For discussion on
11 April 2016

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**Legislative Council Panel
on Information Technology and Broadcasting
Wi-Fi Connected City**

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Purpose

This paper seeks Members' support to build Hong Kong as a Wi-Fi connected city by extending free public Wi-Fi services provided at government and other public venues through a multi-pronged approach as set out in paragraphs 8-14 below.

Background

GovWiFi programme

2.   The Finance Committee of the Legislative Council ("LegCo") approved a total of $285.6 million in 2007 and 2011 for providing Government Wi-Fi ("Gov*WiFi*") services at designated government venues for 10 years. As of March 2016, we have installed around 3 100 Wi-Fi hotspots at 603 government venues to provide Gov*WiFi* services. Public demand for Gov*WiFi* services has been increasing over the years. The average number of daily users and Internet connections have increased from 3 700 and 6 700 in June 2009 to over 34 000 and 49 000 in February 2016 respectively. In terms of speed, Gov*WiFi* has increased the average download speed per user from 1 Mbps since its service launch in 2008 to the current 3-4 Mbps to keep pace with technological growth while ensuring cost-effectiveness. The Gov*WiFi* venue coverage has also extended from the original target of 350 to 603 venues. The current Gov*WiFi* services are provided by a contractor. The related contract includes supply and implementation of serrvice, support and maintenance of the necessary network equipment and associated services, and will expire in January 2018.

Wi-Fi.HK brand

3.   Apart from Gov*WiFi* services provided by the Government, a number of public and private organisations are also providing completely free or time-limited public Wi-Fi services to the general public or their customers across the 18 districts in Hong Kong. To make it easier for the public and visitors to access free public Wi-Fi services in Hong Kong, the Office of the Government Chief Information Officer ("OGCIO") collaborated with the industry as well as

public and private organisations to launch the common brand of "Wi-Fi.HK" in August 2014. Participating organisations of Wi-Fi.HK offer at least 30-minute free Wi-Fi services to the public and visitors without prior user registration. At the end of 2015, the number of hotspots under Wi-Fi.HK has significantly increased from some 5 000 since its service launch to over 17 000 (including 3 100 Gov*WiFi* hotspots at government venues), offering Wi-Fi services at locations including the Hong Kong International Airport, major tourist attractions, theme parks, public phone booths, college campuses, Cyberport, Hong Kong Science Park, government venues as well as some shopping malls, restaurants, cafés and convenience stores. The mobile app developed for supporting the brand is well-received by the public and visitors, and the number of downloads keeps on increasing and now exceeds 170 000. Unlike Gov*WiFi*, the Government is currently only responsible for the expenditure of the promotion and development of the Wi-Fi.HK common brand.

Free Wi-Fi services provided in hospitals

4.   In early 2015, OGCIO facilitated the Hospital Authority ("HA") to collaborate with Wi-Fi service providers to provide one-hour free Wi-Fi.HK services at public areas such as the waiting halls of their Accident and Emergency Departments and specialist out-patient clinics of six public hospitals[1] as a pilot project. Riding on the success of the pilot project, OGCIO is working with HA to extend the current collaboration model to all public hospitals.

Consultancy study of providing public Wi-Fi services at government venues

5.   To plan for the succeeding arrangements of the Gov*WiFi* programme, OGCIO commissioned a consultancy study in mid-2015 to explore the viable business model and operation of future public Wi-Fi services at government venues with a view to making the services sustainable and scalable and using public resources more effectively. The consultant recommended that the Government should adopt a public-private collaboration approach and work with the private sector to provide free public Wi-Fi services at government venues. The study has also made reference to other cities such as New York, Singapore, Amsterdam, Shanghai and Guangdong, and noticed that there is a trend for city governments to adopt various partnership or collaboration models with Wi-Fi service providers so as to provide free public Wi-Fi services in a sustainable manner. We also anticipate that the collaboration model for the provision of free public Wi-Fi services will help drive digital innovation in

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[1]   The six pilot hospitals are Caritas Medical Centre, Kwong Wah Hospital, Princess Margaret Hospital, Yan Chai Hospital, Queen Elizabeth Hospital and Hong Kong Eye Hospital.

areas like cloud computing[2], Internet of Things[3] (IoT), big data analytics[4] and other emerging technologies and services in Hong Kong. In the long run, this model has the potential to be further extended to private venues and evolve into a new public Wi-Fi eco-system in Hong Kong.

6.   Based on the success of the collaboration model with HA and having considered the consultant's recommendation, we have solicited further views from the industry in late 2015 to gauge their interest in participating in the collaboration model for the provision of free public Wi-Fi services at government venues. Through an expression of interest exercise, we have received supportive feedback from the industry on the public-private collaboration arrangement. The industry has also shared with us some viable business models that will sustain free Wi-Fi.HK services while at the same time provide commercial Wi-Fi service[5] and other information services[6], etc. to the public.

2016 Policy Address

7.   In the 2016 Policy Address, the Government pledged to progressively expand the coverage of Wi-Fi.HK by doubling its number of hotspots from the existing 17 000 to 34 000 within three years, covering venues including public rental housing estates, public hospitals, markets, parks, sitting-out areas, promenades, tourist spots, public transport interchanges and land boundary control points, etc. The speed of Wi-Fi connection at government venues will be doubled to 3-4 Mbps and its security will also be further enhanced. In addition, we will offer free Wi-Fi services at all youth service centres and study rooms run by the Government and non-profit-making organisations. Furthermore, we will collaborate with public and private organisations to expand Wi-Fi.HK coverage to venues of high public patronage such as busy streets, bus stops and shopping malls.

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[2]   Cloud computing is a model for enabling convenient network access to a shared pool of configurable computing resources (e.g. networks, servers, storage, applications, and services) that can be rapidly provisioned and released with simple management or appropriate service provider interaction.

[3]   Internet of things (IoT) is an infrastructure of interconnected objects, people, systems and information resources together with intelligent services to allow them to process information and react.

[4]   Big data analytics is the process of examining large amount and variety of data to uncover some hidden patterns, unknown correlations and other useful information.

[5]   Commercial Wi-Fi service refers to premium Wi-Fi service with faster speed and unlimited access offered to users who opt for such service.

[6]   Other information services include showing advertisement and service information on mobile devices of the Wi-Fi users.

Proposal

8.   We will take a multi-pronged approach to implement the Wi-Fi Connected City initiative. Details are as follows:

Open up government venues for Public-Private Collaboration

9.   We propose to adopt a public-private collaboration model in the provision of public Wi-Fi services at government venues as far as possible. The Government will open up government venues for the private sector to install their equipment and provide time-limited free public Wi-Fi services at their own cost. We are aware that some government venues, especially those outdoor venues in busy districts (such as promenades, parks and sitting-out areas), may have commercial value for the public-private collaboration arrangement, but there is currently insufficient basic infrastructure to facilitate the installation of Wi-Fi services, such as the unavailability of underground ducts/conduits for running electricity and data cables for connecting the venues to the network infrastructure. In addition, it may take much longer time for the private sector to set up the necessary basic infrastructure at government venues, which will likely reduce the interest of the private sector in providing Wi-Fi services under the public-private collaboration model. To attract more private organisations to install and operate the Wi-Fi services, the Government will fund the one-off setup of the basic infrastructure at these government venues. Relevant government departments will provide assistance to the private sector in carrying out other necessary works. The private sector will be allowed to provide their commercial Wi-Fi service and other information services, etc. at these venues. In future, the Government will bear the electricity charges[7] for the operation of the Wi-Fi services.

Government-funded venues

10.   For government venues (such as public libraries, community centres, government clinics and country park visitor centres) that are of low commercial value to the private sector for public-private collaboration but with keen or special public demand for free Wi-Fi services, the Government will continue to fund the free Wi-Fi services at these venues.

Subsidies to premises operated by Non-government Organisations (NGO)

11.   For youth service centres and study rooms run by non-government organisations ("NGOs") which are of low commercial value for public-private

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[7]   The annual electricity charge per Wi-Fi hotspot is about $100 on average.

collaboration, the Government will subsidise these NGOs to provide free Wi-Fi services, thereby facilitating the public, in particular students, to continue their study after school using Internet resources.

Technology standards

12.	For the new hotspots provided under both the public-private collaboration and government-funded models, we will adopt the latest Wi-Fi standard IEEE 802.11ac to improve data transfer speed and service stability. Under practicable circumstances, we will also use broadband service supported by fibre network as the Wi-Fi backhaul to ensure scalability of bandwidth.

Development and promotion of Wi-Fi.HK

13.	The OGCIO will continue to develop and promote the Wi-Fi.HK brand as a quality public Wi-Fi service through various means as set out below:

(a)	*Adopting Wi-Fi.HK as the single brand name at government venues*
Progressively replace Gov*WiFi* with Wi-Fi.HK as the single brand name for public Wi-Fi services at government venues;

(b)	*Enhancing security of Wi-Fi.HK*
Encourage participating organisations of Wi-Fi.HK to follow the example of Gov*WiFi* in enhancing the security of their services through the use of digital server certificate so that the public and visitors can easily discern the legitimacy of the Wi-Fi services, thus further increasing their security and reliability; and

(c)	*Promoting Wi-Fi.HK to more private sector's venues*
Further promote Wi-Fi.HK to attract more private hospitals, shopping malls, and public transport operators to join the common brand and offer free Wi-Fi services.

Collaboration and facilitation

14.	We will facilitate government-related organisations to collaborate with Wi-Fi service providers to provide public Wi-Fi services at their venues in a sustainable manner. For example, OGCIO, in consultation with HA, will conduct an expression of interest exercise in April 2016 to invite Wi-Fi service providers to collaborate with HA in extending free Wi-Fi services to all public hospitals. In addition, we are also working with the Housing Authority on the provision of Wi-Fi services under the Wi-Fi.HK brand at public areas of public rental housing estates for the general public.

Expected Benefits

Enhanced free Wi-Fi services

15.   The above measures will meet the public demand for free and secure Wi-Fi services in more places, and encourage participating organisations to promptly adopt newer Wi-Fi and other related technologies and services. Government bureaux and departments can also ride on these Wi-Fi hotspots to deliver their venue-related public e-services and NGOs can benefit from the subsidising scheme to enhance their Wi-Fi facilities for use by the youth and students for e-learning. All these will help develop Hong Kong as a Wi-Fi Connected City in a sustainable and scalable manner, as well as enhance Hong Kong's image as a world-class city for visitors.

More business opportunities

16.   The introduction of private sector participation through public-private collaboration is an effective way of bringing commercial best practices into the provision of public Wi-Fi services at government venues. Compared with the conventional means of government procurement, it can lead to better service delivery in a timely fashion at a lower cost under a competitive market environment.

17.   The public-private collaboration model also helps the private sector, in particular the information and communications technology industry, to expand their network coverage and take the opportunity to provide value-added services to their customers in more public locations, thereby creating more business opportunities.

18.   Moreover, with wider coverage of free public Wi-Fi services, it can stimulate the industry to develop more mobile e-services for the public. Providing free Wi-Fi services extensively in public areas will also be an integral part of smart city development.

Implementation Plan

19.   In the second half of 2016, we propose to conduct a pilot project of adopting the public-private collaboration model for the provision of free Wi-Fi service to the public at some selected government venues with high patronage, such as parks, sitting-out areas, promenades, tourist spots, public transport interchanges, etc. If there is active participation from the industry, we will spare no effort to take forward the pilot project in over 100 venues across the 18 districts in Hong Kong. Based on the pilot results, we will formulate the

long-term collaboration model and the details of the next implementation stage, including the types of government venues to be opened up, number of venues, geographical distribution as well as service requirements (such as free usage time, connection speed and technology standard, etc.). It will also provide a chance for the private sector to explore the best business arrangements to make the service sustainable.   Upon completion of the pilot project, the Government will review the results in six months. It is expected that the mass roll-out of the public-private collaboration arrangement will begin from mid-2017. We expect that there will be 7 000 new Wi-Fi.HK hotspots at government venues through public-private collaboration within three years.

20.   Through the Government's lead in driving the Wi-Fi Connected City initiative, we expect that another 10 000 hotspots provided by other public and private organisations will join the Wi-Fi.HK brand.   Together with the 7 000 new hotspots above, there will be about 17 000 more Wi-Fi.HK hotspots in areas of high patronage across the 18 districts in Hong Kong for the use by the public and visitors.

21.   The proposed implementation plan is as follows :

	Activities	**Time**
(a)	Seek funding approval from Finance Committee	May 2016
(b)	Pilot project under the public-private collaboration model	July 2016 to March 2017
(c)	Provision of public Wi-Fi services in youth service centres and study rooms run by NGOs	August 2016 to March 2017
(d)	Government-funded Wi-Fi services at government venues	Early 2017 to Jan 2018
(e)	Progressive roll-out of Wi-Fi services through public-private collaboration in large scale	April 2017 to end 2019

Funding Proposal

22.　　It is estimated that a total non-recurrent expenditure of $500 million will be required for implementing the proposal. A breakdown is as follows:

Capital Expenditure		**$ million**
(a)	Implementing a pilot project under public-private collaboration model (about 1 000 hotspots)	40.0
(b)	Full scale roll-out of public-private collaboration model (about 6 000 additional hotspots)	176.0
(c)	Provision of Wi-Fi services for five years at government venues in which the private sector will not provide service (about 2 500 hotspots)	140.0
(d)	Programme coordination, management and support	66.0
(e)	Promotion of Wi-Fi.HK as a free and quality Wi-Fi service in Hong Kong	10.0
(f)	Contingency	42.7
	Sub-total	**474.7**
Non-recurrent Subsidies to NGOs		
(g)	Public Wi-Fi services in study rooms, youth service centres and other government/public-related venues for 5 years (about 500 hotspots)	23.0
(h)	Contingency	2.3
	Sub-total	**25.3**
	Total	**500.0**

Recurrent and other time-limited resources for implementation of the proposed Wi-Fi Connected City initiative will be absorbed from within the existing resources of concerned bureaux/departments.

Stakeholder's Engagement

23.   The OGCIO has sought support within the Government in opening up government venues for the private sector to set up public Wi-Fi services together with the provision of value-added services.

24.   The OGCIO will set up a Steering Committee and working groups with members from participating bureaux and departments, major NGOs and service providers to define the service scope and detailed requirements, oversee the implementation and monitor the on-going service provision under the public-private collaboration model and the NGO subsidising scheme. We will also consult relevant parties including the Independent Commission Against Corruption, the Office of the Communications Authority, and the Government Logistics Department to ensure the public-private collaboration arrangements are appropriate, open and fair to all participating organisations.

25.   As for the industry, they support the implementation of a pilot project before progressively applying the model to more government venues. Hence, we will issue an invitation for expression of interest to the industry to engage interested service providers to provide free public Wi-Fi services at various types of government venues for the pilot project.

Advice Sought

26.   Members are invited to support the proposed Wi-Fi Connected City Programme as set out in paragraphs 8-14 above. Subject to Members' views, we plan to seek funding approval from the LegCo Finance Committee in May 2016.

Innovation and Technology Bureau
Office of the Government Chief Information Officer
April 2016