CHAPTER 6

Innovation and Technology Bureau
Office of the Government Chief Information Officer

OGCIO's programmes and projects in promoting the wider use of IT in the community

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OGCIO'S PROGRAMMES AND PROJECTS IN PROMOTING THE WIDER USE OF IT IN THE COMMUNITY

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OGCIO'S PROGRAMMES AND PROJECTS IN PROMOTING THE WIDER USE OF IT IN THE COMMUNITY

Executive Summary

1. The Government defines information and communications technology (ICT) as all technologies and applications that involve information processing and/or exchange over communication network(s), including the Internet. ICT is often used as an extended synonym for information technology (IT). The Office of the Government Chief Information Officer (OGCIO) promotes and facilitates the wider use of IT in the business sector and the community, and contributes to building a digitally inclusive society under one of its programme areas, namely "IT in the Community". In 2016-17, the total expenditure for the initiatives of the OGCIO to promote the wider use of IT in the community was $117.6 million. The expenditure comprised expenditure of $98.7 million under the programme area "IT in the Community", and $18.9 million for the provision of free public Wi-Fi services funded by the Capital Works Reserve Fund. The Government's strategy on promoting the wider use of IT in the community evolves over time. It was first promulgated in the Digital 21 Strategy document in 1998 and updated in 2001, 2004 and 2008 respectively. The Audit Commission (Audit) has recently conducted a review of the OGCIO's programmes and projects in promoting the wider use of IT in the community.

Digital inclusion initiatives

2. *Low take-up rate and utilisation rate of the Internet Learning Support Programme (ILSP).* In May 2010, the Finance Committee (FC) of the Legislative Council approved a funding of $220 million for the implementation of the ILSP for five years to help needy students and parents from low-income families to gain access to the Internet for learning. The ILSP was launched in July 2011 and will end in August 2018. Audit noted that the annual take-up rate (i.e. the percentage of eligible families served) for the school years from 2011/12 to 2016/17 was generally low, ranging from 4% to 14%. The take-up rate of the ILSP services for the six-year period was 18%. Moreover, the utilisation rate (i.e. the percentage of enrolled families served) for each year from 2011/12 to 2016/17 was low, ranging

from 12% to 24%. The utilisation rate for the 6.5-year period from the launch of the ILSP in 2011/12 to December 2017 was 47% (paras. 2.4, 2.5, 2.10, 2.11 and 2.14).

3.   ***Lukewarm response from target organisations and small number of downloads for some mobile applications (mobile apps).*** The OGCIO has launched three rounds of Funding Scheme for Digital Inclusion Mobile Apps since 2012 to provide funding support for non-profit-making social service organisations to develop mobile apps that cater for the needs of underprivileged groups for free use. Up to December 2017, 17 mobile apps with a total funding of $6 million had been developed and launched. Audit noted that: (a) the number of proposals received in each round of invitation decreased from 45 in 2012 to 15 in 2015. Moreover, the number of organisations which had submitted proposals decreased from 40 (9% of 445 invitations) in 2012 to 14 (3% of 522 invitations) in 2015; and (b) the OGCIO requires the grantees to set and meet target number of downloads within the first 12 months after the launch of the digital inclusion mobile apps. Audit examination of the number of downloads of the 12 digital inclusion mobile apps funded by the OGCIO in the first and second rounds revealed that 8 (67%) of them failed to achieve the target number of downloads within the first 12 months after the launch of the mobile apps (paras. 2.29 to 2.31).

4.   ***Need to improve government mobile app accessibility and lukewarm response to Web Accessibility Recognition Scheme.*** The OGCIO launched the Web/Mobile App Accessibility Campaign in October 2011 to promote the adoption of accessible design in websites and mobile apps. Audit noted that: (a) all government mobile apps developed on or after 1 December 2014 should be made accessible for all users, including persons with disabilities, and conform to all the baseline accessibility criteria, e.g. providing text resize function and sufficient colour contrast. According to the survey conducted by the OGCIO in October 2017, one (4%) of the 23 mobile apps developed on or after 1 December 2014 and 58 (65%) of the 89 mobile apps developed before 1 December 2014 did not conform to the baseline accessibility criteria; and (b) Audit analysed the response rates of local enterprises/organisations for submission of applications in each round of the Web Accessibility Recognition Scheme held in the period 2013 to 2016 and noted that the response rates ranged from 7.8% to 13% (paras. 2.35, 2.37 and 2.40).

Executive Summary

Free public Wi-Fi services

5.   ***Need to improve Government Wi-Fi (GovWiFi) services.*** Since 2007, the GovWiFi services have provided the public with free Wi-Fi services on selected government premises. The FC approved $217.6 million in 2007 and a supplementary provision of $68 million in 2011 for the provision of the GovWiFi services for a total of 10 years from December 2007 to December 2017 (under two 5-year outsourcing contracts). In November 2017, the Government awarded the third contract for a contract sum of $119.8 million. Audit noted that: (a) in the 2016 Policy Address, the Government pledged to progressively double the existing speed of GovWiFi connection to 3 Megabits per second (Mbps) to 4 Mbps per user. Based on the results of the OGCIO's annual service check in 2017, the download speed of 1,171 (38%) of the 3,087 hotspots was lower than 3 Mbps, and no Wi-Fi connection could be established at 10 (0.3%) hotspots; (b) as at 31 December 2017, there were 616 GovWiFi venues. Audit examined the OGCIO's record on the usage of the GovWiFi services at the 616 venues in the period from 2014 to 2017. The usage at some venues was low. For 196 (32%) of the 616 venues, the average daily number of users was less than 15; (c) amongst the 20 GovWiFi venues visited by Audit in the period from January to March 2018 to ascertain whether GovWiFi signages were put up, at 6 (30%) venues, no signages were put up at any of the hotspots and at 13 (65%) venues, signages were only put up at some hotspots; and (d) the use of encrypted channel cannot provide sufficient network security protection to users against hacking as it cannot protect the data during its transmission across the Internet. However, in the security tips and the usage guide provided on the thematic website on the GovWiFi services, users were not explicitly alerted to the limitation of encrypted channel (paras. 3.2, 3.5, 3.7, 3.10, 3.13 and 3.17).

6.   ***Need to improve the Wi-Fi.HK brand.*** Wi-Fi.HK is the common branding launched in August 2014 through collaboration of the Government with a number of public and private organisations for providing free Wi-Fi services in Hong Kong. Information on location of the venues offering the Wi-Fi.HK services are available at the Wi-Fi.HK website and the Wi-Fi.HK mobile app. Audit noted that the percentage of Wi-Fi.HK venues where Wi-Fi connections could not be established increased from 5% (9 of 165 venues checked) in 2015 to 13% (37 of 284 venues checked) in 2017. The Government pledged to progressively expand the number of Wi-Fi.HK hotspots from 17,000 to 34,000 by 2019. However, the progress of expanding the coverage of the Wi-Fi.HK services was slow. As at 31 December 2017, the number of Wi-Fi.HK hotspots had increased only by 3,339, from 17,000 to 20,339. Up to 28 February 2018, the response from the private organisations to join the Wi-Fi.HK

brand had been lukewarm. Only 19 private organisations had joined the Wi-Fi.HK brand since May 2016. Furthermore, according to the Thematic Household Survey conducted by the Census and Statistics Department in 2016, 55% of the respondents who had used public Wi-Fi services during the 12 months before the survey were not aware of the Wi-Fi.HK brand. While the OGCIO intended to enhance the security measures for the Wi-Fi.HK services by adopting digital server certificate, in the Wi-Fi.HK sample service check conducted in 2017, digital server certificate was not found at 82 (33%) of the 247 Wi-Fi.HK venues checked (paras. 3.20, 3.22 to 3.24, 3.26 and 3.27).

7. ***Slow progress of providing Wi-Fi services under public-private collaboration (PPC).*** On 20 December 2016, the Government entered into licence agreements with four service providers to provide Wi-Fi services for a service period of five years at 185 government venues across 18 districts in Hong Kong with high patronage such as parks, sitting-out areas, promenades, tourist spots and public transport interchanges. According to the agreements, the service providers would be allowed to provide their commercial mobile and Wi-Fi services and other information services at these venues, and should commence the provision of the Wi-Fi services within 12 months (i.e. by 19 December 2017). The progress of the implementation of the PPC pilot project by the service providers was slow. Free Wi-Fi services had been launched at only 12 (6%) of the 185 venues by the deadline. As at the deadline of 19 December 2017, a service provider (i.e. Service Provider D) had commenced the Wi-Fi services at all of its seven allocated venues. The other three service providers (i.e. Service Providers A, B and C) had not commenced the Wi-Fi services at some or all of the allocated venues due to commercial considerations, unavailability of the venues for installation work or technical difficulties encountered. Audit noted that: (a) on 9 October 2017, Service Provider A informed the OGCIO that it could only deliver Wi-Fi services at 4 of its 160 allocated venues by the deadline and sought advice from the OGCIO on the arrangements for the remaining 156 venues. On 14 December 2017, the OGCIO accepted Service Provider A's request to extend the deadline for commencing the provision of Wi-Fi services at the four allocated venues to 15 March 2018. The OGCIO had not sought legal advice on protecting the interests of the Government in varying the agreement and extending the deadline; (b) on 14 December 2017, the OGCIO accepted the Service Provider B's request to extend the deadline for commencing the provision of Wi-Fi services at 6 of its 11 allocated venues to 30 June 2018; and (c) the agreement signed by the Service Provider C included a term that for all venues, mobile services must be activated at the same time with free Wi-Fi services. However, as the mobile services at these venues had not yet been activated, free Wi-Fi services at these venues were not launched before the

deadline of 19 December 2017. Subsequently, on 23 February 2018, free Wi-Fi services were launched at six of the seven venues (paras. 3.31 to 3.34).

8.   ***Delays in providing free public Wi-Fi services in study rooms and youth service centres.*** The Government aims to offer free Wi-Fi services at all study rooms and youth service centres run by the Government and non-profit-making non-governmental organisations to help students study after school with the use of Internet resources. The OGCIO estimated that the subsidy would cover about 350 study rooms and youth service centres run by the non-governmental organisations, involving around 500 hotspots for a period of 5 years. The maximum annual subsidy for each venue would be set at $12,000 on a reimbursable basis. According to the requirements of the subsidy scheme for providing free public Wi-Fi services in study rooms and youth service centres, grantee non-governmental organisations should provide Wi-Fi services to the public in their venues within three months after accepting the offer. As at 31 December 2017, of the 177 venues approved under the subsidy scheme, Wi-Fi services were launched at 99 (56%) venues. Of the 99 venues, the Wi-Fi services at 41 (41%) venues were launched after the deadline. Of the 73 venues where Wi-Fi services had not been launched, the provision of Wi-Fi services at 52 (71%) venues was overdue. Five venues were withdrawn from the scheme (paras. 3.38 and 3.40).

Other initiatives in promoting the wider use of IT

9.   ***Delay in the sale of two high-tier data centre sites.*** In 2012, the Chief Executive in Council approved the disposal of three dedicated sites of about one hectare each at Tseung Kwan O Town Lots Nos. 122, 123 and 127 (Sites 1, 2 and 3) for high-tier data centres. Site 1 was sold through open tender on 4 October 2013. However, due to a number of issues, such as the termination of existing Short Term Tenancy (STT), closing down of public metered carpark, and arrangement for possible site decontamination works and accessibility, Sites 2 and 3 were not yet available for sale up to January 2018. Site 2 had been occupied by ten recycling operators under STTs granted since 11 January 1999. Site 3 was not put on sale as the OGCIO planned to dispose of Site 2 and Site 3 together. In July 2017, the Lands Department (LandsD) issued letters to the recycling operators notifying them that the STTs would be terminated on 3 October 2017. In August 2017, the recycling operators requested to have the STT termination date postponed to 31 March 2018. In September 2017, as agreed by the OGCIO and the departments concerned, the LandsD extended the termination date of the STTs to 31 March 2018.   In

February 2018, the termination date of the STTs was further extended to 30 June 2018 upon the request of the recycling operators (paras. 4.7 to 4.10).

10.　　***Small number of data centre waiver applications.***　To encourage existing industrial buildings to change their use to data centres, the fees for issuing waivers for using industrial buildings aged 15 years or more for data centres were waived. From 25 June 2012 to 30 November 2017, only 32 waiver applications under this concessionary scheme were received.　The number of waiver applications had increased from 4 in 2012-13 to 14 in 2015-16 and decreased drastically to 1 in 2016-17.　In 2017-18, 2 applications were received up to 30 November 2017 (para. 4.12).

11.　　***Need to promote lease modifications of industrial lots for data centre use.*** One of the measures to facilitate the development of data centres is to accept lease modification (including land exchange) tailor-made for development of high-tier data centres on existing industrial lots for the part of the development proposed for data centre use.　In the period from 25 June 2012 to 31 December 2017, the LandsD received only four applications.　The first application was received in April 2013 and the modification letter was executed in January 2015.　The second application was withdrawn.　As at 31 December 2017, the third and fourth applications were under processing.　The small number of applications received indicates that the OGCIO needs to review the attractiveness of the measures in facilitating the development of data centres (paras. 4.14 to 4.16).

12.　　***Need to encourage more bureaux/departments and organisations to open up their data.***　In an effort to support Hong Kong's development as a knowledge-based economy, in March 2011, the Government launched a pilot scheme to facilitate value-added re-use of Public Sector Information (PSI).　In March 2015, the OGCIO launched the revamped PSI portal entitled "data.gov.hk" to facilitate the dissemination of datasets provided by government bureaux/departments and organisations.　The OGCIO had approached a number of public and private organisations to encourage them to open up their data to the PSI portal.　However, up to 31 December 2017, Audit noted that: (a) only 47 (66%) of the 71 government bureaux/departments released their data to the PSI portal; (b) only 8 public and private organisations released their data to the PSI portal; and (c) only two (50%) of the four major transport operators had released some static information to the PSI portal (paras. 4.20 to 4.23).

13.   ***Need to strengthen the monitoring of the contractor and the Leading Organisers of the Hong Kong ICT Awards.***   The "Hong Kong ICT Awards" Programme was established in 2006 with the collaborative efforts of the industry, academia and the Government.   The Programme is steered by the OGCIO and organised by ICT industry associations and professional bodies (i.e. Leading Organisers).   Each year, the OGCIO appoints a contractor to provide the secretariat service and logistics support for the Hong Kong ICT Awards.   The contractor is required to ensure that personnel engaged in the secretariat service should not be involved in adjudication and assessment work of the Hong Kong ICT Awards except for administrative work.   Audit noted that an assessor and a member of the judging panel of an award category from 2013 to 2017 were members of the project team of the organisation for providing the secretariat service.   On the other hand, for each award category, a Leading Organiser, who is often an industry-related organisation, is appointed for planning, organising, managing and running the award category. According to the Judging Manual, Leading Organisers should check the eligibility requirements of the award entrants.   In 2016, there were media reports claiming that a company, which won an award, did not meet the entry requirement.   In February 2017, the OGCIO concluded that the claim made by the media report was valid and disqualified the company.   The incident indicated that there was room to strengthen the monitoring of the Leading Organisers' performance of the responsibilities stipulated in the Judging Manual (paras. 4.28, 4.30 to 4.36).

Way forward

14.   ***Need to update the strategies on promoting the wider use of IT in the community.***   The Government's strategy on promoting the wider use of IT in the community was first promulgated in the Digital 21 Strategy published in November 1998 and had been updated in 2001, 2004 and 2008 respectively. However, up to 31 January 2018, the OGCIO had not updated the Digital 21 Strategy, nor has it promulgated any new strategy to replace the Digital 21 Strategy.   The 2008 Digital 21 Strategy was published on the Digital 21 Strategy website of the OGCIO as the latest strategy.   In December 2017, the Government released the Smart City Blueprint for Hong Kong.   Audit noted that only three (i.e. Wi-Fi Connected City Programme, PSI portal and technology start-ups supporting initiatives) of the ten key initiatives in promoting the wider use of IT in the community were mentioned briefly in the Smart City Blueprint for Hong Kong.   The initiatives were only featured briefly in the Blueprint without details of their strategy and programme of work.   The Innovation and Technology Bureau (ITB) and the OGCIO need to update regularly their strategies and work programmes on promoting the wider use of IT in the

community, taking into account the Smart City Blueprint for Hong Kong and other policy directives and strategies on innovation and technology promulgated by the ITB (paras. 5.2, 5.3, 5.5 to 5.7).

Audit recommendations

15.　　**Audit recommendations are made in the respective sections of this Audit Report.　Only the key ones are highlighted in the Executive Summary. Audit has *recommended* that the Government Chief Information Officer should:**

Digital inclusion initiatives

(a)　　**carry out a post-implementation review to evaluate the extent to which the ILSP had enhanced digital inclusion and draw lessons from its implementation (para. 2.21(c));**

(b)　　**ascertain the reasons for the low response rates of organisations for submission of proposals for Funding Scheme for Digital Inclusion Mobile Apps and the low number of downloads of some mobile apps (para. 2.33(a));**

(c)　　**draw lessons from the implementation of the Funding Scheme for Digital Inclusion Mobile Apps for similar schemes launched in the future (para. 2.33(b));**

(d)　　**ascertain the difficulties for government bureaux/departments to conform to the baseline accessibility criteria and take further measures to encourage and facilitate them to conform to the criteria (para. 2.42(a));**

(e)　　**ascertain the reasons for the low response rates of the Web Accessibility Recognition Scheme (para. 2.42(b));**

Free public Wi-Fi services

(f)　　**monitor the performance and connection speed of the GovWiFi services and take measures to improve the connectivity and connection speed at**

GovWiFi venues with connection problem and slow connection speed (para. 3.18(a));

(g)   monitor the usage at each venue from time to time and consider relocating Wi-Fi hotspots when necessary (para. 3.18(d));

(h)   ensure that signages indicating the availability of the GovWiFi services are properly put up (para. 3.18(e));

(i)   explicitly alert users of the GovWiFi services to the limitation of encrypted channel, and encourage them to use more secured means of communication to transmit sensitive information, such as virtual private network and secure sockets layer, if necessary (para. 3.18(g));

(j)   take measures to ensure that the information on venue locations provided by the Wi-Fi.HK participating organisations is correct and the Wi-Fi.HK services are available at all Wi-Fi.HK venues (para. 3.28(a));

(k)   take action to expedite the progress of expanding the coverage of the Wi-Fi.HK services, taking into account the public preference on the locations of accessing free Wi-Fi services as far as possible (para. 3.28(b));

(l)   review the slow progress in the implementation of the PPC pilot project and take measures to expedite the provision of Wi-Fi services (para. 3.36(a));

(m)   critically review the target number of free Wi-Fi hotspots to be provided in the full-scale roll-out of the PPC model (para. 3.36(b));

(n)   review whether the interests of the Government have been adequately protected in respect of the variation of the agreement and/or the extension of deadline made with Service Providers A and B (para. 3.36(c));

(o)   take measures to address the slow progress of the provision of free Wi-Fi services by the non-governmental organisations at the approved venues under the subsidy scheme for providing free public Wi-Fi services in study rooms and youth service centres, and facilitate them to speed up the progress (para. 3.42);

Other initiatives in promoting the wider use of IT

(p)   endeavour to expedite the disposal of the two dedicated sites for data centre development (para. 4.17(a));

(q)   review the effectiveness of the concessionary measure on exempting the waiver fees for change of use in parts of industrial buildings (para. 4.17(b));

(r)   review the effectiveness of the concessionary measure on lease modification tailor-made for data centre use, and step up effort in promoting this measure to the industry (para. 4.17(d));

(s)   encourage more government bureaux/departments, and public and private organisations to open up more data for free public re-use via the PSI portal (para. 4.26(a));

(t)   ensure that the personnel engaged in the secretariat service are not involved in the adjudication and assessment work of the Hong Kong ICT Awards (para. 4.42(a));

(u)   establish a mechanism to strengthen the monitoring of the Leading Organisers' performance of the responsibilities stipulated in the Judging Manual (para. 4.42(c)); and

Way forward

(v)   update the Digital 21 Strategy website regularly to reflect the latest developments (para. 5.9).

16.   **Audit has also *recommended* that the Secretary for Innovation and Technology and the Government Chief Information Officer should update regularly their strategies and work programmes on promoting the wider use of IT in the community, taking into account the Smart City Blueprint for Hong Kong and other policy directives and strategies on innovation and technology promulgated by the ITB (para. 5.8).**

Response from the Government

17.   The Government Chief Information Officer and the Secretary for Innovation and Technology agree with the audit recommendations.

PART 1: INTRODUCTION

1.1   This PART describes the background to the audit and outlines the audit objectives and scope.

Background

1.2   The Government defines information and communications technology (ICT) as all technologies and applications that involve information processing and/or exchange over communication network(s), including the Internet. ICT is often used as an extended synonym for information technology (IT). The Office of the Government Chief Information Officer (OGCIO) under the Innovation and Technology Bureau (ITB) promotes and facilitates the wider use of IT in the business sector and the community, and contributes to building a digitally inclusive society under one of its programme areas, namely "IT in the Community" (Note 1). Recognising that there is a digital divide between those who have access to computers and the Internet and those who do not, the OGCIO promotes digital inclusion to enable all members of the community to have an equal opportunity to benefit from ICT developments. Digital inclusion encompasses the ability of individuals and groups to access and use ICT, which more specifically include access to the Internet, availability of hardware and software, relevant content and services, and training for digital literacy skills. Since 1998-99, "IT in the Community" has been one of the programme areas of the then Information Technology Services Department (Note 2).

Note 1:   *There are three programme areas under the OGCIO, namely: (a) Use of IT in Government; (b) IT Infrastructure and Standards; and (c) IT in the Community.*

Note 2:   *In July 2004, the Information Technology Services Department merged with the IT-related divisions of the then Commerce, Industry and Technology Bureau to form the OGCIO to take up IT-related policies and operational matters, including the programme area "IT in the Community".*

Introduction

1.3   The OGCIO is headed by the Government Chief Information Officer. As at 31 December 2017, the OGCIO had 76 staff who were responsible for the operation of various programmes and projects under the programme area "IT in the Community". An extract of the organisation chart of the OGCIO is shown at Appendix A. In 2016-17, the total expenditure for the initiatives of the OGCIO to promote the wider use of IT in the community was $117.6 million. The expenditure comprised expenditure of $98.7 million under the programme area "IT in the Community", and $18.9 million for the provision of free public Wi-Fi services funded by the Capital Works Reserve Fund. According to the OGCIO, the total expenditure for individual programmes and projects was $58.2 million (see Table 1) (Note 3).

Table 1

Expenditure of programmes and projects relating to OGCIO's initiatives in promoting the wider use of IT in the community
(2016-17)

Programme/project	Expenditure ($ million)
Internet Learning Support Programme	25.8
Free public Wi-Fi services	18.9
Hong Kong ICT Awards, International IT Fest and Internet Economy Summit	7.9
Public Sector Information Portal	3.7
Web/Mobile App Accessibility Campaign	0.7
Funding Scheme for Digital Inclusion Mobile Apps	0.5
ICT Outreach Programme for Elderly	0.4
Supporting Technology Start-ups	0.2
Data Centre	0.1
Total	58.2

Source: OGCIO records

Note 3:   *The balance of $59.4 million ($117.6 million − $58.2 million) was mainly staff-related expenditure and general departmental expenses.*

Government's strategy on promoting the wider use of IT in the community

1.4   The Government's strategy on promoting the wider use of IT in the community evolves over time. It was first promulgated in the Digital 21 Strategy document in 1998 and updated in 2001, 2004 and 2008 respectively:

(a)   *1998 Digital 21 Strategy.* The 1998 Strategy stated that the objective of "IT in the Community" was to raise the awareness, confidence and familiarity of the community in the use of ICT in all spheres of their lives;

(b)   *2001 Digital 21 Strategy.* A focused area identified by the 2001 Strategy was to strengthen the Hong Kong community for digital exploitation to ensure that the entire community would benefit from the developments of IT in enhancing the quality of life;

(c)   *2004 Digital 21 Strategy.* The 2004 Strategy named "bridging the digital divide" as one of its focused areas. The OGCIO has since revised its policy objective under the programme area "IT in the Community" to aiming at building a digitally inclusive society in Hong Kong, such that the entire community would benefit from ICT development in enhancing the quality of life; and

(d)   *2008 Digital 21 Strategy.* The 2008 Digital 21 Strategy was the latest Government's IT strategy shown on the OGCIO's Digital 21 Strategy website. The 2008 Strategy identified two action areas for promoting the wider use of IT in the community:

(i)   *Developing Hong Kong as a hub for technological cooperation and trade.* The business establishments located in Hong Kong should play a significant role in the local, Mainland and global markets for ICT and digital content services, and that collaboration with Mainland and international entities should be a major factor in successfully serving these markets. The progress expected under this action area included the completion of a study on land and other policy issues relating to the establishment of data centres in Hong Kong in late 2007 or 2008; and

(ii) ***Building an inclusive, knowledge-based society.*** Residents, businesses and voluntary organisations in Hong Kong were all able to create, access, utilise and share information and knowledge, so that they could achieve their full potential in promoting sustainable development and improving the quality of life. There should also be a culture of healthy and ethical use of ICT, promoted and protected by knowledgeable users and the legal system. The progress expected under this action area included installing wireless hotspots at major government premises with high public patronage from 2007, and establishing a digital inclusion task force in 2008 to formulate strategies and initiatives to bridge digital divide (Note 4).

Digital 21 Strategy Advisory Committee

1.5 The Digital 21 Strategy Advisory Committee was established in October 2004 to replace the then Information Infrastructure Advisory Committee (Note 5) as the advisory body on IT matters, including those for promoting the wider use of IT in the community. Its terms of reference is to advise the Government on the following aspects under the Digital 21 Strategy:

(a) goals and objectives;

(b) areas requiring further actions;

(c) desired outcomes;

(d) strategies and programmes facilitating the delivery of the desired outcomes; and

(e) blueprint for ICT development in Hong Kong.

Note 4: *The Organisation for Economic Cooperation & Development defines "digital divide" as "the gap between individuals, households, businesses and geographic areas at different social-economic levels with regard both to their opportunities to access ICT and to their use of the Internet for a wide variety of activities".*

Note 5: *The Information Infrastructure Advisory Committee was set up in August 1998 to advise the Government on the steps to take to facilitate the development of the information infrastructure in Hong Kong.*

1.6   Four Task Forces have been formed under the Digital 21 Strategy Advisory Committee (Note 6). Of the four Task Forces, the following two are pertinent to the promotion of the wider use of IT in the community:

   (a)   ***Task Force on Digital Inclusion.***   The objective of the Task Force on Digital Inclusion is to formulate strategies and initiatives for addressing digital inclusion issues in Hong Kong in a holistic manner with an aim to enabling all members of the community to have equal opportunity to benefit from ICT development; and

   (b)   ***Task Force on Industry Facilitation.***   The objective of the Task Force on Industry Facilitation is to advise on strategies and initiatives to facilitate the development of Hong Kong as a Hub for Innovation, Cooperation and Trade in ICT.

Key initiatives in promoting the wider use of IT in the community

1.7   The following are the key initiatives of the OGCIO in promoting the wider use of IT in the community under OGCIO's programme area "IT in the Community":

Digital inclusion initiatives

   (a)   ***Internet Learning Support Programme (ILSP).***   In order to mitigate the impact of digital divide on the quality of learning and drive wider adoption of Internet learning in a safe and healthy manner, the Finance Committee (FC) of the Legislative Council (LegCo) approved a funding of $220 million in May 2010 for implementation of the ILSP (also known as "i Learn at Home") for five years. The ILSP aims at helping students from low-income families acquire computer equipment and Internet access services at affordable prices, and providing them and their parents with user and social support to enable their effective use of the subsidy and proper use of the associated educational opportunity. In 2016, the ILSP was extended for

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Note 6:   *The Four Task Forces are: (a) Task Force on Digital Inclusion; (b) Task Force on Industry Facilitation; (c) Task Force on E-government Service Delivery; and (d) Task Force on ICT Professional Development and Recognition.*

two years up to the school year (Note 7) 2017/18 (i.e. up to August 2018). From the launch of the ILSP in July 2011 to December 2017, the programme delivered various types of services to 67,045 eligible families, including the acquisition of 12,414 units of computer equipment and 23,664 Internet packages, and provision of 405,274 training and support services. From the launch of the programme in 2011-12 to 2017-18 (up to September 2017), the total expenditure for the ILSP was $158.8 million;

(b) *ICT Outreach Programme for Elderly*. The programme was launched in 2013, aiming at arousing the elderly's awareness of and interest in using ICT. It was expected that such programme would enable them to experience how ICT could spice up their life so as to facilitate an active and healthy ageing. The target groups were those institutionalised elderly and hidden elderly, and those elderly receiving home care and day care services. Under the current round of the programme which commenced in November 2017, three non-profit-making non-governmental organisations (NGOs) were provided with a total of $1.5 million;

(c) *Digital inclusion mobile applications (mobile apps)*. Since 2012, the OGCIO has provided funding support to NGOs for developing free of charge mobile apps for persons with special needs (e.g. persons with disabilities, ethnic minorities, elderly, and children with special learning difficulties). Up to 31 December 2017, 17 apps with total funding of $6 million had been developed and launched;

(d) *Web/Mobile App Accessibility Campaign*. To facilitate access to online information and services by everyone including persons with disabilities, the OGCIO has implemented a Web/Mobile App Accessibility Campaign since 2011 to drive the adoption of accessible design in websites and mobile apps. From the launch of the Campaign in 2011-12 to 2017-18 (up to September 2017), the total expenditure incurred was $11 million;

Note 7:   *School year refers to the period which starts on 1 September of a year and ends on 31 August of the following year.*

Free public Wi-Fi services

(e) ***Wi-Fi Connected City Programme.*** Government Wi-Fi Programme (GovWiFi) provides free wireless Internet access services in Hong Kong's government premises. Under this initiative, Wi-Fi facilities have been installed at around 610 government premises in all 18 districts since 2008. In August 2014, the OGCIO launched the "Wi-Fi.HK" brand in collaboration with public and private organisations to provide free or time limited Wi-Fi services to the public. In May 2016, the FC approved $500 million for implementing the Wi-Fi Connected City Programme by:

    (i) funding free Wi-Fi services at government venues;

    (ii) developing and promoting the Wi-Fi.HK brand;

    (iii) opening up government venues for provision of free public Wi-Fi services under a public-private collaboration (PPC) model; and

    (iv) subsidising non-profit-making NGOs to provide free Wi-Fi services at youth service centres and study rooms.

The OGCIO reported to LegCo in May 2016 that the number of Wi-Fi hotspots would reach 34,000 by 2019. From the launch of free public Wi-Fi services in 2008-09 to 2017-18 (up to September 2017), the total expenditure was $281 million;

Other initiatives in promoting the wider use of IT

(f) ***Data centre development facilitation initiative.*** To compete against Asian countries which are keen in attracting businesses to set up data centres within their territories, the OGCIO has implemented the following measures to facilitate data centre development in Hong Kong:

    (i) setting up a Data Centre Facilitation Unit and a thematic information portal to provide coordinated services to developers and investors on matters related to setting up of data centres;

(ii)   stepping up promotion to position Hong Kong as a prime location for data centres in the Asia Pacific region;

(iii)   promoting the incentive measures that optimise the use of industrial buildings for developing data centres; and

(iv)   identifying sites for development of high-tier data centres and appropriate land disposal arrangements;

(g)   ***Hong Kong ICT Awards, International IT Fest and Internet Economy Summit.***   In 2016, the expenditure incurred for the Hong Kong ICT Awards, the International IT Fest and the Internet Economy Summit was $5.9 million, $1.1 million and $0.9 million respectively;

(h)   ***Public Sector Information (PSI) portal.***   PSI refers to the variety of information collected, produced and possessed by the Government and public bodies as part of their day-to-day operations.   The OGCIO launched the government PSI portal in 2011 to make available PSI in digital format for commercial or non-commercial use free of charge.   The PSI portal was revamped in March 2015.   As at December 2017, the portal provided 3,101 distinct datasets (Note 8) under 18 broad categories and around 1,000 app programming interfaces (Note 9).   From the launch of the revamped portal in 2014-15 to 2017-18 (up to September 2017), the total expenditure incurred was $8.7 million;

(i)   ***Promoting ICT adoption among small and medium enterprises.***   From 2004 to 2016, the OGCIO implemented a sector-specific programme to encourage small and medium enterprises to adopt ICT to enhance their operational efficiency and business opportunities.   The OGCIO has launched 19 projects for 13 sectors, namely travel industry, medical and health, drugstores, logistics, accounting, beauty service, watches and

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Note 8:   *A dataset is a collection of related sets of information that is composed of separate elements but can be manipulated as a unit by a computer.*

Note 9:   *An application programming interface is a code that allows two software programs to communicate with each other.   The OGCIO developed the application programming interface to provide software and application developers with different perspectives and means of using the datasets provided by the PSI portal.*

clocks, trade, social service, supply chain, security, wholesale/retail, and land transport. The total sponsorship provided for the 19 projects was $14.6 million. The OGCIO decided in February 2018 to cease the sector-specific programme, given a wider support by the formal programme under the Technology Voucher Programme (Note 10); and

(j) ***Technology start-ups supporting initiatives.*** The initiatives aim to strengthen support for technology start-ups through enhanced start-up programmes and services provided by Cyberport. The OGCIO has also launched a one-stop portal known as iStartup@HK to provide comprehensive practical information and serve as a virtual networking and pitching platform for technology start-ups to showcase their products online and reach out to potential investors. From the launch of the initiatives in 2013-14 to 2017-18 (up to September 2017), the total expenditure incurred for the portal was $3 million.

Audit review

1.8   In March 2013, the Audit Commission (Audit) completed an audit review of the provision of the GovWiFi services. The results were reported in Chapter 8 of the Director of Audit's Report No. 60 of March 2013.

1.9   In October 2017, Audit commenced a review of the OGCIO's programmes and projects in promoting the wider use of IT in the community. The audit has focused on the following areas:

(a)   digital inclusion initiatives (PART 2);

(b)   free public Wi-Fi services (PART 3);

Note 10:   *The Technology Voucher Programme under the Innovation and Technology Fund was launched by the ITB in November 2016 on a pilot basis to subsidise local small and medium enterprises in using technological services and solutions to improve productivity, and to upgrade or transform their business processes.*

(c)   other initiatives in promoting the wider use of IT (PART 4); and

(d)   way forward (PART 5).

Audit has found room for improvement in the above areas and has made a number of recommendations to address the issues.

Acknowledgement

1.10   Audit would like to acknowledge with gratitude the full cooperation of the staff of the ITB and the OGCIO during the course of the audit review.

PART 2: DIGITAL INCLUSION INITIATIVES

2.1   This PART examines the implementation of digital inclusion initiatives, focusing on the following areas:

(a)   ILSP (paras. 2.3 to 2.22);

(b)   ICT adoption by the elderly (paras. 2.23 to 2.28);

(c)   Digital inclusion mobile apps (paras. 2.29 to 2.34); and

(d)   Web/Mobile App Accessibility Campaign (paras. 2.35 to 2.43).

2.2   People of all walks of life should have equal opportunity to use ICT and acquire digital literacy skills, so as to fully integrate with the digital society. However, following the rapid development of technology, some people, especially the elderly, students of low-income families, and persons with disabilities, are vulnerable to digital exclusion. The OGCIO promotes digital inclusion to enable all members of the community to have equal opportunity to benefit from ICT developments.

ILSP

2.3   In the 2009-10 Policy Address, the Chief Executive of the Hong Kong Special Administrative Region announced that the Government would examine options to provide convenient and suitable Internet learning opportunities for students in need.

Digital inclusion initiatives

2.4　　　In May 2010, the FC of LegCo approved a funding of $220 million for the implementation of the ILSP for five years to help needy students and parents from low-income families to gain access to the Internet for learning. In the FC paper submitted in May 2010, the OGCIO applied for funding of $220 million, detailed as follows:

(a)　　　$84 million for facilitating the acquisition of computers at affordable prices;

(b)　　　$36 million for facilitating the provision of low-cost Internet access;

(c)　　　$65 million for training and technical support to target beneficiaries;

(d)　　　$12.5 million for the supporting cost of the ILSP (e.g. cost for promoting ILSP services and conducting mid-term review); and

(e)　　　$22.5 million for general administration cost.

The OGCIO estimated that some 522,000 students would benefit from the ILSP, comprising 410,000 students from 300,000 low-income families in the first year and an additional 112,000 students from low-income families that would become eligible for the services in the following four years.

2.5　　　The ILSP was launched in July 2011, with an aim of increasing the take-up of e-learning at home by students from low-income families by helping these families acquire suitable and affordable computers and economical Internet access. The ILSP also aimed to provide the necessary training and technical support to target students and their parents to enhance their technology know-how and knowledge about safe and healthy use of the Internet. Families with full-time students receiving education at primary and secondary levels or pursuing Project Yi Jin programmes or relevant courses of the Vocational Training Council are eligible for receiving services of the ILSP if:

(a)　　　the families are receiving the flat-rate grant for School-related Expenses under the Comprehensive Social Security Assistance Scheme; or

(b)　　　the families pass the means test for receiving financial assistance under the Working Family and Student Financial Assistance Agency.

2.6　　　　The OGCIO engaged two non-profit-making organisations to implement the programme in the Eastern and Western parts of Hong Kong respectively.　The two implementers set up 35 service centres across the territory to deliver the following services:

(a)　　computer equipment at affordable prices suitable for learning purpose with flexible payment options;

(b)　　Internet packages at concessionary subscription fee;

(c)　　free training to students on proper and safe use of the Internet for learning purpose and free training to help parents provide guidance and support to their children on web-based learning;

(d)　　free technical and user support on using computer equipment and the Internet; and

(e)　　free social support on proper and safe use of the Internet.

2.7　　　　According to the OGCIO, with a view to encouraging participation, the OGCIO and the implementers conducted various promotional activities, including:

(a)　　direct mail of programme leaflets and application forms to eligible families through the Working Family and Student Financial Assistance Agency and dissemination of programme information by the Social Welfare Department;

(b)　　publicity at public housing estates, public libraries, government venues, youth service centres and study rooms;

(c)　　briefings for schools and District Councils;

(d)　　offering seasonal discounts and value-added products and services, e.g. free computer check-ups;

(e)　　computer donation programmes and mentorship programmes; and

(f)   other general publicity through Announcements in the Public Interest, online channels, etc.

2.8   The number of services provided for four of the five types of services under the ILSP increased during the school years 2011/12 to 2016/17 (see Figure 1). From the launch of the programme in July 2011 to December 2017, the two implementers had facilitated eligible families to obtain 12,414 units of computer equipment and 23,664 Internet packages at concessionary subscription fee, and provided 405,274 training and support services.

Figure 1

Number of services provided under the ILSP
(School years 2011/12 to 2016/17)

Source: Audit analysis of OGCIO records

— 14 —
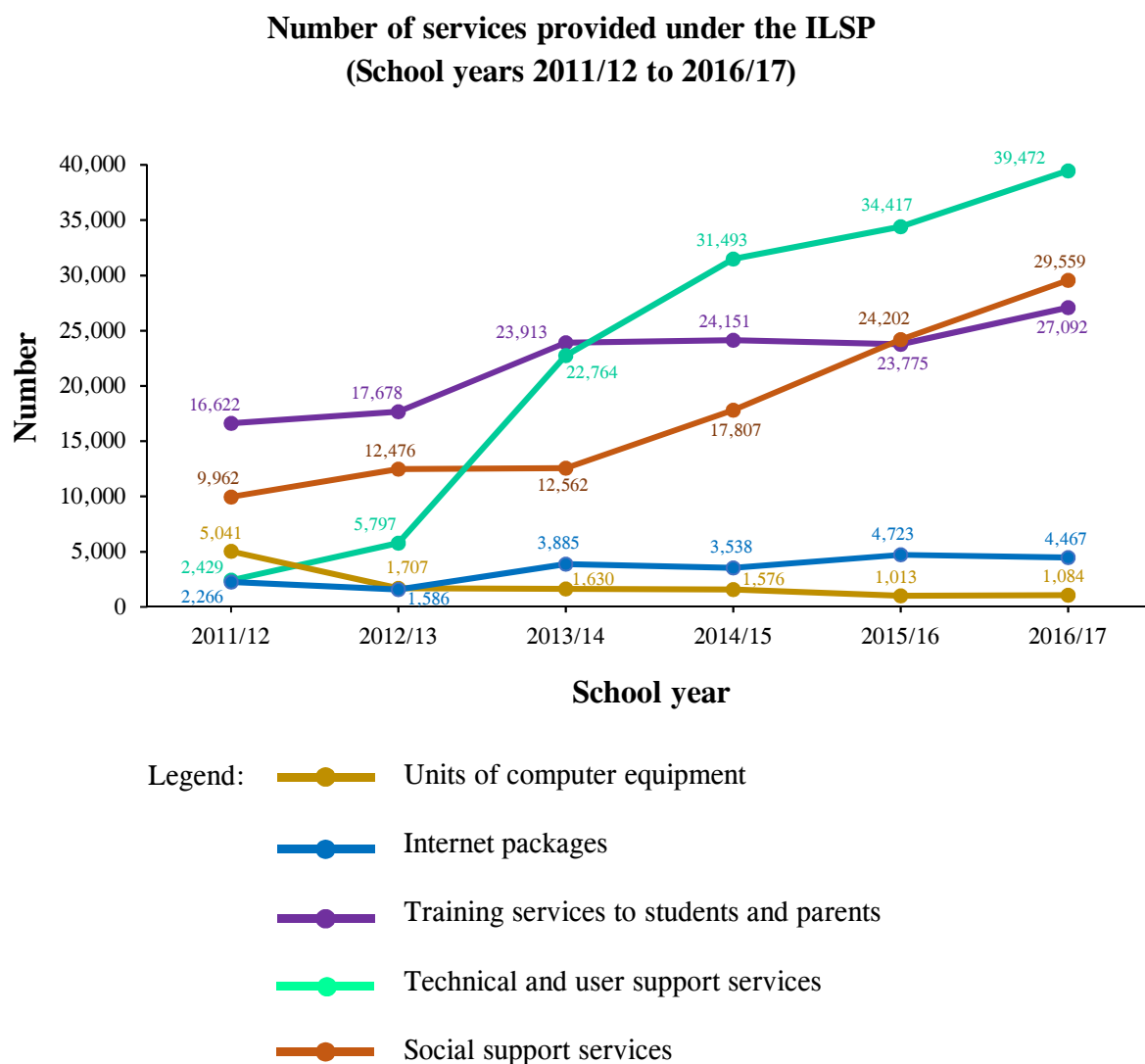
2.9   Since the implementation of ILSP in July 2011, two reviews on the programme have been conducted in 2013 (2013 Mid-term Review) and 2015 (2015 Review). Having regard to the findings of the 2015 Review and the amount of residual funding of $83 million after the completion of the initial five-year period (July 2011 to August 2016) of the ILSP, the OGCIO obtained support from the Panel on Information Technology and Broadcasting of LegCo in February 2016 to extend the ILSP for a period of two years up to school year 2017/18 (i.e. up to August 2018) with largely the same implementation arrangements.

2.10   Up to December 2017, the ILSP had been implemented for about six and a half years from its launch in July 2011. The ILSP will end in August 2018. Audit reviewed the implementation of the ILSP and found that some lessons could be learnt.

Low take-up rate of the ILSP services

2.11   According to the FC paper seeking funding for the ILSP in May 2010, the funding commitment of $220 million for the ILSP was estimated based on the assumption that around 410,000 students from 300,000 low-income families could benefit from the ILSP in the first year and an additional 112,000 students from low-income families would become eligible in the following four years (see para. 2.4). The OGCIO defines the take-up rate of the ILSP as the percentage of eligible families served. The annual take-up rate for the school years from 2011/12 to 2016/17 was generally low, ranging from 4% to 14% (see Table 2). In the school years 2011/12 to 2016/17, 63,495 of the 351,000 eligible families (Note 11) was served. The take-up rate of the ILSP services for the six-year period was 18%.

Note 11:   *The OGCIO did not have information on the number of eligible families for ILSP. The OGCIO used the number of families receiving subsidy from the Subsidy Scheme for Internet Access Charges to calculate the take-up rate of the ILSP. The Subsidy Scheme for Internet Access Charges was a scheme operated by the Social Welfare Department for students on Comprehensive Social Security Assistance, and the Working Family and Student Financial Assistance Agency for students receiving financial assistance.*

Table 2

Take-up rates of the ILSP services
(School years 2011/12 to 2016/17)

	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17
Number of eligible families (a)	246,987	228,425	216,027	202,920	192,952	175,665
Number of eligible families served (b)	11,254	8,211	21,959	18,300	25,541	24,960
Percentage of eligible families served (c) = (b)÷(a)× 100%	5%	4%	10%	9%	13%	14%

Source: Audit analysis of OGCIO records

2.12   In the 2013 Mid-term Review and the 2015 Review, the OGCIO had identified the following reasons for the low take-up rate of the ILSP services:

(a)   the prices for Internet access services and computers available under the ILSP were not attractive. The low take-up rate of sale of computer equipment remained as the low demand from service recipients and the lack of quantity commitment made it difficult to bargain for a greater bulk purchase discount from suppliers. Service recipients opted to purchase computer equipment from seasonal sales or outdated models at very substantial discounts instead of buying them via the ILSP;

(b)   owing to personal data privacy concerns, the Working Family and Student Financial Assistance Agency, the Social Welfare Department and the schools could not provide information of the eligible students directly to the implementers, hence making it difficult for the implementers to identify the eligible students;

(c)   students considered that the training offered under the ILSP overlapped with school education and parents did not consider such training useful. They also felt that the timing and locations of such training services were inconvenient;

(d)   secondary school students did not consider the technical and user support services useful and they preferred to seek assistance from peers; and

(e)   students did not consider the counselling service useful. Parents and schools considered that the counselling service overlapped with school social service.

2.13   In the light of the findings of the 2015 Review, the OGCIO allowed the implementers to source donated or recycled computers for the eligible families for free in addition to facilitating them to acquire new computer equipment. The Working Family and Student Financial Assistance Agency started to seek the eligible families' consent for providing personal data to the implementers starting from school year 2015/16. Up to December 2017, the Social Welfare Department did not provide information of the eligible families receiving the grant under the Comprehensive Social Security Assistance Scheme to the implementers. Despite follow-up action taken after the reviews, the take-up rate of ILSP services in 2016/17 was still low at 14%.

Low utilisation rate of the ILSP services

2.14   Before the eligible families can use the ILSP services, they have to enrol with one of the implementers. Audit noted that not all enrolled families used the services. The OGCIO defines the utilisation rate as the percentage of enrolled families served. The utilisation rate for each year from 2011/12 to 2016/17 ranged from 12% to 24%. The OGCIO calculated the utilisation rate of ILSP services by dividing the accumulated number of families served since the launch of the service by the accumulated number of enrolled families. The utilisation rate for the 6.5-year period from the launch of the ILSP in 2011/12 to December 2017 was 47% (see Figure 2).

Figure 2

**ILSP service utilisation rates
(School years 2011/12 to 2017/18)**
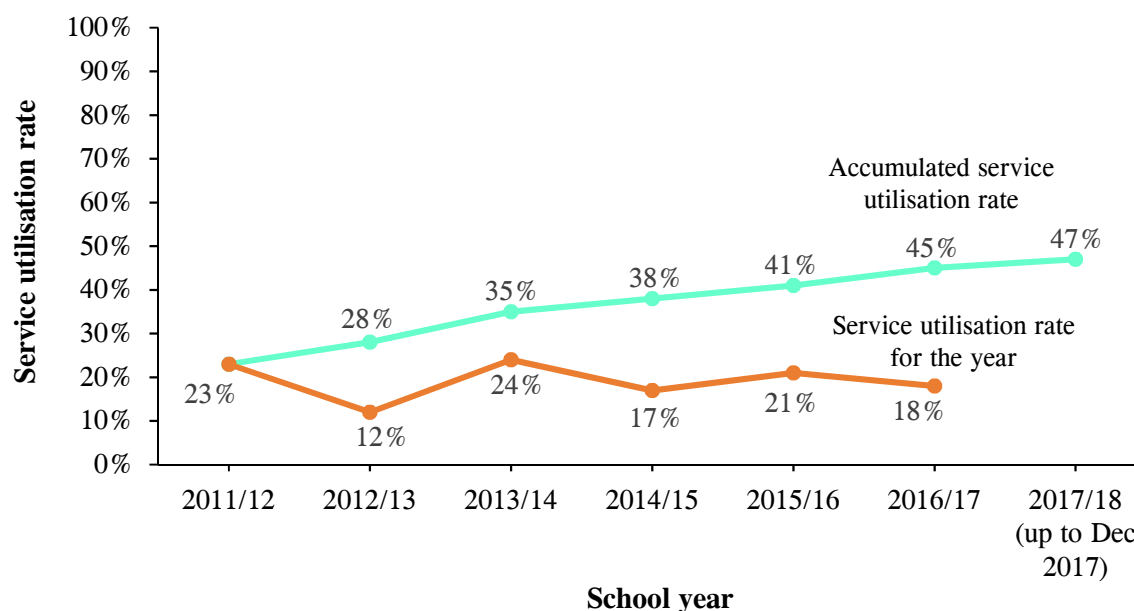
Source: Audit analysis of OGCIO records

*Remarks: The OGCIO calculated the utilisation rate for the year by dividing the
number of families served in the year by the number of enrolled families
as at year end.*

Small number of students acquired computer equipment and Internet service via ILSP

2.15   Of the $220 million ILSP budget, $120 million (i.e. $84 million +
$36 million) was for the cost of facilitating low-income families to acquire computer
equipment and Internet access services at affordable prices. The OGCIO estimated
that 522,000 students would use the computer equipment purchase service. However,
it turned out that the number of students who utilised these services was much lower
than the expectation (see Figures 3 and 4 and explanation in para. 2.12).

Figure 3

**Number of units of computer equipment sold
(School years 2011/12 to 2017/18)**

Accumulated no. of units of
computer equipment sold

No. of units of computer equipment sold
for the year
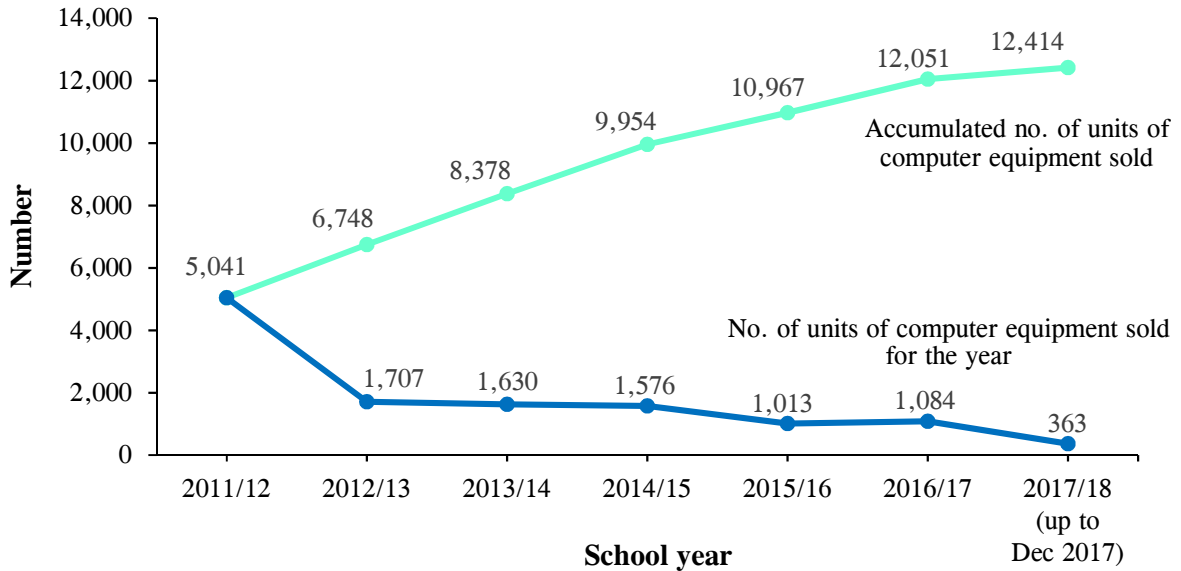
Source: Audit analysis of OGCIO records

Figure 4

**Number of Internet packages sold
(School years 2011/12 to 2017/18)**

Accumulated no. of
Internet packages sold

No. of Internet packages sold
for the year
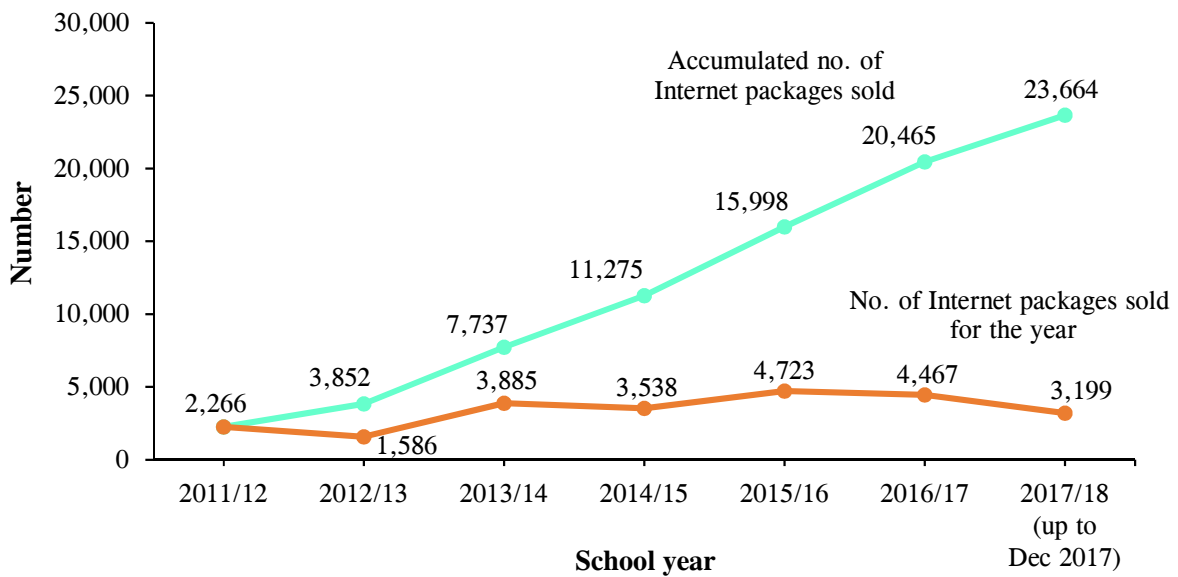
Source: Audit analysis of OGCIO records

High cost of sourcing computer equipment

2.16   In the 2015 Review, the OGCIO examined the unit cost for individual type of services for the period 2011-12 to 2014-15 and found that:

(a)   except for the sale of computer equipment service, the average costs per service unit of the other four services decreased gradually. The decrease was attributed to the high initial set up costs of operations, the efficiency gains from economy of scale with increasing service adoption and the efforts of the implementers in streamlining their service delivery;

(b)   with the number of units of computer equipment sold decreased from 5,041 in 2011/12 to 1,576 in 2014/15, the average unit cost for providing computer equipment increased by 43% from $1,164 in 2011-12 to $1,670 in 2014-15 (see Table 3). The unit cost for providing computer equipment was the cost incurred by the service provider in facilitating the service recipient to buy computer equipment at a lower price;

(c)   the high unit cost for providing computer equipment was due to the high facilitation cost associated with the sourcing of computer equipment. The high facilitation cost covered pre-sale arrangement, order processing, delivery co-ordination, payment handling (including instalment payment for hire-purchase cases), follow-up on delinquent payments in case of doubtful and bad debts, supplier liaison, etc; and

(d)   in 2014-15, the average saving to service recipients from product discounts was $470 (Note 12). Comparing the facilitation cost of $1,670 per unit of computer equipment purchased with the average saving of $470 to service recipients from the product discounts, the facilitation cost appeared high.

Note 12:   *This was the average saving from product discounts of desktop computer ($853), notebook computer ($441), tablet computer ($610), monitor ($197) and printer ($255).*

Table 3

Average costs per service unit
(2011-12 to 2014-15)

Service category	Average cost				Change from 2011-12 to 2014-15
	2011-12 ($)	2012-13 ($)	2013-14 ($)	2014-15 ($)	($)
Computer equipment	1,164	1,634	1,890	1,670	+506 (+43%)
Internet service	1,829	2,314	1,230	774	−1,055 (−58%)
Training services to students and parents	766	505	498	287	−479 (−63%)
Technical and user support services	2,343	1,631	402	253	−2,090 (−89%)
Social support services	715	375	210	256	−459 (−64%)
Overall	1,071	684	500	323	−748 (−70%)

Source: Audit analysis of OGCIO records

2.17   After the 2015 Review, the OGCIO allowed the implementers to source donated or recycled computers for the eligible families for free in addition to facilitating them to acquire new computer equipment.   The number of units of computer equipment sold further dropped from 1,576 in 2014/15 to 1,084 in 2016/17.

Targets not set for evaluating the achievements of some programme objectives

2.18   In seeking funding for the ILSP in May 2010, the OGCIO informed the FC that, apart from the cost of Internet access and computers, the limited knowledge of parents from low-income families about the Internet and the lack of technical support for them also inhibited their children's learning through the Internet.   The parents were also concerned about the possible negative effects of the Internet such as Internet addiction.   Suitable guidance should be provided to them and their children on the

safe and healthy use of the Internet. Therefore, apart from helping these families to acquire suitable computers at affordable prices and economical Internet access, the ILSP also provided training and technical support to students and their parents with an aim to enhance their technical know-how and knowledge about the safe and healthy use of the Internet.

2.19   Audit noted that, apart from the performance target on access to Internet at home among students from low-income families, the OGCIO did not set any performance targets for measuring the effectiveness of the ILSP on enhancing the technical know-how of parents and students from low-income families and their knowledge about the safe and healthy use of the Internet. Without setting such target, the OGCIO could not measure whether and to what extent the objectives on enhancing the technical know-how of parents and students from low-income families and their knowledge about the safe and healthy use of the Internet had been achieved.

Need to draw lessons from the implementation of ILSP

2.20   The ILSP has been implemented for about six and a half years since its launch in July 2011. It was stipulated in the best practice guide entitled *"A User Guide to Post Implementation Reviews"* published by the Efficiency Unit in February 2009 that a post-implementation review would help bureaux/departments evaluate whether a project has achieved its intended objectives, review its performance and capture learning points to improve the delivery and outputs of future projects. In view of the audit observations in paragraphs 2.11 to 2.19, Audit considers that the OGCIO needs to carry out a post-implementation review to evaluate the extent to which the ILSP has enhanced digital inclusion and draw lessons from its implementation.

Audit recommendations

2.21   **Audit has *recommended* that the Government Chief Information Officer should:**

(a)   **for similar support programmes in the future, regularly monitor the unit cost for the services provided and ensure that the services are delivered in a cost-effective manner;**

(b)   **for similar support programmes in the future, set targets for evaluating the achievements of programme objectives and regularly evaluate the achievements against the targets set; and**

(c)   **carry out a post-implementation review to evaluate the extent to which the ILSP had enhanced digital inclusion and draw lessons from its implementation.**

Response from the Government

2.22   The Government Chief Information Officer agrees with the audit recommendations. He has said that the OGCIO will carry out a post-implementation review of the ILSP. For similar support programmes in future, the OGCIO will regularly monitor the unit cost for the services, set suitable targets and evaluate achievements against the targets.

ICT adoption by the elderly

2.23   To encourage the elderly to use ICT more actively in their daily life with a view to expanding their social horizon, integrating with the society and enhancing their quality of life, the OGCIO implemented the following initiatives:

(a)   engaging an NGO to develop a thematic portal, "eElderly", in June 2010 to provide the elderly with one-stop access to information surrounding their needs and interests (Note 13);

(b)   providing funding support of $834,000 to three social service organisations in 2012 to implement projects to improve elder's access, knowledge and receptiveness on the use of ICT; and

(c)   organising three rounds of ICT Outreach Programmes for Elderly through NGOs in 2013-14, 2015-16 and 2017-18 totalling $3.44 million to serve as a platform to let various elderly groups appreciate how ICT could enhance

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Note 13:   *The NGO has maintained the operation of the portal on a self-financing basis since May 2013.*

their quality of life. The first and second rounds of programmes were completed in December 2014 and August 2016 respectively. The third round of programmes commenced in November 2017 with an implementation period of 12 months.

Need to monitor the ICT adoption by the elderly

2.24 In May 2012, the OGCIO reported to the LegCo Panel on Information Technology and Broadcasting that the OGCIO aimed to increase elderly's computer usage rate to 25% and Internet usage rate to 23% by 2014. Based on the Thematic Household Surveys conducted by the Census and Statistics Department, in 2014, the elderly's Internet usage rate was 24%, which exceeded the target of 23%. However, the elderly's computer usage rate was only 19.8%, which fell short of the target of 25%. In 2015, both targets were achieved (see Table 4).

Table 4

Internet usage rates and computer usage rates of elderly
(2014 and 2015)

Year	Internet usage rate		Computer usage rate	
	Target **(%)**	**Actual** **(Note 1)** **(%)**	**Target** **(%)**	**Actual** **(Note 2)** **(%)**
2014	23% by 2014	24.0%	25% by 2014	19.8%
2015		35.9%		25.8%

Source: LegCo papers and Thematic Household Surveys conducted by the Census and Statistics Department

Note 1: The Internet usage rates of 24.0% and 35.9% in 2014 and 2015 were the percentage of persons aged 65 or above having used the Internet in the 12 months before the time of surveys conducted by the Census and Statistics Department during June to August 2014 and May to August 2015 respectively.

Note 2: The computer usage rates of 19.8% and 25.8% in 2014 and 2015 were the percentage of persons aged 65 or above having used the computer in the 12 months before the time of surveys conducted by the Census and Statistics Department during June to August 2014 and May to August 2015 respectively.

2.25   In the meeting of LegCo Panel on Information Technology and Broadcasting held in May 2014, the Government Chief Information Officer said that the target was that 50% of the elderly should have used the Internet, smartphones or tablet computers in three years' time. Audit analysed the percentage of the elderly who had used the Internet, smartphone or computer for the period June 2012 to September 2017 and noted that in 2017, the elderly's Internet usage rate and rate of having smartphone were 51.2% and 52.1% respectively. However, the elderly's computer usage rate was 31.1%, which was below 50% (see Table 5).

Table 5

ICT adoption by the elderly
(June 2012 to September 2017)

Survey period	Internet usage rate (Note 1)	Having smartphone rate (Note 2)	Computer usage rate (Note 3)
June to August 2012	13.1%	6.9%	13.7%
January to April 2013	18.0%	10.2%	18.4%
June to August 2014	24.0%	24.3%	19.8%
May to August 2015	35.9%	35.4%	25.8%
April to July 2016	44.0%	42.9%	31.8%
June to September 2017	51.2%	52.1%	31.1%

Source: Thematic Household Surveys conducted by the Census and Statistics Department

Note 1:   Internet usage rate was the percentage of persons aged 65 or above having used the Internet in the 12 months before the time of survey.

Note 2:   For survey period in 2012, 2013, 2016 and 2017, having smartphone rate represented the percentage of persons aged 65 or above who had smartphone at the time of survey. For survey period in 2014 and 2015, having smartphone rate represented the percentage of persons aged 65 or above who had smartphone in the 12 months before the time of survey.

Note 3:   Computer usage rate was the percentage of persons aged 65 or above having used the computer in the 12 months before the time of survey.

2.26   With the improving education level of the elderly, the OGCIO needs to review the 50% target and consider setting a more appropriate and challenging longer-term target.

Audit recommendations

2.27   **Audit has *recommended* that the Government Chief Information Officer should:**

(a)   **take measures to monitor the ICT adoption by the elderly; and**

(b)   **review the 50% target and consider setting a more appropriate and challenging longer-term target.**

Response from the Government

2.28   The Government Chief Information Officer agrees with the audit recommendations. He has said that the OGCIO will:

(a)   monitor the progress of ICT adoption by the elderly; and

(b)   review if the target adoption rate of 50% can be set higher.

Digital inclusion mobile apps

2.29   To harness Hong Kong's strength in mobile technologies to achieve social inclusion, the OGCIO has launched three rounds of Funding Scheme for Digital Inclusion Mobile Apps since 2012. The objective of the Scheme is to provide funding support for non-profit-making social service organisations to develop mobile apps that cater for the needs of underprivileged groups for free use. These mobile apps aim to enhance the quality of life of the underprivileged groups and help them integrate into the community. Up to December 2017, 17 mobile apps which catered for the special needs of different target groups (such as persons with visual or hearing impairment, the elderly, children with learning difficulties or Down Syndrome, and ethnic minorities) had been developed and launched. The total funding for the development

of these 17 mobile apps amounted to $6 million (ranging from about $174,000 to $482,000 each).

Lukewarm response from target organisations

2.30   For each round of the Funding Scheme for Digital Inclusion Mobile Apps (launched in October 2012, January 2014 and November 2015), all non-profit-making social service organisations, non-profit-making IT professional bodies and trade associations incorporated or registered under the laws of Hong Kong are eligible to submit proposals.   In each round, the OGCIO organised a briefing session, released details through press release and the OGCIO website, and sent letters to these organisations to invite them to submit proposals.   Audit analysed the number of proposals received in each round of invitation (see Table 6) and noted that the number of proposals received decreased from 45 in 2012 to 15 in 2015.   Moreover, the number of organisations which had submitted proposals decreased from 40 (9% of 445 invitations) in 2012 to 14 (3% of 522 invitations) in 2015.

Table 6

**Response rates for three rounds of
Funding Scheme for Digital Inclusion Mobile Apps
(October 2012 to December 2015)**

Round	No. of organisations invited (a)	No. of organisations with proposals submitted (b)	No. of proposals received (c)	Response rate (d) = (b) ÷ (a) × 100%
First (October to December 2012)	445	40	45	9%
Second (January to March 2014)	504	37	41	7%
Third (November to December 2015)	522	14	15	3%

Source: Audit analysis of OGCIO records

*Remarks: Each organisation may submit more than one proposal.   Therefore, the number of
organisations with proposals submitted was smaller than the number of proposals
received.*

Small number of downloads for some mobile apps

2.31   The OGCIO requires the grantees to set and meet target number of
downloads within the first 12 months after the launch of the digital inclusion mobile
apps.   Audit examination of the number of downloads of the 12 digital inclusion
mobile apps funded by the OGCIO in the first and second rounds (Note 14) revealed

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Note 14:   *All the five mobile apps developed under the third round were launched in 2017.
Up to 31 December 2017, they had been launched for a period of less than
12 months.*

that 8 (67%) of them failed to achieve the target number of downloads within the first 12 months after the launch of the mobile apps (see Table 7).

Table 7

**Digital inclusion mobile apps that failed to achieve the
target number of downloads within the first 12 months after their launch
(First and second rounds)**

Mobile apps	Amount of funding (a) ($)	Target no. of downloads (b)	Actual no. of downloads in the first 12 months (c)	Actual no. of downloads in the first 12 months as percentage of target (d) = (c) ÷ (b) × 100% (%)	Time taken to reach the target (months)
A	178,000	3,000	1,712	57%	21
B	393,000	1,000	819	82%	13
C	285,000	5,000	2,235	45%	Not reached (Note)
D	377,000	8,000	4,339	54%	24
E	338,000	2,000	1,277	64%	14
F	433,000	1,000	898	90%	16
G	367,000	10,000	7,613	76%	20
H	461,000	2,000	1,788	89%	14

Source: Audit analysis of OGCIO records

*Note: This mobile app was taken off-shelf in August 2016. From the date of its launch
to August 2016, the total number of downloads was 4,043, which had not reached
the target of 5,000 downloads.*

Need to draw lessons from the implementation of the Funding Scheme

2.32   In May 2017, the ITB launched the Innovation and Technology Fund for Better Living to finance projects that make use of innovation and technology to improve people's daily lives. The deliverables of the projects can be in the form of mobile app, product, tool, service, software or any other forms. The Funding Scheme for Digital Inclusion Mobile Apps was subsumed under the Fund which would continue to support the development of digital inclusion mobile apps. Notwithstanding this, Audit considers that the OGCIO needs to ascertain the reasons for the low response rates of organisations for submission of proposals for the Funding Scheme for Digital Inclusion Mobile Apps and the low number of downloads of some mobile apps with a view to drawing lessons from the implementation of the Scheme for similar schemes launched in the future.

Audit recommendations

2.33   **Audit has *recommended* that the Government Chief Information Officer should:**

(a)   **ascertain the reasons for the low response rates of organisations for submission of proposals for Funding Scheme for Digital Inclusion Mobile Apps and the low number of downloads of some mobile apps; and**

(b)   **draw lessons from the implementation of the Funding Scheme for Digital Inclusion Mobile Apps for similar schemes launched in the future.**

Response from the Government

2.34   The Government Chief Information Officer agrees with the audit recommendations. He has said that the OGCIO will conduct a post-implementation review of the Funding Scheme for Digital Inclusion Mobile Apps and draw lessons for similar schemes in future.

Web/Mobile App Accessibility Campaign

2.35　　Web/mobile app accessibility is to enhance the availability of the contents of websites and mobile apps for all, including not only persons with disabilities but also persons with specific difficulties such as the elderly and persons beset by colour-blindness, cognitive and physical issues such as dyslexia, epilepsy, etc.　The main accessible features for people with different disabilities include sufficient contrast for foreground and background colours, and captions or transcript for audio/video contents.　An accessible website or mobile app not only helps deliver messages wider across, but also improves the general usability for all users.　It also helps build a caring and inclusive society.　The OGCIO launched the Web/Mobile App Accessibility Campaign in October 2011 to promote the adoption of accessible design in websites and mobile apps.

2.36　　In response to Audit's enquiry, the OGCIO informed Audit in February 2018 that it had taken measures to promote the Web/Mobile App Accessibility Campaign, including:

(a)　　organising seminars and workshops to foster the awareness on web/mobile app accessibility;

(b)　　establishing a thematic portal to provide resources on web/mobile app accessibility such as guidelines, technical references and best practices;

(c)　　publicising the benefits of web/mobile app accessibility to tertiary education institutions; and

(d)　　organising the Web Accessibility Recognition Scheme to encourage local public and private organisations to adopt web/mobile app accessibility designs.

Need to improve government mobile app accessibility

2.37   According to the OGCIO, all government websites have adopted the Level AA standard of the Web Content Accessibility Guidelines Version 2.0 (Note 15). In 2014, in view of the growing popularity of mobile apps, the OGCIO compiled a handbook on mobile app accessibility for reference by application developers. One of the strategies adopted by the OGCIO to drive the adoption of web accessibility designs in public and private websites is through government leadership. The OGCIO formulated a set of Baseline Accessibility Criteria for Government Mobile App for government bureaux/departments to comply with. All government mobile apps developed on or after 1 December 2014 should be made accessible and conform to all the baseline accessibility criteria, e.g. providing text resize function and sufficient colour contrast. According to the survey conducted by the OGCIO in October 2017:

(a)   one (4%) of the 23 mobile apps developed on or after 1 December 2014 did not conform to the baseline accessibility criteria; and

(b)   58 (65%) of the 89 mobile apps developed before 1 December 2014 did not conform to the baseline accessibility criteria.

2.38   Audit considers that the OGCIO needs to ascertain the difficulties for government bureaux/departments to conform to the baseline accessibility criteria and take further measures to encourage and facilitate government bureaux/departments to conform to the criteria.

Lukewarm response to Web Accessibility Recognition Scheme

2.39   To encourage and incentivise the wider adoption of web/mobile app accessibility in non-government websites/mobile apps, the OGCIO and the Equal Opportunities Commission have jointly organised four rounds of Web Accessibility Recognition Scheme since 2013. The Scheme aims to show appreciation to local enterprises and organisations which have made their websites and mobile apps

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Note 15:   *Web Content Accessibility Guidelines Version 2.0 is a set of international guidelines which defines how to make web content more accessible to persons with disability. Under the Guidelines, three levels of conformance are defined: A (lowest), AA and AAA (highest).*

accessible to everyone, particularly persons with disabilities. Under the Scheme, free assessment and advisory services are provided to participating organisations to help them enhance their websites and mobile apps up to the required accessibility standards.

2.40　　In each round of the Scheme, the OGCIO invited local enterprises and organisations to submit applications. Audit analysed the response rates of local enterprises/organisations for submission of applications in each round of the Scheme held in the period 2013 to 2016 and noted that the response rates ranged from 7.8% to 13% (see Table 8).

Table 8

Response rates of local enterprises/organisations for submission of applications for four rounds of Web Accessibility Recognition Scheme (2013 to 2016)

| Round | Year | No. of local enterprises/organisations | | Response rate (c) = (b)÷(a)×100% |
		Invited (a)	Submitted applications (b)	
First	2013	854	97	11.4%
Second	2014	1,167	140	12.0%
Third	2015	1,317	171 (Note 1)	13.0%
Fourth (Note 2)	2016	2,373	186	7.8%

Source:　Audit analysis of OGCIO records

Note 1:　Seven applications were received from local enterprises/organisations not invited.

Note 2:　In the fourth round, the OGCIO invited primary schools and secondary schools to submit applications. Among the 2,373 local enterprises/organisations invited, 939 were primary schools and secondary schools. Nine of the 186 applications were received from them.

Digital inclusion initiatives

2.41   In the four rounds of the Scheme, 62 to 168 local enterprises/organisations and 70 to 239 websites were awarded in the Web Accessibility Recognition Scheme (see Table 9). The low response rate might reflect the fact that only a small number of local enterprises/organisations had adopted web/mobile apps accessibility designs. In February 2016, members of the LegCo Panel on Information Technology and Broadcasting expressed disappointment on the limited number of websites adopting web accessibility designs. The OGCIO needs to ascertain the reasons for the low response rates of the Scheme and take measures to further encourage more local enterprises/organisations to adopt web/mobile apps accessibility designs.

Table 9

Number of local enterprises/organisations, websites and mobile apps awarded in the four rounds of Web Accessibility Recognition Scheme (2013 to 2016)

Round	Year	No. of local enterprises/ organisations awarded	No. of websites awarded	No. of mobile apps awarded
First	2013	62	70	N.A. (Note)
Second	2014	110	136	31
Third	2015	146	199	45
Fourth	2016	168	239	57

Source: OGCIO records

Note: The first round did not include the assessment of mobile apps.

Remarks: Each local enterprise/organisation may submit more than one website/mobile app for assessment. Therefore, the number of local enterprises/organisations awarded was smaller than the sum of the number of websites awarded and the number of mobile apps awarded.

Audit recommendations

2.42   **Audit has *recommended* that the Government Chief Information Officer should:**

(a)   **ascertain the difficulties for government bureaux/departments to conform to the baseline accessibility criteria and take further measures to encourage and facilitate them to conform to the criteria;**

(b)   **ascertain the reasons for the low response rates of the Web Accessibility Recognition Scheme; and**

(c)   **take measures to further encourage more local enterprises/organisations to adopt web/mobile apps accessibility designs.**

Response from the Government

2.43   The Government Chief Information Officer agrees with the audit recommendations. He has said that the OGCIO will strengthen the promotion and adoption of web accessibility, and issue a circular to require government bureaux/departments to conform to the baseline accessibility criteria for all government mobile apps.

PART 3: FREE PUBLIC WI-FI SERVICES

3.1   This PART examines the provision of free public Wi-Fi services, focusing on the following areas:

(a)   GovWiFi services (paras. 3.2 to 3.19);

(b)   Wi-Fi.HK brand (paras. 3.20 to 3.29);

(c)   Wi-Fi services under PPC (paras. 3.30 to 3.37); and

(d)   subsidy scheme for providing free public Wi-Fi services in study rooms and youth service centres (paras. 3.38 to 3.43).

GovWiFi services

3.2   Before 2007, there was no free public Wi-Fi services provided by the Government. The FC approved $217.6 million in 2007 and a supplementary provision of $68 million in 2011 for the provision of the GovWiFi services for a total of 10 years from December 2007 to December 2017 (under two 5-year outsourcing contracts). The objective was to develop Hong Kong into a digital society with ubiquitous access to information, applications and services on the Internet. The GovWiFi services provided the public with free Wi-Fi services on selected government premises. In December 2007, the Government awarded through open tender a 5-year contract for the installation of Wi-Fi facilities, provision of Wi-Fi services and the ongoing operations at a contract sum of $110.7 million. In March 2012, the Government and the contractor signed a service contract in the sum of $97.7 million for the provision of Wi-Fi services for another 5 years.

3.3   In January 2013, the OGCIO established the Maintenance Board of the Government Wi-Fi Programme (GovWiFi Maintenance Board) to monitor free Wi-Fi service quality, the performance of the contractor, and the cost effectiveness of the GovWiFi services. The terms of reference of the GovWiFi Maintenance Board is at Appendix B. The Board is chaired by an Assistant Government Chief Information Officer, with members from the OGCIO, the Office of the Communications Authority

and the government bureaux/departments with ten or more GovWiFi venues (Note 16).

3.4   In March 2013, Audit completed a review of the provision of the GovWiFi services (2013 Audit review). The results were included in Chapter 8 of the Director of Audit's Report No. 60 of March 2013. In the 2013 Audit review, Audit identified room for improvement in the monitoring of GovWiFi contracts, and the quality, security and promotion of the GovWiFi services.

3.5   In May 2016, the OGCIO reported to the FC that for government venues (such as public libraries, community centres, government clinics and country park visitor centres) that were of low commercial value for the commercial service providers to provide free Wi-Fi services but with keen public demand for free Wi-Fi services, the Government would continue to fund the provision of free Wi-Fi services at these venues. In November 2017, through an open tender exercise, the Government awarded the third contract to the same contractor of the first two contracts for a contract sum of $119.8 million.

Slow connection speed at some GovWiFi venues

3.6   According to the service contract signed in March 2012, the bandwidth requirement for each venue would be set by the OGCIO with an aim of supporting an average bandwidth of at least 2 Megabits per second (Mbps) downstream and 1 Mbps upstream per user. As a follow-up action for the 2013 Audit review, the OGCIO informed Audit in January 2014 that it completed a full round of sample checks in all 400 GovWiFi venues from July to August 2013 as a one-off exercise to ensure the service level of all the venues. Since 2014, the OGCIO has conducted annual service checks covering all venues with the GovWiFi services launched for over one year.

Note 16:   *As at 31 December 2017, there were eight bureaux/departments which had ten or more GovWiFi venues, namely the Leisure and Cultural Services Department, Food and Environmental Hygiene Department, Home Affairs Department, Immigration Department, Labour Department, Government Property Agency, Judiciary and Department of Health.*

3.7　　In the 2016 Policy Address, the Government pledged to progressively double the existing speed of GovWiFi connection to 3 Mbps to 4 Mbps per user. In January 2016, the OGCIO agreed with the contractor to raise the per-user bandwidth limit with a view that the actual usage could achieve a connection speed of 3 Mbps to 4 Mbps. In 2017, the OGCIO conducted annual service check of the GovWiFi services covering 3,087 hotspots at 605 venues. Based on the results of the OGCIO's annual service check in 2017, Audit noted that the download speed of 1,171 hotspots at 366 venues was lower than 3 Mbps, and no Wi-Fi connection could be established at 10 hotspots at 7 venues (see Table 10).

Table 10

**Results of annual service check of GovWiFi services
(2017)**

Download speed	No. of hotspots	No. of venues involved
No Wi-Fi connection	10　　(0.3%)	7
< 3 Mbps	1,171　　(38.0%)	366
3 Mbps to <4 Mbps	862　　(27.9%)	366
≥ 4 Mbps	1,044　　(33.8%)	213
Total	3,087　(100.0%)	605 (Note)

Source:　　Audit analysis of OGCIO records

Note:　　The numbers of venues involved do not add up because each GovWiFi venue had more than one hotspot, and different download speeds were recorded at different hotspots of the same venue.

3.8　　Audit noted that, of the 1,171 hotspots at 366 venues where download speed was lower than 3 Mbps:

  (a)　　14 venues (involving 21 hotspots) were public libraries, which were popular GovWiFi venues; and

(b)   9 venues (e.g. Hong Kong Park, Victoria Park and Statue Square Gardens — Note 17) (involving 106 hotspots) were popular tourist spots or parks with relatively high usage of the GovWiFi services (more than 100 users a day).

Audit also noted that of the 366 venues, 23 were venues with bandwidth limitation where fibre link upgrade was not feasible (e.g. sites on outlying islands or with geographic issue).   At the GovWiFi Maintenance Board meeting held in February 2017, the contractor advised the Board that the installation of 4G mobile router could be a technical solution to solve the problem of bandwidth limitation. However, the OGCIO has not followed up the suggestion.

Low usage of GovWiFi services at some venues

3.9   The OGCIO adopted the following criteria in selecting premises for the GovWiFi services:

(a)   indoor venues with at least 300 daily visitors;

(b)   joint-user buildings with at least 1,000 daily visitors;

(c)   outdoor venues with at least 5,000 daily visitors;

(d)   major parks (e.g. Kowloon Park and Shatin Park); and

(e)   other considerations including promoting Hong Kong's image, or facilitating access to e-government content and services.

In estimating the usage of the GovWiFi services, the OGCIO assumed that on a daily basis, 5% of the visitors to indoor venues and 3% of the visitors to joint-user buildings and outdoor venues would use the GovWiFi services.

Note 17:   *The other six venues were: Repulse Bay Beach, Quarry Bay Park, Hong Kong Cultural Centre Piazza cum Tsim Sha Tsui Promenade, Lai Chi Kok Park, Kowloon Park and City Art Square.*

3.10 As at 31 December 2017, there were 616 GovWiFi venues. Audit examined the OGCIO's record on the usage of the GovWiFi services at the 616 venues in the period from 2014 to 2017 (Note 18) and noted that the usage at some venues was low (see Table 11). For 196 (32%) of the 616 venues, the average daily number of users was less than 15 (i.e. 300 daily visitors × 5%). From September 2012 to December 2017, the number of GovWiFi venues had increased from 395 to 616. The percentage of GovWiFi venues with average daily number of users below 15 also increased from 27% (108 of 395 venues) for the period from September 2009 to September 2012 (reported in the 2013 Audit review) to 32% for the period from 2014 to 2017.

Table 11

**Average daily number of users of GovWiFi services
at government venues
(2014 to 2017)**

Average daily number of users	No. of venues
0 to < 15	196 (32%)
15 to < 50	194 (31%)
50 to < 100	124 (20%)
100 to < 500	96 (16%)
500 and above	6 (1%)
Total	616 (100%)

Source: Audit analysis of OGCIO records

Of the 23 venues with bandwidth limitation (see para. 3.8), 16 were venues with average daily number of users below 15. According to the OGCIO, continuing the GovWiFi services may be justified for some venues where the average number of users was not high. For example, for community halls, there was high demand when the hall was rented out, while usage was low on other days. The OGCIO needs to take measures to boost the usage of the GovWiFi services including promoting the availability of the services and improving the services. The OGCIO should also

Note 18: *For venues where the GovWiFi services were launched after 1 January 2014, Audit examined the usage of the GovWiFi services from the service launch dates to 31 December 2017.*

consider discontinuing the GovWiFi services at some of the venues with low usage, especially the 16 venues with bandwidth limitation.

Need to improve the display of GovWiFi signages on government venues

3.11   To indicate the availability of the GovWiFi services, the OGCIO issued guidelines to the departments who manage the venues and requested them to post GovWiFi signages (see Figure 5) near hotspots at the venues and to periodically visit the venues to ensure that signages are properly displayed.

Figure 5

GovWiFi signage

Source: OGCIO records

3.12   According to the procedures for the annual service check promulgated by the OGCIO, the locations of the signages of the GovWiFi services should be recorded in the annual service check. Audit examined the record of the annual service check conducted in 2017 and found that locations of the signages were not recorded as required.

3.13   From January to March 2018, Audit visited 20 GovWiFi venues to ascertain whether signages were put up. Audit found that at 19 of the 20 venues, the display of signage needed improvement:

(a)   at 6 (30%) venues, no signages were put up at any of the hotspots; and

(b)   at 13 (65%) venues, signages were only put up at some hotspots.

3.14   The OGCIO needs to ensure that signages indicating the availability of the GovWiFi services are put up at all hotspots. The OGCIO also needs to take measures to ensure that the locations of the signages are recorded during annual service checks.

Need to explicitly alert users to the limitation of encrypted channel

3.15   According to the service contract for the provision of the GovWiFi services, the contractor is required to provide both encrypted and unencrypted services. When users use the unencrypted channel, their personal information can be hijacked without the users' knowledge. Therefore, the OGCIO advises users of the GovWiFi services to use encrypted channel whenever possible for security and privacy protection reasons.

3.16   Audit examination of the GovWiFi service monthly usage statistics in the period from 2014 to 2017 revealed that the usage of encrypted channel ranged from 10.8% to 13.7% of the total number of connections (see Figure 6).

Figure 6

**Monthly usage statistics of encrypted channel
(2014 to 2017)**
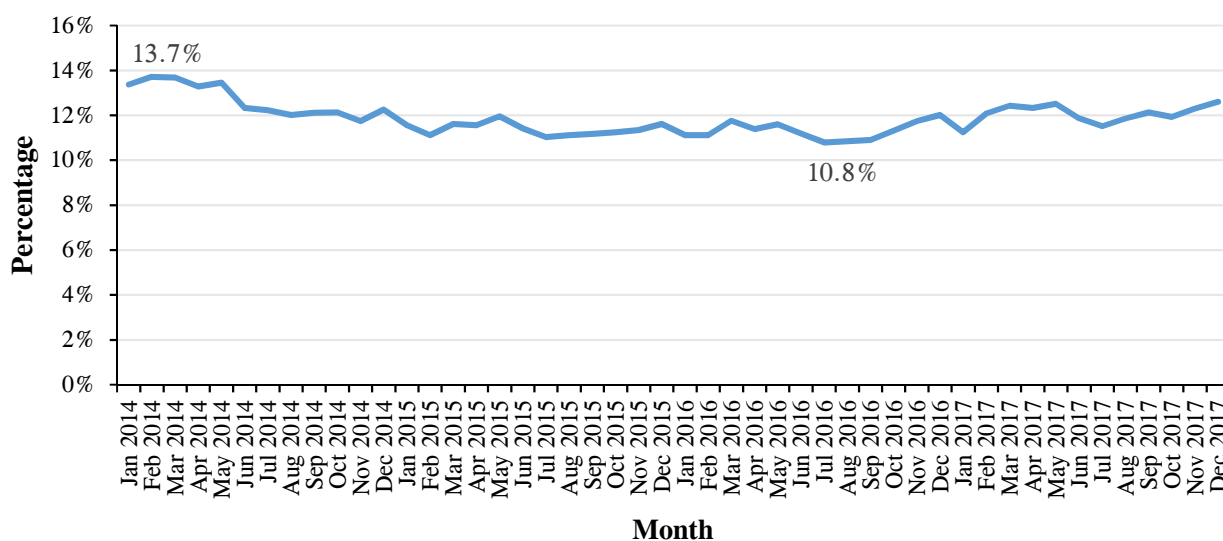
Source: Audit analysis of OGCIO records

3.17   According to the OGCIO, the encrypted channel can provide encryption between the computer/mobile device and the hotspot. However, the data are still unencrypted when transmitted over the Internet and the personal information of the users can be hijacked without their knowledge. The use of encrypted channel cannot provide sufficient network security protection to users against hacking as it cannot protect the data during transmission across the Internet. Users are encouraged to use more secured means of communication, such as virtual private network and secure sockets layer. However, Audit noted that in the security tips and the usage guide provided on the thematic website on the GovWiFi services, users were not explicitly alerted to the limitation of encrypted channel. The security tips of the OGCIO reads, *"When using public Wi-Fi networks to access the Internet, you should always be aware of the security implications."* The usage guide reads, *"For security and privacy protection, you are advised to use the encrypted channel whenever possible ...... if your mobile device is not equipped with the required encrypted function, you can use the unencrypted channel. But, in such a case, you are advised to transmit non-sensitive information or perform web browsing only as transmission in this mode is unencrypted and therefore unprotected."*

Audit recommendations

3.18   **Audit has** *recommended* **that the Government Chief Information Officer should:**

(a)   **monitor the performance and connection speed of the GovWiFi services and take measures to improve the connectivity and connection speed at GovWiFi venues with connection problem and slow connection speed;**

(b)   **consider increasing the Wi-Fi capacity at popular tourist spots or parks with relatively high usage of the GovWiFi services;**

(c)   **adopt alternative technical solutions to enhance the connection speed at GovWiFi venues with geographic constraints for bandwidth upgrade;**

(d)   **monitor the usage at each venue from time to time and consider relocating Wi-Fi hotspots when necessary;**

(e)   **ensure that signages indicating the availability of the GovWiFi services are properly put up;**

(f)   **take measures to ensure that the locations of signages are recorded during annual service checks; and**

(g)   **explicitly alert users of the GovWiFi services to the limitation of encrypted channel, and encourage them to use more secured means of communication to transmit sensitive information, such as virtual private network and secure sockets layer, if necessary.**

Response from the Government

3.19   The Government Chief Information Officer agrees with the audit recommendations. He has said that:

(a)   the OGCIO will progressively increase the Wi-Fi capacity at tourist spots and venues with relatively high usage; and

(b)   regarding the use of 4.5G mobile service to support Wi-Fi services at outdoor venues as an alternative mode of service delivery, a trial is being conducted at three sites, i.e. Tung Chung North Park, Jordan Valley Park and Central Kwai Chung Park.

Wi-Fi.HK brand

3.20   Wi-Fi.HK (see Figure 7) is the common branding launched in August 2014 through collaboration of the Government with a number of public and private organisations for providing free Wi-Fi services in Hong Kong. Information on location of the venues offering the Wi-Fi.HK services are available at the Wi-Fi.HK website and the Wi-Fi.HK mobile app. Participating organisations are required to meet a set of eligibility criteria, such as provision of a minimum of 3 Mbps Internet bandwidth, provision of a minimum of 30-minute free service usage per day during venue opening hours, no requirement for registration to use the free service, and provision of service support via hotline or email.

Figure 7

Logo of Wi-Fi.HK

Source: OGCIO records

Information on the location of Wi-Fi.HK venues not always accurate and no Wi-Fi connections at some Wi-Fi.HK venues

3.21   Since 2015, the OGCIO has commissioned a consultant to conduct sample service checks at Wi-Fi.HK venues.   Service checks were conducted annually in 2015 and 2016, and quarterly in 2017 (up to June).   The sample service checks included the correctness of the venue locations provided by the Wi-Fi.HK participating organisations and the connection status of the Wi-Fi.HK services.

3.22   Audit examined the results of the sample service checks conducted in the period from 2015 to 2017 (up to June). Audit noted that Wi-Fi connections could not be established at some Wi-Fi.HK venues (see Table 12).   The percentage of Wi-Fi.HK venues where Wi-Fi connections could not be established increased from 5％ (9 of 165 venues checked) in 2015 to 13％ (37 of 284 venues checked) in 2017 (up to June). Reasons for the failure to establish Wi-Fi connections included:

(a)   the venues were found to have closed down or could not be located;

(b)   the venues could be located but the Wi-Fi.HK services could not be detected; and

(c)   the Wi-Fi.HK services could be detected but Wi-Fi connections could not be established.

Free public Wi-Fi services

The OGCIO needs to take measures to ensure that the information on venue locations provided by the Wi-Fi.HK participating organisations is correct and the Wi-Fi.HK services are available at all Wi-Fi.HK venues.

Table 12

Results of Wi-Fi.HK service checks
(2015 to 2017)

Wi-Fi connections of the venues checked	No. of venues checked		
	2015	**2016**	**2017 (up to June)**
Successfully established	156 (95%)	112 (94%)	247 (87%)
Could not be established (Note)	9 (5%)	7 (6%)	37 (13%)
Total	165 (100%)	119 (100%)	284 (100%)

Source: Audit analysis of OGCIO records

Note: The consultant carrying out the service checks was unable to locate the correct venue in 1 of the 9 cases in 2015, and in 10 of the 37 cases in 2017.

Slow progress in expanding the coverage of Wi-Fi.HK services

3.23   In the 2016 Policy Address, the Government pledged to progressively expand the coverage of free Wi-Fi services by doubling the number of Wi-Fi.HK hotspots from 17,000 to 34,000 within three years (i.e. adding 17,000 new hotspots by 2019) to provide such services at all public rental housing estates and public hospitals, markets, parks, sitting-out areas, promenades, tourist spots, public transport interchanges and land boundary control points.

3.24   The progress of expanding the coverage of the Wi-Fi.HK services was slow. As at 31 December 2017:

(a)   the number of Wi-Fi.HK hotspots had increased only by 3,339, from 17,000 to 20,339 (i.e. 20% of the target of 17,000 new hotspots);

(b)   the Wi-Fi.HK services were not yet available at any of the 179 public rental housing estates; and

(c)   the Wi-Fi.HK services were available at only 12 (29%) of the 42 public hospitals.

3.25   Audit also noted that the distribution of Wi-Fi.HK hotspots did not match the preference of the users. According to the Thematic Household Survey conducted by the Census and Statistics Department in 2016, the top 2 most preferred locations for having free public Wi-Fi services were food and beverage venues and store/shopping malls, with 61% and 57% of the respondents selecting them as the most preferred locations respectively. However, as at 31 December 2017, of the 20,339 hotspots where the Wi-Fi.HK services were provided, 10,663 (52%) were located at universities and tertiary institutions. Only 861 (4%) were located at food and beverage venues and 1,071 (5%) were located at stores/shopping malls (see Table 13). According to the OGCIO, some 300 hotspots had been implemented in January and February 2018 in the store/shopping mall category. The number of hotspots of this category increased from 1,071 (5.27% of 20,339 hotspots) as at end of 2017 to 1,387 (6.66% of 20,835 hotspots) in mid-February 2018.

Table 13

Wi-Fi.HK hotspots analysed by venue type
(31 December 2017)

Venue type	No. of organisations	No. of hotspots	No. of venues
University & Tertiary Institution	14	10,663 (52.43%)	91 (2.67%)
Sports, Cultural & Recreational Venue	6	1,688 (8.30%)	366 (10.74%)
Entertainment & Leisure	5	1,157 (5.69%)	172 (5.05%)
Store/Shopping Mall	7	1,071 (5.27%)	435 (12.77%)
Government Building & Office	13 (Note 1)	1,006 (4.95%)	178 (5.23%)
Telephone Booth	1	932 (4.58%)	932 (27.36%)
Food & Beverage	6	861 (4.23%)	272 (7.99%)
Hospital & Clinic	5	676 (3.32%)	149 (4.37%)
Public Transportation	5	548 (2.69%)	20 (0.59%)
Bank	2	414 (2.04%)	128 (3.76%)
Study Room & Youth Service Centre	26	373 (1.83%)	107 (3.14%)
Convenience Store	2	363 (1.79%)	363 (10.66%)
Industrial/Commercial Building	4	316 (1.55%)	43 (1.26%)
Accommodation (Note 2)	1	127 (0.62%)	127 (3.73%)
Government Related Organisation	7	75 (0.37%)	15 (0.44%)
School & Learning Centre	1	62 (0.31%)	5 (0.15%)
Others	2	7 (0.03%)	3 (0.09%)
Overall	78 (Note 3)	20,339 (100.00%)	3,406 (100.00%)

Source: *Audit analysis of OGCIO records*

Note 1: *The 13 organisations comprised 11 government departments, 1 commercial organisation and the GovWiFi programme. The OGCIO counted the GovWiFi programme as one organisation.*

Note 2: *The accommodation referred to a hotel. The 127 hotspots were located at 127 rooms of the hotel.*

Note 3: *The numbers of organisations do not add up because some organisations (e.g. major Wi-Fi service providers) provide the Wi-Fi.HK services at more than one type of venues.*

Need to step up promotion of Wi-Fi.HK

3.26   According to the funding paper for the Wi-Fi Connected City Programme submitted by the OGCIO to the FC in May 2016, the OGCIO would continue to develop and promote the Wi-Fi.HK brand as a quality public Wi-Fi service.   The OGCIO expected more private hospitals, shopping malls and public transport operators would join the Wi-Fi.HK brand in offering free Wi-Fi services. Audit noted that, up to 28 February 2018, the response from the private organisations to join the Wi-Fi.HK brand had been lukewarm. Only 19 private organisations had joined the Wi-Fi.HK brand since May 2016.   Furthermore, according to the Thematic Household Survey conducted by the Census and Statistics Department in 2016, 55% of the respondents who had used public Wi-Fi services during the 12 months before the survey were not aware of the Wi-Fi.HK brand.   The OGCIO needs to step up its promotion efforts to encourage more private organisations to join the Wi-Fi.HK brand and raise the public awareness of the Wi-Fi.HK brand.

Need to enhance the security of Wi-Fi.HK services

3.27   In the 2016 Policy Address, the Government pledged to enhance the security of the Wi-Fi services provided at government venues. Audit noted that there is room for improvement in the security of the Wi-Fi.HK services. In January 2016, the OGCIO informed the LegCo Panel on Information Technology and Broadcasting that it would enhance the security measures for the Wi-Fi.HK services, by adopting digital server certificate to facilitate Wi-Fi users in verifying the identity of the service providers so as to reduce the risk of connecting to fake Wi-Fi.HK hotspots. According to the OGCIO, the installation of digital server certificate has become a mandatory requirement for joining the Wi-Fi.HK brand since mid-2017.   For organisations that joined before mid-2017, the OGCIO had issued letters to them and recommended them to install the certificate.   Audit noted that in the Wi-Fi.HK sample service check conducted in 2017, digital server certificate was not found at 82 (33%) of the 247 Wi-Fi.HK venues checked. The OGCIO needs to take measures to encourage participating organisations to install digital server certificates at their Wi-Fi.HK venues as far as possible.

Audit recommendations

3.28   **Audit has *recommended* that the Government Chief Information Officer should:**

(a)   **take measures to ensure that the information on venue locations provided by the Wi-Fi.HK participating organisations is correct and the Wi-Fi.HK services are available at all Wi-Fi.HK venues;**

(b)   **take action to expedite the progress of expanding the coverage of the Wi-Fi.HK services, taking into account the public preference on the locations of accessing free Wi-Fi services as far as possible;**

(c)   **step up the promotion efforts to encourage more private organisations to join the Wi-Fi.HK brand and raise the public awareness of the Wi-Fi.HK brand; and**

(d)   **take measures to encourage participating organisations that joined the Wi-Fi.HK brand before mid-2017 to install digital server certificates at their Wi-Fi.HK venues as far as possible.**

Response from the Government

3.29   The Government Chief Information Officer agrees with the audit recommendations. He has said that:

(a)   the OGCIO has been soliciting participation of shopping malls and chain restaurants. The coverage of Wi-Fi.HK has also been expanded to new venue types such as banks, hotels and themed-buses;

(b)   the OGCIO has been working with the Hong Kong Wireless Technology Industry Association to promote the Wi-Fi.HK brand. Trademark registration has been obtained from the Intellectual Property Department to enhance the brand value of Wi-Fi.HK; and

(c)   the OGCIO has been taking measures to encourage participating organisations to install digital server certificates.

Wi-Fi services under PPC

3.30   In March 2015, the Government commissioned a consultant to conduct a strategic review of the GovWiFi services and propose the way forward on a sustainable model in the long term. In March 2016, the consultant recommended the Government to open up government venues for the provision of free Wi-Fi services through PPC.

3.31   In May 2016, when seeking funding approval from the FC for the Wi-Fi Connected City Programme, the OGCIO informed the FC that:

(a)   the Government would open up government venues for the private sector to install their equipment and provide free public Wi-Fi services at their own cost through a PPC model;

(b)   the Government planned to fund the one-off setup cost of the basic infrastructure at these locations and would bear the electricity charges (Note 19) for the operation of the Wi-Fi services. The private sector would be allowed to provide their commercial mobile and Wi-Fi services and other information services (Note 20) at these venues;

(c)   a PPC pilot project was planned to provide free Wi-Fi services at over 100 venues across 18 districts in Hong Kong with high patronage such as parks, sitting-out areas, promenades, tourist spots and public transport interchanges. Based on the experience of the pilot project, the OGCIO would formulate the long-term collaboration model and the details for the next implementation stage, including the types and number of government venues to be opened up, geographical distribution of the venues as well as service to be provided. It would also provide opportunities for the private sector to explore the best business arrangements to make the services sustainable. Upon completion of the pilot project, the Government would review the results in six months;

Note 19:   *According to the OGCIO, the average annual electricity charge per Wi-Fi hotspot is about $100.*

Note 20:   *Other information services include soft advertisement services and big data analytics services.*

(d)   it was expected that the mass roll-out of the PPC arrangement would begin from mid-2017, and there would be 7,000 new Wi-Fi.HK hotspots at government venues through PPC within three years; and

(e)   it was estimated that by installing 7,000 hotspots through the PPC model instead of the conventional government-funded model, a saving of $232 million could be achieved by 2022.

Slow progress in providing Wi-Fi services under the PPC pilot project

3.32   On 20 December 2016, the Government entered into licence agreements with four service providers to provide Wi-Fi services for a service period of five years at 185 government venues. According to the agreements:

(a)   the service providers should install the equipment for provision of Wi-Fi services and permitted value-added services (including soft advertisement services, commercial Wi-Fi services, big data analytics services and mobile services) at the allocated venues within a lead time of three to seven months from the date of the agreements;

(b)   the service providers should commence the provision of the Wi-Fi services within 12 months (i.e. by 19 December 2017), or a period to be agreed by the Government, from the date of the agreements;

(c)   the service providers should deposit $25,000 per allocated venue with the Government as security for due performance of their obligations under the agreements;

(d)   the deposit shall be forfeited in case of default on the part of the service providers in the performance of any of their obligations under the agreements;

(e)   any forfeiture of the deposit shall be without prejudice to the Government's right to claim any further remedies which it has sustained or may sustain by reason of such default; and

(f)   the Government may terminate the agreements if the service providers fail to duly and punctually perform or comply with any provision of the agreements.

3.33   The progress of the implementation of the PPC pilot project by the service providers was slow. Free Wi-Fi services had been launched at only 12 (6%) of the 185 venues by 19 December 2017 (i.e. the deadline stipulated in the agreements) (see Table 14). Three of the four service providers had not commenced the Wi-Fi services for some or all of the allocated venues by the deadline.

Table 14

**Implementation of free Wi-Fi services
under the PPC pilot project
(19 December 2017)**

Service provider	No. of venues allocated	No. of venues with free Wi-Fi services launched
A	160	0
B	11	5
C	7	0 (Note)
D	7	7
Total	185	12

Source: OGCIO records

Note: For six of the seven venues, free Wi-Fi services were launched on 23 February 2018.

3.34   Audit noted that:

(a)   ***Service Provider A.*** On 9 October 2017, Service Provider A informed the OGCIO that it could only deliver Wi-Fi services at 4 of its 160 allocated venues by the deadline stipulated in the agreement due to its commercial considerations, and sought advice from the OGCIO on the arrangements for the remaining 156 venues. On 10 October 2017, the OGCIO informed

the Department of Justice that Service Provider A had failed to complete the installation of Wi-Fi equipment at all of its 160 allocated venues within the lead time stipulated in the agreement (i.e. by 19 June 2017), and that the OGCIO was prepared to allow Service Provider A to provide Wi-Fi services only in respect of 4 of the 160 allocated venues and to withdraw the remaining 156 venues from the agreement by variation of agreement. On 4 December 2017, the OGCIO wrote to Service Provider A setting out the terms and conditions for varying the agreement to retain 4 of the 160 allocated venues under the original agreement. On 11 December 2017, Service Provider A requested the OGCIO to extend the deadline for commencing the provision of Wi-Fi services at the 4 allocated venues from 19 December 2017 to 15 March 2018 because extra time was needed for underground cable installation work. On 14 December 2017, the OGCIO accepted the request to extend the deadline and reminded Service Provider A that no further extension would be given and the Government would proceed to terminate the agreement if Wi-Fi services could not be commenced by 15 March 2018. On 6 January 2018, Service Provider A accepted such variation of agreement. In response to Audit's enquiry, the OGCIO informed Audit in January 2018 that it would refund the original deposit for the 160 venues to Service Provider A once it had received the new deposit for the 4 venues from Service Provider A. There was no documentary evidence to indicate that the OGCIO had sought legal advice on protecting the interests of the Government in varying the agreement and extending the deadline;

(b) *Service Provider B.* On 8 December 2017, Service Provider B wrote to the OGCIO requesting extension of the deadline for commencing the provision of Wi-Fi services at 6 of its 11 allocated venues. On 14 December 2017, the OGCIO accepted the request to extend the deadline to 30 June 2018. According to the OGCIO, the delay of the implementation was due to unavailability of two venues for installation work and technical difficulties encountered at four venues;

(c) *Service Provider C.* In its proposal for the PPC pilot project submitted to the OGCIO, Service Provider C stated that provision of mobile services would be of the most crucial priority in sustaining the business model of providing free Wi-Fi services at the selected venues. The agreement signed by the service provider included a term that for all venues, mobile services (as one of the value-added services selected by the service provider) must be activated at the same time with free Wi-Fi services. The service provider

had completed the installation of Wi-Fi equipment at all of its seven allocated venues by October 2017. However, as the mobile services at these venues had not yet been activated, free Wi-Fi services at these venues were not launched before the deadline of 19 December 2017. Subsequently, on 23 February 2018, free Wi-Fi services were launched at six of the seven venues. The OGCIO needs to liaise with Service Provider C to expedite the provision of Wi-Fi services for the remaining venue. Audit noted that for all the seven venues allocated to Service Provider C, other service providers had indicated interest in providing Wi-Fi services at the venues without proposing such term on mobile services. No documentary evidence was available showing the reason why the OGCIO allocated these venues to Service Provider C with such a term instead of considering other interested service providers; and

(d) *Service Provider D.* As at the deadline of 19 December 2017, Service Provider D had commenced the Wi-Fi services at all of its seven allocated venues.

3.35 Audit considers that the OGCIO needs to review the slow progress in the implementation of the PPC pilot project and take measures to expedite the provision of Wi-Fi services for the venues allocated to service providers. In view of the results of the pilot project, the OGCIO needs to critically review the target number of free Wi-Fi hotspots to be provided in the full-scale roll-out of the PPC model. For future PPC projects, the OGCIO also needs to critically review the implications of the terms proposed by the service providers before accepting such terms in the agreements.

Audit recommendations

3.36 **Audit has *recommended* that the Government Chief Information Officer should:**

(a) **review the slow progress in the implementation of the PPC pilot project and take measures to expedite the provision of Wi-Fi services for the venues allocated to service providers;**

(b) **critically review the target number of free Wi-Fi hotspots to be provided in the full-scale roll-out of the PPC model;**

(c)   **review whether the interests of the Government have been adequately protected in respect of the variation of the agreement and/or the extension of deadline made with Service Providers A and B;**

(d)   **seek legal advice on the possible legal actions against Service Providers A and B;**

(e)   **liaise with Service Provider C to expedite the launch of Wi-Fi services for the remaining one of the seven venues allocated;**

(f)   **for future PPC projects, critically review the implications of the terms proposed by the service providers before accepting them; and**

(g)   **draw lessons from the PPC pilot project for reference in the full-scale PPC roll-out.**

Response from the Government

3.37   The Government Chief Information Officer agrees with the audit recommendations. He has said that the OGCIO has conducted a review of the PPC pilot project to identify the major problems in the implementation and devise measures to improve the process for rolling out the full-scale PPC.

Subsidy scheme for providing free public Wi-Fi services in study rooms and youth service centres

3.38   In the 2016 Policy Address, the Government stated that it would offer free Wi-Fi services at all study rooms and youth service centres run by the Government and non-profit-making NGOs to help students study after school with the use of Internet resources. In the funding paper submitted to the FC in May 2016, the OGCIO informed the FC that it would draw up an application system for subsidising NGOs currently operating study rooms and youth service centres with regular funding support from the Education Bureau and the Social Welfare Department in the provision of free public Wi-Fi services in these venues. The OGCIO estimated that the subsidy would cover about 350 study rooms and youth service centres run by the NGOs, involving around 500 hotspots, for a period of 5 years. The maximum annual subsidy for each venue would be set at $12,000 on a reimbursable basis.

3.39   In 2017, the OGCIO sent invitations to 67 eligible NGOs operating 217 study rooms and youth service centres for their application.   As at 31 December 2017, of the 67 eligible NGOs, 51 (76%) had applied for the subsidy scheme for 177 of their 194 venues. In other words, 16 (24%) of the 67 NGOs, operating 23 (11%) of the 217 venues, had not applied for the subsidy scheme. According to the OGCIO, 15 of the 16 NGOs were already providing free public Wi-Fi services.

Need to monitor the progress of the provision of Wi-Fi services under the subsidy scheme

3.40   According to the Technical and Service Standard Requirements laid down by the OGCIO, grantee NGOs should provide Wi-Fi services to the public in their venues within three months after accepting the offer. As at 31 December 2017, of the 51 NGOs approved for the subsidy scheme involving 177 venues, only 35 (69%) NGOs launched Wi-Fi services at 99 (56%) venues. Audit examination of the progress of the provision of Wi-Fi services at the approved venues revealed that:

(a)   5 venues were withdrawn from the subsidy scheme;

(b)   of the 99 venues where Wi-Fi services had been launched, the Wi-Fi services at 41 (41%) venues were launched after the deadline, with delays ranging from 1 to 62 days (averaging 35 days); and

(c)   of the remaining 73 venues (i.e. 177 – 5 – 99) where Wi-Fi services had not been launched, the provision of Wi-Fi services at 52 (71%) venues was overdue. Of the 52 venues, the provision of Wi-Fi services at 29 (56%) venues had been overdue for more than 30 days.

3.41   The OGCIO needs to ascertain the reasons for the slow progress of the provision of free Wi-Fi services by the NGOs at the approved venues under the subsidy scheme and take measures to facilitate them to speed up the progress.

Audit recommendation

3.42   **Audit has *recommended* that the Government Chief Information Officer should take measures to address the slow progress of the provision of free Wi-Fi services by the NGOs at the approved venues under the subsidy scheme for providing free public Wi-Fi services in study rooms and youth service centres, and facilitate them to speed up the progress.**

Response from the Government

3.43   The Government Chief Information Officer agrees with the audit recommendation. He has said that the OGCIO is liaising with the NGOs to help them overcome the practical issues encountered such as facilitating the cabling works, resolving technical problems and seeking internal approval of tender, etc.

PART 4: OTHER INITIATIVES IN PROMOTING THE WIDER USE OF IT

4.1   This PART examines the implementation of other initiatives in promoting the wider use of IT, focusing on the following areas:

(a)   development of data centres (paras. 4.2 to 4.18);

(b)   PSI portal (paras. 4.19 to 4.27); and

(c)   Hong Kong ICT Awards (paras. 4.28 to 4.43).

Development of data centres

4.2   A data centre is a facility for housing computer systems and associated components, such as telecommunications and storage systems. It generally includes backup power supplies, backup data communication connections, environmental controls (e.g. air-conditioning and fire suppression) and security devices. According to the OGCIO:

(a)   data centres are critical technology infrastructure to facilitate digital development of various industries and technology areas, including cloud computing, big data, artificial intelligence and FinTech; and

(b)   these digital developments in turn promote the growth of high-value added economic activities in Hong Kong, such as finance, trade, logistics and e-commerce.

4.3   In 2010, the OGCIO commissioned a study on the wider economic impacts attributed to the data centre sector. The study found that in 2009:

(a)   the data centre sector contributed an economic value added of $3.4 billion, representing 0.21% of the Gross Domestic Product (GDP) of $1,622 billion;

(b)   the estimated total job opportunities attributed to the data centre sector was around 4,800; and

(c)   the value added per data centre employee was about $727,300 (the overall average across all sectors was $466,200).

4.4   On 22 March 2011, the OGCIO advised the Digital 21 Strategy Advisory Committee that:

(a)   while the quantifiable GDP contribution of data centre was not particularly high, there were unquantifiable benefits attributable to the data centre sector. For instance, data centre was an essential infrastructure to support other economic sectors, such as financial services and logistics; and

(b)   to sustain Hong Kong's competitiveness in the region, Hong Kong should attract more data centres to Hong Kong, to support and serve both international and Mainland users in addition to meeting local demand.

4.5   Subsequent to the conclusion of the OGCIO's study, the Financial Secretary announced in his 2011-12 Budget the policy to facilitate the development of high-tier data centres. Since then, the OGCIO has implemented the following measures:

(a)   launching a one-stop portal (www.datacentre.gov.hk) to provide information on policy and technical issues relating to data centre development in Hong Kong;

(b)   establishing a Data Centre Facilitation Unit to offer proactive and one-stop advice to parties seeking information on data centre development in Hong Kong; and

(c)   in collaboration with other departments, such as the Transport Department and the Buildings Department, identifying scope for streamlining, fine-tuning the regulatory regime to better serve the legitimate needs of data centres (e.g. fewer lorry parking lots requirement, higher headroom for accommodating servers above raised floor, extra floor area for fall-back plant rooms and supporting facilities), and expediting the vetting processes.

4.6   On 10 January 2012, the Chief Executive in Council approved that a time-limited scheme to facilitate the development of data centres should be introduced from a date to be specified in 2012-13 till 31 March 2016. The Government announced the introduction of the scheme with effect from 25 June 2012, comprising the following:

(a)   exemption of waiver fees for issuing waivers for applications made to the Lands Department (LandsD) for change of use in parts of industrial buildings aged 15 years or above in "Industrial", or "Other Specified Uses" annotated "Business" or "Commercial" zones to data centres of all tiers for the lifetime of the existing building, or until the expiry or determination of the current lease, whichever is the earlier;

(b)   accepting lease modification (including land exchange) tailor-made for development of high-tier data centres (Note 21), wholly or in conjunction with other uses, on existing industrial lots for the part of the development proposed for data centre use instead of requiring modification up to the optimal uses and intensity that could possibly be allowed for the site. The premium charged for that part of the land would be based on the specific high-tier data centre use instead of an optimal development; and

(c)   for the disposal of suitable government sites for data centre use, tailor-made Conditions of Sale for sites dedicated for high-tier data centre (and other non-data centre permitted uses, if considered appropriate) and assessment of tender reserve price on the basis of the gross floor area for high-tier data centre use and the gross floor area for other non-data centre permitted uses, if any.

The Chief Executive in Council approved on 22 March 2016 that the existing time-limited concessionary scheme should be extended beyond 31 March 2016 pending further review.

Note 21:   *Data centres are classified into four tiers according to serviceability levels and building requirements. Tier 1 data centre has the lowest availability of 99.67% with basic site infrastructure while Tier 4 data centre has the highest availability of 99.99% with fault-tolerant site infrastructure. Tier 3 and Tier 4 data centres are also known as high-tier data centres.*

Other initiatives in promoting the wider use of IT

Delay in the sale of two high-tier data centre sites

4.7   In 2012, the Chief Executive in Council approved the disposal of three dedicated sites of about one hectare each at Tseung Kwan O Town Lots Nos. 122, 123 and 127 (Sites 1, 2 and 3) for high-tier data centres (see Figure 8). Site 1 was sold through open tender on 4 October 2013 at a price of $428 million and provided about 44,000 square metre (m^2) of Gross Floor Area for data centre use in October 2017. The OGCIO originally planned to dispose of Sites 2 and 3 after the sale of Site 1. However, due to a number of issues, such as the termination of existing Short Term Tenancy (STT), closing down of public metered carpark, and arrangement for possible site decontamination works and accessibility, the two sites were not yet available for sale up to January 2018.

Figure 8

Location of Sites 1 to 3
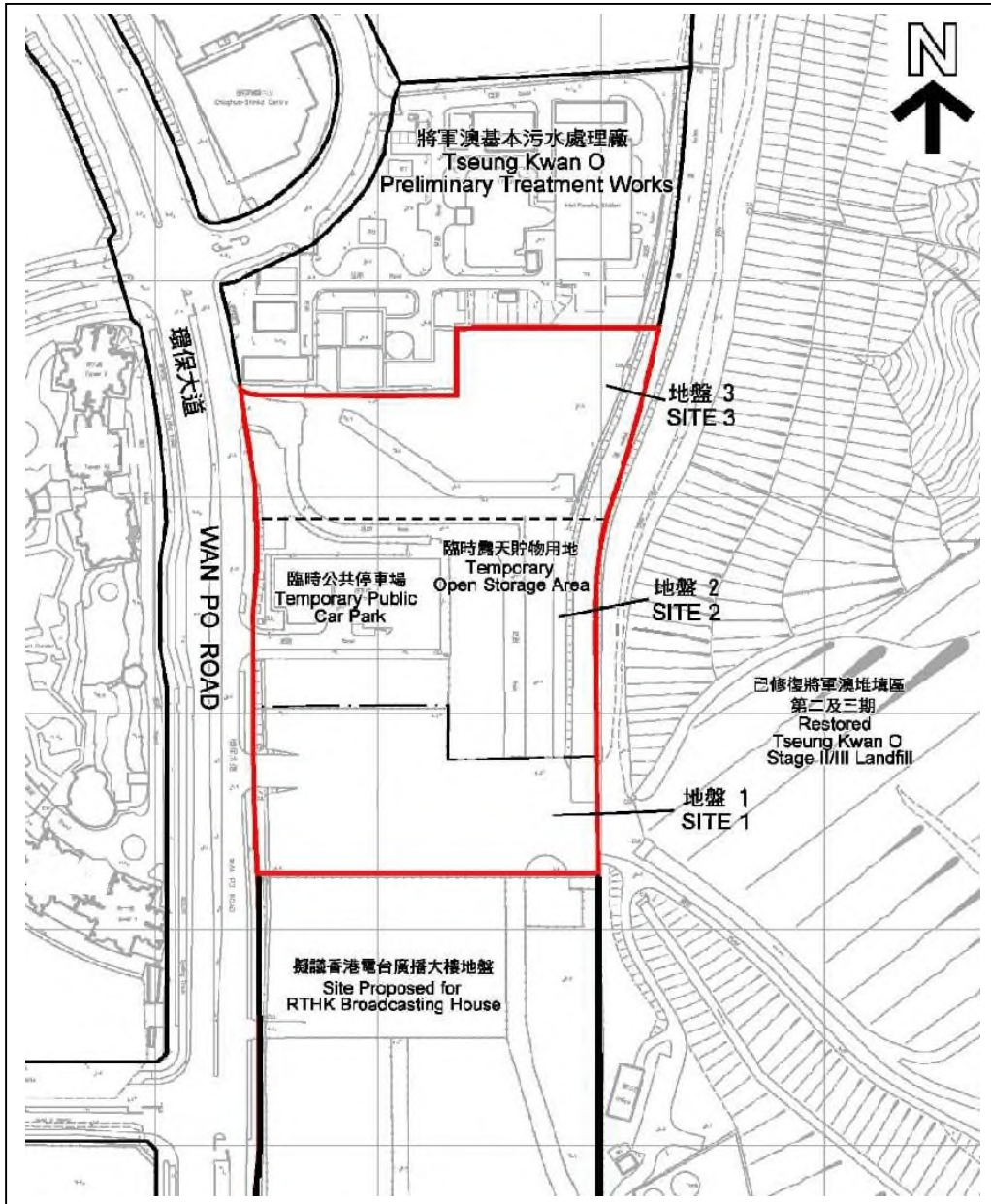
Source: OGCIO records

4.8   Site 2 has been occupied by ten recycling operators under STTs granted since 11 January 1999. According to the STT agreements, the STTs could be terminated by the Government by giving the operators a one-month notice, and the operators would not be entitled to reprovisioning of any site. Given the Government's policy to support the development of recycling industry, the Environmental Protection Department (EPD) considered that replacement sites should be identified to replenish the overall pool of STT sites in order to maintain a stable supply of STT sites for recycling purposes. However, no suitable sites were identified. The termination of the STTs was therefore pending.

4.9   Since 2002, part of Site 3 has been used by the Drainage Services Department (DSD) for sewage treatment works. In October 2013, the DSD informed the LandsD that their allocated part of Site 3 was ready to be surrendered to the LandsD and that no decontamination would be required. The OGCIO then planned to put up Site 3 for sale by mid-2015 after the completion of the rezoning of the site to data centre use. The rezoning of Site 3 to data centre use was completed by December 2015. However, Site 3 was not put on sale after the rezoning as the OGCIO planned to dispose of Site 2 and Site 3 together, because:

    (a)   the industry, in particular the big multinational enterprises, preferred a larger site for setting up their corporate data centres; and

    (b)   Site 2 and Site 3 shared a common access road. It might cause management, operation and security problems if the two sites were separately disposed of.

4.10   In January 2017, the OGCIO wrote to the EPD and LandsD that Sites 2 and 3 should be disposed of for data centres without any further delays. In the same month, the proposed disposal of the combined Site 2 and 3 was circulated for departmental comment by the LandsD. In February 2017, the EPD replied that it maintained the view that it had no objection to the termination of the STTs at Site 2. In May 2017, the disposal of the combined Site 2 and 3 was approved by the Sai Kung District Lands Conference. In July 2017, the LandsD issued letters to the recycling operators notifying them that the STTs would be terminated on 3 October 2017. In August 2017, the recycling operators advised the LandsD that the proposed termination date was not acceptable, and requested to have the termination date postponed to 31 March 2018 as more time was required to vacate their sites and to liaise with EPD for reprovisioning. In September 2017, as agreed by the OGCIO and the departments concerned, the LandsD extended the termination date of the STTs to 31 March 2018. In

February 2018, the termination date of the STTs was further extended to 30 June 2018 upon the request of the recycling operators.

4.11   According to the OGCIO, a number of international and local companies have expressed interest in investing in data centres in Hong Kong and there was keen demand of lands for data centre in the past few years. Audit considers that it is not satisfactory that the disposal of Sites 2 and 3 have been significantly delayed. The OGCIO needs to endeavour to expedite the disposal of Sites 2 and 3.

Small number of data centre waiver applications

4.12   Before 25 June 2012, owners of existing industrial buildings applying for changing their use to data centres were required to pay a fee to the LandsD for the issuance of waiver. The waiver fee was assessed based on the Internal Floor Area and the location of the buildings concerned. To encourage existing industrial buildings to change their use to data centres, the fees for issuing waivers for using industrial buildings aged 15 years or more for data centres were waived. However, the number of applications received for the concessionary scheme was small. From 25 June 2012 to 30 November 2017, only 32 waiver applications under this concessionary scheme were received (see Table 15). The number of waiver applications had increased from 4 in 2012-13 to 14 in 2015-16 and decreased drastically to 1 in 2016-17. In 2017-18, 2 applications were received up to 30 November 2017. The OGCIO needs to ascertain the reasons for the small number of data centre waiver applications received under the concessionary scheme and take measures to encourage more applications.

Table 15

Waiver applications received under the concessionary scheme
(25 June 2012 to 30 November 2017)

Year	No. of waiver applications
2012-13 (from 25 June 2012)	4
2013-14	4
2014-15	7
2015-16	14
2016-17	1
2017-18 (up to 30 November 2017)	2
Total	32

Source: Audit analysis of LandsD records

Remarks: One application received in 2014-15 and another two in 2015-16 were subsequently withdrawn.

Need to be kept informed of progress of processing data centre waiver applications

4.13   Before 1 April 2017, waiver applications were processed by the Redevelopment and Conversion of Industrial Buildings (RCIB) Team of the LandsD. The Data Centre Facilitation Unit of the OGCIO regularly collected updated information on status of data centre waiver applications under processing, including the copy of the waiver letters issued and the execution/registration status of the waiver. In March 2017, the LandsD dissolved the RCIB Team. With effect from 1 April 2017, waiver applications have been processed by District Lands Offices. Since then, the OGCIO has to approach individual District Lands Offices separately for information on the status of the waiver applications under processing and other related information. To facilitate the OGCIO's implementation of incentive measures to encourage the change of use of industrial buildings to data centres, the OGCIO needs to establish an information exchange mechanism with the District Lands Offices of the LandsD so as to ensure that related up-to-date information is regularly received from the LandsD.

Need to promote lease modifications of industrial lots for data centre use

4.14   One of the measures to facilitate the development of data centres is to accept lease modification (including land exchange) tailor-made for development of high-tier data centres on existing industrial lots for the part of the development proposed for data centre use, instead of requiring modification up to the optimal uses and intensity that could possibly be allowed for the site. The premium for the part of the land to be used as data centre will be assessed on the specific high-tier data centre use instead of an optimal development. To facilitate the approval by the LandsD, the OGCIO will assess whether the lease modification applications meet the requirements of the intended use as data centre and provide policy support on the application.

4.15   In the period from 25 June 2012 to 31 December 2017, the LandsD received only four applications for lease modification for the redevelopment of industrial lots for high-tier data centre use:

(a)   the first application was received in April 2013 and obtained support by the OGCIO in June 2013. The modification letter was executed in January 2015 and the premium for the lease modification was $51.4 million;

(b)   the second application was withdrawn;

(c)   the third application was received in November 2016 and obtained support by the OGCIO in April 2017. As at 31 December 2017, the application was under processing; and

(d)   the fourth application was received in October 2017 and obtained support by the OGCIO in December 2017. As at 31 December 2017, the application was under processing.

4.16   The small number of applications received indicates that the OGCIO needs to review the attractiveness of the measures in facilitating the development of data centres, and take appropriate follow-up action (e.g. stepping up the effort in promoting this facilitation measure to the industry).

Audit recommendations

4.17 **Audit has *recommended* that the Government Chief Information Officer should:**

  (a) **endeavour to expedite the disposal of the two dedicated sites for data centre development;**

  (b) **review the effectiveness of the concessionary measure on exempting the waiver fees for change of use in parts of industrial buildings;**

  (c) **in collaboration with the LandsD, establish a formal information exchange mechanism to keep the OGCIO informed of the progress of processing the data centre waiver applications; and**

  (d) **review the effectiveness of the concessionary measure on lease modification tailor-made for data centre use, and step up effort in promoting this measure to the industry.**

Response from the Government

4.18 The Government Chief Information Officer agrees with the audit recommendations. He has said that:

  (a) the OGCIO will continue to work with relevant departments actively to expedite the disposal of Site 2 and Site 3; and

  (b) the Government is preparing to make Site 2 and Site 3 available for open tender in the second half of 2018 subject to the progress of the site clearance.

PSI portal

4.19   PSI refers to the information collected, produced, disseminated and possessed by the Government and public bodies as a part of their day-to-day operations. The information includes demographic, socio-economic, geographical, meteorological and municipal management data. With the advancement of ICT, there can be active and creative value-added re-use of PSI by the community. For instance, the information may be used for developing applications which use, mesh up or integrate raw PSI data to bring convenience to the public, promote innovation and create business opportunities (Note 22).

4.20   In March 2011, the Government launched a pilot scheme to facilitate value-added re-use of PSI. Under the scheme, geo-referenced public facilities data and real-time traffic data were made available for free download and value-added re-use by the public via the portal "Data.One". In September 2013, the Government published a public consultation document. In the document, the Government proposed to make all government information released for public consumption machine-readable by default, and to encourage public organisations (e.g. public utilities and transport operators) to release their data in machine-readable format. The Financial Secretary announced in the 2015-16 Budget that from 2015 onwards, free online government information would be released in digital formats.

4.21   In March 2015, the OGCIO launched the revamped PSI portal entitled "data.gov.hk" to facilitate the dissemination of datasets provided by government bureaux/departments and organisations. The "data.gov.hk" portal collects and releases PSI from different departments in real time. The datasets are all available in digital formats. Some datasets were also released with application programming interfaces to facilitate downloading, processing, meshing and use. As at 31 December 2017, the PSI portal provided 3,101 distinct datasets under 18 broad categories from 55 government bureaux/departments and public and private organisations with around 1,000 application programming interfaces.

Note 22:   *A number of applications have been developed by the community to bring convenience to the public, e.g. a mobile app that integrates real-time traffic and other essential information (such as carparks, fuel stations and automobile services) for easy access by drivers, and an application that uses monthly statistics on land transactions to provide comprehensive and up-to-date property information search for home buyers, sellers, renters and real-estate professionals.*

Need to encourage more bureaux/departments and organisations to open up their data

4.22   PSI portal is coordinated by the OGCIO with the participation of different government bureaux/departments and public and private organisations to disseminate various types of PSI for free re-use. According to the OGCIO:

(a)   the wider the dissemination of PSI, and the more flexibility there is in the way it is used, the greater the extent to which the benefits can be realised. This will be conducive to Hong Kong's development as a knowledge-based economy;

(b)   therefore, the OGCIO endeavours to work with different government bureaux/departments and public and private organisations to make available more datasets on the PSI portal; and

(c)   the OGCIO had approached a number of public and private organisations, such as major transport operators, major carpark operators and public utilities companies, to encourage them to open up their data to the PSI portal.

4.23   Audit noted that, up to 31 December 2017, only:

(a)   47 (66%) of the 71 government bureaux/departments released their data to the PSI portal;

(b)   8 public and private organisations released their data to the PSI portal. They provided 92 (3%) of the 3,101 distinct datasets; and

(c)   two (50%) of the four major transport operators had released some static information, such as information on routes, fares and facilities, to the PSI portal.

Need to compile dataset inventory

4.24   In May 2015 and June 2017, the OGCIO requested government bureaux/departments to review potential data which could be released as PSI and provide the OGCIO their PSI release plans in the following 12 months in order to keep

up their momentum of releasing more PSI.   However, less than 50% of the bureaux/departments provided the OGCIO their plans (see Table 16). Audit noted that:

    (a)   the number of government bureaux/departments which did not have any PSI release plans in the following 12 months increased from 11 (19%) as at May 2015 to 38 (53%) as at June 2017; and

    (b)   the number of government bureaux/departments that had plans to release PSI in the following 12 months decreased from 27 (47%) as at May 2015 to 21 (30%) as at June 2017.

Table 16

Government bureaux/departments' plan on PSI release
(May 2015 and June 2017)

PSI release plan	May 2015 (No.)	June 2017 (No.)
Had plan	27 (47%)	21 (30%)
No plan	11 (19%)	38 (53%)
Not known (No response to OGCIO)	20 (34%)	12 (17%)
Total	58 (100%)	71 (100%)

Source: Audit analysis of OGCIO records

4.25   In the consultancy study report on Smart City Blueprint for Hong Kong released in June 2017, the consultant recommended the Government to compile an inventory of existing datasets and develop a methodology to assess which datasets to be released and in what priorities. Audit noted that while the OGCIO provided advice to government bureaux/departments in their identification of datasets which could be opened up for the benefits of the community, it did not compile an inventory of existing datasets to follow up the progress of releasing PSI information of government bureaux/departments. Audit considers that the OGCIO needs to develop a mechanism to assess which existing datasets can be released as PSI and the priorities for releasing such datasets.   The OGCIO also needs to collect information from government bureaux/departments to compile an inventory of existing datasets which the bureaux/departments can release as PSI.

Audit recommendations

4.26 **Audit has *recommended* that the Government Chief Information Officer should:**

(a) **encourage more government bureaux/departments, and public and private organisations to open up more data for free public re-use via the PSI portal;**

(b) **develop a mechanism to assess which existing datasets can be released as PSI and the priorities for releasing such datasets; and**

(c) **collect information from government bureaux/departments to compile an inventory of existing datasets which the bureaux/departments can release as PSI.**

Response from the Government

4.27 The Government Chief Information Officer agrees with the audit recommendations. He has said that the OGCIO will develop a more robust policy on opening up government data.

Hong Kong ICT Awards

4.28 The "Hong Kong ICT Awards" Programme was established in 2006 with the collaborative efforts of the industry, academia and the Government. The Programme is steered by the OGCIO and organised by ICT industry associations and professional bodies (i.e. Leading Organisers). It aims at:

(a) recognising and promoting outstanding ICT inventions and applications, thereby encouraging innovation and excellence among Hong Kong's ICT talents and enterprises in their pursuit of creative and better solutions to meet business and social needs; and

(b) building a locally espoused and internationally acclaimed brand of ICT awards.

4.29   The Programme comprises a number of categories. For each category, there are different streams. Three winners (i.e. Gold, Silver and Bronze) are selected for each award stream. A Grand Award winner will be selected for each category from all Gold winners of the same category. Each year, an "Award of the Year" will be selected from all Grand Award winners. The Awards do not carry any monetary prizes. For the Hong Kong ICT Awards 2017, there were a total of 25 award streams under 8 categories, and the total expenditure was $7.1 million.

Staff engaged in secretariat service involved in adjudication and assessment work

4.30   Each year, the OGCIO appoints a contractor to provide the secretariat service and logistics support for the Hong Kong ICT Awards, including:

    (a)   providing secretariat support to the Steering Committee, the Standards Assurance Sub-Committee and the Grand Judging Panel;

    (b)   providing support on entries enrolment and adjudication matters;

    (c)   production of publicity materials; and

    (d)   activities support (including venue arrangement and logistics for various events and activities).

4.31   The contractor is required to ensure that personnel engaged in the secretariat service should not be involved in adjudication and assessment work of the Hong Kong ICT Awards except for administrative work.

4.32   Audit examined the records of Hong Kong ICT Awards 2013 to 2017 and noted that:

    (a)   an organisation was appointed as the contractor for providing secretariat service for the Hong Kong ICT Awards 2013 to 2017; and

(b)   an assessor and a member of the judging panel of an award category from 2013 to 2017 were members of the project team of the organisation for providing the secretariat service for the Hong Kong ICT Awards.

Need to strengthen performance of Leading Organisers

4.33   For each award category, a Leading Organiser, who is often an industry-related organisation, is appointed for planning, organising, managing and running the award category. The Leading Organisers are required to comply with the Judging Manual issued by the OGCIO. According to the Judging Manual, Leading Organisers should check the eligibility requirements of the award entrants.

4.34   In 2016, there were media reports claiming that a company (Company A), which won the Bronze Award of Best ICT Startup (Hardware and Devices) Award of the year, did not meet the entry requirement that the product offered by the company must have been launched or in operation for at least three months.

4.35   Audit examination of the OGCIO records revealed that the OGCIO had followed up the case in August 2016. The responsible Leading Organiser was asked to reassess the case. In December 2016 and February 2017, the Leading Organiser submitted its reassessment report and related information to the OGCIO. In February 2017, the OGCIO concluded that the claim made by the media report was valid and disqualified Company A.

4.36   The incident indicated that there was room to strengthen the monitoring of the Leading Organisers' performance of the responsibilities stipulated in the Judging Manual. Audit considers that the OGCIO needs to establish a mechanism, e.g. conducting sample checks to monitor the performance of Leading Organisers.

Small number of proposals to be Leading Organisers

4.37   Invitations for proposals to be Leading Organisers of the Hong Kong ICT Awards are issued to ICT industry associations and professional bodies in August every year. For each category of awards, one Leading Organiser is required. Each industry association/professional body cannot submit more than one proposal. Audit noted that

only a few proposals were received for undertaking as Leading Organisers for the years from 2013 to 2017 (see Table 17). Each year, the number of proposals received was only slightly greater than the number of award categories. There were not many choices for the OGCIO to select among the proposals.

Table 17

**Number of invitations sent and proposals received
(2013 to 2017)**

Year	No. of categories (a)	No. of invitations (b)	No. of proposals (c)	Response rate (d) = (c) ÷ (b) × 100%
2013	10	98	11	11%
2014	10	109	11	10%
2015	10	118	10	8%
2016	8	126	12	10%
2017	8	133	11	8%

Source: OGCIO records

Remarks: Each industry association/professional body can only submit one proposal on one of the categories, otherwise all the proposals would be disqualified.

4.38   For Hong Kong ICT Awards 2013 to 2017, total proposals received represented only a small percentage (8% to 11%) of total invitations sent. Audit considers that the OGCIO needs to ascertain the reasons for the small number of proposals submitted for undertaking as Leading Organisers and take measures to encourage more organisations to submit proposals for undertaking as Leading Organisers.

Need to periodically review the award categories

4.39   Audit examined the number of entries received for each award category from 2013 to 2017 and noted that, for three award categories, the number of entries received was decreasing over the past years (see Table 18).

Table 18

Three award categories with decreasing number of entries
(2013 to 2017)

Award Category	Number of entries				
	2013	**2014**	**2015**	**2016**	**2017**
Best Business Solution Award (Note 1)	85	57	66	56	53
Best Lifestyle Award	94	64	58	56	46
Best Mobile Apps Award	69	82	56	56	45
Other awards (Note 2)	362	947	792	1,004	976
Total	610	1,150	972	1,172	1,120

Source: OGCIO records

Note 1:   "Best SME ICT Award" has been combined with the "Best Business Solution Award" since Hong Kong ICT Awards 2016. The number of entries for 2013 to 2015 was the sum of the number of entries of both awards.

Note 2:   The number of other award categories were 6, 6, 6, 5 and 5 for 2013, 2014, 2015, 2016 and 2017 respectively. The average number of entries for the other award categories were 60, 158, 132, 201 and 195 for 2013, 2014, 2015, 2016 and 2017 respectively.

4.40   Audit noted that a review on the award categories was conducted in 2013. As a result of the review, two award categories of the lowest average number of entries over the years 2011 to 2013 were discontinued. In Audit's view, the OGCIO needs to conduct periodic review on the award categories for the Hong Kong ICT Awards, taking into account the number of entries of individual award categories, with a view to taking action to boost the number of entries or discontinuing those award categories which become less popular.

Need to take follow-up actions on auditors' comments

4.41   In accordance with the OGCIO's Guide to Application for OGCIO Sponsorship, a Leading Organiser is required to submit the independent auditor reports of the Hong Kong ICT Award Project to the OGCIO not later than two months after

completion of the project. Audit reviewed the auditor reports for the years 2014 to 2016 and noted that in two reports, namely the Hong Kong ICT Awards 2014 (Best Innovation Award Category) and the Hong Kong ICT Awards 2015 (Best Business Solutions Award Category), the auditors had expressed qualified opinions as follows:

(a) ***Hong Kong ICT Awards 2014 (Best Innovation Award Category).*** The auditor stated that *"the applicant is unable to provide with us sufficient relevant evidence that it has adhered to the procurement procedures in respect of the Assessment/Judging Manpower Expenses"*; and

(b) ***Hong Kong ICT Awards 2015 (Best Business Solutions Award Category).*** The auditor stated that *"we noted that the Society had not followed the procurement procedures as specified in clause 3.6 of the Guide to Application for OGCIO Sponsorship in procuring services for the Project"*.

No documentary evidence was available showing that the OGCIO had taken follow-up action on the auditors' qualified comments. Audit considers that the OGCIO needs to review all cases where qualified opinion was expressed by independent auditors and take appropriate follow-up action.

Audit recommendations

4.42 **Audit has *recommended* that the Government Chief Information Officer should:**

(a) **ensure that the personnel engaged in the secretariat service are not involved in the adjudication and assessment work of the Hong Kong ICT Awards;**

(b) **document the justification for allowing the personnel engaged in the secretariat service to act as assessor or judge for the Hong Kong ICT Awards;**

(c) **establish a mechanism to strengthen the monitoring of the Leading Organisers' performance of the responsibilities stipulated in the Judging Manual;**

(d) **ascertain the reasons for the small number of proposals submitted for undertaking as Leading Organisers and take measures to encourage more organisations to submit proposals for undertaking as Leading Organisers;**

(e) **conduct periodic review on the award categories for the Hong Kong ICT Awards, taking into account the number of entries of individual award categories; and**

(f) **ensure that follow-up actions are taken on the exceptions identified by the independent auditors.**

Response from the Government

4.43   The Government Chief Information Officer agrees with the audit recommendations. He has said that the OGCIO will continue to review the entire process with Leading Organisers before and after each year's Hong Kong ICT Awards.

PART 5: WAY FORWARD

5.1   This PART examines the way forward on promoting the wider use of IT in the community, focusing on the following areas:

(a)   strategy on promoting the wider use of IT in the community (paras. 5.2 to 5.10); and

(b)   initiatives in promoting the wider use of IT in the community (paras. 5.11 to 5.22).

Strategy on promoting the wider use of IT in the community

5.2   The Government's strategy on promoting the wider use of IT in the community was first promulgated in the Digital 21 Strategy published in November 1998. To take into account technological advancement and changing needs of the society, the Digital 21 Strategy had been updated in 2001, 2004 and 2008 respectively.

5.3   In 2013, the Government commissioned a consultancy study to review Hong Kong's achievements under the Digital 21 Strategy and make recommendations on a new blueprint to steer Hong Kong's ICT development in the next few years. In September 2013, the Government launched public consultation on a new strategy, with "Smarter Hong Kong, Smarter Living" as the theme of the new strategy. In December 2013, the Government sought comments from members of LegCo Panel on Information Technology and Broadcasting. The Government advised the Panel that the new strategy would be promulgated in early 2014. However, up to 31 January 2018, the OGCIO had not updated the Digital 21 Strategy, nor had it promulgated any new strategy to replace the Digital 21 Strategy. The 2008 Digital 21 Strategy was published on the Digital 21 Strategy website of the OGCIO as the latest strategy.

5.4   The Digital 21 Strategy Advisory Committee was established on 1 October 2004 to advise the Government on the goals and objectives, areas requiring further actions, desired outcomes, and strategies and programmes facilitating the

delivery of the desired outcomes under the Digital 21 Strategy, the blueprint for ICT development in Hong Kong. Under the Committee, two Task Forces (i.e. Task Force on Digital Inclusion and Task Force on Industry Facilitation) are pertinent to the implementation of the ICT in the community (see para. 1.6). In the years 2013, 2014 and 2016, two meetings of the Committee were held each year. No meeting has been held by the Committee since March 2017. The OGCIO did not explain on the Digital 21 Strategy website the reasons for not holding further meetings after March 2017 nor the status of the Advisory Committee. Moreover, the Task Force on Digital Inclusion and Task Force on Industry Facilitation have not held any meeting since March 2015.

Need to update the strategies on promoting the wider use of IT in the community

5.5   In December 2017, the Government released the Smart City Blueprint for Hong Kong. The Blueprint maps out development plans in the next five years, aiming to enhance the effectiveness of city management and improve people's quality of living as well as Hong Kong's attractiveness and sustainability by making use of innovation and technology. The Steering Committee on Innovation and Technology chaired by the Chief Executive has started operation to steer development of innovation and technology and smart city projects. A Smart City Office will be set up in the ITB to take charge of the overall co-ordination and monitoring of the progress and effectiveness of smart city projects.

5.6   Audit noted that only three of the ten key initiatives (see para. 1.7) in promoting the wider use of IT in the community were mentioned briefly in the Smart City Blueprint for Hong Kong. These three initiatives were Wi-Fi Connected City Programme, PSI portal and technology start-ups supporting initiatives (see Table 19). The initiatives were only featured briefly in the Blueprint without details of their strategy and programme of work. Given the past Digital 21 Strategy Framework and updates to the strategy document, the ITB and the OGCIO need to promulgate their latest strategies and work programmes on promoting the wider use of IT in the community, especially those related to digital inclusion.

Table 19

Key initiatives in promoting the wider use of IT in the community mentioned in the Smart City Blueprint for Hong Kong

Key initiative	Coverage in Smart City Blueprint for Hong Kong
Wi-Fi Connected City Programme	The Government would continue to increase the number of free hotspots under the "Wi-Fi.HK" Scheme.
PSI portal	The Government would open up more data in digital forms via PSI portal.
Technology start-ups supporting initiatives	The Government would provide support to start-ups to build a stronger IT culture.

Source: Smart City Blueprint for Hong Kong published by ITB

5.7   Audit considers that the ITB and the OGCIO need to update regularly their strategies and work programmes on promoting the wider use of IT in the community, taking into account the Smart City Blueprint for Hong Kong and other policy directives and strategies on innovation and technology promulgated by the ITB. The OGCIO also needs to update the Digital 21 Strategy website regularly to reflect the latest developments such as the disbandment of the Digital 21 Strategy Advisory Committee.

Audit recommendations

5.8   **Audit has *recommended* that the Secretary for Innovation and Technology and the Government Chief Information Officer should update regularly their strategies and work programmes on promoting the wider use of IT in the community, taking into account the Smart City Blueprint for Hong Kong and other policy directives and strategies on innovation and technology promulgated by the ITB.**

5.9   **Audit has also *recommended* that the Government Chief Information Officer should update the Digital 21 Strategy website regularly to reflect the latest developments.**

Response from the Government

5.10   The Secretary for Innovation and Technology and the Government Chief Information Officer agree with the audit recommendations.

Initiatives in promoting the wider use of IT in the community

Need to consider suitable measures to support students from low-income families on their web-based learning needs

5.11   The ILSP was launched in July 2011 to help students from low-income families undertake web-based learning at home.   The OGCIO announced in December 2017 that the ILSP will be concluded at the end of August 2018.

5.12   Audit noted that the Smart City Blueprint for Hong Kong released in December 2017 did not cover digital inclusion initiatives, such as the support for students from low-income families on their web-based learning needs (see para. 5.6). Moreover, there is public concern on the way forward on the support measures for students from low-income families on their web-based learning needs after the end of the ILSP. According to a LegCo Member in January 2018, some parents of students pointed out that upon cessation of operation of the ILSP in August 2018, children from grass-roots families would face a number of problems in online learning, including:

(a)   the Internet service fees (about $200 to $300 per month) would be twice of those for the Internet access services subscribed through the ILSP because such service was available from only one Internet service provider for most of the inadequate housing (e.g. sub-divisions of flat units/cubicle apartments in old tenement buildings and remote areas) in which those children commonly resided; and

(b)   parents of grass-roots families in general lacked knowledge of computer technology and hence were unable to help their children tackle difficulties in online learning.   While the Government was actively implementing science, technology, engineering and mathematics education, it should provide more support for children from grass-roots families to help them learn information technology.

5.13   According to the OGCIO, the ILSP aims to facilitate non-profit-making organisations to develop a long-term operation model to continue the support on Internet learning for needy students.   The two implementers intend to continue providing Internet learning support services to students from low-income families after the ILSP ends.   As at 31 December 2017, the two implementers are mapping out the scope of services and the relevant details.

5.14   With the advent of new technology and the implementation of science, technology, engineering and mathematics education, Audit considers that the OGCIO needs to continue to monitor the difficulties faced by the students from low-income families and consider suitable measures to support them on their web-based learning needs.

Need to be vigilant of the latest technology development in provision of free public Wi-Fi services

5.15   The proliferation of mobile devices and mobile data services (for accessing the Internet) offered by telecommunications companies in recent years may have an impact on the usage of free public Wi-Fi services.   According to the Office of the Communications Authority, the number of 3G/4G mobile subscribers increased by 7.1 million (73%) from 9.7 million in December 2012 to 16.8 million in October 2017.   Mobile phone subscription plans (which include mobile data usage for Internet connection) of telecommunications companies are very competitive nowadays, and their prices may be further driven down after the 5G services are launched.

5.16   According to the Smart City Blueprint for Hong Kong released by the Government in December 2017, 5G mobile networks are the catalyst for smart city development, offering ultra-high speed and high capacity.   Hong Kong is geared up for the commercial launch of 5G services and applications in 2020.   With the

advancements in speed of mobile data such as through 4G technologies (or 5G technologies in the future), mobile data speeds are becoming comparable to existing Wi-Fi speeds.

5.17   In view of the proliferation of mobile data services and the latest development of 5G mobile networks, Audit considers that the ITB and the OGCIO needs to review the way forward for providing free public Wi-Fi services in the future, including the quality of services, the target user groups and the PPC model.

Need to assess progress of facilitating the development of data centres

5.18   In May 2010, the OGCIO commissioned a study on the wider economic benefits attributed to the data centre sector. According to the study:

   (a)   the data centre sector contributed an economic value added of $3.4 billion in 2009, which was about 0.21% of the GDP of $1,622 billion. Total job opportunities attributed to the data centre sector was estimated to be around 4,800. The value added per data centre employee in 2009 was about $727,300, which compared favourably to the overall average of $466,200 per employee across all sectors (see para. 4.3); and

   (b)   taking into consideration Hong Kong's position as a key technology and telecommunication hub for the region, the demand for data centre space, measured in terms of Raised Floor Space, would grow at a compound annual growth rate of 9.8% from 214,000 m^2 in 2009 to 381,000 m^2 in 2015.   Some additional 170,000 m^2 of Raised Floor Space would be required for data centres by 2015, including some 47,000 m^2 for high-tier ones.

5.19   Since 2010, the OGCIO has not assessed the economic benefits attributed to the data centre sector and has not conducted survey on market supply and demand for data centres. According to the OGCIO:

   (a)   some market research companies and some industry players regularly conduct research studies on the supply and demand for data centres;

(b)　　the Planning Department conducted a study in 2016. The study provided information on the supply and demand for data centres for internal reference of other government bureaux/departments; and

(c)　　the OGCIO can make reference to these studies to keep abreast of the latest market trend and forecast the supply and demand for data centres in Hong Kong.

5.20　　The concessionary measures to facilitate the development of data centres have been implemented for six years and the concessionary measures involve important land policy and significant financial implications. The OGCIO needs to heed the market development of data centres and the economic benefits brought by the data centre sector with a view to taking appropriate measures.

Audit recommendations

5.21　　**Audit has *recommended* that the Secretary for Innovation and Technology and the Government Chief Information Officer should:**

(a)　　**continue to explore suitable measures to support students from low-income families on their web-based learning needs;**

(b)　　**in determining the way forward for providing free public Wi-Fi services in the future, take into account the latest developments in mobile data service technology; and**

(c)　　**heed the market development of data centres and the economic benefits brought by the data centre sector with a view to taking appropriate measures.**
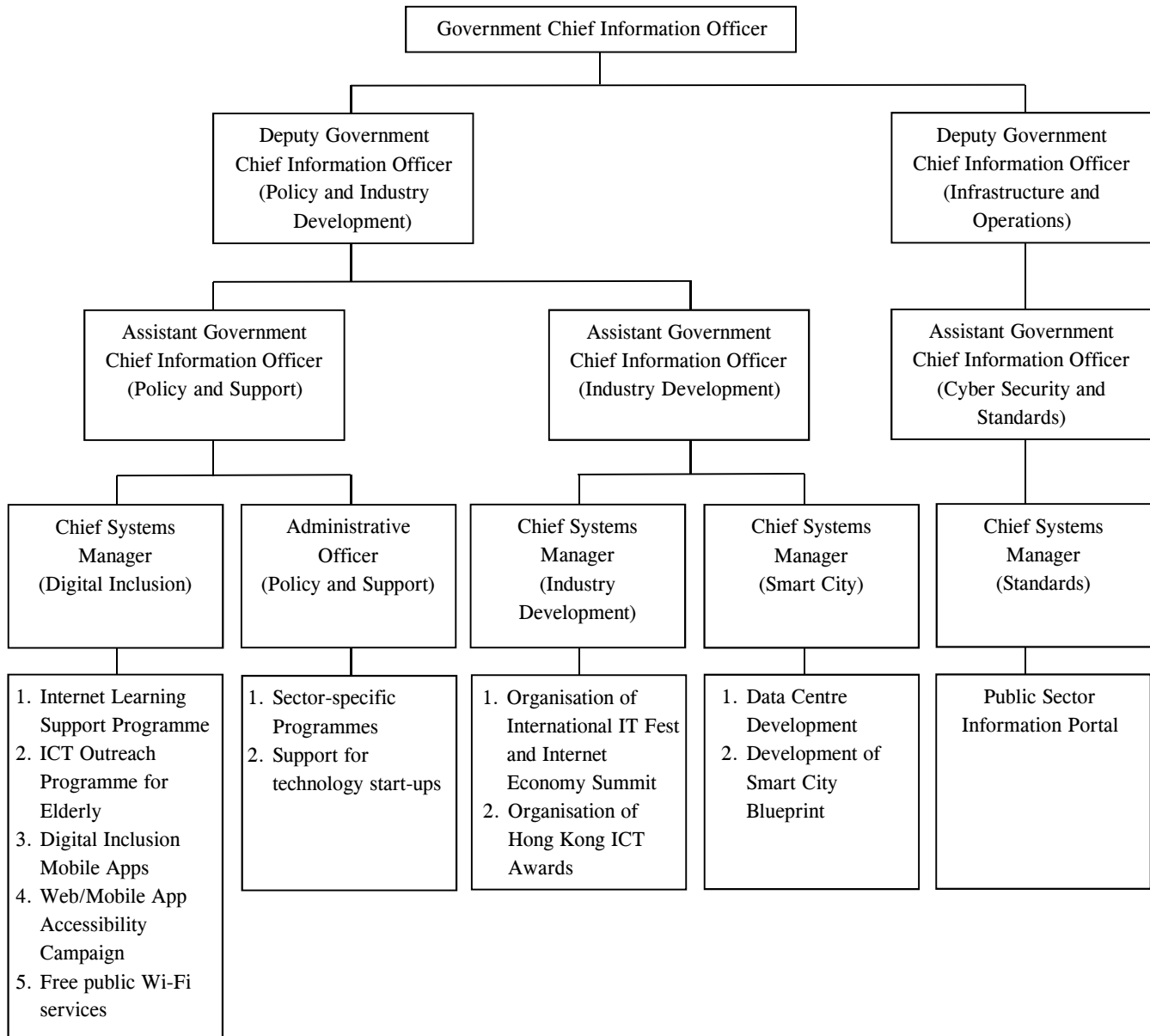
Response from the Government

5.22　　The Secretary for Innovation and Technology and the Government Chief Information Officer agree with the audit recommendations.

OGCIO: Organisation chart (extract)
(31 December 2017)

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                    │  Government Chief Information Officer     │
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Deputy Government Chief Information Officer (Policy and Industry Development)		Deputy Government Chief Information Officer (Infrastructure and Operations)

Assistant Government Chief Information Officer (Policy and Support)	Assistant Government Chief Information Officer (Industry Development)	Assistant Government Chief Information Officer (Cyber Security and Standards)

Chief Systems Manager (Digital Inclusion)	Administrative Officer (Policy and Support)	Chief Systems Manager (Industry Development)	Chief Systems Manager (Smart City)	Chief Systems Manager (Standards)
1. Internet Learning Support Programme 2. ICT Outreach Programme for Elderly 3. Digital Inclusion Mobile Apps 4. Web/Mobile App Accessibility Campaign 5. Free public Wi-Fi services	1. Sector-specific Programmes 2. Support for technology start-ups	1. Organisation of International IT Fest and Internet Economy Summit 2. Organisation of Hong Kong ICT Awards	1. Data Centre Development 2. Development of Smart City Blueprint	Public Sector Information Portal

Source: OGCIO records

Remarks: 1.   The organisation chart is an extract of those responsible officers who oversee the operation of various programmes and projects to promote the wider use of IT in the community. These officers may also be responsible for other duties under the purview of the OGCIO.

2.   To tie in with the re-organisation of the ITB with effect from 1 April 2018, the responsibilities of divisions within the OGCIO were redistributed with effect from the same date for better collaboration and synergy. Some divisions and post-titles were renamed to better reflect the redistributed functions and responsibilities.

Terms of reference of the Maintenance Board of the Government Wi-Fi Programme

(a) To monitor the quality of GovWiFi services by reviewing the availability and performance of the services, user feedbacks and complaints, bandwidth requirements of premises, and to promote user awareness of GovWiFi services in the premises;

(b) To monitor service availability by reviewing on-going support activities, daily operation issues, service incidents and problems;

(c) To monitor implementation issues of new premises;

(d) To monitor the performance of the GovWiFi contractor and the Electrical and Mechanical Services Trading Fund;

(e) To review the selection criteria for adding new premises, and factors for determining the areas to be covered;

(f) To monitor the cost effectiveness of the services in individual premises, and to review the criteria for removing low usage premises;

(g) To endorse the inclusion of new premises into the Programme and removal of low usage premises;

(h) To collect user feedback on the GovWiFi Programme; and

(i) To keep abreast of the latest technological and service development of public Wi-Fi as well as mobile Internet access services both in Hong Kong and nearby regions.

Source: OGCIO records

Acronyms and abbreviations

Audit	Audit Commission
DSD	Drainage Services Department
EPD	Environmental Protection Department
FC	Finance Committee
GDP	Gross Domestic Product
GovWiFi	Government Wi-Fi Programme
ICT	Information and communications technology
ILSP	Internet Learning Support Programme
IT	Information technology
ITB	Innovation and Technology Bureau
LandsD	Lands Department
LegCo	Legislative Council
m^2	square metre
Mbps	Megabits per second
mobile apps	mobile applications
NGO	Non-governmental organisation
OGCIO	Office of the Government Chief Information Officer
PPC	Public-private collaboration
PSI	Public Sector Information
RCIB	Redevelopment and Conversion of Industrial Buildings
STT	Short Term Tenancy