

**For discussion on
9 July 2018**

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

E-Government

Purpose

This paper updates Members on the latest development and future direction of e-Government, and elaborates on our plans and initiatives to promote the further development of e-Government.

Background

2. We promulgated the Smart City Blueprint for Hong Kong in December 2017 to set out the development plans for the coming five years under six areas, including “Smart Government”. Major initiatives include open data, infrastructure building, and technology adoption.

3. Over the years, the Government has committed to providing e-Government services through various means. Since 2007, the Office of the Government Chief Information Officer (“OGCIO”) has established GovHK (www.gov.hk), a one-stop government portal, to facilitate search for public information and services by the public. MyGovHK (www.gov.hk/mygovhk), a personalised service delivery platform, was launched in December 2010 to provide services and information tailored to individual users. Government bureaux/departments (“B/Ds”) also develop different information technology (“IT”) systems, websites, online services, electronic forms and mobile apps, etc. to support their provision of services to the public. As at end-2017, more than 840 e-Government services are provided with an overall utilisation¹ of over 100 billion times that year, representing an increase of more than 10% as compared to 90 billion in 2016.

4. With the development of digital government, the international trend has evolved from focusing on computerising existing services to enhancing public services through adoption of technology under a data-driven approach. According to the “International Digital Government Rankings 2017 Report” published in August 2017 by the Institute of Digital Government at Waseda

¹ Overall utilisation includes page hit counts for the informational pages of websites and mobile apps as well as the number of transactional activities.

University, Tokyo in cooperation with the International Academy of CIO, Hong Kong was ranked 24th in the International Digital Government Rankings and 5th in Asia out of 65 digital governments. The Report also pointed out some new global development trends with regard to digital government, including –

- (a) Mobile Government – delivering government services such as provision of government information, receiving applications, etc. through mobile platforms (e.g. smartphones, tablets);
- (b) Artificial Intelligence (“AI”) and Internet of Things (“IoT”) – implementing smart city management and public services with AI and IoT integrated with big data analytics;
- (c) Smart City – utilising technology to develop smart city and enhance the effectiveness of city management;
- (d) Cloud Computing – developing IT services that can better meet public needs in a more agile and cost-effective manner through cloud computing technology (including “Private Cloud” and “Public Cloud”); and
- (e) Enhancing transparency and accountability of the Government by leveraging digital government as a platform to uphold probity in the Government.

5. In view of the development worldwide and the rising public expectation, we need to constantly enhance and strengthen the work related to e-Government development. We will develop the plan and measures for next generation e-Government from three aspects, namely enhancing the elements to facilitate the public, building infrastructure, and adopting emerging technologies. Details are in the ensuing paragraphs.

Enhancing Elements to Facilitate the Public

Adopting Mobile-first Design and Enhancing User Experience

6. To build a smart government, one of the key elements is to develop and integrate e-Government services according to the needs of people and businesses. In view of the popularity of smartphones in Hong Kong, the design of next generation e-Government services has to be mobile friendly, putting the user experience of mobile device users first in our consideration. In November 2016, we revamped GovHK and implemented responsive design, facilitating the public in browsing the portal with various devices, including tablets and smartphones.

7. To further enhance e-Government services user experience, we will devise improvement measures and suitable policies and guidelines in the coming year for development of next generation e-Government services with mobile-first design. It is expected that mobile-first e-Government services can attract and facilitate more citizens and organisations to conduct electronic transactions with the Government, without confining to information browsing only.

8. Online payment is another essential element of e-Government services. At present, the Government provides various online payment services to facilitate payment of government bills and fees by the public through credit card, PPS and e-cheque. In the 3rd quarter of 2017, OGCIO, in cooperation with relevant departments, introduced mobile payment technology solutions which support smartphone e-wallet (including Apple Pay and Google Pay) for B/Ds to consider adopting having regard to their business needs to facilitate the public's use of e-Government services. Individual departments with business needs are actively exploring adoption. We will more widely adopt mobile payment solutions with e-wallet among government services in the coming year.

9. As chatbot technology has become more mature, some commercial organisations and governments of other economies use chatbots to deliver their services. To bring a brand-new user experience to the public, OGCIO will launch chatbot service from 2019 to provide an interactive interface to enable the public to search for government application forms and related application procedures and details in a simpler and more accurate manner.

Enhancing Government Transparency

10. It is a global trend to open up public sector information for free public use, which not only increases the transparency of the Government, but also advances innovation and public policy research. At present, the Government's "data.gov.hk" portal disseminates over 3 200 unique datasets provided by B/Ds public and private organisations, covering meteorology, environment, transport, finance, population, etc., of which historical public data is also provided to enable various sectors of the community to use these datasets to conduct research and develop innovative applications and services. To facilitate selection of required information by the public, the "data.gov.hk" portal provides more than 1 200 Application Programming Interfaces to support different applications. In end-2017, we also enhanced the "data.gov.hk" portal by adopting "design thinking", including re-organising the user interface to facilitate searching of datasets, and providing new functions for the public to search open data with geographical location on the map. These portal enhancements not only offer better user experience, but also facilitate the public in using the datasets. We will promulgate a policy in the second half of 2018 to require B/Ds to work out

concrete plans to open up data, so that B/Ds and relevant public organisations will release more data, in particular those conducive to smart city development, on the “data.gov.hk” portal for free use by the public and various sectors.

Strengthening the Use of Central Digital Platform Services and Departmental Cooperation

11. To drive the development of next generation e-Government services, OGCIO will through their IT Management Units promote B/Ds’ adoption of technical solutions for customer-centric e-Government services that better meet public needs (e.g. use of central digital platforms, common services, government portals for implementing e-Government services, design of customer-centric mobile apps, electronic forms, etc.). OGCIO will actively cooperate with B/Ds and provide technical support to assist them in developing new systems and e-services. OGCIO will also require B/Ds to actively implement specific measures, e.g. adopting eID for user login and identity authentication. It is expected that all the new e-Government services would need to incorporate eID for user login and identity authentication, and existing services should also adopt eID as soon as possible through system upgrade or revamp.

Building Infrastructure

Next Generation Government Cloud Infrastructure

12. To enable B/Ds to reduce the time and lower the development cost in setting up IT systems and implementing IT solutions, we will build a central digital platform, namely the Next Generation Government Cloud Infrastructure (“Next Generation GovCloud”), for full production use in the 3rd quarter of 2020. The “Next Generation GovCloud” will adopt a hybrid cloud design. Apart from implementing a reliable “Private Cloud”, we will also make use of “Public Cloud” services which are highly flexible, elastic and in compliance with security requirements to expand the system hosting capacity as and when required so as to meet the growing demand of the public on digital public services. We will adopt “Public Cloud” services with enhanced security features starting from mid-2019. The “Next Generation GovCloud” also provides 24-hour monitoring and support services, so that B/Ds can provide digital government services more efficiently and securely to meet the development needs of a smart government. Moreover, it will support the development of IT applications with new application system development technologies, standards and frameworks. A library of common services (e.g. common authentication, payment services, etc.) will also be built on the platform to enable B/Ds to implement new IT services with reduced time and effort, thereby shortening the system development time by at least 20%.

13. To support the long-term development of data centre services in B/Ds, including meeting the demand for data centre services brought by the development of the “Next Generation GovCloud” and re-provisioning the existing government data centres which require relocation (including those affected by the relocation of the three government buildings in the Wan Chai Government Offices Compound), we will build a new government data centre complex (“the Complex”) in King Lam Street, Cheung Sha Wan. Through consolidating data centre facilities and operations, the Complex can achieve resources sharing so that the Government will achieve savings in both capital investment and recurrent operation of data centre services. By adopting latest technologies, the Complex will provide data centre services with enhanced agility, reliability, security, capacity and availability. The Finance Committee of the Legislative Council has approved in June 2018 a funding of \$2,251.7 million for construction of the Complex. Construction of the Complex is estimated to be completed in the 3rd quarter of 2021.

Big Data Analytics Platform

14. To support data-driven policy making and service delivery, we will also implement the “Big Data Analytics Platform” in the 3rd quarter of 2020. The platform, run on the “Next Generation GovCloud”, will provide advanced facilities, including big data analytics tools, artificial intelligence cognitive tools, parallel computing management system and a “Digital Highway” which will facilitate exchange and sharing of real-time data among B/Ds. The “Digital Highway” can also enable B/Ds to open up data collected in city management (e.g. data collected from smart lampposts) and promulgate in a real-time manner on the “data.gov.hk” portal. The “Big Data Analytics Platform” will facilitate the implementation of more big data analytics projects, such as weather, transport, environment, health, etc. for smart city development and timely delivery of data-driven public services.

eID

15. To enable citizens to log in various e-Government services (e.g. applying for licence renewal, booking venues, making appointments, etc.) in a simpler, more convenient and secure manner, the Government will launch eID in mid-2020 and progressively make use of eID as identity authentication for all e-Government services in two years’ time. With the secure identity authentication and digital signing features provided by eID, government departments can further streamline the processes of e-Government services, and develop more convenient and innovative e-Government services. For example, the Government will introduce new services to support the use of eID, enabling voluntary storage of encrypted personal data by citizens for subsequent completion of various forms.

This can save time and effort of citizens filling in the same information for different applications. To protect personal privacy, citizens can choose and decide whether the stored information can be transferred to other government departments and organisations.

Adopting Emerging Technologies

Big Data and AI

16. To drive the adoption of big data analytics and AI in the Government, OGCIO has set up a new team in April this year to provide data science advisory services, supporting B/Ds to pursue their big data and AI projects. We are discussing with B/Ds their different projects in order to fully harness the potentials of these emerging technologies for delivery of more innovative government services to the public. Apart from the above-mentioned chatbot service to be provided on the GovHK portal, the Hong Kong Observatory is also implementing a pilot chatbot service for delivering weather information to the public; various features of the chatbot service are expected to be launched by phases for public use from end-2018 onwards. Moreover, the Efficiency Office will revamp its 1823 website and introduce a pilot chatbot service in 2019-20 to answer simple public enquiries and facilitate the public in obtaining government information. OGCIO will also implement a Pilot Cyber Security Information Sharing Partnership Programme in the 3rd quarter of 2018, using big data analytics and AI technologies to analyse cyber security information and share cyber security threats with the community to enhance Hong Kong's overall resilience against cyber attacks.

IoT

17. Interconnected IoT devices and smart sensors, integrated with big data analytics, can greatly enhance the operational efficiency of the Government and deliver better services to the public. We will progressively install about 400 multi-functional smart lampposts in the next three years in four selected districts in the territory with higher pedestrian flow, including Central/Admiralty, Causeway Bay/Wan Chai, Tsim Sha Tsui, and Kwun Tong/the Kai Tak Development Area, to facilitate relevant departments to enhance the collection of real-time city data at the district level through the use of IoT devices and smart sensors. Data to be collected include those relating to traffic (e.g. traffic speed, vehicle types and traffic flow, etc.), meteorology (e.g. temperature, humidity, wind speed and direction, rainfall amount, UV index, etc.) and environment (such as air quality and monitoring of illegal dumping). OGCIO will develop integrated systems to assist departments in managing the IoT devices and sensors on the smart lampposts as well as in collecting and transmitting data. Through

the big data analytics platform, sharing and analysis of these data can be improved and these data will be released for free on the “data.gov.hk” portal to achieve smarter city management and public services. We anticipate that the first 50 smart lampposts will come into operation in mid-2019.

Other Emerging Technologies

18. OGCIO promotes other emerging technologies and their applications to B/Ds through organising seminars, training courses and setting up thematic websites, covering operational principles, application and security of the technologies. In addition, OGCIO will actively explore with other B/Ds the implementation of pilot projects, for example, adopting blockchain technology to enhance transparency of transaction records for tackling ticket-scalping activities.

Advice Sought

19. Members are invited to note the content of this paper.

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