For discussion on
14 March 2005

**Legislative Council Panel
on Information Technology and Broadcasting**

E-government - The Next Wave of Development

PURPOSE

This paper briefs Members on the key elements of the next wave of e-government development and the progress of the on-going initiatives.

BACKGROUND

2.	Since the launch of the first phase of the e-government programme in 2001, the Government has put in place a secure and reliable infrastructure and provided an e-option for 90% (or 1,200 services) of the public services amenable to the electronic mode of delivery. In brief, the focus of the first phase of e-government was on "publishing information online" and "enabling e-transactions".

3.	Like other economies that are relatively mature in e-government development, Hong Kong needs to set new directions for and inject new impetus into its e-government programme so as to generate more visible and tangible value for our customers, the Government and the community at large. Our next wave of e-government will thus focus on "integrating and transforming e-services". This requires bureaux and departments (B/Ds) to move from a government-centric way to a "whole-of-government" and customer-oriented approach in providing e-services, so as to better meet the specific needs of different customer segments.

NEXT WAVE OF E-GOVERNMENT

A. Establishing empowered institutions

4.   Creating an empowered institution is the first step in implementing the next wave of e-government. On 1 July 2004, the Office of the Government Chief Information Officer (OGCIO) was established within the Commerce, Industry and Technology Bureau (CITB) by merging the IT-related divisions of the Communications and Technology Branch of CITB and the Information Technology Services Department. The OGCIO seeks to, among other things, provide more visible and proactive leadership for the Government to drive the development of e-government. The Government Chief Information Officer (GCIO) was recruited after a global search and has assumed duty on 1 February 2005.

5.   To provide sponsorship for the e-government programme at the most senior level, an E-government Steering Committee (EGSC) was set up in September 2004. Chaired by the Financial Secretary (FS), the EGSC steers the further development of the e-government programme and approves measures to facilitate the implementation of the programme. Since its establishment, the EGSC had considered and endorsed the vision, mission and key priorities of the next wave of e-government as well as provided policy steer for a number of new e-government initiatives, details of which will be elaborated in paragraphs 6-22 below.

B. Embracing a Common Vision

6.   Our vision for the next wave of e-government is to:

> *Use information technology to provide customer-centric services*
> *that promote an accessible, accountable and efficient government*
> *and contribute to Hong Kong's achievement as a leading digital city*

7.　　Specifically, our mission is to:

(a) ***Serve the community by -***

Providing integrated, one-stop and customer-centric e-services that deliver increased value and facilitate better access to public services;

(b) ***Transform the Government by -***

Business process re-engineering that improves service delivery, strengthens the value of customer orientation and enhances efficiency and productivity;

(c) ***Sustain Hong Kong as a leading digital city by -***

Promoting a more pervasive e-environment that raises the e-literacy of the community and driving the adoption of e-commerce and e-business.

8.　　On 14 January 2005, the FS wrote to all Bureau Secretaries, Permanent Secretaries and Heads of Department appealing to their personal support for the vision, mission and key priorities of the next wave of e-government development.　Further briefings will be held so as to cascade the vision-mission downwards to different levels of the government.　The next wave of e-government emphasizes the need to adopt a top-down approach in driving e-government initiatives.　Hence, top-level commitment from the heads of B/Ds to planning and implementing the e-government initiatives as well as initiating the necessary changes in the organization, culture business processes and internal resource allocation is of paramount importance.

C.　*Focusing on Key Priorities*

9.　　To fulfill the e-government vision and mission, we will focus our efforts on a number of key priorities under the next wave e-government development, including:

(a) New strategy for e-government services delivery

10.　　At present, about 1 200 public services are provided with an e-option.　About 200 of these e-services are being provided by or hyperlinked to the Electronic Service Delivery (ESD) portal launched in January 2001.　The ESD portal provides an integrated and one-stop platform for the public to interact and transact with the Government electronically.　Through a public-private sector partnership (PPP) approach, the ESD enables integration of e-government and e-commerce services into a single platform and the leverage on the private sector's expertise in developing and operating the platform.　It also enables sharing of investment and management risks with the private sector operator.

11.　　The current model of e-government service delivery, nonetheless, has its limitations.　First, apart from the 200 e-services provided by or hyperlinked to the ESD portal which are provided in a more user-friendly manner, the majority of the other 1,000 or so e-government services are being provided by B/Ds individually, primarily in a department-centric manner.　Secondly, the ESD is a "general-purpose" portal providing a wide range of e-services for a heterogeneous group of customers.　Such a model is not conducive to meeting the increasingly specific demands of the individual customer segments in a dedicated and customer-oriented manner.

12.　　In August 2003, we commissioned a consultancy to make recommendations on the future model for e-government service delivery. It is noted that the emerging global trend is to provide e-services based on a clustered approach centering around the needs of customer segments, and make better and more flexible use of the private sector's experience, expertise and resources to develop and provide e-services.　Taking into account these developments, the consultants recommended, inter alia, that the Government should consider adopting a new e-business strategy and technology infrastructure so as to enhance the services for the individual customer segments and boost the usage of the e-services.

13.　　We consider that our new e-business strategy should seek to achieve three overall objectives: first, to enhance the quality of

e-government services and boost their utilization through introducing customer segmentation and end-to-end processing. Second, to allow more private sector participation so that the Government can better leverage on their expertise and experience. Third, to promote the adoption of e-commerce and e-business in Hong Kong through closer integration of public and commercial e-services/transactions, thereby increasing the utility and convenience for the users.

14. Accordingly, the Government will adopt a **service clustering approach** for the future delivery of e-government services. Under this approach, related e-government services will be grouped into a number of clusters. In addition to e-government services, each cluster will provide, where appropriate, related commercial services so as to enhance the customer and commercial value of the cluster. To maximize the value to the customers, the service clusters will seek to provide services along the whole value chain (e.g. from application for travel documents to purchase of airline tickets and travel insurance) and adopt an end-to-end processing approach (e.g. from e-booking/e-submission to e-payment). In order that the public can continue to access e-government services in different clusters conveniently, we will consider setting up a **one-stop access portal** with linkages to various service clusters as the public interface.

15. As regards the technology infrastructure strategy, we will progressively evolve our technology architecture based on open and interoperable standards[1] that support easy interfacing within Government and with the private sector. Specifically, a **Service-Oriented Architecture**, a design principle that focuses on clearly defined interfaces according to business rules and that best supports diverging IT environments of different service agents, will be adopted to facilitate service agents to develop front-end applications and connect them to the back-end systems in Government. Furthermore, **common services** (e.g. e-payment gateway) required by e-government services using the infrastructure will be identified and provided to minimize duplication of

---

[1] The Government has put in place an Interoperability Framework which describes the document and interface standards it uses in electronic transactions and communication. The framework and the associated standards are reviewed periodically to keep abreast of industry developments and business requirements. The framework also facilitates the specification and selection of technologies and IT solutions that offer sufficiently wide choice. In this connection, open source software is considered on par with other proprietary solutions in terms of total cost of ownership, functionality and compatibility requirements.

resources in developing and providing such services. The new technology infrastructure strategy can cater for various combinations of clustering and interface options for joining up the e-services provided by the Government and the private sector.

16.   Having regard to the existing portfolio of ESD services, the emergence of other e-services and platforms and the potential commercial value of the service clusters, we have come up with a schematic presentation of possible service clustering under the new future model of delivery of e-government services at <u>Annex A</u>. The clusters therein show a <u>possible</u> clustering approach based on the existing ESD service portfolio, and the number and names of the clusters as well as the implementation approach are by no means exhaustive or conclusive.

17.   To make the best possible use of the PPP model, we will issue invitations for **Expression of Interest** (EOI) in the first half of 2005 to ascertain the market interest in the development, implementation, management and operation of the priority service clusters identified by the Government. Based on the response to the EOI, we will work out with the B/Ds concerned the business and implementation plans for the individual clusters before end 2005. The service clusters and the support services will be developed in 2006, with a view to establishing the priority clusters by phases from early to end 2007. It is expected that the formation and development of clusters will be an evolutionary process, and the clusters will be reviewed from time to time to reflect customer demand and market dynamics.

(b) Customer Relationship Management (CRM)

18.   Adoption of CRM principles and practices in the delivery of e-government services is key to the provision of customer-centric services. This is in line with the vision of the next wave of e-government and an important building block of our new strategy for e-government service delivery. We are working on an implementation strategy to promote and facilitate the wider adoption of CRM across the Government, as well as a practical guide on CRM that will assist B/Ds to better understand customer needs and preferences and to provide more customer-oriented e-government services. We plan to issue the practical

guide for B/Ds' reference in March/April 2005.

(c) Channel Management Strategy

19.　　Government services are provided through different channels of service delivery (e.g. at the counter, by mail, phone, fax, and via the Internet).　However, without a long-term vision and strategy for channel management, the provision of e-option as an additional channel of service delivery, alongside the conventional channels, will not bring about the desired benefits such as increasing efficiency and reducing operating costs.　Given that the e-channel is normally the most efficient and cost-effective channel of service delivery, a proper channel management strategy together with the necessary incentives will help migrate customers to the e-channel.　Accordingly, we will promulgate a channel management strategy, by the third quarter of 2005, to provide B/Ds with guidelines on how to enhance the quality and attractiveness of e-services so as to boost their utilization, the introduction of incentive to migrate customers to the e-channel, the rationalization of service delivery channels and the scaling down of the more costly channels where possible and justified.

(d) Electronic Procurement (E-procurement)

20.　　The considerable size of government procurement and its scale of activities present huge potential for e-procurement. The labour and management costs for administering these procurements are likely to be substantial.

21.　　With the aim of enhancing internal efficiency and driving the adoption of IT in the business sector, especially the small and medium-sized enterprises (SMEs), we will commission a study and map out a strategy for taking forward e-procurement in the Government.　Our first step is to identify the best practices adopted by other governments in e-procurement, their implementation experience and the relevance of the practices to the HKSAR Government.　Based on these findings, we will formulate a pragmatic implementation e-procurement strategy for the Government.　We expect that the findings will be available by the third quarter of 2005.

(e) Measuring the benefits of e-government initiatives

22.   To enable the Government to better assess the benefits of individual   e-government initiatives, we intend to commission a study within 2005 to review the e-government programme funding mechanism and recommend methodologies and tools to identify, quantify and measure the benefits attributable to e-government initiatives.   This will enable B/Ds to focus their investments/resources on the high impact areas that can benefit both the community and the Government.

PROGRESS OF ON-GOING INITIATIVES

A. ESD Scheme and other E-Services

(a) *Introduction of new services*

23.   A number of major e-services have been introduced since our last report to the Panel in July 2004.   First, the **Property Stamping System** (PSS) was introduced through the ESD portal in August 2004.   It is a joined-up initiative that enables online processing of property stamping application and issuance of property stamp certificates to the applicants by the Inland Revenue Department (IRD), while at the same time allowing applicants to submit tenancy-related forms online to the Rating and Valuation Department in one go.   IRD also launched the online delivery of business registration extracts in February 2005, an improvement to its previous service of delivery by mail following online application.   Secondly, with the rollout of the **Integrated Registration Information System** (IRIS) of the **Land Registry** on 12 February 2005, search of the land registers can now be done conveniently online with payment through credit card and Payment by Phone Service.   Customers can also obtain search services from the self-service terminals installed in the offices of the Land Registry even when counter services are closed during lunch break.   Thirdly, Phase I of the **Integrated Companies Registry Information System** (ICRIS) of the **Companies Registry** (CR) was launched on 28 February 2005.   The new electronic search services enable customers to obtain information on companies registered with the Registrar of Companies through the Internet.   With the introduction of

the new services, CR introduced differential pricing by offering discounts for online search services, ranging from 34% to 55% off the fees for transactions conducted over the counter. It is expected that this price incentive will help attract customers to use the online channel.

24.　　As for other efforts to migrate customers from the traditional channels to the more cost-effective e-channel, in January 2005, the Information Services Department and Census and Statistics Department (C&SD) started to implement differential pricing by offering a 15% discount for the online purchase of statistical and other government publications.　In addition, C&SD has since January 2004 offered a 25% discount for the online purchase of softcopy version of the statistical publications so as to encourage the public to shift to the purchase of softcopies.　We will examine the use of price, service and other incentives in greater detail in the context of the channel management study.

(b)　Information on customer feedback

25.　　At the Panel meeting on 12 July 2004, Members requested information on the public feedback to the e-government programme.　At present, major departments with ESD services collect customer feedback through various means such as customer surveys, face-to-face interviews, suggestion forms, electronic mail and telephone hotlines.　The ESD operator also maintains a customer hotline for handling customer feedback.　In the past few months, positive feedback has been received from the public supporting the introduction of new services that enable them to enjoy round-the-clock services (e.g. the introduction of the PSS), as well as service enhancements that increase the user-friendliness of existing services (e.g. simplified registration procedures for booking of sports facilities and leisure activities).　There are also suggestions to introduce additional service features, improve service user-friendliness, shorten response time and launch new e-services. The feedback provided useful information for the departments concerned and the service operator to evaluate their services and introduce further improvement measures. For example, on receipt of comments about the long response time for a certain e-service during morning peak hours, the ESD operator has deployed two additional web-servers to enhance the system capacity,

thereby shortening the response time.   The CRM strategy and practical guide to be promulgated (paragraph 18 above) will help B/Ds put in place further measures to obtain and collate customer feedback to their e-services.

B. Online booking of facilities in community halls/centres and conversion of existing District Offices into e-government service centres

26.   At the Panel meeting on 12 July 2004, Members requested the Administration to provide a report on the feasibility of online booking of facilities in community halls/centres and conversion of existing District Offices of the Home Affairs Department (HAD) into e-government service centres.   A report provided by HAD is at Annex B.   HAD undertook to further explore the feasibility of online booking of facilities in community halls/centres and of delivering some public enquiry services provided by the District Offices through electronic means in the context of the Information System Strategy Study which will commence in mid 2005.

C. Smart Identity (ID) Card

27.   Since the rollout of the smart ID card replacement programme in June 2003, the Immigration Department (ImmD) has issued about 2.6 million cards by end December 2004.   Amongst the smart ID cards issued, about 740,000 are embedded with e-Certs for cardholders to carry out secure online transactions and 120,000 have included the library card function.

28.   In December 2004, ImmD rolled out a number of e-channels at Lo Wu Control Point for automated immigration clearance for passengers using smart ID cards.   By adopting biometric verification technologies, smart ID card holders can enjoy faster and more convenient service through self-service immigration clearance.   About 270 e-channels will be installed at control points by mid 2006.

29.   More non-immigration applications on the smart ID card, including driving licence application of the Transport Department and the self-service booking service for sports facilities and leisure activities of

the Leisure and Cultural Services Department, will be progressively rolled out in 2006.

30.   The smart ID card project has continued to gain international recognition.   It won the Gold Award of the Application Category of the 6th IT Excellence Awards by the Hong Kong Computer Society in August 2004, for its comprehensive functions, creativity and security; and the top prize in the category of e-Government and Services of the 2004 Asia Pacific Information and Communications Technology Awards in December 2004.

D.   Property Information Hub (PIH)

31.   To fully realize the commercial potential of property and land related services and to test the market's interest in developing and operating the PIH including the provision of value-added services, we issued an invitation for EOI to the private sector in December 2004.   16 proposals were received by the deadline in mid-January 2005.   We are discussing with the interested companies to clarify their proposals and will complete the evaluation of the proposals shortly.   We aim to recommend a way forward, in conjunction with the relevant B/Ds, by mid 2005.

E.   Integrated Criminal Justice Process (ICJP)

32.   We have completed the necessary business and privacy studies for the development of an Integrated Criminal Justice Process (ICJP) Programme in Hong Kong.   The ICJP seeks to streamline the business processes and facilitate the legitimate sharing of information among 11 agencies involved in the criminal justice processes, from arrest, identification and charge, prosecution and trial, correction and rehabilitation, to aftercare.   As the ICJP Programme involves a large number of departments and agencies, we will be seeking a steer from the Policy Committee shortly on the priority and leading bureau for the Programme.

F. Government-to-Employee (G2E) and Government-to-Government (G2G) Services

33.   We continue to enhance our infrastructure to drive the adoption of G2E and G2G services within the Government.   We have launched an IT Accessibility Programme (AP) in July 2004 with the aim of providing all government employees access to IT facilities on a shared basis.   Our target is to complete the AP in September 2006, by then we will have an e-enabled environment to support the implementation of more G2E and G2G applications.

34.   With the provision of IT facilities under the AP, the "e-Payslip" initiative, under which employees can receive their monthly payslips electronically, can be extended to all government employees.   Treasury plans to phase out the delivery of paper salary statements in batches to tie in with the rollout schedule of the AP.

35.   The programme to roll out the "e-Leave" services in 73 bureaux, departments and offices to enable electronic submission, processing, calculation and recording of leave applications by staff is scheduled for completion by March 2005.

G. Common Look and Feel

36.   We continue to improve user experience in browsing through government websites.   With the adoption of Common Look and Feel (CLF) standards, B/Ds will keep their websites up-to-date and consistent through regular reviews at least once a year.   In addition, the common search engine has been enhanced to facilitate public access to and search of Government information.   Currently, about 50% of the B/Ds have revamped their departmental websites with CLF.   The target is for the remaining B/Ds to complete the programme by November 2005.

H   Global Positioning System

37.   The Administration has undertaken to provide a report on the latest development and implementation of Global Positioning Systems (GPS) in Hong Kong.   An information paper on the deployment of GPS
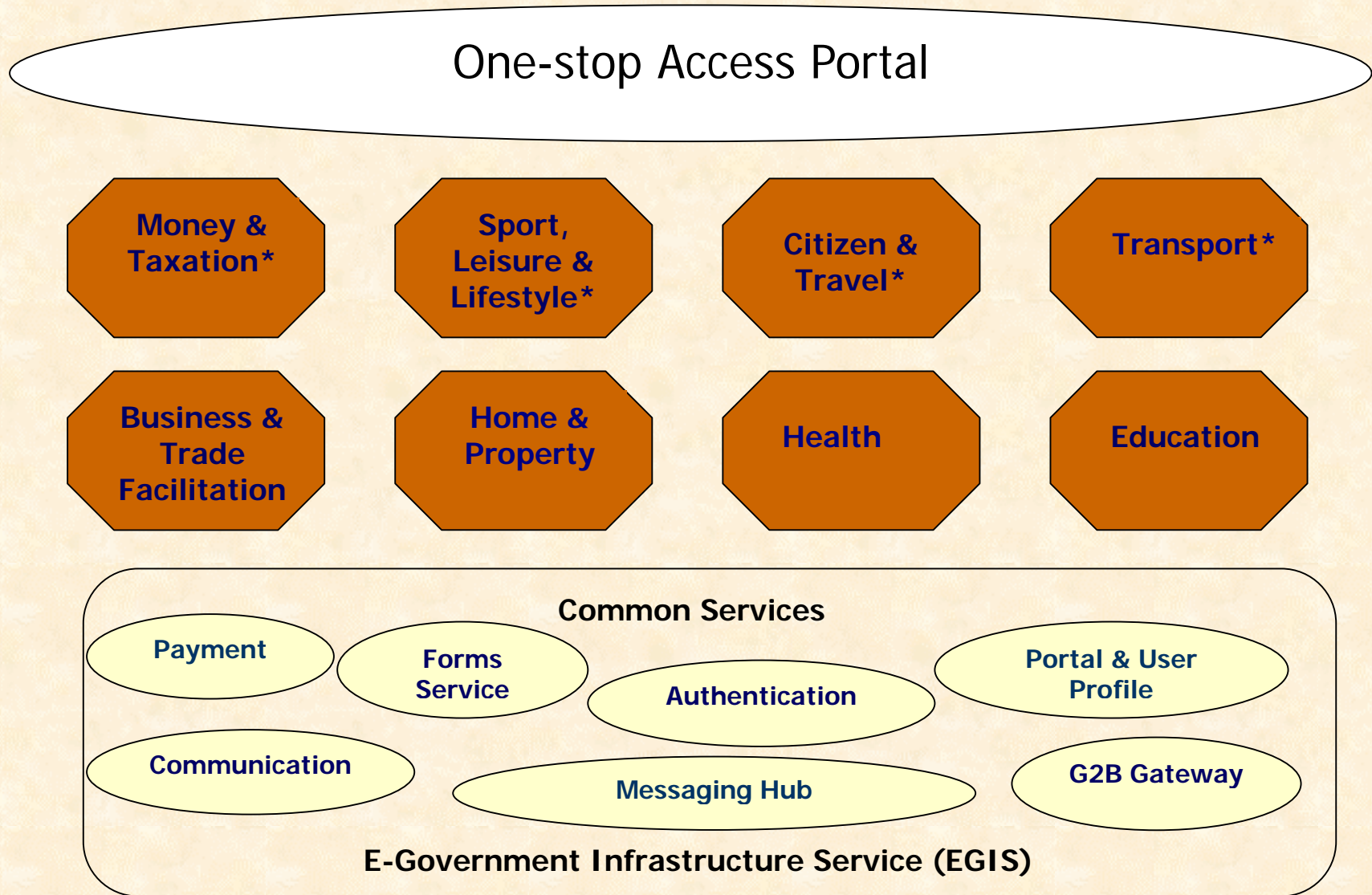
and the initiatives undertaken by the Government to promote the use of GPS in Hong Kong is at <u>Annex C</u>.

WAY FORWARD

38.   Implementation of most of the initiatives under our next wave of e-government programme will span over a three-year period.   The targets and detailed action plans of the individual programmes will need to be reviewed and refined along the way.   Most importantly, successful implementation of the e-government programmes requires the commitment and support of all B/Ds, including those at the top level. OGCIO will offer advice and assistance to the B/Ds to help take forward the e-government vision, mission and key priorities and implement the on-going e-government initiatives.   We will keep Members informed of our work through annual progress reports.

Office of the Government Chief Information Officer
Commerce, Industry and Technology Bureau
March 2005

Future Model of Delivery of Electronic Public Services

One-stop Access Portal

Money & Taxation*	**Sport, Leisure & Lifestyle***	**Citizen & Travel***	**Transport***
Business & Trade Facilitation	**Home & Property**	**Health**	**Education**

Common Services

- Payment
- Forms Service
- Authentication
- Portal & User Profile
- Communication
- Messaging Hub
- G2B Gateway

E-Government Infrastructure Service (EGIS)

■ Service clusters   *   Priority service clusters

Response of the Home Affairs Department to
Suggestions made at Meeting of
the LegCo Panel on Information Technology and Broadcasting
on 12 July 2004

Booking of Community Halls/Community Centres

   Community building is one of the major programme areas of the Home Affairs Department (HAD). Community halls/community centres (CC/CH) are operated by HAD to promote community involvement activities and public participation in community affairs. To ensure that the CH/CC facilities are efficiently used and properly managed to meet varied district needs, District Officers have set up CH/CC Management Committees in individual districts comprising different parties including District Council members, local personalities and representatives from local organizations in the districts, etc. The CH/CC Management Committees will advise on the mode of operation of the CH/CC in individual districts and the booking procedure for individual CH/CC is worked out after consulting the respective CH/CC Management Committee.

2.   To cater for the specific needs of different districts, there are, at present, different arrangements for booking of the facilities in Community Hall (CH)/Community Centre (CC), for example, the acceptance of applications may be determined on a first-come-first-served basis, by lots drawing, or a combination of various methods.

3.   As a follow-up to the Administration's response to the issue raised at the meeting of the Panel on 12.1.2004, we passed the proposal for providing online booking to the CH/CC Management Committees for consideration. Most of the Management Committees have expressed reservation about the proposal for various reasons, including that the proposed method may not be able to cater for the specific needs of different districts, concerns with the verification of eligibility of the applicants, and that some applicants may not have the necessary computer facilities or know-how etc. The Management Committees find the existing booking arrangement satisfactory and prefer status quo. If implemented, the online arrangement should only serve as an additional means for making application rather than a replacement of the existing system.

4.   In view of the response of the Management Committees and the fact that the existing booking arrangements are determined by the

Management Committees in respective districts having regard to individual district needs, we will respect the views of the Management Committees to maintain status quo. However, we are prepared to accept application through electronic means, i.e. through e-mails attaching the application forms, in the event that individual Management Committees decide to revise the existing booking arrangements.

5.　　　　To enhance the utilization of E-government services, HAD has committed to conduct an Information System Strategy Study in mid-2005 to identify areas for using e-options to enhance the quality and efficiency of our services to the public. We shall further explore the feasibility of online booking of facilities in CH/CC in the Study.

Public Enquiries Services Centres

6.　　　　One of the missions of the Home Affairs Department (HAD) is to enhance communication between the Government and the people of Hong Kong. The Public Enquiries Services Centres (PESCs) are some of the key frontline outlets which enable us to achieve this mission.

7.　　　　Currently, there are 20 PESCs spreading throughout the territory, one in each District, except the Islands District, where there are three to cater for the unique geographical characteristics. Through the PESCs, we provide a wide range of services to the public, including –

    (a)　　answering enquiries and providing information on services of various Government bureaux and departments;

    (b)　　distributing consultation documents and policy papers (e.g. the Chief Executive's policy address, draft Estimates, Budget Speech), Government forms and publicity materials;

    (c)　　administrating oaths and declarations for private use;

    (d)　　providing information on and acting as a referral agent for the Free Legal Advice Scheme; and

    (e)　　providing information on and advice under the Rent Officer Scheme and the Meet-the-Public Scheme.

8.　　　　Apart from the above, through their contact with members of the public, our PESCs staff also maintain liaison with and get feedback, some in the form of complaints, from them on Government policies and services. Such feedback will be channeled to the appropriate bureaux / departments for

follow-up. Hence, the PESCs are effectively functioning as a 'bridge' between the Government and the public.

9.   We are of the view that quite a substantial part of the services being provided the PESCs will have to continue to be operated in its current mode. For example, when members of public cannot produce the required documentary proof to substantiate their claims to support their applications made to various government departments or non-government bodies, they will normally approach the PECSs to make a declaration. The process includes filling in a declaration form and making the declaration in front of the appointed Commissioner for Oaths in HAD. Moreover, when they want to make an appointment with the duty lawyer through the Free Legal Advice Scheme, they have to go to the PESC where officers of HAD will conduct a preliminary interview to obtain the case background for referral to the Duty Lawyer Service. Members of public can seek advice in person on Tenancy matters from Rent Officers of the Rating and Valuation Department posted to the designated PESCs at scheduled session under the Rent Officer Scheme. Likewise, they may go to the PESCs in person to make arrangement for the service under the Meet-the-public Scheme where they can discuss with District Council members freely on any local issues. E-option is not practicable for these services as they are relatively complicated in nature, requiring a lot of face to face communication during the process.

10.   That said, we share the view that it is feasible to deliver some of our enquiry services through e-mode. We have, therefore, included PESC services as one of the areas for review in the context of the Information System Strategy Study mentioned above.

Home Affairs Department
Administration Division
February 2005

**Information Note on the
Deployment of Global Positioning Systems in Hong Kong**

PURPOSE

This paper reports on the deployment of Global Positioning Systems (GPS) and the initiatives undertaken by the HKSARG to promote the use of GPS in Hong Kong.

DEPLOYMENT OF GPS IN THE PUBLIC SECTOR

2. In general, GPS is pertinent to government departments in a number of application areas including fleet management, land surveying and civil engineering work. GPS has been extensively used in some government departments for which GPS is applicable. At present, more than 10 departments have already adopted GPS or are planning to adopt GPS. A total of 11 GPS applications have been implemented and 6 others are being implemented. A few examples of GPS application adopted in government are quoted in the ensuing paragraphs for reference.

3. The Government Flying Service uses GPS technologies to facilitate deployment of its fleet of helicopters and aircrafts. The Highways Department uses GPS technologies to keep track of cleansing vehicles on express highways and conduct engineering survey.

4. The Civil Engineering and Development Department has successfully integrated GPS with Geographic Information System (GIS) technologies for geotechnical engineering application.

5. The Hong Kong Police Force and the Fire Services Department are performing tests to track the location of their vehicles to facilitate deployment of service officers to the scene of incident using GPS technologies. The Fire Services Department started the operational use of Third Generation Mobilizing System (TGMS) in the New Territories in March 2005 in which GPS was used to track the location of fire services vehicles.

6.　　　　For details of existing and planned GPS applications in Government, please refer to the list at **Appendix A**.

DEPLOYMENT OF GPS IN THE PRIVATE SECTOR

7.　　　　In the private sector, GPS is mainly used in the logistics and fleet management industries.　Land surveyors, GIS software producers and GPS solution providers have developed new products/services in surveying, location tracking/monitoring, navigation and fleet management using GPS technologies.

8.　　　　The three major bus companies in Hong Kong have undertaken trials to test the applicability and reliability of GPS technologies in fleet management and provision of passenger information. Although some problems still remain to be resolved, the Transport Department will continue to encourage the bus companies to make use of new technology with an aim to improve service quality.

9.　　　　There are a number of GPS solution providers in Hong Kong. The majority of them can offer both off-the-shelf solutions and custom made solutions. Some of them have offered geodetic and topographic design survey using GPS technologies, and some have offered vehicle anti-theft solutions that use GPS technologies to track the location of stolen cars or vehicles.　Recently, a car distributor in Hong Kong has also launched a car navigation solution.

10.　　　　In recent years, the Application Service Provider (ASP) model of GPS services has emerged in the local market.　The ASP model of GPS services can provide to subscribing customers the underlying GPS infrastructure that consists of a centralized location tracking system with appropriate software, digital maps, GPS receivers and a wireless communication platform.　The customers just need to pay the monthly subscription fees, and can be spared from the initial investment in setting up the infrastructure.

11.　　　　In accordance with licensing conditions, 3G licensees are required to provide relevant information relating to the location of a user sending a public emergency message for the sole purpose of responding to that message, when directed by the Telecommunications Authority. The Hong Kong Police Force, with the assistance of the Office of the Telecommunications Authority, has commenced the discussion with the

3G licensees in relation to the provision of location information for emergency calls. It is also expected that similar conditions would be imposed on the 2G licensees as well upon the renewal of their existing licenses by 2005/06.

INITIATIVES ON PROMOTING THE USE OF GPS

Promotion and Coordination

12.   The Government encourages and supports the development and adoption of all Wireless and Mobile Services and Technologies (WMST) in which GPS is one.

13.   The Information Technology Solution Centre (ITSC) of the Office of the Government Chief Information Officer (OGCIO) regularly organises seminars and experience sharing sessions for various government departments on GPS and related technologies. It also maintains thematic websites on GPS technology for the government departments.

14.   Under the auspices of the Task Force on the Promotion of Wireless Services and Technology set up by the OGCIO, the Hong Kong Wireless Development Centre (HKWDC) has been working closely with the Hong Kong Productivity Council (HKPC) and other trade associations to promote wireless technologies and demonstrate wireless e-commerce solutions to the public and the industry through various means. Since December 2003, more than 20 seminars covering various relevant technology topics inclusive of GPS have been organised.

15.   A new Task Force on Promotion of Wireless Services and Technologies will be set up in March 2005 to address the further adoption of GPS together with other wireless and location-based applications.

16.   The Government would continue to collaborate with industry associations such as the Hong Kong Wireless Technology Industry Association (HKWTIA), HKWDC, and HKPC to explore opportunities in the deployment of GPS both within the Government and in the private sector.

Funding Support

17.	As stated in the 2004 Digital 21 Strategy, it is the Government's policy to promote the use of new and innovative technology, applications and services including GPS, which would be accorded funding priority.

18.	The Government, through the Innovation and Technology Fund (ITF), has provided funding to encourage adoption of new technologies inclusive of GPS in the private sector.	The Hong Kong Baptist University (HKBU) and the Hong Kong Institute of Vocational Education (HKIVE) have obtained funding to develop a cellular-based Mobile Location Estimation System (MLES) as a complementary technology to GPS.	MLES is now undergoing the process of commercialization.

19.	Besides MLES, ITF has also granted funding to a list of other projects on the deployment of GPS and related technologies such as Location Based Services (LBS).	A list of these projects is shown in **Appendix B**.

Infrastructure

20.	Positional accuracy is of paramount importance to high precision GPS applications.	To improve positional accuracy, the Lands Department (LandsD) has established a network of GPS reference stations to aid land surveying work for government users.	In the future, the GPS reference station data can be delivered to users via mobile phones or the Internet.	This network can be used as an infrastructure to support relative positioning.

21.	The digital maps provided by the Computerized Land Information System (CLIS) of the LandsD are of great value to the development of GPS/LBS applications.	To sustain and enhance its services to consumers, the LandsD is planning to seek funding approval from the Finance Committee for replacing the existing CLIS with a view to replace the obsolete hardware, upgrade the retired software, enrich the geographical database, improve the workflow, and enhance the functionality of the system.	The new CLIS would overcome the shortcomings of the existing system and enable easier integration of its digital maps with GPS/LBS systems.

Conclusion

22.　　　We note that there is increasing deployment of GPS in both the public and private sector.　The Government will continue its efforts in facilitating the development and adoption of GPS in Hong Kong through a series of measures such as building up the necessary infrastructure, providing funding, organizing promotional events and coordinating various GPS related functions.

Office of the Government Chief Information Officer
Commerce, Industry and Technology Bureau
March 2005

Adoption of GPS in Government

(i)   Existing Applications

B/D	Type of Application	Brief Description of functions
CAS	Fleet Monitoring System	To monitor the location of CAS vehicles during operations.
CEDD	Acquisition of Mobile Computing Devices for Geotechnical Field Mapping	Geological and geotechnical field mapping, ground investigation, landslide investigation and assessments of natural terrain hazards.
GFS	Aircraft/helicopter deployment	To transmit the GPS data of its aircrafts and helicopters to the Air Command and Control at Headquarters for the purpose of aircraft deployment.
HKO	Automatic Survey Data Input System	Transmission of survey data from field to Headquarters
HKO	Mobile Survey Data Transmission Unit	Transmission of mobile survey data
HyD	Satellite surveillance system	GPS was installed in 16 cleaning cars & pickup trucks for high-speed roads. GPS was also used to conduct engineering survey control.
HyD	Highway survey operation	25 high precision GPS devices mainly used for survey operation, e.g. establishing control stations, checking setting-out points, surveying details etc. & 25 low precision hand-held GPS devices mainly used for checking/finding rough location in field.
HyD	Bridge movement monitoring	A GPS system is used to monitor the structural displacement or movement due to wind, temperature, seismic & traffic load at Tsing Ma Bridge, Kap Shui Mun Bridge and Ting Kau Bridge.

B/D	Type of Application	Brief Description of functions
MD	Government Fleet Operation Management Information System	Data communication device will be installed on government fleet for the transmission of vessel positions and attendance data of crew wirelessly.
PlanD	Central Enforcement and Prosecution	Use GPS & mobile GIS to facilitate land use survey in rural area.
TD	Journey Time Indication System	GPS technologies are used to estimate journey data so as to help drivers choose a suitable route to minimize traveling time in view of the latest traffic situation.

(ii)   Applications Being Implemented

B/D	Type of Application	Brief Description of functions
CEDD	Laboratory Information Management System (LIMS)	GPS will be used to measure or manage the spatial data.
EPD	Mobile Computing System for Local Control Enforcement Operation	Use of handheld devices to facilitate field data capturing and information look-up
FSD	Third Generation Mobilizing System (TGMS)	Resource Dispatch and Fleet Management via a wireless digital network, the GPS component is now undergoing testing to provide real time location of fire-services vehicles, ambulances and fire-fighting boats.
HKPF	Third Generation Command & Control Communications System (CCIII)	GPS technologies would be able to track the locations of police emergency response vehicles, and to deploy police officers to the scene of incidents.
TD	Intelligent Road Network (IRN)	IRN would provide traffic directions, turning movements at road junctions, and roadside stopping restrictions such that transport operators can develop applications for their own use or for the provision of value-added

B/D	Type of Application	Brief Description of functions
		services to other consumers in the logistics market.
WSD	Slope Management System	Record of slope management works

List of GPS and Location Based Initiatives in the industry that has obtained funding support from the Innovation and Technology Fund

Title	ITF Reference	Parties Involved
eMobility & Wireless Operations Platform	S/P653/03	CSL Cosmos Solutions Limited
PointGuide: A Local Positioning System for Developing Context-Aware Applications	UIM/092	Learning Media Company Limited
Mobile Location Estimation System (MLES) for fleet management applications using existing mobile phone infrastructure	ITS/022/02	• Hong Kong Wireless Technology Industry Association • Hong Kong Institute of Vocational Education
GPS Fleet Management System	S/P322/01	Key Technology System Limited
Improved Positioning of Land Vehicle in ITS using digital map and other accessory information	UIT/014	• Brilliant Technology Development Limited • Hong Kong Polytechnic University
Mobile Positioning and Mobile Multimedia Communications	S/P111/00	LifeMobile Tec.Com