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Legislative Council
Panel on Information Technology and Broadcasting

Progress on the implementation of the "iAM Smart" platform and e-Government services

Purpose

This paper updates Members on the progress of implementation of the "iAM Smart" platform and e-Government services.

Background

2. The Office of the Government Chief Information Officer ("OGCIO") has been striving to drive and facilitate other bureaux and departments ("B/Ds") to implement e-Government services with a view to bringing convenience to the public, as well as to improving government internal operations. Through the application of innovation and technology ("I&T") and further promotion of data and business process integration among B/Ds, the Government can accelerate digital transformation of public services, improve operational efficiency and enhance user experience. Following the rollout of smart city infrastructure projects, such as the Next Generation Government Cloud, Big Data Analytics Platform, Shared Blockchain Platform and the one-stop personalised digital services platform "iAM Smart", and to cope with the "New Normal" brought about by the COVID-19 pandemic, the Government actively promotes the integration of I&T into its day-to-day work of B/Ds to facilitate citizens to use public services electronically, thereby enhancing operational efficiency and user experience. A brief account of the progress on the implementation of the "iAM Smart" platform and other measures to promote e-Government services is given below.

"iAM Smart" Platform

3. As at mid-September this year, the number of registered users on the "iAM Smart" platform[1] reached 1.55 million, of which 540 000 were "iAM Smart+" users, with over 24 million usage counts recorded. Members of the public can register for "iAM Smart" accounts by using their mobile phones, or visit about 160 registration points (including post offices and self-registration kiosks) located in various districts of Hong Kong to register for or upgrade to "iAM Smart+" accounts directly. We have also deployed more than 10 mobile registration teams to venues such as community vaccination centres, licensing offices of the Transport Department ("TD"), libraries, etc., to assist members of the public to register.

4. To celebrate the 25th anniversary of the establishment of the Hong Kong Special Administrative Region, we have also launched the "iAM Smart" Reward Scheme to encourage the public to participate in the 25th anniversary celebration events and at the same time promote registration and use of "iAM Smart" at the event venues.

5. At present, the public can log in and use over 220 online services of the Government, public and private organisations (please refer to https://www.iamsmart.gov.hk/en/e-service.html for list of services) through the "iAM Smart" platform with a single electronic identity authentication in a simple and secure manner, obviating the need to manage different sets of user names and passwords for different services. Upon completing a simple account linking process when using the relevant service for the first time, users can use "iAM Smart" to log in the service direct afterwards. OGCIO has been actively promoting B/Ds and industry sectors to develop more online services using "iAM Smart", thereby enabling the public to conduct the necessary processes online without the need to visit the relevant offices in person.

6. Through the "e-ME" service of "iAM Smart", members of the public can store their commonly used personal data in advance so that they do not have to provide or fill in the same data repeatedly when using online services of the Government, public and private organisations in future. In

[1] An "iAM Smart" account is available in two versions, namely "iAM Smart" and "iAM Smart+". "iAM Smart" provides authentication, "e-ME" form filling, and personalised notification functions, while the "iAM Smart+" version provides an additional function of digital signing with legal backing.

December 2021, "e-ME" added a new address data function, which enables the public to store the utility bills for water, electricity and gas services as address proofs.

7. The infrastructure for verifying user's identity developed between "iAM Smart" and the Immigration Department's computer system supports online services of different departments to perform online identity verification swiftly and accurately. During the pandemic, this arrangement provides essential support for various anti-epidemic initiatives, including online booking for the COVID-19 Vaccination Programme and the "Return2HK" Scheme, registration for the Consumption Voucher Scheme, registration for the Hong Kong Health Code, checking of COVID-19 electronic vaccination records, declaration of COVID-19 rapid antigen test positive result, etc. Moreover, upon users' consent, B/Ds or public and private organisations can obtain verified personal data including identity card number, Chinese and English names, gender, date of birth, etc., from "iAM Smart" to facilitate real-name registration.

8. Meanwhile, the "iAM Smart" sandbox programme launched by OGCIO in collaboration with Cyberport has been open to financial, information and communications technology, telecommunications, healthcare and education organisations. Since its launch in 2020, more than 330 organisations have signed up for the sandbox programme to conduct proof-of-concept tests and develop application solutions adopting "iAM Smart", and more than 10 public and private organisations have adopted "iAM Smart" to access their online services. OGCIO will progressively extend the sandbox programme to more sectors such as culture, sports and tourism in order to promote different industries to develop more innovative online services with "iAM Smart".

9. To align with the development in the Greater Bay Area and to promote cross-boundary e-Government services, OGCIO is actively exploring with the Government Services and Data Management Bureau of Guangdong Province in the use of "iAM Smart" as one of the means for real-name identity authentication on the "Unified Identity Authentication Platform of Guangdong Province". This will enable Hong Kong residents to use "iAM Smart" to authenticate themselves when registering and using the government services of Guangdong Province.

10. With the growing number of citizens who register for "iAM Smart" and the increasing awareness of the industry sectors about the benefits brought by "iAM Smart", we will further improve the user experience and promote B/Ds to simplify workflows and provide more convenient services to the public with the adoption of "iAM Smart". We expect that more citizens and public and private organisations will adopt "iAM Smart" in future, including in cross-boundary e-Government services and commercial applications with the Guangdong Province and the Mainland, thus bringing greater convenience and more benefits to the public and further promoting the development of smart city in Hong Kong.

Other Measures for Promoting e-Government

Online application for government services

11. The Government has been promoting a wider adoption of I&T in e-Government services and anti-epidemic work by B/Ds. Since the outbreak of COVID-19, the Government has further strengthened its efforts to promote e-Government services, with a view to facilitating the public and enterprises to continue using various government services through electronic means while maintaining social distancing and reducing the transmission risk brought about by contact among people. For instance, the public may submit their applications electronically for various subsidy and relief schemes, book COVID-19 testing and vaccination, access vaccination and testing records, register Hong Kong Health Code accounts, and apply for electronic consumer vouchers, etc.

12. Under the "Be the Smart Regulator" and "Streamlining of Government Services" programmes co-ordinated by the Efficiency Office, B/Ds are committed to providing more electronic services to facilitate businesses and the public. As at mid-2022, unless there are legal or operational constraints, electronic submission options have been provided for more than 90% of 400 licence applications and some 900 government services. Most of the licences have also been provided with electronic means for payment and collection. In addition, over 3 200 government forms (more than 96%) can be submitted electronically. We will continue to drive B/Ds to expedite the provision of electronic services and tackle the relevant legal or operational constraints with a view to providing full electronic services.

Electronic payments

13. Currently, the Government accepts a number of electronic payment means, including the Faster Payment System ("FPS"), Payment by Phone Services ("PPS"), internet banking, online credit card (including electronic wallets supporting Apply Pay and Google Pay), Octopus, autopay, automatic teller machines ("ATM"), phone banking and e-Cheque. At present, over 80% of Government departments provide FPS service as payment option for common types of government bills, such as taxes, rates, water charges, etc., and also accept payments through the FPS at designated payment counters and self-service kiosks. The Government would extend the FPS services to payment of online government services progressively from Q4 2022. In the next two years, more public services, including booking fee of leisure facilities, charge of Government carparks and other services such as licence-related payments will be supported by FPS payment to bring further convenience to the public.

Further promotion on data sharing among B/Ds

14. Apart from accelerating the development of e-Government services through fast provision of IT resources, the Next Generation Government Cloud launched in September 2020 also facilitates data interchange among B/Ds. For instance, a number of online services relating to anti-epidemic work and boosting the economy (such as application for electronic consumption vouchers, registration for Hong Kong Health Code accounts and booking for COVID-19 vaccination) have leveraged on the relevant facilities of the Next Generation Government Cloud to enable effective data interchange between IT systems of different B/Ds to shorten the processing time.

15. To provide the general public with greater convenience and promote further data sharing among B/Ds, OGCIO is implementing a Consented Data Exchange Gateway ("CDEG"), which is targeted to be launched progressively starting from the end of 2023. With the CDEG, members of the public may opt for authorising the exchange of their personal data among relevant government departments by means of data interchange through the systems, thus dispensing with the processes of entering the data repeatedly. The CDEG will also link with the Commercial Data Interchange ("CDI") being developed by the Hong Kong Monetary Authority ("HKMA") in preparation

for data interchange between financial institutions and government departments. The HKMA is now working with individual B/Ds (such as the Companies Registry ("CR")) on the detailed arrangement for data interchange so that the financial institutions, with the authorisation by their clients, may access or obtain the data of their clients stored in government systems and databases for client authentication.

Open data

16. Open data is conducive to the development of more innovative, convenient and beneficial public and private services and applications by the Government and the industry. Since October 2018, B/Ds have opened up over 1 680 new datasets via the Public Sector Information ("PSI") Portal, covering data in various domains such as real-time meteorological data, digital maps in different scales, real-time arrival data of all franchised buses and MTR railway lines (Airport Express, Tung Chung Line, Tseung Kwan O Line, Tuen Ma Line, Light Rail Line, and East Rail Line) and over 450 Green Minibus routes. As at mid-September 2022, the PSI Portal has provided over 4 980 open datasets. The total downloads in 2021-22 were around 27 billion.

17. It is worth noting that we have gradually opened up, according to the development of pandemic situation, 24 datasets relating to the latest situation of COVID-19 since 2020, including details of probable/confirmed cases, buildings visited by cases tested positive in the past 14 days, flights/trains/ships/vehicles taken by cases tested positive in the past 14 days, addresses of designated quarantine hotels, locations of collection points for submission of specimens by patients of private doctors for COVID-19 testing, etc. The total number of views on the "Interactive Map Dashboard on the Latest Situation of COVID-19 in Hong Kong" are over 86 million as of mid-September 2022.

18. Sharing spatial data is very important to fostering smart city development and driving innovative government services and applications. The Development Bureau ("DEVB") launched the Common Spatial Data Infrastructure ("CSDI") Portal for use by government departments in May 2022 to retrieve and share spatial data. The CSDI Portal is scheduled to be made available for public use free of charge by the end of this year. By then, over 500 spatial datasets from about 50 government departments will be provided, covering different aspects such as planning, lands, buildings and

works, map and 3D pedestrian network, population and valuation statistics and metered on-street parking locations, etc. In addition, DEVB established a Geospatial Lab ("GeoLab") to provide a platform to nurture a geospatial community through competitions, workshops and talks, etc. By encouraging the younger generation, start-ups and creative talents to discuss, explore and exchange ideas, the potential of spatial data can be harnessed to improve the quality of life and create business opportunities.

Artificial intelligence and dig data analytics

19. OGCIO is providing data science advisory services to assist B/Ds to leverage the Big Data Analytics Platform to implement more Artificial Intelligence ("AI") and big data analytics projects in a more efficient and cost-effective manner. Some examples include the Highways Department ("HyD") and Lands Department ("LandsD") using image analytics technology to mask human faces and car plates in street view images used internally for privacy protection; the Environmental Protection Department ("EPD") studying the use of AI on sound and image analytics to detect the illegally-modified vehicles which created excessive noises; the Civil Engineering and Development Department ("CEDD") applying AI to analyse the landslide likelihood arising from natural hillside through machine learning; the Architectural Services Department ("ArchSD"), Electrical and Mechanical Services Department ("EMSD") and Food and Environmental Hygiene Department ("FEHD") analysing data such as maintenance records and public complaints concerning public toilets, with a view to enhancing public toilet management and maintenance measures.

20. The Big Data Analytics Platform has supported more than 10 big data analytics projects since its launch, involving over 59 TB of data. Among the projects, the "Traffic Data Analytics System" ("TDAS") developed collaboratively by the TD and OGCIO was launched in end-2021 to apply big data analytics to various traffic, transport and weather data (including traffic detector data, traffic snapshot data, road network data, the estimated time of arrival of franchised buses and green minibuses, real-time and forecast weather data from Hong Kong Observatory ("HKO") and traffic incident data, etc.). The system has facilitated the TD to perform more accurate analysis and assessment of traffic conditions. The TDAS has also adopted AI technology and applied machine learning to analyse the past and present real-time traffic and transport data (including traffic incident data), as

well as real-time and forecast weather data of the HKO to provide real-time and predicted (up to the next 90 minutes) average traffic speed and journey time. Relevant data analytics results have also been disseminated through TD's "HKeMobility" and the PSI Portal in machine readable formats starting from end-April 2022, facilitating the industry to develop more innovative applications.

Chatbots

21. Chatbots leveraging AI technologies can enhance user experience of e-Government services in an efficient, convenient and interactive manner. For instance, OGCIO has launched the chatbot service Bonny on GovHK and "iAM Smart" to assist the public experience in searching for government forms and services. The HKO has made use of a chatbot to help users obtain latest weather and astronomical information. 1823 has also launched chatbot service to answer enquiries from the public. To facilitate B/Ds to develop new chatbots in a faster and more cost-effective manner, OGCIO is implementing a new shared chatbot infrastructure (namely "Chatbot-as-a-Service") with ready-to-use building blocks (e.g. cloud platform, natural language processing engine and knowledge base, etc.). This new shared infrastructure will be made available for use by B/Ds in mid-2023. To enhance user experience, the Chatbot-as-a-Service will also support interaction between different chatbots and include new functions such as supporting voice conversation by connecting to smart speakers.

Blockchain

22. In collaboration with the Intellectual Property Department, EPD, DH and CR, OGCIO has conducted four pilot blockchain projects and they were completed in end-2020, namely the transfer of trademarks, optimisation of the procedures for preparing environmental impact assessment reports, improvement of the traceability and management for pharmaceutical products, and provision of e-monitoring service for keeping track of filing records of companies. Leveraging the above experience, OGCIO launched a new Shared Blockchain Platform in June 2022 and will also develop more common service and reference program modules on the new platform for facilitating B/Ds to develop more blockchain applications.

23. Besides, we have also applied blockchain technology to store records of health code conversion requests in the "Hong Kong Health Code System". The function of converting Guangdong's "Yuekang Code" and Macao's "Macao Health Code" for health declaration on entry to Hong Kong has been in operation under the "Return2HK" Scheme launched in November 2020 and the "Come2HK" Scheme launched in September 2021.

Smart Government Innovation Lab

24. Since its establishment in 2019, the Smart Government Innovation Lab ("Smart Lab") has organised 14 technology forums in collaboration with Cyberport, Hong Kong Productivity Council and Hong Kong Science Park, covering topics such as robotics technologies, 5G, green and smart buildings, smart mobility, open data and analytics, etc. Over 4 500 participants have been attracted from the Government and I&T industry. At present, the Smart Lab has received over 150 business needs of government departments and over 410 IT solutions submitted by the industry. Besides, the Smart Lab has matched over 70 business needs of departments with solutions and arranged over 90 thematic workshops. In particular, the Smart Lab has also collaborated with the departments concerned to arrange Proof-of-Concept ("PoC") tests for over 50 solutions with potentials. IT projects being under planning or implemented by individual departments after undergoing PoC tests include:

- Use robotics technologies, radio frequency identification ("RFID") system and AI to manage and make booking for storage and retrieval of warehouse items, and to track the exact location of the items and provide real-time warehouse space information, in order to step up the management and security control of warehouse items, and optimise the usage of storage space and enhance work efficiency.

- Adopt automatic speech recognition and machine learning technologies to transcribe voicemails of telephone message system into text, and identify and provide relevant keywords to assist staff in handling time-consuming distribution work and enhance the efficiency of telephone enquiry service.

- Introduce smart video conference equipment and make use of Internet of Things ("IoT") and wireless communications technologies to support the

meeting room booking system. With the increasing demand for holding meeting online, it will save time on scheduling meetings and optimise the conducting of online meetings, so as to improve the effectiveness and work efficiency of meetings.

- Deploy reception robot with connection to visitor management system for automatic visitor registration, reception and guiding to meeting rooms, in order to ease the workload of receptionists and enhance visitors' experience.

25. Besides, the Smart Lab has arranged a series of seminars, thematic workshops and technology forums over the past two years to improve the awareness and relevant knowledge of robotics technologies amongst government colleagues. It has also organised an innovation competition in 2021 with the theme of "Leading Towards Robotics Technologies". Some award-winning proposals are being operated under pilot in relevant departments include:

- Deploy drones and AI with the aid of 5G communications network, video streaming systems, image processing and analytical tools to conduct long-distance searches with a view to improving the efficiency of search and rescue operation.

- Apply video analytics technology and AI to recognise and record offending vehicles and their plate numbers for enhancing law-enforcement efficiency and saving field staff resources, with a view to tackling traffic congestion issues and thus enhancing city management.

26. In light of the latest technological development, the Smart Lab will continue to arrange promotional events to raise the awareness of innovative technologies among various government departments, as well as to connect government departments with the industry, with a view to assisting departments in expediting the adoption and implementation of more I&T applications that enhance public services. At the same time, the Smart Lab will also continue to set out the challenges faced by different public services on the thematic website (https://www.smartlab.gov.hk) and invite industry players to submit proposals of technology solutions and products which may help address the issues.

E-government audit

27. To further drive digital transformation of public services, OGCIO will conduct a 3-year e-government audit programme from 2022-23 to 2024-25 with a view to expediting the development of digital government for building Hong Kong into a more advanced smart city. OGCIO will engage consultancy firms with relevant experience to review the IT systems and services of B/Ds and make recommendations on the enhanced IT solutions that enable B/Ds to leverage advanced technologies (e.g. AI, blockchain, big data analytics, geospatial analytics, etc.) to provide more convenient and beneficial public services and expedite the development of digital government. We expect the whole audit work to be completed by Q3 of 2023-24 and the implementation of all B/Ds' enhanced solutions to be completed by the end of 2025.

Advice Sought

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

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