the objective of developing a community gateway. By interacting with traders electronically on the submission of millions of key trade documents each year, the CETS has contributed to the promotion of IT and e-business awareness in Hong Kong. Audit also notes that the CIB has concluded that it is no longer necessary for the Government to implement the original plan for the development of the CETS. **Audit considers that the advancement of technology has opened up new opportunities for the services to be provided more economically, and that the introduction of competition will give users more choices and drive down prices.**

4.13   ***The need for careful forward planning.***   Audit notes that, since early 2000, the CIB has been taking action to address issues concerning the future of the CETS. Audit also notes that many tasks have yet to be accomplished before competition can be successfully introduced. These tasks include, for example, enhancing the back-end systems and processes, consulting the trading community, seeking policy clearance with the Executive Council (ExCo), making legislative amendments, drawing up tender documents and conducting tender exercises. Many of these tasks are complex and time-consuming. Furthermore, there are issues (e.g. how to deal with Tradelink's assets upon the expiry of franchise) that have to be resolved with Tradelink, and that negotiations on such issues could take a long time. **In Audit's view, careful forward planning and close monitoring are crucial to ensure that competition is introduced successfully, and that the provision of essential services will not be disrupted upon the expiry of the Tradelink's franchise.** In response to Audit's enquiries in January 2001, the CIB informed Audit that it had already drawn up a rough timetable in mid-2000 for the various tasks necessary to introduce additional service providers by 2004. According to the CIB's estimate, a lead time of 29 months beginning from the date of obtaining ExCo's policy approval would be needed to complete those tasks. The CIB also informed Audit that it had been working according to this timetable.

Audit recommendations on the CETS

4.14   **Audit has *recommended* that the Secretary for Commerce and Industry should:**

(a)   **take early action to draw up a definite action plan to ensure that, upon the expiry of the Tradelink's franchise, competition is introduced successfully and the provision of essential services will not be disrupted (see paragraph 4.13 above);**

(b)   **closely monitor progress against the action plan to avoid possible slippage (see paragraph 4.13 above); and**

(c)   **consult the ITBB in the formulation and execution of the action plan, in order to draw on the ITBB's expertise and experience in developing e-business initiatives.**

Response from the Administration

4.15   The **Secretary for Commerce and Industry** agrees with the audit recommendations mentioned in paragraph 4.14 above. He has said that:

(a)   regarding the rough timetable mentioned in paragraph 4.13 above, the CIB has now firmed up that timetable by setting out in greater detail the time-critical actions together with the associated timelines. The CIB will update the action plan from time to time and use it as a basis for progress monitoring; and

(b)   the CIB has also been drawing on the expertise of the ITBB and the ITSD in formulating and executing the action plan.

Information dissemination through the Government's homepages

4.16   *Background.* The Home Affairs Bureau (HAB), with the assistance of the Information Services Department (ISD), is responsible for promoting the use of the Internet for the dissemination of government information. In August 1997, the ISD issued to B/Ds a set of Guidelines for Setting Up Homepages. The ISD also established an Internet Resource Centre to assist B/Ds in setting up homepages. By April 1999, all B/Ds had set up bilingual homepages. In September 1999, the HAB formed an inter-departmental committee, with representatives from the HAB, ITBB, ISD, ITSD and Business and Services Promotion Unit (BSPU), to monitor B/Ds' adherence to the Guidelines and to keep the Guidelines under review.

4.17   *Usage.* The use of government Websites has increased rapidly. According to statistics compiled by the ITSD, there were more than 30 million hits in November 2000, which doubled the hit count of about 15 million in April 1999.

4.18   *Monitoring mechanism.* To ensure that all government homepages are up to the standards promulgated in the Guidelines, the ISD is tasked to peruse each government homepage in detail at least once a year and to report the results of its monitoring work to the inter-departmental committee once every two months. In December 1999, the HAB advised all B/Ds that they should also review their own homepages in accordance with a standard checklist twice a year.

4.19　　*User surveys.*　Up to December 2000, the ISD had conducted three online surveys to collect users' views on government homepages.　The latest survey, conducted in mid-2000, revealed that users were generally satisfied with the government homepages.　The survey also revealed that using the government homepages "as a means to communicate with the Government" was the least satisfactory aspect, on which 30% of the respondents gave a below average rating.　A number of respondents had also expressed concerns about the slow downloading speed.

4.20　　*Internet information dissemination guidelines.*　According to the latest Guidelines on Dissemination of Information issued by the HAB in November 2000, government homepages should be designed to provide the relevant information in an efficient and effective manner, and in a format that encourages access by the local and international communities.　In disseminating information through homepages, B/Ds should follow the following guidelines:

(a)　　*Client-centric design.*　Homepages should be developed with clear objectives in mind, based on the information needs of the target audience (i.e. a client-centric design).　With more client-centric homepages, topic-based client-centric portal sites can be set up.　This will enable Internet users to obtain comprehensive government information without having to know the Government's organisational structure;

(b)　　*Homepages as routine media for disseminating information.*　Government information should be accessible by a wide spectrum of local or overseas audiences in the shortest possible time with minimal efforts; and

(c)　　*Strengthening the interactive elements.*　An interactive homepage should be a client-centric site that allows visitors to find out easily the particular piece of information they need, instead of having to read through the static information provided.

4.21　　*Future plan.*　In the 2000 Policy Address, the Government announced its plan to revamp all government homepages by the end of 2002.　This is to facilitate access by people with disabilities and people with less powerful computers.

**Audit observations on information
dissemination through government homepages**

4.22　　*Continued improvement efforts.*　**Audit welcomes the joint efforts of the HAB and other B/Ds to keep on improving government homepages in accordance with the Guidelines on Dissemination of Information.**　In this regard, Audit notes that there are areas which warrant the HAB's attention, as shown in paragraphs 4.23 to 4.26 below.

4.23　　*Comparison of the time required for downloading government homepages and the homepages of 10 large listed companies.*　As mentioned in paragraph 4.19 above, the ISD survey conducted in mid-2000 revealed concerns about the slow downloading speed.　In January 2001, Audit conducted an exercise to measure the time required for downloading the front-pages of

95 government homepages, and compared it with the time required for downloading those of 10 large listed companies in the private sector (Note 12). Table 3 below shows the results.

Table 3

**Average time required for downloading the front-pages of
government homepages and those of 10 large listed companies**

Access mode	Government homepages	Private sector homepages	Difference
	(a)	(b)	(a) – (b)
	(seconds)	(seconds)	(seconds)
Narrowband (56K modem — Note)	33	27	6
Broadband	5	5	Nil

Source: Audit's study

Note: *The Office of Telecommunications Authority recently commissioned a consultancy study on the "Review of Forecast of Traffic Volume and Provision of Capacity to Meet Traffic Demand of Telecommunications Networks and Services in Hong Kong". In the consultancy report, which was issued in January 2001, the consultant estimated that the usage of narrowband networks for Internet access would amount to 17 billion minutes in 2001, 15 billion minutes in 2003 and 8 billion minutes in 2005. In other words, the usage of narrowband networks would still be significant in the near future.*

4.24 ***Time required for downloading different government homepages.*** In January 2001, Audit also compared the time required for downloading the front-pages of different government homepages by using a 56K modem. The results indicate that the time required varied significantly between different government homepages, ranging from less than 10 seconds to more than 100 seconds. Details are shown in Figure 1 below.

Note 12: *The time was calculated from data collected by 10 investigators who accessed the front-pages of 95 government homepages and those of 10 large listed companies. Each investigator visited the front-page according to a pre-determined schedule (which included morning, afternoon and night sessions) and recorded the time required for downloading all the contents of the front-page. To ensure that the recorded data were comparable, each set of data was obtained using the same computing configuration including hardware, modem speed, operating system and browser type.*

Figure 1

**Time required for downloading the front-pages of
different government homepages using 56K modem in January 2001**

Government homepages (Note)
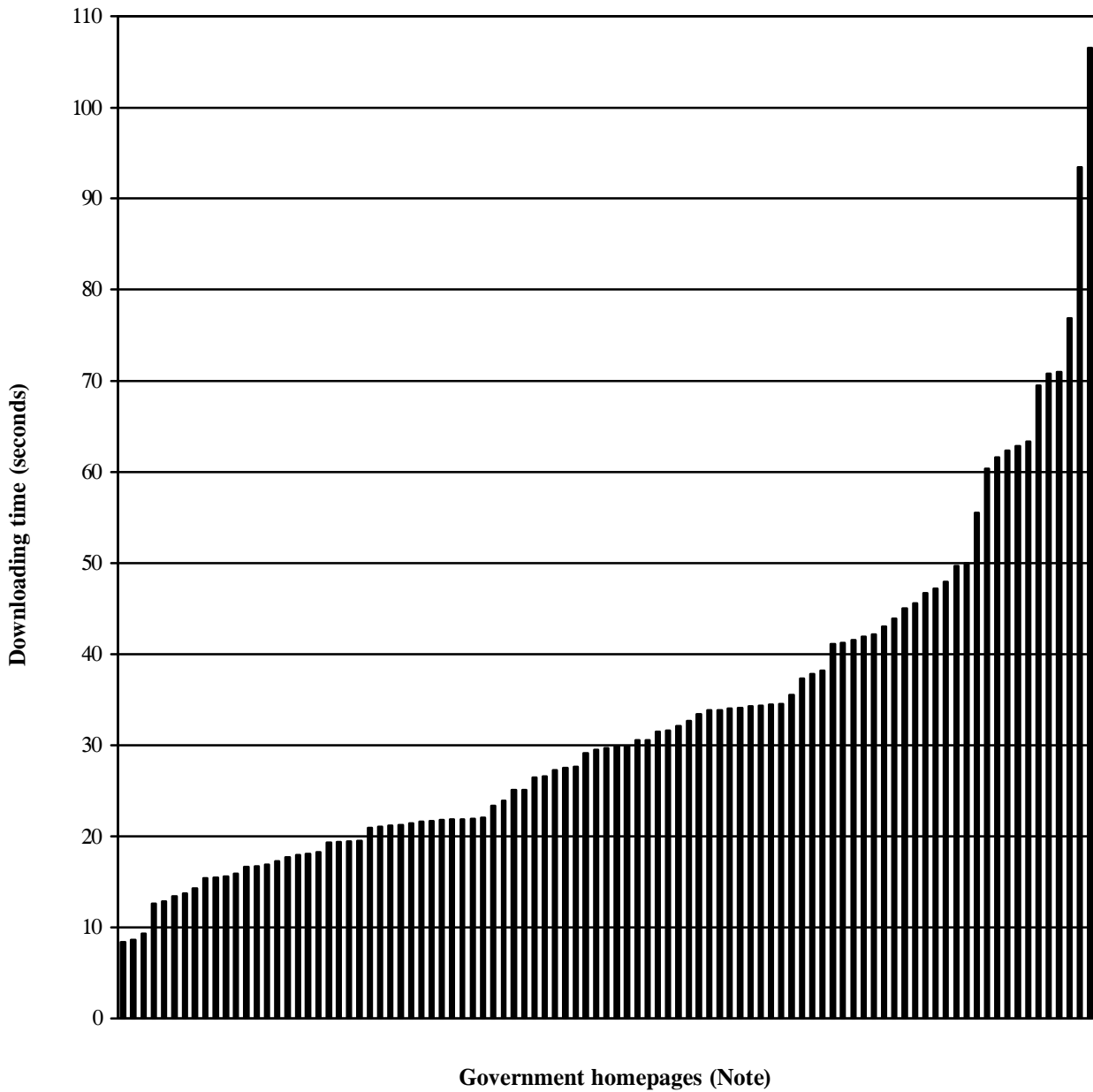
Source: *Audit's survey*

Note: *The above figure shows the time required for downloading the front-pages of the 95 different government homepages in January 2001 which ranged from less than 10 to more than 100 seconds.*

4.25   *The need to reduce downloading time.* The above audit study revealed that the average time required for downloading the front-pages of government homepages using a 56K modem compared less favourably with that for the 10 selected listed companies. The study also revealed that the time required for downloading some government homepages was much longer than that for others. This indicates that there is scope for improvement. Audit notes that homepage designers are expected to strike a proper balance between the presentation of a homepage and the time required to download it. Given a hit count of more than 30 million a month on government homepages, even a small reduction in the time required can save a considerable amount of users' time. **Audit considers it worthwhile for the HAB to examine whether, in the light of the above audit findings, there is a need to reduce the time required to download homepages. This can be achieved, for example, by eliminating unnecessary graphics in a homepage and upgrading the Web servers. It is also worthwhile for the HAB to consider setting guidelines on downloading time for B/Ds to follow.**

4.26   *Homepages as a means to communicate with the Government.* **The ISD's survey in mid-2000 revealed that using the government homepages "as a means to communicate with the Government" was the least satisfactory aspect, on which 30% of the respondents gave a below average rating. Audit considers it worthwhile for the HAB to explore ways and means with B/Ds to improve this aspect in order to increase the use of government homepages as a means of communication.**

**Audit recommendations on information
dissemination through government homepages**

4.27   **Audit has *recommended* that the Secretary for Home Affairs, in conjunction with other B/Ds, should make continued efforts to improve the government homepages to provide users with relevant information in an efficient and effective manner. In making these improvements, the Secretary should:**

(a)   **examine whether there is a need to reduce the time (e.g. by eliminating unnecessary graphics and upgrading the Web servers) for downloading government homepages (see paragraph 4.25 above);**

(b)   **consider setting guidelines on the time for downloading government homepages for B/Ds to follow (see paragraph 4.25 above); and**

(c)   **explore ways and means to improve government homepages so that they can be used more effectively for users to communicate with the Government (see paragraph 4.26 above).**

Response from the Administration

4.28   The **Secretary for Home Affairs** agrees with the audit recommendations mentioned in paragraph 4.27 above.

4.29   The **Secretary for Information Technology and Broadcasting** agrees that, in order to maximise user satisfaction, there should be a proper balance between the speed of downloading information and the richness in content (e.g. the amount of information provided, use of graphics and provision of multi-media effect) of the individual Web pages.

Phase 1 of the ESD Scheme

4.30   *Background.*   The ESD Scheme is a key initiative under the Government's Digital 21 IT Strategy.   According to a paper submitted to the Finance Committee (FC) of LegCo in December 1998, the ITBB planned to enter into a contract with a private sector operator to establish the ESD information infrastructure with the operator's own investment.   Within the Government, the ITBB would set up an appropriate interface between the ESD infrastructure and government departments/agencies which would use the ESD system for providing services.   To implement the first phase of the ESD Scheme, the FC approved in December 1998 a financial commitment of $123 million to meet the Government's capital costs for setting up its own systems to tie in with the project.

4.31   *Aims of the ESD Scheme.*   Through the ESD Scheme, the Government aims:

(a)   to deliver high quality public services to the community in an innovative manner;

(b)   to improve the efficiency and reduce the cost of delivery of public services; and

(c)   to foster the development of e-business in Hong Kong.

4.32   *Benefits of the Scheme.*   According to the December 1998 FC paper, the Scheme aims to provide alternative and better quality services to the public and the Government will not, at least at the initial stage, reduce existing services delivered through the conventional form.   Therefore, the ITBB does not anticipate that substantial savings can be derived immediately from the Scheme. **However, the ITBB anticipates that there will be significant savings in the longer run through streamlining service delivery and the avoidance of cost.**   This is because participating departments will be able to meet increased service demand through the Scheme, instead of through an increase in resources for providing the conventional form of counter services.   The ITBB undertakes to review the Scheme within three years after its implementation and, in the review,

take its impact into account, to ensure optimal deployment of resources. The ITBB has also assured the FC that the Government will make the fullest possible use of the Scheme to achieve productivity gains in the departments concerned.

4.33   *ESD transaction volumes.*   According to the December 1998 FC paper, the ITBB estimated that there would be 800,000 transactions in 2000-01 on the basis that Phase 1 of the Scheme would be implemented in the latter half of 2000 (Note 13). The transaction volume would increase to 2 million in 2001-02, and to 2.5 million in 2002-03 as the community becomes more familiar with the operation of the Scheme.

4.34   *ESD contract.*   In November 1999, the ITBB awarded the ESD contract to a private sector operator (ESD service operator) to develop the ESD information infrastructure. Under the contract, the ESD service operator would provide the ESD infrastructure to deliver government services to the community for five years. At the option of the Government, the contract could be extended for two more years on the same terms. The ESD service operator would derive its revenue by charging the Government on the basis of usage of the ESD system (Note 14). According to the December 1998 FC paper, with the Government meeting the transaction fees payable to the ESD service operator, the public would not have to pay more for using ESD services. This would encourage the public to use the Scheme for obtaining public services, thus creating opportunities for reducing the existing provision of services in the conventional form. The Government would review the Scheme within three years after its implementation to assess whether the above arrangement for meeting the payment of ESD transaction fees should be modified.

4.35   *Services under the ESD Scheme.*   Phase 1 of the ESD Scheme began operation on 9 December 2000.   The public can obtain over 60 types of online services from over 20 government departments and public agencies through different delivery channels (see Appendix C). The Scheme operates 24 hours a day and seven days a week. Examples of services include filing of tax returns, voter registration, and renewal of driving and vehicle licences. Under the Scheme, the public can obtain one-stop-shop electronic services through different delivery channels, such as personal computers at home, in the office or other public places with Internet connection.

Note 13: *It was estimated that the total number of ESD transactions in 2000-01 on a full year basis would be 1.8 million.   This was based on the ESD take-up rates estimated by the participating departments and organisations.*

Note 14: *For online services provided by the ESD Scheme, the ESD service operator will charge the Government a flat monthly fee of $0.4 million (irrespective of the number of transactions handled) and an additional $5.5 per chargeable transaction.   These charges are payable five years after the commencement of the ESD contract period, or one year after the cumulative number of chargeable transactions reaches 2.3 million, whichever is the earlier. Chargeable transactions refer to those transactions which require processing by the ESD service operator. Transactions which do not require processing by the operator (e.g. information search and transactions hyperlinked directly to other government Websites) are non-chargeable.*

4.36   *Future plan.*   In the 2000 Policy Address, the Government announced its plan to implement additional ESD applications in order to provide more government services online.

Audit observations on Phase 1 of the ESD Scheme

4.37   *Public receptiveness.*   The ESD Scheme is a key initiative under the Government's Digital 21 IT Strategy.   The success of the ESD Scheme depends very much on the public's confidence in, and receptiveness to, e-transactions.   In this connection, Audit notes that the public's response to the HKP's CA service, which has been in operation for almost a year, has not been very encouraging (see paragraph 3.6 above).   This may be indicative of a lack of public receptiveness to e-transactions.   **In order to make the ESD Scheme a success, Audit considers that vigorous and continued efforts are needed to enhance the public awareness of the Scheme and to promote its use.   It is also necessary for the ITBB to closely monitor the transaction volume in order to assess the public's receptiveness to the Scheme.**

4.38   *Savings and productivity gains.*   As mentioned in paragraph 4.32 above, the ITBB anticipates that there will be significant savings to the Government in the longer run through streamlining service delivery.   **Given that more than 20 departments and public agencies are participating in the Scheme and more are expected to follow, Audit considers it necessary for the ITBB to set up a mechanism to effectively coordinate and monitor their efforts to achieve savings and productivity gains.   It is also necessary for the ITBB to consider setting target dates for reporting the achievements to the FC.**

Audit recommendations on Phase 1 of the ESD Scheme

4.39   **Audit has *recommended* that the Secretary for Information Technology and Broadcasting should, in conjunction with the relevant B/Ds:**

(a)   **make vigorous and continued efforts to enhance the public's awareness of the ESD Scheme and to promote its use (see paragraph 4.37 above);**

(b)   **closely monitor the transaction volume in order to assess the public's receptiveness to the Scheme (see paragraph 4.37 above);**

(c)   **set up a mechanism to effectively coordinate and monitor the efforts of the participating departments and public agencies to achieve savings and productivity gains through streamlining service delivery (see paragraph 4.38 above); and**

(d)   **consider setting target dates for reporting achievements of the Scheme to the FC (see paragraph 4.38 above).**

Response from the Administration

4.40 The **Secretary for Information Technology and Broadcasting** has accepted the audit recommendations mentioned in paragraph 4.39 above. She has said that:

(a) in the funding submission to the FC, the ITBB has committed to reviewing the ESD Scheme within three years after its implementation; and

(b) the ITBB will report back to LegCo, through the appropriate LegCo panel, after the review has been completed.

The Electronic Tendering System

4.41 *Background.* The Electronic Tendering System (ETS), a Web-based computer system developed by a contractor at a cost of $3.86 million, was launched in April 2000 for handling the Government Supplies Department's tenders with a value of below $10 million. The ETS is the first government-to-business (G2B) e-business application.

4.42 *Services to suppliers.* The Government Supplies Department's contractor maintains and operates the ETS for an annual fee of $600,000 paid by the Government. The contractor also charges users of the ETS (i.e. the Government Supplies Department's suppliers) a subscription of $800 for a full year's service. Infrequent users are charged on a transaction basis. In return, companies that wish to do business with the Government Supplies Department (GSD) can use secure electronic means to register as GSD suppliers, receive notification of tenders, download tender documents, raise queries and receive replies, submit their tender offers and receive notification of award of contract.

4.43 *Paper-based tender system continues.* The existing paper-based tender system continues to operate for the time being, providing suppliers with a choice of using manual or electronic procedures.

4.44 *ETS subscriber take-up rates.* According to the specifications for the development of the ETS, the GSD expected a subscriber take-up rate (i.e. the number of GSD registered suppliers who would subscribe to the ETS, as a percentage of the total number of GSD registered suppliers) of 14% in the first year of operation, rising to 33% in the fifth year. As at early February 2001 (i.e. ten months after the ETS was launched), the number of ETS subscribers reported by the contractor was 1,065, representing 21% of the 5,065 GSD registered suppliers. Of these

subscribers, 715 were active ETS users (Note 15), representing 14% of the GSD registered suppliers.

4.45   ***Tenders issued through the ETS.***   During the ten-month period from April 2000 to early February 2001, the GSD issued a total of 866 tender invitations (with an estimated value of $1,075 million) through the ETS and suppliers downloaded a total of 5,266 tender documents. **For the same period, the GSD received a total of 1,019 tenders through the ETS (Note 16), representing 6.6% of the total 15,526 tenders submitted by suppliers.**

4.46   ***Audit survey.***   In December 2000, Audit conducted a survey to collect the views of ETS subscribers on the use of the ETS (Note 17). The survey results are as follows:

    (a)   ***User satisfaction.***   39% of the respondents indicated that they were satisfied with the overall performance of the ETS. 19% indicated that they were not satisfied. 42% either gave a neutral opinion, or indicated that they did not know because they had not used the ETS;

    (b)   ***Comparison with the traditional tendering process.***   46% of the respondents indicated that the ETS was better than the traditional tendering process. 19% indicated that the ETS was not better. 35% gave a neutral opinion; and

    (c)   ***Major difficulties encountered.***   The two major difficulties encountered in using the ETS were "the procedure for downloading tender documents is cumbersome" and "the procedure for submitting offers is cumbersome".

4.47   ***The risk of using i-Cert.***   Under the ETS, users are required to use a digital certificate, known as i-Cert, for authentication purposes. **Following the enactment of the ETO in January 2000, the ETS contractor advised the GSD in February 2000 that i-Cert was not a recognised digital certificate under the ETO. In March 2000, the D of J advised the GSD**

Note 15: *Active ETS users refer to those ETS subscribers who have activated their accounts with the GSD (through a "log-on" procedure) with a view to enjoying the ETS benefits.*

Note 16: *The fact that ETS subscribers had, through the ETS, downloaded 5,266 tender documents and submitted 1,019 tenders indicated that some subscribers used the ETS to receive tender documents promptly but preferred to submit their tenders by the traditional method.*

Note 17: *Audit issued 400 questionnaires to ETS subscribers. The samples were randomly chosen out of 512 ETS subscribers. Audit received 59 returns, representing a response rate of 14.8% which was a satisfactory response rate for a survey of this nature.*

that, without the recognised certificate, the electronically produced signature (i.e. i-Cert) of the signer would not have the recognition given under section 6 of the ETO. In April 2000, the GSD considered that the risk of repudiation by tenderers would exist until the ETS was supported by an e-Cert. In response to Audit's enquiries in December 2000, GSD officers informed Audit that they were taking action to address the issue. According to the latest plan, the ETS would be enhanced in July 2001 to enable e-Cert, which is a recognised certificate under the ETO, to be used.

Audit observations on the ETS

4.48 *The need to promote the use of ETS.* Audit notes that, for the ten-month period ending early February 2001, only 6.6% of the tenders were submitted to the GSD electronically through the ETS. **This means that there is scope for increasing the use of the ETS.** Audit's survey of the ETS subscribers indicated that, while 39% of the respondents were satisfied with the overall performance of ETS, 19% of them said that they were not satisfied. Audit's survey also indicated that users considered that the cumbersome procedures for downloading tender documents and for submitting tender offers were the major difficulties in using the ETS. **Audit considers that vigorous and continued efforts are needed to promote the use of the ETS. To increase the level of user satisfaction, there is also a need to help users overcome their difficulties in using the ETS.**

4.49 *The risk of using i-Cert.* Audit notes with concern that users of the ETS have to use i-Cert, which is not a recognised certificate under the ETO, for authentication purposes. Audit also notes that the GSD is planning to enhance the ETS in July 2001 to enable e-Cert to be used. **Audit considers it necessary for the GSD to examine whether there is a need to accelerate the planned ETS enhancement programme. It is also necessary for the GSD to closely monitor the progress of enhancing the ETS, so as to ensure a timely and smooth transition from i-Cert to e-Cert.**

Audit recommendations on the ETS

4.50 **Audit has *recommended* that the Director of Government Supplies should:**

(a) **make vigorous and continued efforts to promote the use of the ETS (see paragraph 4.48 above);**

(b) **in order to increase the level of user satisfaction, explore ways and means to help users overcome their difficulties in using the ETS (see paragraph 4.48 above);**

(c) **examine whether there is a need to accelerate the planned ETS enhancement programme (see paragraph 4.49 above); and**

(d) **closely monitor the progress of enhancing the ETS, so as to ensure a smooth transition from i-Cert to e-Cert as soon as possible (see paragraph 4.49 above)**.

Response from the Administration

4.51   The **Secretary for the Treasury** and the **Director of Government Supplies** have accepted the audit recommendations mentioned in paragraph 4.50 above.   The Director of Government Supplies has said that:

The need to promote the use of ETS

(a)   in recent months, the number of subscriptions and the uses made of the ETS have been building up satisfactorily.   Both the GSD and the contractor have taken measures to promote awareness of the ETS, including the distribution of promotional leaflets, holding of seminars, participation in IT exhibitions and visits to several leading suppliers.   These meetings have also proved useful in gauging suppliers' views on the ETS, in particular on features that need to be improved.   In response to concerns raised about the user-friendliness of the ETS, the contractor has agreed to make various improvements (e.g. providing an extended log-on time);

(b)   part of the purpose of the ETS is to identify new sources of supply.   In this regard, it should be noted that 208 of the 715 active ETS users (as at February 2001) were not registered suppliers at the time they first made use of the ETS.   The GSD encourages ETS users (who are not GSD registered suppliers) to register as GSD suppliers.   Partly as a result of this, the number of companies on the registered supplier list has increased. As at early February 2001, the number stood at 5,065;

The risk of using i-Cert

(c)   the GSD is making arrangements with the contractor for the early introduction of the e-Cert to the ETS.   However, as the e-Cert is only issued by the HKP to companies whose authorised representative has submitted an application in person, the GSD would wish to continue to accept other forms of certification that may be more convenient for overseas companies.   For this reason, it is intended that the i-Cert should continue to be available even after the e-Cert has been introduced; and

(d)   in order to overcome the concerns about the recognition of the i-Cert for tenders submitted through the ETS, it has been the GSD's practice, after taking legal advice, to issue to a successful tenderer a request to acknowledge receipt (together with the letter of acceptance).   There has not been any repudiation of the offers submitted through the ETS.

Government's purchasing card programme

4.52 ***Background.*** Purchasing cards (Note 18) have good potential for supporting e-procurement. By integrating with other e-business initiatives, such as e-marketplace and e-catalogue (Note 19) which are now under study by the GSD, purchasing cards have the potential of enhancing significantly the efficiency and effectiveness of the Government's procurement activities.

4.53 ***Pilot scheme.*** In January 1997, the Standing Committee on Financial Management (SCFM), chaired by the Secretary for the Treasury, approved a scheme to test the use of purchasing cards for low-value government purchases. Seven departments participated in the pilot scheme. In January 1998, the GSD reported that the transaction figures among the seven departments were low. Nevertheless, the GSD considered that the use of purchasing cards had enabled participating departments to achieve the intended benefits of reducing the staff time and administrative costs involved in handling low-value purchases.

4.54 ***Extended pilot scheme.*** To further test the use of purchasing cards, the SCFM decided to extend the pilot scheme. The extended pilot scheme ran from June 1998 to May 1999. Three more departments joined the scheme, making up a total of 10 participating departments. In April 1999, the GSD produced a cost comparison between the traditional purchasing method and the card purchasing method, as follows:

(a) for cash purchases (up to $1,000 locally and $5,000 overseas), there was **an average cost reduction of $35 (35% of the handling cost) per transaction** by using purchasing cards;

(b) for direct departmental purchases and service orders (up to $20,000), and purchases using the GSD bulk contracts, there was **an average cost reduction of $158 (53% of the handling cost) per transaction** by using purchasing cards; and

(c) the cost savings would far outweigh the fees payable by the Government to the bank which issued the purchasing cards.

Note 18: *A purchasing card, similar to a credit card, serves as a convenient means of effecting low-value transactions. It replaces the traditional purchase order and payment processes while reducing administration cost and turnaround time.*

Note 19: *E-marketplace refers to the conduct of procurement activities electronically on the Internet where departments can display their requirements and identify likely suppliers and obtain quotations from them. E-catalogue refers to a quotation system whereby purchasers inspect the offers posted on different electronic catalogues and select the one that best suits their needs and has the most favourable terms.*

4.55   *Full implementation.* In April 1999, the SCFM agreed to adopt purchasing cards as a normal method of effecting low-value transactions.   In March 2000, the FB issued Financial Circular No. 3/2000 to announce the implementation of the purchasing card programme.   The Stores and Procurement Regulations were amended to the effect that stores and services not exceeding $50,000 should be made through purchasing cards unless the Controlling Officer has authorised in writing otherwise.   The purchasing card programme was implemented in all B/Ds by three phases, with the final phase completed in May 2000.

4.56   *Guidelines on use of purchasing cards.* B/Ds are obliged to follow a set of guidelines on the use of purchasing cards. **According to the guidelines, Controlling Officers should ensure that purchasing cards are adopted as the norm for effecting low-value purchases.** They may consider granting blanket approvals for not using purchasing cards within their B/Ds under the following circumstances:

(a)   the goods or services are to be provided by a sole supplier who does not accept card payment;

(b)   minor purchases with a value not exceeding $300 and the suppliers do not accept card payment; or

(c)   it is the norm in the trade/industry for providers of the required goods or services not to accept card payment.

4.57   *Possible improvement measures.* In a survey conducted by Audit in December 2000, Audit asked B/Ds on possible measures that could increase the utilisation of purchasing cards. According to their responses, B/Ds considered that the following measures could improve utilisation, in order of priority:

(a)   online purchase;

(b)   increasing the limit of the value of purchase for using purchasing cards;

(c)   increasing the number of suppliers who would accept purchasing cards; and

(d)   lowering the bank's transaction charges on suppliers.

4.58   *GSD's comments on possible improvement measures.*   In response to Audit's enquiries on the possible improvement measures suggested by B/Ds, the GSD gave the following comments in February 2001:

(a)   *Online purchase.*   This was already available if the supplier accepted payment by credit card and had facilities for e-business;

(b)   *Purchase limit.*   The purchase limit for using purchasing cards was $50,000 per transaction.   However, B/Ds were required to set the maximum spending limit per transaction for individual cardholders with reference to their respective purchasing requirements.   It was the responsibility of the designated officers in B/Ds to vary these limits when required;

(c)   *Increasing the number of suppliers.*   The GSD had held regular meetings with the card issuing bank to monitor the progress of recruiting suppliers.   The bank, upon completion of an extensive supplier recruitment exercise in December 2000, agreed to continue the recruitment drive through various means, including direct mailing and sales calls.   In addition, the bank agreed that priority would be given to those suppliers considered by B/Ds as top priority; and

(d)   *Lowering bank charges.*   In order to improve the success rate of the supplier recruitment exercise, the bank would offer a more flexible discount to suppliers on the top priority list.   In this regard, the GSD had identified seven major departments so that the bank would liaise with them to target specific suppliers.

Audit observations on the purchasing card programme

4.59   *Utilisation level of purchasing cards.*   From the GSD's records, Audit notes that for the five months from September 2000 to January 2001 (Note 20), B/Ds together had used purchasing cards in some 13,000 purchase transactions, with a total value of $55 million.   **This represents**

Note 20:   *Audit notes that, for the 10-month period from April 2000 to January 2001, B/Ds together had used purchasing cards in 19,400 transactions, with a total value of about $73 million.   Audit selected the five most recent months (i.e. September 2000 to January 2001) for calculating the percentage of transactions (and value) using purchasing cards.   Earlier months (i.e. April 2000 to August 2000) were not selected because, given the lead time needed by some B/Ds for setting up and preparation work, the utilisation level in those months might not be representative of the normal utilisation level later.*

12% of the number of transactions (and 9% of the value) of the total low-value purchases for those months (Note 21).

4.60   *The need to increase the use of purchasing cards.*   Using purchasing cards is intended to be the norm for low-value purchases.   Therefore, the fact that only 12% of such purchases were made by purchasing cards is a cause for concern.   **To ensure success of the programme, Audit considers it necessary for the GSD to closely monitor the utilisation, ascertain the reasons for the low utilisation and, where necessary, take action to ensure that B/Ds use purchasing cards as the normal means of effecting low-value purchases.   It is also necessary for the GSD to make positive and continued efforts to improve the effectiveness of the purchasing card programme.**

Audit recommendations on the purchasing card programme

4.61   **To ensure success of the purchasing card programme, Audit has *recommended* that the Director of Government Supplies should:**

(a)   **closely monitor the utilisation (both on a whole-of-government basis and on individual B/D basis) of purchasing cards and ascertain the reasons for the low utilisation (see paragraph 4.60 above);**

(b)   **where necessary, take action to ensure that B/Ds use purchasing cards as the normal means of effecting low-value purchases (see paragraph 4.60 above); and**

(c)   **make positive and continued efforts to improve the effectiveness of the purchasing card programme, taking into account B/Ds' views on possible improvement measures (see paragraph 4.57 above).**

Note 21:   *According to statistics collected by the GSD, the Government's total expenditure for purchase of goods and services below $50,000 per order for 1999-2000 was $1,430 million, with a total of 259,000 transactions.   On the assumption that purchases were evenly made throughout the year, the total low-value purchases for five months would be 108,000 in number of transactions, and $596 million in value.   On this basis, Audit estimates that the 13,000 card purchases, with $55 million in value, for September 2000 to January 2001, would represent about 12% (13,000 over 108,000 transactions) in number of transactions and about 9% ($55 million over $596 million) in value of the total low-value purchases.*

Response from the Administration

4.62   The **Director of Government Supplies** has accepted the audit recommendations mentioned in paragraph 4.61 above. He has said that:

(a)   there has been a steady growth in the number of purchasing cards issued, which stood at 1,295 as at 31 January 2001. The usage of purchasing cards has also increased and, for the period April 2000 to January 2001, there were 19,400 transactions with $73 million in value (see Note 20 to paragraph 4.59 above); and

(b)   the GSD has been making concerted efforts both to encourage greater use of the cards within the civil service and to gain greater acceptance of card payments among suppliers. A further review of the scheme will be put to the SCFM shortly.

Logistics service provided by HKP for e-business

4.63   *Background.*   To support e-business, the HKP launched a logistics service in January 2000. The aim of the service is to provide HKP's customers with "seamless and one-stop integrated services" for their businesses. The logistics service, which involves supply chain management, includes:

(a)   the collection of goods from suppliers;

(b)   the warehousing and inventory management of goods;

(c)   the receipt of orders by electronic means from merchants;

(d)   the picking up and packaging of goods;

(e)   the delivery of goods;

(f)   the return of defective goods to suppliers; and

(g)   providing inventory and delivery status reports.

4.64   ***Setting up and recurrent costs.***   The setting up cost of the logistics service was $1.73 million, which was incurred in the development of a new computer system.   The recurrent costs of computer hardware maintenance, software licences and application maintenance are about $132,000 a year.   According to the internal justification papers of October 1999, at the initial stage, the HKP would not require any additional staff because it could redeploy its existing staff resources to take up the work.

4.65   ***Estimated business volume.***   To justify the provision of the logistics service, in October 1999 the HKP estimated that it could earn revenue of some $2.7 million for 2000-01, rising to $3.3 million a year for 2003-04 and onwards.

4.66   ***Low business volume.***   As it turned out, up to December 2000 (i.e. after almost one year's operation), the HKP had received only one order involving about 70 deliveries.   In terms of revenue, the HKP had only earned $2,000 from the provision of the logistics service, representing less than 1% of the estimated annual revenue.

4.67   ***Reasons for the low business volume.***   In March 2000 (i.e. two months after the logistics service was launched), the HKP conducted a market survey of some 20 potential customers.   The survey result indicated that there were two major reasons for the low business volume, as follows:

(a)   the prices charged by the HKP were considered to be high.   Other existing logistics service providers could offer similar delivery services at prices lower than those of the HKP; and

(b)   customers often requested the delivery of oversized or perishable commodities (e.g. food).   The HKP generally lacked the necessary equipment and resources to cope with these special requirements.   The HKP would either decline the orders or increase the prices in order to cope with such requirements, making the HKP's prices even less competitive.

Audit observations on HKP's logistics service

4.68   Audit notes that, for the 11 months up to December 2000, the business volume of the HKP logistics service had fallen far short of expectations.   **This could be due to a lack of competitiveness of the HKP's service, compared with similar service providers in the private sector.**

Audit recommendations on HKP's logistics service

4.69   **Audit has *recommended* that the Postmaster General should:**

(a)   **critically reassess the business viability of the HKP's logistics service to determine whether or not the HKP should continue to provide the service (see paragraph 4.68 above); and**

(b)   **if it is decided to continue with the service, critically review the HKP's pricing and marketing strategy to ensure that the service is viable and competitive (see paragraph 4.68 above).**

Response from the Administration

4.70   The **Postmaster General** has accepted the audit recommendations mentioned in paragraph 4.69 above. He has said that:

General

(a)   e-business could pose a threat to the traditional postal business. In the face of this threat, the HKP intends to turn it into an opportunity, by providing a wide range of services that answer customers' demands for outsourcing part of their supply chains. Similar strategies have been adopted by a growing number of postal administrations nowadays;

Setting up cost and recurrent costs

(b)   the HKP is fully aware of the risks involved in venturing into a new area. It has acted prudently by drawing from existing resources as far as possible, thus minimising the amount of initial investment. However, being a new service, the logistics service cannot be supported by the HKP's computer systems. Therefore, a new system was developed at a cost of $1.73 million;

(c)   the HKP is equally prudent in incurring recurrent costs. The recurrent costs on computer hardware maintenance, software licences and application maintenance amount to about $132,000 a year. Apart from this amount, all other recurrent costs arising from the logistics service are notional costs that have been absorbed by the existing in-house IT team;

The HKP's sales efforts

(d)   in promoting the logistics service, the HKP has been able to bring about new business opportunities, and has successfully acquired some additional customers who require only collection and delivery service instead of the full range logistics service. However, the revenue generated from the service provided to them is not classified as revenue from the logistics service. Regarding other customers who have been successfully recruited, the business volume generated for the logistics service so far has not been encouraging. The Hong Kong market needs more time to appreciate this new mode of trading;

Prospect of the logistics service

(e)   although e-business has been growing at a slower pace than expected, it is growing steadily and will eventually take up a significant proportion of the total retail sales. With an efficient and extensive domestic and international delivery network, the HKP is well placed to capture a share of the logistics market;

(f)   the HKP has made a conscious business decision to continue with the logistics service. The decision is based on the recovery of recurrent costs incurred in maintaining the service, rather than the capital cost of the new computer system which is a "sunk cost". In view of the huge growth potential in this area, and the minimal recurrent costs, the HKP firmly believes that the service should continue and that a longer-term view should be taken in concluding the success or failure of the service. The HKP accepts the audit recommendation to critically reassess the business viability of the logistics service. This will be done at a later stage, say, in 2002; and

Regular reviews of marketing strategy

(g)   the marketing strategy is regularly reviewed by a high-level committee of the HKP. This committee examines the price, cost-effectiveness, market positioning and service quality of the logistics service, so as to ensure that the service is viable and competitive. The HKP will closely monitor the development of the market and will collect relevant information in order to strengthen its competitiveness. The HKP will also continue to conduct regular reviews to enhance its position to meet customers' changing needs.

4.71   The **Secretary for Economic Services** has also accepted the audit recommendations, mentioned in paragraph 4.69 above, on the logistics service provided by the HKP.

PART 5:   THE ITBB'S STRATEGY FOR DEVELOPING E-GOVERNMENT

5.1   This PART examines the ITBB's strategy for developing e-government.

The strategy for e-government

5.2   In November 2000, the ITBB presented a paper outlining the strategy for developing e-government for discussion by the IIAC (see paragraph 1.5 and Note 4 to paragraph 2.2 above). According to the paper, building on the achievements that have so far been made, the strategy for developing an e-government consists of the following main components:

   (a)   ***Securing top management commitment.***   The ITBB will seek the commitment of all heads of B/Ds to support the e-government policy, adopt IT as an integral part of their business planning, and drive e-government initiatives under their own portfolio;

   (b)   ***Enhancing IT infrastructure and implementing IT management practices.***   The ITBB will continue to enhance the Government's internal IT infrastructure and implement proper IT management practices to support the wider adoption of e-transactions.   This will help build a solid and robust information infrastructure within the Government for the adoption of various types of IT applications and e-transactions;

   (c)   ***Enhancing training and culture management.***   There is a need to better equip civil servants with IT knowledge and to strengthen their readiness in the use of IT.   This includes organising high-level seminars in which overseas experts will be invited to share their experience, workshops to explain the importance and benefits of e-government and IT training courses for civil servants at all levels; and

   (d)   ***Implementing e-government projects.***   E-government projects should include projects that provide online services to the public, and inter-departmental and intra-departmental e-transaction projects.   The ESD Scheme will continue to provide the central portal for the delivery of online public services to the community.   The Government will implement additional applications under the ESD Scheme.   The Government will also convert government forms commonly used by the public into the electronic format, so that the public can complete the forms electronically, sign them digitally and submit them through the Internet.   A list of possible additional e-government projects is at Appendix D.

Implementation mechanism

5.3   According to the ITBB paper, the ITBB will set up an effective monitoring and implementation mechanism for taking forward e-government initiatives at two levels, namely, the steering level and the project level:

(a) **Steering Committee.** At the steering level, a Steering Committee, to be chaired by the Secretary for Information Technology and Broadcasting (and consisting of members from the ITSD, Efficiency Unit, Management Services Agency and the BSPU), will be set up to steer and monitor the implementation of e-government initiatives and projects; and

(b) **Project committee.** At the project level, a project committee will be established for each major e-government project to oversee the detailed implementation. The project committee will be chaired by a senior officer from the lead bureau (or department) and should report to the Steering Committee on a regular basis.

General audit observations on the strategy for the development of e-government

5.4 *General audit observations.* Audit supports the ITBB's e-government strategy (see paragraph 5.2 above). Audit also supports the ITBB's proposal to establish a two-tier monitoring mechanism (see paragraph 5.3 above). These are essential elements for ensuring the successful development of e-government.

5.5 *Areas for attention.* However, Audit notes that there are specific areas which warrant the ITBB's attention and further efforts. These specific areas are:

(a) the need for setting a target (see paragraphs 5.6 and 5.7 below);

(b) IT planning for the delivery of e-government services at the B/D level (see paragraphs 5.8 to 5.10 below);

(c) the need to identify customers' needs for the delivery of e-government services (see paragraphs 5.11 to 5.13 below); and

(d) IT security (see paragraphs 5.14 to 5.19 below).

The need for setting a target

5.6 From the ITBB's records, Audit notes that the ITBB was examining the need for setting a target for the full implementation of e-government and, in particular, whether or not all government services with a public interface should become e-based within a pre-determined timeframe. In this connection, Audit's research indicates that the governments of those countries leading in this field have set targets for implementing e-government. Examples are shown in Table 4 below.

Table 4

**Targets set by governments of some
countries for implementing e-government**

Country	Target
USA	To provide public access to government services and documents by 2003. To provide the public with an option to submit forms electronically
Australia	To have all appropriate Federal Government services capable of being delivered electronically available via the Internet by 2001
Canada	To have all key government services fully online by 2004
Singapore	Where feasible, to have all counter services available electronically by 2001
UK	To have 100% of government services carried out electronically by 2005

*Source: "Information Age Government: Benchmarking Electronic Service
Delivery", a report by the Central IT Unit in the Cabinet Office of the UK
Government (July 2000)*

Audit observations on the need for setting a target

5.7   **In Audit's view, in considering the need for setting a target for the full
implementation of e-government in Hong Kong, it is necessary for the ITBB to take into
account the practices of those countries leading in this field.**

**IT planning for the delivery of
e-government services at the B/D level**

5.8   In an audit survey conducted in December 2000, Audit asked government departments
whether they had conducted IT planning for the delivery of e-government services. From their
response, Audit noted that of the 62 government departments providing direct services to the
public:

(a)   37 departments (60%) had conducted such IT planning;

(b)   13 departments (21%) were at various stages of conducting such IT planning; and

(c)   12 departments (19%) had not conducted such IT planning.

5.9   "Low priority issue" and "lack of IT expertise" were given by the 12 departments, mentioned in paragraph 5.8(c) above, as their main reasons for not conducting such IT planning.

**Audit observations on B/Ds' IT planning
for the delivery of e-government services**

5.10   Audit considers that effective IT planning by B/Ds will facilitate the identification of appropriate projects for e-government. It will also provide useful input to help the ITBB and the Steering Committee (see paragraph 5.3(a) above) determine priorities for project implementation. **Vigorous and continued efforts by the ITBB/ITSD are needed to help B/Ds (in particular those without sufficient IT expertise) conduct IT planning.**

**The need to identify customers' needs
for the delivery of e-government services**

5.11   Audit's research indicates that the governments of some countries, which are well prepared for e-government activities, actively seek the views of customers and respond to their demands. For example, some governments have conducted, department by department, comprehensive surveys and focus group meetings in order to ask the public what types of electronic services they would like to have. This provides useful input for the governments to determine the feasibility of providing e-government services and set priorities.

5.12   In the audit survey conducted in December 2000, Audit asked B/Ds whether, in the past 12 months, they had conducted any surveys (including any customer consultation through, say, Client Liaison Groups) to identify customers' needs for the delivery of e-government services. From their response, Audit noted that, of the 62 government departments providing direct services to the public:

(a)   only 10 departments (16%) had conducted such surveys; and

(b)   52 departments (84%) had not conducted such surveys.

**Audit observations on the need to identify
customers' needs for the delivery of e-government services**

5.13   The survey results in paragraph 5.12 above indicate that not many departments have recently conducted surveys of customers' needs for the delivery of e-government services. **Audit considers it necessary for the ITBB to draw B/Ds' attention to the need to conduct customer surveys. Audit also considers it necessary for the ITBB to coordinate, where appropriate, the B/Ds' efforts in this regard.** This will provide useful input for e-government planning. This will also help minimise the risk of spending time, effort and money on e-government services which may be underutilised.

IT security

5.14   ***Importance of IT security.*** E-government will only succeed if all its participants (including government B/Ds, private businesses and individual citizens) have confidence in using electronic means to carry out private or sensitive transactions. This means that, with the progressive implementation of more e-government initiatives, IT security in B/Ds will become more important.

5.15   ***IT security measures.*** From time to time, the ITSD issues guidelines to B/Ds on IT security matters. The ITSD adopts the following approach to address concerns about possible hacking and other forms of security intrusion into the government computer networks. The ITSD:

(a)   promulgates IT security policy and associated guidelines for adoption by B/Ds;

(b)   installs firewalls, anti-virus software, intrusion detection systems and other security mechanisms to monitor, detect and block suspected attacks on computer networks;

(c)   makes use of automated tools to continuously monitor and control all incoming network traffic; and

(d)   supports B/Ds in conducting periodic security assessments and audits of computer network systems to verify and improve the security level of the systems.

5.16   ***IT security policy and related guidelines.*** In February 2000, the ITSD issued a document called the "Baseline IT Security Policy and related guidelines" to B/Ds. This document defines the basic and minimum IT security policy that all B/Ds are required to observe and follow. B/Ds were advised to further develop their own internal IT security policy and guidelines to meet their specific requirements as soon as possible.

5.17   *IT security audits.* In May 2000, the ITSD issued another document on IT security risk assessment and audit model to help users manage the IT risk assessment and audit process. According to this document, B/Ds are encouraged to perform security audits of their IT systems periodically, after major changes and prior to implementation. For critical computer information systems, they must be periodically evaluated by auditors of an independent and trusted party to determine the minimum set of controls required to reduce the risk to an acceptable level.

5.18   *Recent development.* In late 2000, the ITBB/ITSD established an Information Security Management Committee and an IT Security Working Group (ITSWG) to oversee information security within the Government.   In December 2000, the ITSD started a survey to collect information about B/Ds' security arrangements.   The ITSD indicated that the ITSWG would conduct such surveys periodically.

Audit observations on IT security

5.19   Audit notes that IT security in B/Ds is becoming more important with the progressive implementation of e-government initiatives. Audit also notes that some B/Ds need more technical support and guidance in performing the IT security tasks (e.g. IT security audits) referred to in the ITSD's guidelines. **Audit considers that there is a need for the ITBB/ITSD to make vigorous and continued efforts to provide B/Ds with the necessary technical support and guidance.**

Audit recommendations on the
strategy for developing e-government

5.20   **Audit has *recommended* that the Secretary for Information Technology and Broadcasting, in conjunction with the Director of Information Technology Services, should:**

   (a)   **in considering the need for setting a target for the full implementation of e-government in Hong Kong, take due account of the practices of those countries which are leading in this field (see paragraph 5.7 above);**

   (b)   **make vigorous and continued efforts to help B/Ds conduct their IT planning, in particular those B/Ds without sufficient IT expertise (see paragraph 5.10 above);**

   (c)   **draw B/Ds' attention to the need to conduct customer surveys to ascertain customers' needs for e-government services (see paragraph 5.13 above);**

   (d)   **where appropriate, coordinate the B/Ds' efforts in conducting customers' surveys (see paragraph 5.13 above); and**

(e)   **in order to help B/Ds perform their IT security tasks, make vigorous and continued efforts to provide them with the necessary technical support and guidance (see paragraph 5.19 above).**

Response from the Administration

5.21   The **Secretary for Information Technology and Broadcasting** has accepted the audit recommendations mentioned in paragraph 5.20 above. She has said that:

(a)   *The need for setting a target.* The ITBB will take into account the practices of other places which are advanced in developing e-government, in order to draw up its own e-government targets for services with a public interface;

(b)   *B/Ds' IT planning for the delivery of e-government services.* The ITBB has encouraged B/Ds to plan their IT requirements in a systematic and strategic manner and to draw up departmental IT plans. If B/Ds do not have the in-house resources, they can apply for funding under Head 710 Computerisation (Block Vote) of the Capital Works Reserve Fund for hiring external services. The Director of Information Technology Services has also written personally to the heads of some large departments with high IT potential, urging them to formulate departmental IT plans and offering them technical assistance. The ITSD has also helped B/Ds in their IT planning through a variety of channels (Note 22);

(c)   *Identifying customers' needs.* The ITBB will ask B/Ds to conduct customer surveys on the delivery of e-government services; and

(d)   *IT Security.* The ITBB/ITSD will make continued efforts to provide B/Ds with the necessary technical support and guidance to help them perform their IT security tasks.

Note 22:   *The ITSD has cited the following examples of providing assistance to B/Ds in their IT planning: (a) the ITSD participates in B/Ds' departmental and project-related IT steering committees to provide input in IT management and technical issues; and (b) the ITSD has also put in place user-oriented forums, including the IT User Group and the Chief Information Officer Forum, to advise B/Ds on IT planning.*

PART 6: GOVERNMENT'S EFFORTS TO MEET COMMON CHALLENGES ASSOCIATED WITH THE GROWTH OF E-BUSINESS

6.1   This PART examines the Government's efforts to meet common challenges associated with the growth of e-business.

Common challenges to governments

6.2   Business transactions via the Internet pose new challenges for governments. General business risks such as fraud, theft, corruption of data and destruction of assets, and the related legal issues, are exacerbated by the openness nature of the Internet. Audit's research indicates that, with the growth of e-business, other governments are facing challenges in a variety of issues. Major issues that have to be addressed include trade and tariff, taxation, intellectual property protection, security, law enforcement against Internet crimes, and privacy and consumer protection. Paragraph 1 of Appendix E gives more information about these challenges.

Government's efforts to meet the common challenges

6.3   Hong Kong is facing similar challenges and the Government has been taking actions to address them. As the subject of e-business is a global issue, the Government has actively participated in the deliberations of various international forums, such as the World Trade Organisation (WTO), the Asia Pacific Economic Co-operation (APEC) and the Organisation for Economic Co-operation and Development (OECD), to keep in close touch with the global e-business development. In June 2000, the ITBB conducted a self-assessment of Hong Kong's readiness in developing e-business by using the APEC E-commerce Readiness Assessment Guide (Note 23). The assessment result has shown that Hong Kong is generally well positioned for developing e-business. Paragraph 2 of Appendix E shows some salient examples of the actions taken by the Government to address the common challenges mentioned in paragraph 6.2 above.

Audit observations on Government's efforts to meet the common challenges

6.4   Audit notes that the ITBB and relevant B/Ds (e.g. the Inland Revenue Department, the Intellectual Property Department, the Customs and Excise Department, and the Police) are aware of the risks and challenges posed by the growth of e-business. They have also been keeping

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Note 23:   *The APEC E-commerce Readiness Assessment Guide is a self-assessment tool that can be used by economies, cities or communities to assess their readiness to participate in the digital economy. The assessment results can help governments identify necessary actions to improve their e-business environment.*

abreast of international developments and are making efforts along the same lines to address the challenges. Audit supports their actions.

6.5 **As technology and the e-business environment continue to develop and change rapidly, Audit considers it necessary for the ITBB and relevant B/Ds to make vigorous and continued efforts to keep abreast of international developments, maintain close contact with the relevant authorities abroad and be well prepared for the challenges ahead.**

Audit recommendations on Government's efforts to meet the common challenges

6.6 **Audit has *recommended* that the Secretary for Information Technology and Broadcasting, in conjunction with the B/Ds concerned, should:**

(a) **make vigorous and continued efforts to address the common challenges (such as taxation, intellectual property protection, security and Internet crimes) associated with e-business and, in particular, to liaise closely with the relevant authorities abroad so as to keep abreast of international developments;**

(b) **closely monitor the progress of the ITBB and relevant B/Ds to identify common challenges and to ascertain appropriate measures for coping with such challenges; and**

(c) **keep the IIAC (see Note 4 to paragraph 2.2 above) informed of the progress of the Government's efforts to meet the common challenges and seek its advice on a regular basis.**

Response from the Administration

6.7 The **Secretary for Information Technology and Broadcasting** has accepted the audit recommendations mentioned in paragraph 6.6 above.

**Examples of actions taken by the ITBB and the HKP
to promote the use of digital certificates and e-Cert services**

        The ITBB/HKP has been taking various actions to promote the use of digital certificates and e-Cert (Note 1) services. Such actions include:

(a)   *Organising of seminars and IT promotional activities.* The ITBB, in collaboration with trade support organisations (such as the Trade Development Council and the Hong Kong Productivity Council), has organised seminars on PKI and digital certificates. The HKP has actively participated in such local IT expositions and seminars. In addition, the ITBB has actively promoted the use of digital certificates through various IT promotional activities (such as the annual Information Infrastructure Exposition). The HKP has also conducted seminars at local universities to promote the PKI concept and e-Cert service to university students. The ITBB has also produced publicity materials for broadcast on television and in radio, and have them posted on its Website for public information. It has also produced CD-ROMs on PKI and digital certificates for distribution to the public. In early 2000, the HKP set up an e-Cert Gallery and a promotion and support counter to promote e-transactions security and e-Cert services. The HKP has also been cooperating with an IT security solutions manufacturer in providing PKI technical training to IT professionals to facilitate the use of the technology for developing PKI applications in Hong Kong;

(b)   *Launching of Websenger services.* In May 2000, the HKP launched the Websenger service jointly with a telecommunications company. This was Hong Kong's first e-Cert enabled application. It provided a secure transmission service for critical and time-sensitive information online;

(c)   *Cross-border recognition.* In September 2000, the HKP signed Memoranda of Understanding (MOUs) with three overseas CAs on the establishment of cross-recognition arrangements. Such MOUs provide the framework of cooperation for exploring the establishment of a reliable and seamless cross-border certification system. The HKP is also in discussion with other CAs in Asia and Mainland China for establishing cross-certification arrangements;

Note 1:   *The HKP CA issues four types of e-Certs, namely e-Cert(Personal), e-Cert(Organisational), e-Cert(Encipherment) and e-Cert(Server).*

(d)   *International development.* The HKP joined the Advanced Electronic Services Group of the Universal Postal Union in March 1998 and is serving as one of the five elected members in the Policy Management Authority for managing the establishment of a Global Postal Trust Service framework.   These facilitate the development of cross-border certification and electronic services between postal CAs;

(e)   *Service enhancements to improve the user-friendliness of e-Cert.*   The HKP has implemented various service enhancements to improve the user-friendliness of e-Cert. For example, in September 2000, the HKP provided its e-Cert subscribers with an option to request the HKP to generate the key pairs for them and, in addition to the e-Cert software that could only be used in Netscape browser, released a new version of the e-Cert software for both Netscape and Microsoft Internet Explorer browsers.   In order to make the application for e-Certs more convenient, since December 2000 the HKP has waived the requirement of producing an applicant's proof of address (for e-Cert(Personal)) or an organisation's Resolution of the Board of Directors (approving the submission of the application) for applications of the other three types of e-Cert. In January 2001, the HKP launched an on-site registration service to facilitate the public to access the e-Cert service;

(f)   *Use of e-Cert for stock trading activities.*   As at December 2000, the Stock Exchange of Hong Kong was carrying out pilot testing of using e-Cert to support its Internet stock trading system;

(g)   *Use of e-Cert in banking applications.*   The HKP was holding discussions with a number of banks on the use of e-Cert in banking applications.   The HKP planned to launch more services with banks in 2001;

(h)   *Use of e-Cert in the ESD Scheme.*   Phase 1 of the Government's ESD Scheme, which began operation on 9 December 2000, used e-Cert in some of its applications to authenticate the identity of users.   The HKP also offered free smart cards (embedded with e-Certs) to e-Cert subscribers to support the use of ESD services.   A total of over 4,000 such smart cards were issued;

(i)   *Use of mobile certificates on mobile devices.*   The HKP was cooperating with a mobile operator on the development of a type of digital certificate (known as m-Cert) for use by mobile phones. In addition, the HKP was actively holding discussions with a number of mobile operators in Hong Kong for the development of m-Certs to support

secure wireless transactions through mobile devices.   In December 2000 and January 2001, the HKP signed two separate MOUs with two leading PKI vendors respectively to introduce new PKI technologies to Hong Kong for the development of mobile CA services;

(j) *Business and school visits.* Since December 2000, the HKP has organised a sales team to visit business organisations to promote e-Cert services and to conduct on-site registration for e-Cert subscribers.   Over 1,200 e-Cert applications have been registered.   The ITBB has also been working jointly with the Education Department, the ITSD and the Consumer Council to visit secondary schools to promote the importance of information security and the use of PKI technology and digital certificates;

(k) *Certificate validation service.*   As at February 2001, the HKP was working for the launch of a certificate validation service in Hong Kong.   The validation service would provide commercial users with a high performance certificate status validation service for their online PKI applications; and

(l) *Other specific challenges facing the HKP.*   The HKP is exploring ways and means to overcome various specific challenges, such as:

— the requirements for face-to-face authentication and for producing Hong Kong Identity Cards in the applications for e-Cert(Personal), which have hindered the issue of e-Certs(Personal) to overseas traders;

— e-Certs issued are English-based and the current system cannot support Chinese characters;

— currently the e-Certs are valid for one year only and, upon renewal each year, users are issued with new digital certificates and another set of digital keys; and

— the small quantity of e-Certs issued rendered it costly to produce e-Certs on smart cards.

Government's IT infrastructure

B/Ds are now interconnected through the **Government Network (GNET)** via a broadband, wide-area communication backbone.   Through the **Government Communication Network (GCN)**, B/Ds are equipped with e-mail facilities for communicating electronically within the Government.   The e-mail facilities have been under continuous expansion.   Implementation of the Confidential Mail Programme will be completed by 2002.   To cater for further expansion, the capacity of both GNET and GCN will be more than doubled in the financial year 2001-02.

2.   The **Central Cyber Government Office (CCGO)**, which was launched in August 2000, is a central portal in the Government Intranet.   The CCGO serves as a Webcasting station, an information centre and a transaction centre for all B/Ds.   Eighty-five B/Ds have been connected to the CCGO so far.

3.   The **Central Internet Gateway (CIG)**, which was implemented in March 2000, enables B/Ds to disseminate information, communicate and transact businesses with the public through the Internet through a secure and centrally managed gateway.   The CIG currently supports 56 B/Ds. To cater for anticipated demand, the capacity of the CIG will be expanded in 2001-02 to cope with 24,000 users.

4.   Over the years, B/Ds have modernised their operation with the use of IT.   Computer systems and networks have been developed to meet their business needs.   The **Government Office Automation (GOA)** programme provides office automation facilities to B/Ds as well as connection to the Internet and the Government-wide Intranet. The programme will be further extended to cover more officers in the next 2-3 years.   As at September 2000, almost 80,000 personal computers were installed within the Government.   Of these, about 20% have access to the Internet and 35% are equipped with Internet e-mail accounts.

List of ESD services

Name of B/D or public agency	Services provided (Note)
Civil Service Bureau	— Government vacancies *
Economic Services Bureau - Travel Agents Registry	— Search for licensed travel agent *
Education and Manpower Bureau	— Continuing education *
Education Department	— Hong Kong Education City Net *
Electrical and Mechanical Services Department	— Search for registered electrical contractors and workers *
Government Supplies Department	— Electronic tendering *
Highways Department	— Online reporting of road damage or defect *
Hong Kong Observatory	— Weather forecast *
Hongkong Post	— Postage rates and services * — SpeedPost * — Local Courierpost * — Mail tracing * — Hongkong Post shopping mall * — Hongkong Post e-Cert *
Hong Kong Tourist Association	— Tourist information lookup — "Hong Kong - City of Life"
Immigration Department	— Application for search and copy of birth/death/marriage certificate — Appointment booking for registration of identity card — Immigration information lookup — Notification of pre-mature termination of contracts of imported workers/foreign domestic helpers
Information Technology and Broadcasting Bureau	— Interactive Government Services Directory *

* refers to existing services provided at different government Websites and they are now hyperlinked to the ESD Website (www.esd.gov.hk).

Name of B/D or public agency	Services provided (Note)
Information Services Department	— Government publication order form * — Government Information Centre *
Inland Revenue Department	— Change of address — Filing of tax return — Purchase of Tax Reserve Certificates — Interactive tax enquiry — Application for business or branch registration certificate by sole proprietors — Business registration number enquiry and application for supply of information on the business register — Salary tax computation *
Innovation and Technology Commission	— Information on Technology Funding Schemes
Invest Hong Kong	— Interactive investment guide *
Labour Department	— Job search — Register job vacancies — Search for job applicants — Frequently asked questions (FAQ) on Employment Ordinance and Employees' Compensation Ordinance — Cyber Resource Centre for Business *
Lands Department	— Online map *
Leisure and Cultural Services Department	— Hong Kong public libraries * — Online ticketing services *
Mandatory Provident Fund Schemes Authority	— Mandatory Provident Fund Schemes Authority *
Marine Department	— Arrival and departures of ocean-going and river trade cargo vessels *
Rating and Valuation Department	— General enquiries (Rates and Government Rent) — Change of the personal particulars of Rates and/or Government Rent payers

refers to existing services provided at different government Websites and they are now hyperlinked to the ESD Website (www.esd.gov.hk).

Name of B/D or public agency	Services provided (Note)
Registration and Electoral Office	— Application for voter registration — Change of address of registered voters — General enquiry on electoral affairs
Social Welfare Department	— Application for Volunteer Schemes registration — Application for Senior Citizen Card — Application for Senior Citizen Card Scheme participation — Enquiry on approved charitable fund-raising activities — Social Welfare Department information look-up
Trade and Industry Department	— Business licence information service — Small and Medium Enterprise (SME) Information Centre
Transport Department	— Application for renewal of driving licence — Application for renewal of vehicle licence — Application for reservation of non-special registration mark for auction — Road test appointment booking for repeaters of driving tests — Application for certificate of particulars of vehicle — Vehicle annual examination appointment booking and re-scheduling — Change of address of driving licence and vehicle licence holders — Interactive road traffic information service
Treasury	— Payment of government bills *
Water Supplies Department	— WSD online services *

* refers to existing services provided at different government Websites and they are now hyperlinked to the ESD Website (www.esd.gov.hk).

Source: ITBB's records

Note: ESD services have been available through the Internet since 9 December 2000. Starting from January 2001, apart from the Internet, these services have also been made available through public information kiosks installed at locations like Mass Transit Railway stations, Kowloon Canton Railway stations, government offices, major shopping malls and supermarkets.

Possible additional e-government projects

The following are possible projects that have been identified by the ITBB for developing e-government:

(a)   e-procurement for government purchases;

(b)   pilot project to extend the existing SME Information Centre of the Trade and Industry Department from a one-stop information shop to a one-stop application shop that coordinates the receipt of applications for some licences which SMEs are required to have;

(c)   development of a community system to provide one-stop shop service on customs cargo clearance;

(d)   implementation of additional services under the ESD Scheme after launching of the first phase of the ESD services. These additional electronic services include:

—   booking of leisure and sports services;

—   advanced booking of the date of giving marriage notice;

—   online purchase of government publications;

—   enhancement of services in the application for business registration certificates; and

—   registration for sitting local/overseas examinations, sale of examination publications and provision of information about services on examinations;

(e)   electronic leave application, electronic submission on change of personal particulars, declaration of conflict of interest and investments for civil servants;

(f)   placing of printing orders with the Printing Department;

(g)   Web-based ordering of unallocated stores from the GSD by the user departments and public agencies;

(h)   online booking of Government Land Transport Agency vehicles; and

(i)   conference venue booking system.

Source: ITBB's records

Common challenges associated with the growth of e-business

Audit's research indicates that other governments are facing the following challenges with the growth of e-business:

(a) ***Trade and tariff.*** The emergence of e-business, as a new means of delivery of products and services, has blurred the distinction between goods and services. Some products which were traditionally classified as goods can now have their information/content transmitted electronically. Typical examples include software and video/audio products. This raises the question of whether the existing international trade rules on goods and services are applicable to trade through electronic means, especially when no physical products are transferred, and whether new rules are needed. It is difficult to administer tariffs for goods and services delivered through the Internet because these goods and services cross national boundaries in electronic form;

(b) ***Taxation.*** E-business presents substantial challenges to tax authorities in enforcing the entitlement to impose tax, and in determining the jurisdiction entitled to impose it. E-business increases the potential for tax avoidance and evasion because e-transactions are more easily based in benign tax environments and are more difficult to trace than traditional paper-based transactions. As regards a government's entitlement to tax, it is necessary to determine the jurisdiction in which a cross-border transaction is effected;

(c) ***Intellectual property protection and enforcement.*** Some intellectual properties, like inventions, have to be registered in order to receive legal protection. Maintaining a robust intellectual property regime on the Internet is a great challenge to governments because copying or modifying a piece of work has become much easier and cheaper, and is more difficult to detect. Other improper acts on the Internet may include theft, fraud, hacking of confidential data, pornography, criminal conspiracy, and copyright infringement on a commercial scale. All major forms of intellectual property, namely patents, trade marks and copyright, can be infringed through the Internet. Governments face the common challenges of preventing fraud and theft of intellectual property, and providing effective legal recourse when these crimes occur;

(d) ***Security.*** Security of transactions is a major consumer concern in conducting e-business. Issues like authentication, integrity, confidentiality, non-repudiation of electronic messages have to be addressed. The most common method of providing security and protecting e-transactions through open networks is based on a PKI using encryption, electronic signature and public/private key pairs. However, some countries have imposed export control on advanced encryption products;

(e) *Law enforcement against Internet crimes.* In investigating Internet crimes, governments may face a number of challenges that hinder law enforcement authorities' ability to find and prosecute the suspects involved. These include the cross-border nature of the criminal acts, the anonymity afforded to suspects by the Internet, the difficulty in adducing evidence and the willingness of victims to come forward. Some laws and legal tools that support investigations are still lagging behind technological changes;

(f) *Privacy and consumer protection.* The issue of privacy in e-business concerns more than only the security of personal data when the information is transmitted through the Internet. It relates also to the collection, storage and use of the data, the right of the individual to determine when, how and to what extent his personal information would be used and shared with others, and the rights to access and request for correction of the data concerned. The privacy issue and how to protect consumers' interests have to be adequately addressed in order to ensure trust and confidence of all users in carrying out e-transactions; and

(g) *Others.* Governments may also face challenges in other key aspects, such as the need for a clear legal framework, the need for setting up and maintaining an advanced, secure and reliable telecommunications infrastructure and the need for regulating the information on the Internet.

2.   The following are salient **examples** of the actions taken by the Government to address the common challenges mentioned in paragraph 1 above:

(a) *Trade and tariff (see paragraph 1(a) above).* The WTO has been examining various trade-related issues which involve e-business. Towards the end of 2000, it was considering the setting up of an ad hoc task force to look after e-business issues of a general and cross-cutting nature. Hong Kong has been participating in trade-related discussions at the subsidiary bodies of the WTO. As regards tariff, being a free trade port, Hong Kong does not levy any tariffs on imports. At the second Ministerial Conference of the WTO held in 1998, Ministers agreed on a temporary "standstill" arrangement whereby Members of the WTO would not impose customs duties on electronic transmissions (e-transmissions). In Hong Kong, the Government continues with the practice of not imposing customs duties on e-transmissions;

(b) ***Taxation (see paragraph 1(b) above).*** The Government considers that the current source-based taxation system is capable of taxing the profits of e-business transactions that arise in Hong Kong. In line with the approach taken by many countries, the Inland Revenue Department (IRD) maintains the principle of neutrality to tax e-business transactions. In December 1998, the IRD established an E-Commerce Working Group to study the impact of e-business on Hong Kong's tax system. To monitor the developments, the Working Group has been collecting and studying the views and researches on the taxation of e-business of other countries and international organisations such as the OECD. Dialogues have been maintained with tax practitioners and e-business related agencies. To gain further knowledge and experience, IRD officers attended conferences organised by international bodies (such as the OECD and the Study Group of Asia on Tax Administration and Research) and seminars held by local professional bodies. Since April 2000, the IRD has been collecting information from businesses by requiring them to declare, in their profits tax returns, whether they have used the Internet to accept orders for goods and services. There is also an ongoing surveillance work for business registration certificates of Hong Kong registered commercial Websites, so as to ensure that tax is collected where it is due;

(c) ***Intellectual property protection and enforcement (see paragraph 1(c) above).*** The Copyright Ordinance (Cap. 528), which came into force in June 1997, sought to incorporate the international consensus as enshrined in the twin "Internet Treaties" concluded in December 1996 under the auspices of the World Intellectual Property Organisation (WIPO). The Intellectual Property Department (IPD) has been participating in the deliberations of various issues concerning the protection of intellectual properties associated with the use of the Internet at the WIPO expert-level meetings. In addition, the IPD has invited tenders for the development of a Web-enabled environment for the registration of intellectual property rights. To combat the infringement of intellectual property rights on the Internet, the Customs and Excise Department (C&ED) has taken actions to strengthen its enforcement capabilities and to keep abreast of international development on ways to tackle the problem. In December 1999, the C&ED established an anti-Internet piracy team to tackle the Internet piracy problem. In October 2000, the C&ED further set up a computer forensic laboratory to provide computer forensic services to officers regarding identification, preservation, analysis and presentation of digital evidence. There are plans to expand the laboratory;

(d) ***Security (see paragraph 1(d) above).*** The Government has established a PKI in Hong Kong (see also PART 3 of the Report). To promote the community's awareness of information security, several departments such as the ITSD and the Police have, in collaboration with industry and trade organisations, organised seminars and exhibitions on computer security for the public. Furthermore, in line with the development abroad, the Government has approved funds for the setting up in early 2001 of a local computer

emergency response team in Hong Kong. This will provide a focal point for computer security incidents reporting and for responding to local enterprises and Internet users in network security incidents;

(e) ***Law enforcement against Internet crimes (see paragraph 1(e) above).*** Given the increasing globalisation of Hong Kong's commerce and financial services, coupled with a rapid advancement in IT, there is an imminent need to enhance the Government's ability to address both new forms of crimes and other usual forms of crimes using the computer as the medium. There was a nine-fold increase in the number of computer crimes in 1999 (compared with 1998) and a further 16% increase in 2000. Of the cases that occurred in 2000, only 23% were detected. To strengthen the Police's operational capability to deal with Internet crimes, the Police will expand its Computer Crime Section and will establish a computer forensic examination laboratory by early 2001. The D of J has also formed a Computer Crime Team for the prosecution of Internet crimes. In March 2000, the Security Bureau formed an inter-departmental working group to examine ways to strengthen the framework within which law enforcement against computer crimes could be effectively and efficiently carried out. In September 2000, the working group produced a comprehensive report with 57 recommendations. As at February 2001, the Security Bureau was consulting the public on the recommendations;

(f) ***Privacy and consumer protection (see paragraph 1(f) above).*** To assist individuals to protect their privacy interests when using the Internet, the Office of the Privacy Commissioner for Personal Data (PCO) has since 1998 issued a series of guidance booklets detailing the main risks and the protective actions that can be taken. Booklets have also been issued to give advice to organisations on how to provide appropriate protection for individuals' privacy in relation to personal data when they operate Websites and collect personal data online. In addition, the PCO conducted a sample survey of Hong Kong-based Websites in 1998 to assess the extent to which local Websites met the requirements of the Personal Data (Privacy) Ordinance (Cap. 486) and, where appropriate, follow-up actions were taken to advise the Website operators on improvements needed. The PCO has worked closely with the Hong Kong Society of Accountants (HKSA) for the launch of a WebTrust programme in Hong Kong (Note 1). The PCO has also worked with the Hong Kong Internet Service Providers Association

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Note 1:   *WebTrust is a global professional assurance standard for e-business best practice. The HKSA launched the WebTrust E-commerce Assurance Programme in Hong Kong in February 2001. The display of a WebTrust seal at a Website provides assurance to consumers of its compliance with a set of auditable principles and procedures which protect consumers' interests including data privacy.*

and the Office of the Telecommunications Authority on the development of an Anti-Spamming Code of Practice for the Internet service providers in Hong Kong. The purpose is to reduce the amount of spamming activities which are regarded by many as nuisance and privacy intrusive. With regard to consumer protection, the Consumer Council maintains a dialogue with various industries to promote the adoption of fair trade practices to meet the consumer needs in e-business. The Council also works with interested parties to facilitate the development of self-regulatory codes of practice to enhance consumer protection in the Internet environment. Furthermore, the Council advocates that effective and accessible redress mechanisms should be put in place in the electronic trading environment in order to inspire consumer confidence; and

(g) *Others (see paragraph 1(g) above).* The operation of the ETO (see PART 2 of the Report) has provided a legal framework to facilitate the conduct of e-business. Hong Kong has also built up an advanced telecommunications infrastructure. As at October 2000, practically all commercial buildings and 90% of the households could access broadband telecommunications networks. On the regulation of the contents of Websites, the Television and Entertainment Licensing Authority conducts checks on those Websites which are under complaint or are reported to contain obscene and indecent articles. Besides, the working group under the Security Bureau (see paragraph 2(e) above) has recommended relevant B/Ds to consider the feasibility of putting in place take-down procedures (i.e. procedures for removing suspected offending materials and sites) for the subjects of copyright protection, Internet gambling and pornographic materials.

Acronyms and abbreviations

APEC	Asia Pacific Economic Co-operation
B/Ds	Bureaux and departments
B2B	Business-to-business
B2C	Business-to-consumer
BSPU	Business and Services Promotion Unit
C&ED	Customs and Excise Department
CA	Certification authority
CCGO	Central Cyber Government Office
CETS	Community Electronic Trading Service
CIB	Commerce and Industry Bureau
CIG	Central Internet Gateway
D of J	Department of Justice
e-business	Electronic business
e-Cert	Digital certificate issued by the Hongkong Post
EDI	Electronic data interchange
e-government	e-business in the Government
e-records	Electronic records
ESD	Electronic Service Delivery
e-submissions	Electronic submissions
ETB	Electronic Transactions Bill

ETO	Electronic Transactions Ordinance
e-transaction	Electronic transaction
e-transmissions	Electronic transmissions
ETS	Electronic Tendering System
ExCo	Executive Council
FB	Finance Bureau
FC	Finance Committee
GCN	Government Communication Network
GNET	Government Network
GOA	Government Office Automation
G2B	Government-to-business
G2C	Government-to-citizen
G2G	Government-to-government
GSD	Government Supplies Department
HAB	Home Affairs Bureau
HKMA	Hong Kong Monetary Authority
HKSA	Hong Kong Society of Accountants
HKP	Hongkong Post
i-Cert	Digital certificate used in the ETS
IIAC	Information Infrastructure Advisory Committee
IPD	Intellectual Property Department

IRD	Inland Revenue Department
ISD	Information Services Department
IT	Information technology
ITBB	Information Technology and Broadcasting Bureau
ITSD	Information Technology Services Department
ITSWG	IT Security Working Group
LegCo	Legislative Council
LTO	Landlord and Tenant (Consolidation) Ordinance
m-Cert	Digital certificate for use on mobile devices
MOUs	Memoranda of Understanding
OECD	Organisation for Economic Co-operation and Development
PCO	Office of the Privacy Commissioner for Personal Data
PKI	Public key infrastructure
R&VD	Rating and Valuation Department
SCFM	Standing Committee on Financial Management
SME	Small and Medium Enterprise
UK	United Kingdom
USA	United States of America
WIPO	World Intellectual Property Organisation
WTO	World Trade Organisation