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Legislative Council

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Panel on Information Technology and Broadcasting

Meeting on 10 June 2019

Updated background brief on e-Government development

Purpose

This paper provides background information on the latest development of the e-Government programmes. It also summarizes the major views and concerns expressed by Members in previous discussions of the subject.

Background

2.   In the 2017 Policy Address, the Chief Executive announced that the Administration would implement a number of key infrastructure projects to support the development of smart city in Hong Kong.   Some of the projects are relevant to the development of e-Government.   These include provision of electronic identity ("eID") for Hong Kong residents, and the implementation of the Next Generation Government Cloud Infrastructure ("GovCloud") equipped with a new Application Architecture.[1]   Meanwhile, the Administration has adopted measures and initiatives to enhance e-Government services, and to support government bureaux/departments ("B/Ds") in achieving their policy objectives through wider and better adoption of information technology ("IT"). These measures are presented in the ensuing paragraphs.

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[1]   On 11 May 2018, Finance Committee of the Legislative Council approved the creation of a commitment of $112.0 million for implementing a one-stop online system for the provision of electronic identity, and a commitment of $533.3 million for implementing the Next Generation Government Cloud Infrastructure and big data analytics platform to support agile delivery of e-Government services.

Enhancing elements to facilitate the public

Opening up public sector information

3.   At present, the Government's "data.gov.hk" portal disseminates more than 3 200 unique datasets provided by B/Ds, public and private organizations, covering meteorology, environment, transport, finance, population, etc. To facilitate the use of such information by the public, more than 1 200 application programming interfaces ("APIs") have been made available through the "data.gov.hk" portal.

Adopting mobile-first design and enhancing user experience

4.   In November 2016, the Administration revamped GovHK, the Government's web portal, by making it more responsive and accessible to users. To further enhance users' experience of e-Government services, the Administration has indicated that it would implement improvement measures and introduce suitable policies and guidelines for development of next generation e-Government services with "mobile-first" design. The Administration expects that the mobile-first e-Government services would attract and facilitate the public and organizations to conduct electronic transactions with the Government.

5.   Online payment is another essential element of e-Government services. At present, the Administration provides various online payment services to facilitate the public to settle government bills and fees by credit cards, PPS and e-cheque. In 2017, the Office of the Government Chief Information Officer ("OGCIO"), in cooperation with the relevant departments, introduced mobile payment technology solutions which support smartphone e-wallet (including Apple Pay and Google Pay) for adoption by B/Ds as necessary.

Building infrastructure

Next Generation Government Cloud infrastructure

6.   To reduce B/Ds' time and cost of setting up IT systems and implementing IT solutions, the Administration has indicated that it would develop a central digital platform, namely the next generation GovCloud, which was expected to come into operation in the third quarter of 2020. According to the Administration, the next generation GovCloud would adopt a hybrid cloud design, which was made up of "In-house Private Cloud", "Outsourced Private Cloud", and "Public Clouds" with certain level of security features. Its system hosting capacity could be expanded to meet the growing demand of the public for digital public services.

Big data analytics platform

7. To support data-driven policy-making and service delivery, the Administration plans to implement the "Big Data Analytics Platform" in the third quarter of 2020. The platform, which runs on the next generation GovCloud, will provide advanced facilities such as big data analytics tools, artificial intelligence ("AI") cognitive tools, parallel computing management system and a "Digital Highway", which would facilitate exchange and sharing of real-time data among B/Ds. The "Digital Highway" would enable B/Ds to open up data such as those collected from smart lampposts and to disseminate them in a real-time manner through the "data.gov.hk" portal. The "Big Data Analytics Platform" would facilitate the development of more big data analytics projects related to weather, transport, environment, health, etc. for smart city development and delivery of data-driven public services.

Electronic identity

8. To enable people in Hong Kong to access various e-Government services (e.g. applying for licence renewal, booking sports venues, etc.) in a simpler, more convenient and secure manner, the Administration is in the process of implementing eID for every eligible resident in Hong Kong. The system is expected to come into operation in mid-2020 and people may, progressively, make use of eID as identity authentication for accessing all e-Government services. With the secure identity authentication and digital signing features provided by eID, B/Ds may develop more convenient and innovative e-Government services, such as new services to support the use of eID, enabling voluntary storage of encrypted personal data by citizens for subsequent completion of various forms.

Adopting emerging technologies

Big data and artificial intelligence

9. As chatbot technology has become more mature, some commercial organizations and overseas jurisdictions have used chatbots to deliver their services. The Administration would launch chatbot services 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.

10. The Hong Kong Observatory is implementing a pilot chatbot service for delivering weather information to the public; various features of the chatbot service are being launched by phases for public use from end-2018 onwards.

Moreover, the Efficiency Office would revamp its 1823 website and introduce a pilot chatbot service in 2019-2020 to answer simple public enquiries and facilitate the public in obtaining government information. OGCIO also implemented a Pilot Cyber Security Information Sharing Partnership Programme in 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.

Internet of Things

11.   The Administration will progressively install about 400 multi-functional smart lampposts 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 Internet of Things ("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.   The Administration anticipates that the first 50 smart lampposts will come into operation in mid-2019.

Previous discussions

12.   The Administration consulted the Panel on Information Technology and Broadcasting ("the Panel") on the funding proposals for implementing three key infrastructure projects in connection with the smart city development at the meeting on 12 March 2018.   Panel members supported the funding proposals. At the Panel meeting held on 9 July 2018, the Administration briefed members on the latest progress of the implementation of of e-Government services. Relevant issues were also discussed at the Finance Committee ("FC") meeting on 11 May 2018.   The major views and concerns expressed by Members are summarized in the ensuing paragraphs.

Implementation of Next Generation Government Cloud Infrastructure and big
data analytics platform

13.　　Some Members commented that the progress of upgrading IT systems
of B/Ds was unsatisfactory over the years.　They hoped that with the
implementation of the proposed next generation GovCloud, the Administration
would not have to seek funding so frequently to upgrade their computer systems.
Some Members enquired about the amount of savings that could be achieved by
implementing the proposed project.

14.　　Some Members commented that the utilization of the Government
cloud was low.　They enquired about how the Administration would promote
the use of the next generation GovCloud so as to expedite the development and
delivery of digital government services.

15.　　The Administration advised that the next generation GovCloud would
enable user departments to operate their systems at a lower cost.　They could
upgrade their system hosting capacity flexibly according to operational needs.
The time for procuring and installing the required resources would also be
reduced substantially.　Moreover, the next generation GovCloud would provide
24-hour monitoring and support services, so that B/Ds could provide digital
government services more efficiently and securely to meet the development
needs of a smart government.　It should be attractive for B/Ds to use the new
GovCloud platform.　The Administration added that the proposed GovCloud
platform could bring about savings of about $570 million from 2019-2020 to
2024-2025.

Application of big data in promoting tourism

16.　　Members suggested that the Administration should install more smart
lampposts around tourist hotspots, so that real-time information about pedestrian
and traffic flows in the vicinity could be collected and disseminated, with
appropriate warnings on the traffic conditions, to road users.　Members were
informed that the Administration was considering what could be done to
monitor and regulate pedestrian and traffic flows, and what additional locations
should be selected for installing smart lampposts.

17.　　Some Members asked if the Administration would apply chatbot
technology in museums, tourist hotspots and other public facilities to increase
interactivity and enhance visitors' experience.　They also asked if the
Administration would provide more real-time transport information at bus stops.
The Administration informed Members that consideration was being given to
the application of big data, AI and chatbot technologies in promoting tourism in
Hong Kong.　The Administration would introduce measures and provide

resources for the provision of real-time bus traffic information at bus stops over the territory.

Electronic identity

18.   Some Members enquired how the Administration would collect two types of biometric information for identity authentication in the eID system. They asked if eID could be used for payment of Government fees and charges. The Administration advised that a person's identity could be authenticated using one of the two available biometric characteristics identification features available in smartphones.   A number of e-wallet services had been rolled out and the Administration would facilitate the use of these services for payment of Government services and various fees and charges.

19.   Some Members enquired how the Administration would promote the use of eID.   In particular, Members asked whether the Administration would implement a one-stop registration for using various public services (including voter registration) and accessing personal records in the public and private sectors.   The Administration explained that the objective of building the infrastructure was to encourage the wider use of eID in public e-services and online transactions with the Government and the commercial sector. Registration would be convenient and accessible.   For example, individuals could register for the use of a service using eID through their smartphones, and their identities could also be verified through the eID system using smartphones.

20.   Members asked if the Administration would involve private companies in the design and development of APIs in order to speed up the launch of services that make use of eID.   Some Members also asked if eID would be used in financial applications such as know-your-customers ("KYC") utilities to enable more effective compliance with regulatory requirements by financial institutions.   The Administration informed Members that detailed arrangements were being considered in collaboration with the relevant stakeholders/regulators in the development of APIs and KYC utility applications.

Common Spatial Data Infrastructure

21.   Members commented that the Administration should expedite the sharing of the relevant data through the Common Spatial Data Infrastructure platform.   They enquired whether and when the Administration would implement single-sign-on for accessing different services online.   The Administration advised that it would engage a consultant in the second half of 2018 to work out the data sharing model.   Meanwhile, the Administration would provide relevant government data in existing platforms.

22.   To facilitate identification of sites for public housing or other community use, there was a suggestion that the Administration should make available data regarding the status of each piece of vacant land over the territory, including the ownership, planned use and permissible use.   The Administration advised that it was considering improvements and enhancement in opening up more government data to the community.

Government e-forms

23.   Members noted that some government forms still could not be submitted electronically due to legal or procedural restrictions.   They queried how many forms belonged to these categories and what the restrictions were. The Administration advised that there were about 1 300 government forms that could not be submitted electronically.   Some of those forms were required by law to be submitted in person, or they had to be accompanied by a large number of supporting documents whereas some government forms could currently be submitted electronically if users could validate their identity using e-Cert. With the implementation of eID, these government forms could be submitted electronically more easily.

Protection of privacy

24.   Some Members expressed concerns about whether the vast amount of personal data contained in the big data analytics platform would be used by the Government for mass surveillance purposes, including whether the Administration would, with the use of the platform, introduce a system similar to the Social Credit System launched in the Mainland.   Members considered that the Administration should communicate with the Office of the Privacy Commissioner for Personal Data ("PCPD") in advance in order to ensure that the operation of the platform would not result in abusive use of personal data.

25.   The Administration advised that it had maintained communication with PCPD regarding the promotion of the eID system and the implementation of big data analytics platform, and strived to comply with the Personal Data (Privacy) Ordinance (Cap. 486).   The big data analytics platform aimed to improve the capability of various departments in data analytics and to provide them with aggregate data in order to facilitate the provision of appropriate public services and increase the operational efficiency of the Government.   The Administration assured Members that the aggregate data would not show the identities of individuals, and the purpose of establishing the big data analytics platform was to enhance data sharing.

Questions raised at Council meetings

26.   Members, including Hon AU Nok-hin, Hon WU Chi-wai and Hon Charles Peter MOK have raised questions related to e-Government services at Council meetings.   Details of the questions and the Administration's replies are given in the hyperlinks in the **Appendix**.

Latest position

27.   The Administration will brief the Panel on 10 June 2019 on the latest progress of e-Government services.

Relevant papers

28.   A list of the relevant papers is set out in the **Appendix**.

Council Business Division 1
Legislative Council Secretariat
4 June 2019

List of relevant papers

Meeting	Date of meeting	Papers
Panel on Information Technology and Broadcasting	12 March 2018	Administration's paper on the key infrastructure projects for smart city development LC Paper No. CB(4)701/17-18(03) Administration's response to issues raised at the meeting on 12 March 2018 LC Paper No. CB(4)1051/17-18(01) Minutes of meeting LC Paper No. CB(4)1197/17-18
	9 July 2018	Administration's paper on e-Government LC Paper No. CB(4)1337/17-18(03) Updated background brief LC Paper No. CB(4)1337/17-18(04) Minutes of meeting LC Paper No. CB(4)1596/17-18
Finance Committee	11 May 2018	CAPITAL WORKS RESERVE FUND HEAD 710 – COMPUTERISATION Office of the Government Chief Information Officer New Subhead "Electronic Identity (eID)" New Subhead "Digital Transformation for Agile Delivery of e-Government Services" FCR(2018-19)9 Minutes of meeting LC Paper No. FC9/18-19

Meeting	Date of meeting	Papers
Council	11 July 2018	Question No. 7 raised by Hon AU Nok-hin Measures for immigration clearance
	27 February 2019	Question No. 11 raised by Hon WU Chi-wai Making use of next generation government cloud infrastructure
	17 April 2019	Question No. 15 raised by Hon Charles Peter MOK Implementation of electronic identity system