

For discussion
on 16 April 2019

Legislative Council
Panel on Information Technology and Broadcasting

Update on Smart City Development

Purpose

This paper briefs Members on the latest position of smart city development.

Background

2. In December 2017, the Government released the Smart City Blueprint for Hong Kong, outlining the vision and mission to build Hong Kong into a leading smart city around the world and setting out over 70 initiatives under six smart areas .

3. In March 2018, we briefed Members on the details of three smart city key infrastructure projects, namely electronic identity (“eID”), Multi-functional Smart Lampposts pilot scheme and the Next Generation Government Cloud Infrastructure (“GovCloud”) and Big Data Analytics Platform. In May 2018, the Finance Committee of the Legislative Council approved a commitment of \$645.3 million to implement two projects, eID and the Next Generation GovCloud and Big Data Analytics Platform.

Smart City Infrastructure

eID

4. The Office of the Government Chief Information Officer (“OGCIO”) awarded the service contracts for the implementation, support and maintenance of eID system in end-February 2019. The contractors are now undertaking system design and development. The eID system is expected to come into operation in mid-2020.

5. OGCIO is working with government departments to draw up the timetable and details of adopting eID in e-Government. We plan that upon its launch in mid-2020, eID will be adopted in 26 e-Government services, including the application or use of: Home Ownership Scheme, eTAX, renewal of full driving licence, registration of outbound travel information, registration for employment services by job-seekers, etc. By mid-2021, we expect that eID will be adopted in most (over 110) of the e-Government services.

6. Moreover, upon completion of the design for eID's Application Programming Interface ("API") in the second half of 2019, OGCIO will provide the relevant technical information to interested public organisations and private companies for their consideration in adopting eID in their online services and undertaking the necessary preparatory work for modifications to their information technology ("IT") systems.

Next Generation GovCloud and Big Data Analytics Platform

7. OGCIO is revamping the development technology of e-Government systems and building a big data analytics platform in order to support government departments in making better use of cloud services and new IT for enhancing operation efficiency and cyber security. Open tendering and development of the Next Generation GovCloud and Big Data Analytics Platform are in progress, and the new system and platform are expected to be launched in the third quarter of 2020.

8. The Next Generation GovCloud will adopt a hybrid cloud design. Apart from implementing the secure and reliable "private cloud", we will also make use of "public cloud" services which are highly flexible, elastic, and able to expand the system hosting capacity as and when required, and in compliance with security requirements.

9. The Big Data Analytics Platform will run on the Next Generation GovCloud. It will provide facilities including big data analytics tools, artificial intelligence cognitive tools, etc. to facilitate policy bureaux and departments ("B/Ds") to take forward more big data analytics projects, such as those on weather, traffic and environment. This will enhance government operation efficiency, improve city management and provide more efficient and reliable public services to the public.

Multi-functional Smart Lampposts Pilot Scheme

10. We are pressing ahead with the Multi-functional Smart Lampposts pilot scheme to install about 400 multi-functional smart lampposts with smart devices in four urban areas (namely Central/Admiralty, Causeway Bay/Wan Chai, Tsim Sha Tsui and Kwun Tong/Kai Tak Development Area). This will help relevant departments to collect various real-time city data as well as enhance city and traffic management.

11. The estimated expenditure for the whole pilot scheme is about \$272 million. We will replace and install about 50 smart lampposts in the first phase in selected road sections in Kwun Tong/Kai Tak Development Area, which will be funded under the Capital Works Reserve Fund (CWRF) Head 706 Block Allocation. The expenditure for computer support systems and relevant digital infrastructure, including network communications devices for connecting different user departments and network systems, cloud servers and information security facilities, etc., will be met from CWRF Head 710 Computerisation Block Allocation. The expenditure for installing the remaining smart lampposts under the pilot scheme will be met from CWRF Head 706 and Head 710 Block Allocations. In 2019-20, the estimated project expenditure is \$48 million.

12. OGCIO and the Highways Department, in collaboration with other relevant departments, have set up an inter-departmental task force to take forward the pilot scheme and work out the major functions and applications of smart lampposts:

- (a) **Transport Department** - traffic detectors and surveillance cameras are used to collect real-time traffic data, including vehicle speed, vehicle types, traffic flow, etc., as well as to monitor traffic conditions;
- (b) **Tourism Commission** - data collected by smart lampposts are used to provide the travel industry/travel agents with traffic information at district level or reminders to help them plan their journeys to avoid congested areas;
- (c) **Environmental Protection Department** - air quality sensors are used to collect air quality data at district level and surveillance cameras are

used to assist in law enforcement work against illegal dumping of construction waste;

- (d) **Hong Kong Observatory** - meteorological sensors are used to collect meteorological and related data at district level, including temperature, humidity, wind speed and direction, rainfall, UV index, etc.; and
- (e) **Lands Department** - bluetooth transmitters, radio frequency identification (RFID) technology and geographic-QR codes are used to provide accurate location services to support government services and development of relevant applications by the industry, such as providing citizens and tourists with information about public facilities in their vicinity.

13. Smart lampposts will use power-saving light emitting diode (LED) lighting as well as adopt intelligent management to save energy. Provision will also be made for mobile network operators to apply for installation of the fifth generation mobile communications (5G) base stations and for the provision of free Wi-Fi service. City data collected from the smart lampposts will be released in machine-readable formats via the Public Sector Information (“PSI”) portal (data.gov.hk) for free use by the public.

14. About 50 smart lampposts in Kwun Tong/Kai Tak Development Area under the first phase will come into operation progressively by mid-2019. The remaining 350 smart lampposts or so will be rolled out in phases and the whole project is expected to be completed in 2021-22. We will consult the relevant District Councils before finalising the detailed work plan.

Wi-Fi Connected City

15. In the past year, the Government has been implementing the “Wi-Fi Connected City” programme through a multi-pronged approach. The number of hotspots joining the “Wi-Fi.HK” brand has increased from about 21 300 as at end-February 2018 to over 24 000 as at end-March 2019, with the participation of more than 120 organisations. We will continue to promote the “Wi-Fi.HK” brand and invite more companies from various industries and public service organisations to join the brand, thereby progressively expanding the coverage of free Wi-Fi service.

16. OGCIO will continue to collaborate with the Tourism Commission and the Hong Kong Tourism Board to provide Wi-Fi service and high-speed Wi-Fi access points at more popular tourist attractions (such as Temple Street and Golden Bauhinia Square), so as to enhance the travel experience of tourists. At the same time, we will actively promote the “Wi-Fi.HK” service to tourists so as to invite more tourist-related sectors and venues, including shopping centres, restaurants, retail outlets, tourist attractions, public transport, etc. to join the “Wi-Fi.HK” brand and jointly promote Hong Kong’s high quality public Wi-Fi service. We estimate that more than 5 000 Wi-Fi hotspots will join the “Wi-Fi.HK” brand in 2019.

17. OGCIO is making arrangements with the service providers under the public-private collaboration (“PPC”) scheme to install free Wi-Fi service at more than 30 government venues and eight public hospitals. It is estimated that the number of hotspots will be increased by around 1 900 within 2019.

18. Since no service provider has expressed any interest in providing free Wi-Fi service at some venues, including small parks and sitting-out areas (SOA) of public rental housing estates and some public hospitals, through the PPC model as originally planned, we have decided that the Government should provide free Wi-Fi service direct in the light of public demand for Wi-Fi service at these venues. We will deploy resources to install related facilities for providing free Wi-Fi service at around 270 additional government venues and small parks and SOA of over 180 public rental housing estates across the territory, as well as public hospitals not yet covered by the PPC model. It is expected that the number of hotspots will increase by more than 3 000.

19. On service quality enhancement, OGCIO has carried out various enhancement works on the Wi-Fi service provided at government venues. They include improving the display of hotspot signage at proper locations and adopting the latest technology standard (IEEE 802.11ac), as well as fully using fibre network by mid-2019 in order to provide faster and more stable Wi-Fi service. The connection speed has been enhanced to above 10 Mbps, marking a significant increase over the previous average speed of 3-4 Mbps. Since the commencement of the service enhancement works, surveys have also revealed that users’ satisfaction with the Wi-Fi service at government venues has continuously improved and risen from 2.6 points in mid-2018 to around 3.1 points at present (out of a 4-point scale).

20. According to the user experience survey completed in early 2019 by a professional research organisation on the overall service performance of the “Wi-Fi.HK” brand (including the services provided by the Government and public and private organisations), respondents were in general satisfied with the “Wi-Fi.HK” service. 72% of them gave ratings of 5 or above (out of 7) and 88% of them would recommend their friends to use “Wi-Fi.HK”. Details of the survey results have been published on the “Wi-Fi.HK” website (www.wi-fi.hk).

21. With the above measures, we expect that the number of hotspots under the “Wi-Fi.HK” brand will exceed 34 000 by the end of 2019.

22. Furthermore, it is proposed in the 2019-20 Budget to allocate some \$200 million from the Lotteries Fund to provide Wi-Fi service to around 1 350 service units operated by subvented organisations under the Social Welfare Department (SWD), and to encourage them to make use of technology products to improve elderly and rehabilitation services. SWD will also provide Wi-Fi service to 180 welfare facilities which it operates. OGCIO will work closely with SWD to provide technical support so as to implement the project.

Other Smart City Initiatives

Open Data

23. Open data is one of the eight major areas to promote innovation and technology (“I&T”) development announced by the Chief Executive. OGCIO promulgated a new open data policy and implementation measures to B/Ds in September 2018. B/Ds also published their first annual open data plans by the end of 2018.

24. According to the annual open data plans of B/Ds, about 700 new open datasets are expected to be released via the PSI portal in 2019. The new datasets will cover different areas, including data related to economy and livelihood (such as data on the waiting time for new case booking for specialist outpatient services), geospatial data (such as the locations of public or community facilities), digital maps that can facilitate smart city development, data that can improve city management (such as drainage facilities, road excavation permits issued and visibility by district), etc. As at end-March

2019, the PSI Portal has disseminated over 3 450 datasets and provided around 1 250 APIs, including 140 new datasets opened up in the first quarter of 2019. In addition, OGCIO will further enhance the PSI Portal. A city dashboard function is planned to be launched by the end of 2019 for the public to view various data more easily and effectively.

25. Regarding real-time public transport arrival data which has always been a public concern, the Transport and Housing Bureau and the Transport Department (“TD”) have been actively discussing with the relevant operators, including bus companies, MTR Corporation Limited, etc., about opening up such data. The responses of relevant operators so far are positive. In particular, New World First Bus Services Limited and Citybus Limited have agreed in principle to open up their real-time arrival information. These data are expected to be disseminated on the PSI Portal in machine-readable formats in the third quarter of 2019. TD will continue to discuss with other public transport operators about opening up real-time arrival data in order to foster smart city development.

Pro-innovation Government Procurement Policy

26. Reviewing the government procurement policy is another focus among the eight major areas for I&T development. The Government has introduced a pro-innovation government procurement policy in April 2019. By raising the technical weighting in tender assessments, tenders with innovative suggestions will stand a better chance of winning the tenders. Government departments will more widely adopt marking schemes, and the technical weighting allowed in the assessment has also been increased from the current range of 30-40% to 50-70%. A minimum 20% of technical marks should be reserved for assessing innovative suggestions submitted by tenderers, so that innovative tenders will stand a better chance of winning.

27. The Government will also change the existing basic tendering requirements so that start-ups can have better chance to participate in the tendering process. Unless considered absolutely necessary and with the prior approval of the relevant tender boards, departments should not include tenderers’ experience as an essential requirement. If such a requirement has to be included in the marking scheme for consideration, its weighting should generally not exceed 15% of the total technical marks.

28. To tie in with the Government's new procurement policy, OGCIO has revised the prevailing Standard Marking Scheme for IT Tenders and the marking scheme for the Standing Offer Agreement for Quality Professional Services 4. Both marking schemes have taken effect from April 2019.

Smart Government Innovation Lab

29. OGCIO has established the Smart Government Innovation Lab ("Smart Lab") in April 2019 for conducting trials and technology testing in collaboration with government departments on IT solutions which address their business needs. The Smart Lab will also showcase technologies that have been successfully tested by government departments, such as chatbot, virtual reality, geospatial technology, etc., with a view to inspiring wider adoption among government departments.

30. Besides, OGCIO will set up a thematic website for the Smart Lab to share information on the challenges being faced by different public services, and invite the industry to submit technology solutions and product suggestions for addressing such challenges. OGCIO will organise technology fora in collaboration with Cyberport and Hong Kong Science Park for industry players to share their technology solutions and success stories, and how such technologies can be used to improve public services. Local start-ups and small and medium enterprises ("SMEs") joining the fora can better understand and appreciate the operational needs of government departments, and submit to the Smart Lab proposals for addressing different city management challenges. The first technology forum will be held in June 2019, after which it would be organised on a quarterly basis. OGCIO will upload the technology solutions and suggestions received to the Smart Lab thematic website and arrange thematic workshops for government departments so that they could better understand the solutions and products that suit their operational needs, and proceed with trials and technology testing for suitable solutions in the Smart Lab.

31. Taking into account the new pro-innovation procurement policy, the Smart Lab is expected to create more business opportunities for local start-ups and SMEs.

Faster Payment System

32. The Hong Kong Monetary Authority (“HKMA”) launched the Faster Payment System (“FPS”) in September 2018 to enable users of banks and stored value facilities (“SVF”) to make instant cross-bank/e-wallet payments easily by entering the mobile phone number or the email address of the recipient. As at end-February 2019, FPS has recorded over 2.4 million registrations. In the same month, FPS has processed over 1.8 million transactions denominated in Hong Kong dollars, involving an amount of about \$33 billion. HKMA will continue to enhance public understanding of the use of SVF through the SVF licensing and regulatory regime in order to encourage and promote payment innovation and development. In relation to the launch of FPS, HKMA will carry out a series of promotional activities together with the industry to introduce the convenience brought by the system.

33. The Government is also planning for the use of FPS to provide the public with greater convenience in paying taxes, rates and water charges. The service is expected to be launched in the fourth quarter of this year at the earliest. The public can scan the QR codes on the bills through various mobile applications of banks and e-wallets to make payments simple and convenient. Besides, the Government is examining the feasibility of accepting payments through FPS at the shroff counters of TD, the Immigration Department and the Leisure and Cultural Services Department on a pilot basis.

Advice Sought

34. Members are invited to note the contents of this paper.

**Office of the Government Chief Information Officer
Innovation and Technology Bureau
April 2019**