Joint Submission to D21SAC
Recommendations to the Promotion of
Wireless and Mobile Technology Industry in Hong Kong

Introduction

1. Wireless and mobile technologies are one of the growth engines in our economy. With its robust functionality supporting wide-range applications, wireless and mobile technologies offer tremendous competitive advantages and possibilities to different industries and the community. To capitalize these benefits, Government has put in place a solid infrastructure to support the growth of the sector over the past years. However, as with any emerging technology, there are still some gaps that we need to fill for Hong Kong to be a significant player in this arena. The purpose of this paper is to recommend measures which help address these challenges and promote the further development of this industry.

Identify second strategy for wireless/mobile technology industry

2. In early 2003, Government has set up a Working Group on Promotion of Wireless Services and Technology to formulate policy measures in driving the deployment of wireless technology in Hong Kong. Having come up with a host of recommendations, the Office of Government Chief Information Officer (OGCIO) later has formed a Taskforce to follow up on the recommendations made by the Working Group in 2004. As most of the initiatives recommended in the Working Group have been launched and completed, we recommend Government to collaborate with the industry to work out the second strategy to review, coordinate and introduce initiatives that can create an environment conducive to the greater development of this industry.

Re-investment in the promotion of wireless/mobile technology

3. One of the key factors behind the success of wireless/mobile technology industry in other advanced economies, such as Singapore, Korea and Japan, is that these Governments have invested substantially in initiatives to upgrade infrastructure, support trial and pilot programs so that wireless technology applications and services can be widely adopted. In order to increase investment in promoting wireless technology industry, we recommend pooling part of the revenue from spectrum auction and licences fees into a special fund[1] and using it to fund telecoms-related promotion projects. This is to ensure that sufficient funding will be available to advance the infrastructure and promote further industry development in Hong Kong.

Promote wireless technology in business sectors

[1] Korea has adopted this approach to secure funding for telecom-related projects. (See Appendix 1)

4. Despite our advanced infrastructure, and high mobile and Internet penetration rates, our ICT adoption in local industrial sectors is still not living up to its promises. According to the latest survey on Information Technology Usage and Penetration in the Business Sector, only 8% of the businesses had used wireless and mobile devices. For the businesses not using wireless and mobile technology, about 60% of them do not perceive the benefit in adopting such technology in their business.

5. The low adoption level of wireless technology in the business sector reflects that Government effort needs to be stepped up. To facilitate more wireless technology applications be further deployed in business sectors, we recommend Government to collaborate with the industry to identify, develop and launch key projects with industry-wide impact in different industrial sectors, such as:

    - Tourism – systems that support how tourists co-ordinate their itineraries and activities, electronic guidebooks and maps, electronic tour guide applications, as well as smart airport and passenger travel services, etc.;

    - Transport – GPS-based tracking systems that assist passengers to confirm the present location and arrival time of buses on a real-time basis, etc.;

    - Logistics – package-tracking applications, mobile solutions for emergency cases and CRM system, etc.

6. The purpose of such sector-specific initiatives is to encourage industry players to collaborate with one another in the development of pilot and trial for applications in meeting the needs of specific industrial sector and thereby, establishing the value of wireless technology to enterprises, especially in SMEs.

Support the development of new technology and applications

7. The Government has identified digital content industry that offers high growth potential for Hong Kong for the next few years. While basic infrastructures, such as the Digital Media Center and Wireless Development Center have been put in place for the industry to develop, much effort is required to improve production and distribution channels for the industry.

8. To foster development of digital content industry, we welcome that Hong Kong Cyberport has organized Digital Entertainment Leadership Forum since 2004. We recommend the Government to hold this meaning event continuously in a way is to bring together trade associations and other professional bodies to gather views on issues challenges facing our industry.

9. At present, our digital content lacks a clear brand to facilitate its market presence I both the international and mainland markets. We recommend the Government to initiate “Market Development Programme” for the digital content industry. The programme, which may include projects on test marketing, market research and

promotional activities, aims at helping digital content enterprises acquire market intelligence while facilitating cross-border linkages between producers and distributors.

10. We further propose the Government working with the industry to develop and implement a "brand" strategy in a bid to attract international venture capital companies to support and invest digital content industry in Hong Kong.

11. For the past years, limited technology transfer and commercialization effort is one of the challenges in ICT research and development. Our ability to utilize R&D results within the business sector, in fact, stands at a disproportionately low level. With our information infrastructure expertise, and investment in R&D, Hong Kong has the potential to become a living wireless technology lab where innovative and new wireless technology solutions are created, tested, commercialized and deployed throughout the region.

12. We welcome the proactive measure by the Government to revamp the overall R&D strategy, including the new positioning of the Applied Science and Technology Research Institute (ASTRI). As ASTRI has identified wireless communications, home media and networking as well as other Internet applications as its major focus technology areas, we recommend ASTRI to step up its commercialization efforts so that the general public and business sector can take advantage of the mobility offered by new wireless technology. To ensure that the public R&D funding finds its best use, we further propose the Government to revamp ASTRI's overall strategy, governance, commercialization mechanism and cluster and support network.

13. While there is no doubt that the Government will play a leading role in this reforming process, we believe that the voice of the industry is of equal importance in shaping research and development of wireless technology in Hong Kong. As such, we believe that the Government should consult the industry during this reforming process to work out the best approach that meets the industry's expectations while giving real substance to the ICT vision for Hong Kong.

14. For the long-term R&D of wireless technology, the Government should also work with the industry to map out a forward-looking R&D plan on wireless technology in a way that will accelerate the R&D activities, commercialization, and marketing of innovative wireless applications, both in the local and international markets.

15. To accelerate the development of innovative wireless technology, the Government has a key role to play in getting different stakeholders on ICT projects in a way that such technologies can be widely deployed in the community. In fact, he Governments of many advanced economies such as Singapore and Korea have actively facilitated innovative technologies, including digital content, RFID, ENUM, IPv6, home networking, embedded technologies and telematics, etc. be employed in the community.

16. The Singapore government, for instance, has promoted home networking technology by facilitating the construction companies, home appliance manufacturers, broadcasting networks as well as wired and wireless operators to carry out "digital home" projects. We recommend that the Government should encourage such consortiums consisting of wired and wireless industry, ASTRI, and other industrial sectors be developed in its future wireless technology strategy so that more pilot wireless applications and services can be tried out in the business sector and the community.

17. In addition to the above R&D activities, we also urge that the Government to provide tax concessions for R&D activities in order to encourage innovation and technological development of our wireless technology industry.

Better coordination of HK-Mainland telecoms policies and promote cross-border "knowledge-flows"

18. Faced with global competition in the wireless technology market, the best way to maintain our competitive edge is to encourage cross-border collaboration and to expand the reach of our industry in the Mainland in order to unlock the combined potential of the region.

19. To capitalize on the ICT potential of Hong Kong in strengthening the region's competitiveness, we recommend the Government to fight for engaging local telecom industry in the national telecoms strategy. The Government should lobby the Central Government to acknowledge that Hong Kong is a key R&D centre and external marketing areas for the strategic ICT areas, such as digital content, RFID-based services, wireless and mobile applications, in logistics, financial and various industries, for the PRD region.

20. We further propose the Government to accelerate efforts to improve working relations with the Mainland administration. Special emphasis should be put on to resolve issues relating to telecoms industry, technical arrangement and other problems that local telecom operators encounter in the Mainland.

21. Cross-border knowledge synergy, including R&D collaboration as well as networking and clusters play a critical role in sharing knowledge and strengthening regional competitiveness of our wireless technology industry. To achieve this goal, we recommend the Government to discuss with the Mainland authorities the possibility of establishing a PRD Joint Research Centre in the ASTRI to promote cross-border research on how wireless communications and ubiquitous technologies can be contributed to the PRD regional development.

22. We also suggest the Government to include technology relay services in the ASTRI to facilitate the transfer of innovative wireless technologies among SMEs in the PRD as well as to keep companies aboard aware of new technological

development of the Joint Research Centre.

23. Establishing business partnerships is a job for companies or trade associations not the government. However, it is not always easy for them do so in light of inadequate knowledge about the Mainland market. We believe that the Government has an important role to play in helping establish the presence of trade associations in the Mainland. The Government should facilitate business and industry associations of both places to develop business networks, cross-sector marketing and distribution alliances through various strategic networking projects.[2]

Stimulate wider adoption of wireless applications in the public sector

24. The wider adoption of wireless technology not only presents a perfect opportunity for existing e-Government programs to raise the level of its efficiency and quality, but that it will also encourage the wider adoption of such technology in the business sector and the community. The Transport Information System (TIS), for instance, provides a comprehensive link connecting vehicles, drivers and road administrators on a real-time basis via the network. At the same time, a variety of personalized location-based information and services can be offered to road users via mobile communications technologies on a real-time basis.

25. Unlike other economies, such as Japan, Korea, Singapore and Shanghai, Hong Kong lags far behind in developing automobile-based Internet access along with Transport Information System (TIS). In Paris, a project called "Intelligent Wi-Fi Bus" has already under way to provide commuters a mobile Internet access during their bus journey. We therefore, recommend the Transport Department to work with the industry on the future development of wireless applications in public transport settings in a bid to foster the take up of TIS in Hong Kong.

26. The potential of wireless and ubiquitous technologies will become more and more important in helping increase efficiency and enhance modernization of public administration. We encourage that more innovative wireless technologies, such as IPv6, ENUM and wireless healthcare solutions, etc. be adopted in our e-Government to meeting the increasing demand of citizens.

27. As an ongoing effort to accelerate the development of wireless industry, we also suggest that a Technology Assessment in all important public projects, such as the forthcoming West Kowloon Cultural District project, be conducted to drive the wider adoption of innovative technologies in the business sector and the wider community.

[2] Taiwan Information Appliances Alliance is one of the cases to demonstrate how ICT industry could penetrate into the Mainland market with the facilitation of Taiwanese government and industry associations. The alliance, established by Taiwan Information Service Industry Association and software industry of Taiwan had successfully formed marketing and distribution alliance to develop and market professional application software for various retail businesses in the Mainland.

28. With its advanced capabilities, Broadband Wireless Access (BWA) is seen as one of the most exciting areas in IT and telecommunications development today. To promote the future development of this technology, we recommend the Government to consider the concept of BWA city which has been widely developed in United States, Europe and even Taipei. One of the possible approaches is that the Government to transform some public buildings/public housings/districts into wireless pilot area to showcase cutting-edge technologies and applications and allow citizens to experience the future wireless life-style.

Conclusion

29. In this paper, we discuss and recommend a number of measures for the Government to adopt in a bid to address challenges facing wireless technology industry in Hong Kong. Our discussion certainly does not, and shall not end here. We believe that the best way to move forward will be for the Government to take an active role in working closely with the industry to put all these measures in place for the industry to prosperously develop in future.

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Appendix 1

Wireless Technology Policies in Selected Overseas Places

1. South Korea

1.1 Top-level Leadership and Commitment	
	▪ Korea's ICT and broadcasting policies are shaped and promoted by several government bodies, including the Ministry of Information and Communications (MIC) and the National Computerization Agency (NCA) as well as central and local governments. Both the MIC and NCA have played an active role in promoting wireless industry in Korea. ▪ ICT industry is targeted as an important driver for Korea's economic growth. As such, a top-level authority, namely, Informatization Promotion Committee (IPC) was formed in 1996 to promote the Korea's future ICT development. This Committee, chaired by the Prime Minister and also included 25 Ministers, is to oversee and coordinate the entire range of ICT policies and projects across different branches of the Government.
1.2 Forward-looking Master Plan on ICT	
	▪ The Korean Government has intervened directly in improving the status of ICT industry by implementing its vision of an information society in a series of plans, including the National Informatization Framework, "Cyber Korea 21", "e-Korea Vision 2006" and "Broadband IT KOREA VISION 2007". ▪ Of all these master plans, Korean Government's approach is characterized by intervention at the following three levels: - Creating the right environment mainly through the pro-market policies of telecoms liberalization and privatization; - Funding the public Internet backbone; - Developing the non-market-end of the supply-chain, in particular through the provision of IT training for its citizens. ▪ Recently, Korean Government has further announced "IT839 strategy" to build the foundation for boosting its economic growth by upgrading its ICT industry, introducing innovative services and promoting investment in its network infrastructure.
1.3 Harmonious Public-Private Relationship	
	▪ One of the key factors behind the success of Korea in ICT industries is the positive and supportive relationship between private and public sector. A salient example was that the Korean Government has offered a low interest loan program to encourage telecoms operators to invest in broadband access networks. ▪ The other example to attract companies to invest in ICT is a "Certification Program for Broadband Buildings and Apartments" which is aimed to certify the informatization level of new apartments and buildings. Under this program, building receives 1st, 2nd and 3rd class certificate, depending on whether it carries over 100 Mbps, 10-100 Mbps or 10Mbps Internet connections.
1.4 Wise re-investment in ICT promotion	
	▪ To promote further development of ICT industry, the Korean Government has pooled the fees from spectrum licences together into a government fund called "IT Promotion Fund". The purpose of this Fund is to require telecoms operators to contribute to government programmes for improving the overall connectivity, upgrading infrastructure and promoting ICT industry development in Korea. ▪ In addition to the one-off revenue from spectrum auctions, the Korean Government also keeps a steady flow of new money flowing into fund by requiring telecoms operators to pay

	a fee that amounts to 0.8% of their revenue in the Fund.
1.5 Regulatory Framework	
	▪ One of the factors behind the high-level of competition in Korea is the open access policy featured in its regulatory framework. Under this open access policy on broadband networks, it allows any carrier to provide service over other types of networks. This has allowed competitors to take unbundled lines from the incumbent operators to provide competitive service nationwide and over multiple technologies. ▪ Another characteristic of Korean's regulatory framework is that the mandate coverage obligations in its licensing exercise on telecoms sector. This is to ensure the wider deployment of network and technologies.
1.6 Active Government Involvement in Information Infrastructure Project	
	▪ As considered that a nationwide fibre network backbone is vital for Korea's ICT development, the Korean Government was committed in a 10-year plan in developing a high-speed nationwide backbone network in 1993. Instead of funding the backbone completely, the Government put up an investment fund initially and then agreed to become a tenant on the line to connect all government offices and public bodies so as to ensure sufficient demand for the telecoms operators. ▪ In addition to backbone network, the Korean Government has also maintained regulatory control over critical information infrastructure, such as the Internet Exchanges, in an effort to offer better connectivity to all competitors. Currently, there are three private Internet exchanges and one non-profit exchange in Korea. All four Exchanges are inter-connected and most ISPs connect with each other through the Exchanges rather than private peering arrangements.
1.7 Strong R&D Capability	
	▪ Recognizing that ICT is key to the nation's advancement, the Korean Government has placed great emphasis on building strong R&D capabilities. Electronics and Telecommunications Research Institute (ETRI) - the country's premier developer of innovative technologies has adopted a commercialization mechanism by proactively promoting new technology and applications to private sector. Over 800 technologies have so far been transferred from ETRI to some 1 800 private companies. The commercialization of CDMA is, in fact, the most salient example to demonstrate the success of ETRI in helping transfer technology into commercial use. ▪ Apart from research in technology development, there is another government sponsored research institute, namely, the Korea Information Society Development Institute (KISDI) to provide the vision and policy direction towards a knowledge-based society in Korea by carrying out research in ICT policy.
1.8 Recent Development	

	The major initiatives targeted by the Korean Government recently on wireless technologies are summarized as follows:
	
	▪ **Broadband Converged Network (BCN)** – The Korean Government has been planning for a converged network which will merge the mobile and broadband networks. Some of the Government's initiatives in 2004 included:
	  ▪ To collaborate with the public sector, research institutes and academics to develop and improve the standards of BCN;
	  ▪ To develop and promote BCN-related applications and services to the public;
	  ▪ To cooperate with the private sector to promote pilot projects on BCN.
	
	▪ **Portable Internet** – Korea's policy makers, broadband providers and mobile operators has recently come up with a plan to develop a new data network that is more efficient at offering mobile data than either broadband or mobile – that is Portable Internet. This technology, which fits will between WLAN and IMT-2000 will handle the vast majority of mobile data traffic while voice calls will be routed over the existing CDMA and WCDMA networks. The

purpose of this plan is to leverage the comparative advantages of each technology and provide Koreans an effective way to have fast data access everywhere.

- **Mobile gateways** – The Korean Government has initiated a mobile exchange, similar to Internet exchanges that pass Internet traffic from one network to another. The Government has mandated the use of such exchange by all carriers, as a way to push quickly towards a single network. Moreover, MIC also authorized one of the telecoms operators (SKTelecom) to propose and open the gateway to both wired and wireless carriers as well as portals and other content providers.

- **IPv6** – To prevent the shortage of Internet address, Korea and the EU signed an agreement to work together to develop applications and services based on IP addressing system in Jan 2004. Some of the Government's initiatives in this area include:
  - To establish KOREAv6 networks model so as to support development of Digital Home and Telematics;
  - To construct IP Security infrastructure for e-government and provide the public sector the necessary support of address conversion from IPv4 to IPv6.

- **ENUM** - The Korean Government has started ENUM trials – a method to merge the Public Switched Telephone Network (PSTN) with the IP networks's IP addressing system by "mapping" a telephone number into a typical Uniform Resource Locator (URL). It could help lay the foundation of the Korean broadband converged network by combining two different directory structures, the domain name system and the PSTN numbering system.

- **Intelligent Home Networking** – MIC has identified intelligent home networking as a key focus area in the Government's overall ICT strategy. A set of initiatives to establish the foundation for intelligent home networks include developing a home network platform that combines mobile communications, RFID and sensor networks, broadcast, video and gaming; starting a one-year pilot project to develop a home network platform based on the Linux operating systems. Some of the Government's initiatives in 2004 included:
  - To develop core technologies for home network such as home service infrastructure, home gateway, home networking and ubiquitous computing technology;
  - To set up an RFID research center to develop RFID, sensor networks and the BCN on the platform of intelligent home networks.

- **Telematics** –The Korean Government has declared that cars will become the "third Internet arena" serving as a telematics traffic information center that will deliver real-time traffic information. Some of the Government's initiatives in 2004 included
  - To develop platform technology for telematrix, server technology, wireless access technology;
  - To invest in public electronic maps.

Other initiatives to strengthen the competitiveness of IT-related SMEs

- To help promising enterprises strengthen their R&D functions and access global markets through consulting services;
- To set up a "IT M&A Fund" to encourage mergers and alliances among SMEs IT venture firms that show prospects of greater synergy effects;
- To invest in SMEs that are in field of new technologies, such as Post PC and intelligent home applications and so on;
- To increase investment in "Korea Global IT Fund" to encourage more Korean enterprises to enter international markets.

2. Singapore

2.1 A Centralized and High-level Implementation Framework	
	▪ Singapore's ICT policies are formulated by the Infocomm Development Authority of Singapore (IDA) which is a statutory board under the Ministry of Information,

Communications and The Arts (MITA) of the Government of Singapore. The major responsibilities of IDA are to perform as an industry developer and a promoter to create an enabling and competitive environment for Singapore's ICT industry to prosper. Moreover, IDA is also served as the Government's CIO to conceptualise and manage service-wide initiatives to support the implementation of eGovernment in Singapore.

2.2 Visionary ICT Master Plan

- In 2003, IDA delivered its second master plan – Connected Singapore – with a vision to make infocomm as a key enabler to bring the power of computing, communications and content, to create new business opportunities, consumer value and cultural experiences to Singapore. Of the five key areas under this blueprint, value-added mobile services, infrastructure for wireless and wired networks, multimedia processing and management are the three areas that have been identified to offer high growth potential from 2003 to 2006.

2.3 Strong Promotion Efforts in Wireless Technologies

- To promote wireless technologies applications and services in different industrial sectors, IDA has rolled out a "Wired With Wireless" program in 2000. Under this program, IDA has collaborated with the industry to identify, develop and launch key projects in five areas, including location-based services, wireless enterprise, mobile commerce, wireless multimedia and messaging, and machine-to-machine communications. Initiatives of this program are summarized as follows:

  - **Pilot and Trial Hotspots (PATH)** – an industry development program to support the trial and piloting of merging Infocomm technologies and best-of-breed devices;
  - **Wireless Technology Alliance (WTA)** – an initiative to provide a platform for the sharing of technology, co-development and co-deployment of new wireless products and services. Currently, four WTA partnerships have formed:
    - Java Wireless Competence Centre
    - Siemens Location Enabling Centre
    - Singapore Infocomm Technology Federation Wireless Chapter
    - Wireless Intellect Labs.
  - **Market Development (MADE)** – an initiative to support testing marketing, joint marketing research and joint marketing activities to help companies access potential markets and establish their market identity. For example, IDA has lead a delegation of local wireless players to the 3GSM World Congree in Cannes of France in Feb 2004 to showcase Singapore's wireless technologies and applications.
  - **Wireless Enterprise Case Study Series** – an initiative to raise the awareness and profile of successful local deployment of wireless enterprise solutions.
  - **Call for Collaboration (CFC) Wireless Projects** – a program to encourage industrial consortia to develop specific or innovative wireless applications. Examples of projects include
    - Mobile Payment Systems (solutions for retail and person-to-person payment using direct debit payment, stored value and credit card solutions);
    - Mobile Workforce Solutions (personal information management, sales force automation, supply chain management, resource planning and remote monitoring);
    - Wireless Java Solutions (Wireless Financial Portal on Java2 for Mobile Devices, Mobile Communication Centre, Elixir Report Mobile Edition, etc.);
    - Pervasive Wireless Access (a Test Bed to demonstrate pervasive wireless access to contents and applications through the use of GPRS, 802.11 WLAN and Bluetooth technologies);
    - Location-based Service; and
    - Smart Airport and Passenger Travel.

2.4 e-Government as an Agent for Change

- Together with industry players and other government agencies, IDA conducts numerous technical trials in key emerging technologies identified as potentially strategic to Singapore in the public sector. Such trials offer an independent assessment of new technologies for the

benefit of the wider infocomm community, so as to provide a sound basis for well-informed decisions for adoption and deployment in other industrial sector. Areas covered so far included Free Space Optics, Next Generation Wireless Local Area Network and Ultra-Wideband (UWB).

2.5 Recent Development

The major initiatives targeted by the Government of Singapore on wireless technologies recently are summarized as follows:

- **Spectrum Allocations for Wireless Broadband Trials and Commercial Deployment** – IDA has allocated the 2.3 GHz and 2.5 GHz spectrum bands for trials and commercial deployment of wireless broadband in early 2004. IDA has also issued a Consultation Paper on the Licensing Framework for Deployment of Wireless Broadband Technologies.
- **Mobile Computing Centre** – this centre is to provide Palm OS platform training and certification for developers located in Singapore and around Asia Pacific, equipping themselves with skills to address an increasing worldwide demand for handheld computing solutions.
- **Connected Homes** – an initiative to facilitate pilot home networking solutions be developed and deployed in the community. The projects encompass solutions in data communications, entertainment, automation and security.
- **RFID** – In 2004, IDA has set aside US$6.1 million over the next 3 years to promote the adoption and development of RFID. Some of the initiatives include:
  - To work with the educational institutions to develop new courses in RFID skills in order to improve manpower capability in this area;
  - To establish Joint Research Centre with global centres of excellence like MIT Auto-Labs to form a Singapore RFID Alliance to develop reference architecture, share best practices and align standards;
  - To encourage EPCglobal to set up Asia-Pacific HQ in Singapore;
  - To work with the industry to develop a regional forum that initiates cross-border RFID projects;
  - To build five RFID-enabling supply chain clusters by 2006 in manufacturing, consumer packaged goods manufacturing, pharmaceutical manufacturing, retails and logistics industries so as to encourage the deployment of RFID.

3. Taiwan

3.1 Taipei Wireless City 2006

- **Taipei Wireless City 2006** – The plan was initiated in 2004 to increase Taipei citizens' mobility by enabling Internet access to information any time and at any place. Some initiatives include:
  - Installing Public Wireless Local Network in the Metro by early 2005;
  - Setting up 15,000 to 20,000 hot spots in the city so that wireless internet is expected to be available citywide by the end of 2005;
  - Establishing Dynamic Bus Information System and Location Base Services;
  - Building information networks for citizens with physical handicaps;
  - Setting up Taipei e-Campus and online learning programs; and
  - Installing Public Wireless Local Network in Guandu Nature Park.

Appendix 2

HKSAR Government's initiatives in promoting wireless technology

Public Wireless LAN

The OFTA has established class licences on public wireless LAN (PWLAN) services since January 2003. The provision of PWLAN services (e.g. wireless surfing on the Internet) is through a simple licensing mechanism. The application for licensing does not incur any fees and in order to be a licence holder. As of October 2004, there are 23 registered service providers providing PWLAN services at over 200 locations.

Broadband Wireless Access (BWA) Services

The OFTA has issued a public consultation paper in December 2004 on the introduction of class licences on Broadband Wireless Access services (including services based on the worldwide interoperability for Microwave Access (WiMAX) standard). In the consultation, OFTA proposes to allocate the 3.4 – 3.6 GHz frequency band gradually to BWA. OFTA also suggested that BWA in Hong Kong may initially be offered as a wireless extension of the conventional wireline based fixed network. The licensing of BWA services would therefore fall within the fixed carrier licensing regime. The OFTA is of the preliminary view that auction should be adopted for assigning the spectrum.

The adoption of wireless technologies and services in the public sector

The OGCIO has been coordinating the following wireless/mobile services and technologies projects in the Government:

OGCIO

(a) *Mobile Speech Web Sites* - In May 2004, the OGCIO launched the mobile speech websites for bureaux and departments to access and listen to government information from three government web sites on the fly through mobile devices.

(b) *Mobile email service* - In April 2003, the OGCIO launched a mobile email service for some of its management staff to access their emails through mobile handheld devices. Over 60 government users have subscribed to this service. The OGCIO will continue to promote the service to bureaux/departments in the coming year.

(c) *Multimedia Messaging (MMS)* - The OGCIO and the Hong Kong Wireless Development Center (HKWDC) jointly provided a trial service of using office email systems to send MMS to B/Ds. The OGCIO will evaluate the effectiveness of the trial service when the pilot completes in end March 2005.

(d) *Tracking of asset items using RFID* - The OGCIO adopted RFID for tracking of valuable equipment of its IT Development Centre since mid 2004. It will share its experience on this project with other government departments.

The Leisure and Cultural Services Department (LCSD)

(a) *RFID based Library System* - LCSD plans to adopt RFID technology for the Hong Kong Heritage Resource Centre to automate the manual workflow of managing inventory control, cataloguing, borrowing, returning and sorting of materials, so as to enhance overall efficiency. The library system will be launched in 2005.

(b) *Wireless Hotspot* - LCSD plans to provide wireless hotspot service at the Hong Kong Heritage Resource Centre. This will facilitate the visitors to access its web site and search information in the Internet. It will be launched in 2005.

ESDlife

Wireless ESD Service - Since August 2004, ESDlife has rolled out a number of wireless services for users of mobile phone and PDA. The services include local weather forecast, report of air pollution index, appointment booking for registration of HKID card, appointment booking for HK Smart ID Card replacement exercise and quota checking, marriage register quota checking, government press release and news announcement, etc. The wireless ESD services being planned for rollout in the first quarter of 2005 include request for immigration applications forms, Leisure Link activity enrollment and facility booking.

Judiciary

Tracking of Criminal Case Files using RFID - Judiciary plans to set up a Case File Tracking System using RFID technology in early 2006. The system will support instant tracking of criminal case files for searching and locating case files in the High Court Clerk of Court's Office.

Enhancing enterprise awareness of wireless technologies

Under the auspices of the Task Force, 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 were organized. The Government has also participated in the ICT Expo 2004 in April 2004 and the IT Roadshow for Public Housing Estates 2004 from July to December 2004, and broadcasted two series of radio episodes in February and March 2004.

To better understand the adoption level of the wireless services and technology in the trade and industry sectors, relevant questions were added to the "2004 Annual Survey on Information Technology Usage and Penetration in the Business Sector" and the "e-Business Adoption Survey 2004". The Census & Statistics Department has published the result of the former survey on December 6, 2004; the HKPC is conducting the latter survey.

The HKWDC has also conducted survey on the adoption of wireless technology in the logistics, tourism, financial services and entertainment sectors in Hong Kong, Mainland China, Taiwan, Japan and South Korea. The survey report has been published on the Internet for reference by the industry and the public.

Development of seamless end-to-end Chinese language processing capabilities

The OGCIO is participating in the "International Ideographs Core (IICORE)" initiative of the International Organization for Standardisation (ISO). The OGCIO has incorporated the IICORE into the Government's Interoperability Framework Version 3.0. The OGCIO, together with the HKWDC are also liaising with Chinese software vendors to discuss the feasibility and details of implementing the IICORE in their products.

The HKWDC has conducted research on the issues concerning Chinese character input and display on wireless and mobile devices in July 2004 and has reviewed the test results to facilitate further technology development.

Enhancement of information security technologies and solutions

The Government has setup a Wireless Security theme page in the InfoSec website (infosec.gov.hk) to promote public awareness, to educate and to share with the public the relevant security guidelines and best practice. The HKWDC is also conducting tests on the Mobile Virtual Private Network (Mobile VPN) solutions for Personal Digital Assistant (PDA).

Promoting information sharing among various ICT sectors

The HKWDC organized the 3G Developer Forum in March 2004 to foster the partnership between the wireless system developers, the network operators and the equipment suppliers. The HKWDC also organized overseas and Mainland study missions, such as the ICT Mission to South Korea in September 2004 and the China-HK SP Collaboration Forum in October 2004, to promote cooperation between local companies and their counterparts outside Hong Kong. The HKWDC has also entered into cooperation agreements with its counterparts in Canada, Australia and South Korea.

Improvement in interoperability and technical standards

The HKWDC has launched two system and service development platforms that support Short Message Service (SMS), Wireless Application Protocol (WAP) and Multimedia Messaging Service (MMS) technologies. These facilities enable the industry players to lower their development costs and shorten the time to market of their products and solutions. So far, more than 20 product suites have completed testing using the facilities.

Forging industry-wide collaboration for the creation of a branding effect

The WTIA and the HKPC are making preparations for the first Hong Kong Wireless Technology Excellence Award (HKWTEA) in 2005. This will give recognition to outstanding and innovative wireless applications developed locally and help to promote Hong Kong's best-in-class wireless applications overseas.

Encourage development of innovative service models

The WTIA and the HKWDC launched the Cyberport 3G Project to provide a 3G enabling environment to support the development of 3G contents and application systems and will focus on the research and testing of various service and business models for different user segments.