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Panel on Information Technology and Broadcasting

Meeting on 9 December 2013

**Updated background brief on facilitating a digital economy
under the Digital 21 Strategy**

Purpose

This paper provides an update on facilitating a digital economy under the Digital 21 Strategy and summarizes the latest views and concerns expressed by Members on the subject.

Background

2. The latest version of the Digital 21 Strategy was published in December 2007 and is a blueprint for the development of information and communication technology ("ICT")¹ in Hong Kong. The focus of the Digital 21 Strategy is to advance Hong Kong's achievements, seize new opportunities and harness its advantage so as to strengthen its position as a leading digital city. The ultimate aim is to promote Hong Kong's economic development and to provide better services to citizens. The Statements of Desired Outcomes of the Five Action Areas under the Strategy are: facilitating a digital economy, promoting advanced technology and innovation, developing Hong Kong as a hub for technological cooperation and trade, enabling the next generation of public services, and building an inclusive, knowledge-based society.

¹ ICT refers to all technologies and applications that involve information processing and/or exchange over communication networks, including the internet.

3. According to the Administration, the desired outcome for the action area of facilitating a digital economy is: *"Hong Kong has the standards, infrastructure, legal framework and talent that are needed to facilitate a vibrant digital economy, and to enable our core industries to sustain and improve their competitive position. Our community, individuals and businesses are aware of the opportunities brought by a knowledge-based society and have confidence in their ability, skills and professionalism to take full advantage of the opportunities to enhance our economic prosperity and quality of life."* The Administration has been working closely with the ICT industry to formulate and implement initiatives to drive the development of Hong Kong's digital economy. The major initiatives include:

- (a) development of cloud computing and data centres;
- (b) collaboration with the Mainland on mutual recognition of electronic signature certificates, cloud computing and technology exchanges;
- (c) development of Internet infrastructure, including enhancing information security infrastructure, strengthening Hong Kong Internet Exchange and migrating to Internet Protocol version 6;
- (d) promoting the adoption of ICT among small and medium enterprises ("SMEs");
- (e) ICT manpower development;
- (f) Green ICT; and
- (g) The International IT Fest 2013.

Previous discussions

Panel on Information Technology and Broadcasting

4. The Panel on Information Technology and Broadcasting ("the ITB Panel") generally supported the development of the Digital 21 Strategy and received regular reports from the Administration on its implementation.

Support for ICT small and medium enterprises

5. At the Panel meeting on 8 July 2013, some members noted that only 70% of the 270 ICT graduates of the incubation programmes run by Cyberport and Science Park were still in operation, they enquired whether the Administration had carried out any review on the reasons for the failure of the remaining 30% of ICT start-ups which were not able to survive after completion of the programmes. Some other Panel members opined that the Administration should provide more support to SMEs in adopting ICT to facilitate business development, and be more proactive in fostering the development of local ICT industry by providing more business opportunities for the SMEs through the procurement of their services and products.

6. According to the Administration, a sustainability rate at 70% of the ICT start-ups graduating from the incubation programme was quite high. In most cases, the major reason for failure did not lie in the lack of resources, but in the nature of the products or mode of business operation which posed difficulties in attaining success in business start-up. The Administration advised that over the past few years, various funding schemes, including the Sector-specific Programme ("SSP"), had been implemented to support SMEs. In May 2013, a new round of SSP was launched by setting aside \$3 million for sponsoring projects to develop applications and solutions for individual SME sectors to promote the adoption of ICT. Non-profit organizations were also welcome to apply.

7. The Administration further advised that it had all along been adopting fair, open and impartial procedures to procure the most suitable ICT products and services. Under the Administration's standing offer agreements, nine companies were providing information security services to Government, among which five were local companies and two of them were SMEs. In 2012, the total expenditure for procurement of information security services from these companies was \$15 million, of which \$11 million was related to procurement from local ICT companies.

ICT manpower development

8. At the Panel meeting on 8 July 2013, members noted that the Administration continued to facilitate the creation of an environment in which a well-qualified ICT workforce could flourish and meet the needs of the industry. In relation to the students, the Administration put considerable emphasis on nurturing them to pursue ICT as their career. For example, the Cyberport had, as part of its public mission to nurture human capital, organized the Hong Kong-Shanghai ICT Internship Programme since 2011 for university students to work in ICT settings in Shanghai for six

to 12 weeks. The Administration also sponsored another promotion programme targeting students of Secondary 3 to 6 to inculcate interest in ICT. The programme covered a research study on the aspirations of students in relation to ICT, and a series of activities including mobile application development competition, short message/video clip competition, interschool debate on ICT-related topics and TV programmes promoting the ICT industry.

9. With regard to the ICT industry, members noted that the Administration organized an IT Man Workshop in December 2012, in which over 50 participants from the ICT industry exchanged views on issues related to ICT manpower in Hong Kong. Drawing on discussions at the workshop, the Administration implemented further measures to facilitate the sustainable development of manpower in the ICT industry. In addition, the Digital 21 Strategy Advisory Committee had set up the Task Force on ICT Professional Development and Recognition to explore and establish a framework on ICT professional certification and recognition in Hong Kong, with reference to international practices and frameworks of other economies.

Data centre development

10. At the Panel meeting on 8 July 2013, members noted that the Administration had implemented a host of measures to develop Hong Kong into a regional data centre hub. With the Government's support for the provision of land for high-tier data centres, the Tseung Kwan O Industrial Estate housed a cluster of 12 high-tier data centres. The Administration also earmarked two hectares of land in Tseung Kwan O outside the Industrial Estate for high-tier data centre development. To drive data centre development, the Administration launched two incentive measures in June 2012 to encourage the conversion of eligible industrial buildings for data centre use and development of high-tier data centres in industrial lots. Besides, the Data Centre Facilitation Unit ("DCFU") established under the Office of the Government Chief Information Officer ("OGCIO") proactively provided information and one-stop services to organizations interested in the development and operation of data centres.

11. Some members enquired about the adoption of green ICT practices in the Government and the industry. The Administration advised that the Government was committed to promoting green ICT and had implemented a range of green ICT initiatives. In 2010, the OGCIO promulgated the "Green Data Centre Practices" for reference and adoption by bureaux and departments ("B/Ds") in their data centre management. All relevant B/Ds had undertaken to adopt the recommended practices, and would fully implement these recommendations when renewing systems and facilities as well as setting up new data centres. To promote energy-saving practices in

the industry, OGCIO also made available in 2012 the "Green Data Centre Practices" for reference by the industry through the data centre thematic portal.

Internet of Things

12. At the Panel meeting on 8 July 2013, some members enquired about the development of Internet of Things ("IOT") in Hong Kong. The Administration advised that developing IOT for Hong Kong could be the next strategic step forward under the Digital 21 Strategy. IOT comprised smart interconnected devices such as radio-frequency identification systems and sensors which linked people and devices with data, and enabled them to obtain information from data sources to drive effective business decisions or improve customer interactions. The Hong Kong Internet of Things Centre of Excellence had been set up by GS1 ("香港貨品編碼協會") Hong Kong at Hong Kong Science Park, which was supported by the Innovation and Technology Commission of the HKSAR Government. One of the Centre's visions was to become an industry support platform that enabled Hong Kong's development of IOT for the industry's continuous development.

Finance Committee

13. At the special meeting of the Finance Committee on 10 April 2013, Hon Charles Peter MOK enquired about the manpower, resources required, the specific time-table and the activities for conducting the review on the Digital 21 Strategy. He also enquired about the Administration's plans to increase the supply of land suitable for data centre development. The Administration's replies are in **Appendices I and II**.

Council meetings

14. At the Council meeting of 6 February 2013, Dr Hon Elizabeth QUAT raised a question on the development of data centres, including green data centres, in Hong Kong. The Administration's reply is in **Appendix III**.

Recent development

15. With the advent of wireless and multi-platform technologies, cloud computing, IOT and big data in recent years, the Administration has recently announced the launch of public consultation from 18 September until 30 November 2013 on the proposed new Digital 21 Strategy. "Smarter Hong

Kong, Smarter Living" is the theme of the proposed new strategy which sets out the framework for Hong Kong to leverage on new technologies to propel continuous economic and social development on various fronts. The new strategy contains an array of initiatives under four strategic thrusts:

- (a) Empowering everyone – to build platforms that enable the public and business to realize their aspirations;
- (b) Igniting business innovation – to enhance research and development, and provision of open data;
- (c) Supporting a thriving information and communications technology ("ICT") industry – to recognize excellence and facilitate local ICT companies to gain foothold in the Mainland and overseas markets; and
- (d) Transforming and integrating public services to develop intuitive, personalized and multi-platform e-services.

Latest position

16. The Administration will consult the Panel on 9 December 2013 on the proposed new Digital 21 Strategy.

Relevant papers

17. A list of the relevant papers with their hyperlinks is at:

http://www.legco.gov.hk/yr15-16/english/panels/itb/papers/itb_eb.htm

Council Business Division 4
Legislative Council Secretariat
4 December 2013

**CONTROLLING OFFICER'S REPLY TO
INITIAL WRITTEN QUESTION**

CEDB(CT)098

Question Serial No

2643

Head: 47 – Government Secretariat : Subhead (No. & title):
Office of the Government Chief
Information Officer

Programme: (2) IT Infrastructure and Standards

Controlling Officer: Government Chief Information Officer

Director of Bureau: Secretary for Commerce and Economic Development

Question: The Government is reviewing the Digital 21 Strategy and has started consultation with the industry. However, the industry is concerned about whether the Government will introduce performance indicators for the next generation strategy. Please provide information on the following:

- (a) What are the manpower and resources required as well as the specific time-table of conducting the review in 2013-14? When will the Administration complete the review and publish the new strategy?
- (b) Please provide information in a table showing all meeting/activities held in relation to Digital 21 Strategy review as at 28 February 2013 (including the date, venue, purpose of meeting, content of discussion, background of participants and number of participants).
- (c) Please provide information in a table showing the meeting/activities to be held in relation to Digital 21 Strategy review (including the date, venue, purpose of meeting, content of discussion, background of participants to be invited and expected number of participants).
- (d) Does the Administration have any plan to introduce specific objectives and key performance indicators for the new strategy so as to better follow up on the implementation progress? If so, what are the details? If not, why?

Asked by: Hon. MOK, Charles Peter

- Reply:
- (a) We plan to conduct public consultation on the new Digital 21 Strategy in the third quarter of 2013 and to promulgate the finalised Strategy by the end of the year. We have engaged a consultant to conduct the review at a cost of \$1.2 million.
 - (b) We completed on 8 March 2013 the first stage consultation, which covered information technology industry bodies and organisations, academia and relevant government departments. Details are set out at Annex A.
 - (c) We plan to conduct public consultation in the third quarter of 2013 and the arrangements are still under preparation. We will consult various stakeholders, including the Legislative Council and the Digital 21 Strategy Advisory Committee.
 - (d) The Government formulated in 2009 a number of key performance indicators to measure and monitor the progress of desired outcomes under the Digital 21 Strategy.

We are considering concrete initiatives for inclusion in the new document and appropriate means to follow up the progress of their implementation.

Name in block letters: Daniel LAI

Post Title: Government Chief Information Officer

Date: 8.4.2013

	Date	Participants/ Organisations	Venue	Purpose of meeting	Content of discussion	Number of participants
1.	20 February 2013	Industry bodies	Efficiency Unit, Revenue Tower	Explore how to formulate a new blueprint to promote the development of ICT in Hong Kong	<ul style="list-style-type: none"> • Future ICT development trends • How to nurture ICT talents • Facilitating ICT adoption among small and medium enterprises (SMEs), e.g. cloud technology 	10
2.	21 February 2013	Industry bodies	Central Government Offices	- Ditto -	<ul style="list-style-type: none"> • Future ICT development trends • How to nurture ICT talents • Facilitating ICT adoption among SMEs, e.g. cloud technology 	8
3.	22 February 2013	Chief information officers of large organisations and public utilities	Central Government Offices	- Ditto -	<ul style="list-style-type: none"> • How to nurture ICT talents • Providing support to SMEs and ICT startups • Personal e-account and broader e-government services • Opening up more types of public sector information for re-use to create business opportunities, encourage entrepreneurship and promote innovation 	7
4.	27 February 2013	ICT service providers	Office of the Government Chief Information Officer, Wanchai Tower	- Ditto -	<ul style="list-style-type: none"> • How to nurture ICT talents • Providing platforms and support to SMEs and ICT startups • Encouraging research and development (R&D) of innovative technology • Building up ICT industry 	11

	Date	Participants/ Organisations	Venue	Purpose of meeting	Content of discussion	Number of participants
5.	1 March 2013	ICT related quasi-government organisations (e.g. the Hong Kong Cyberport Management Company Ltd., the Hong Kong Science and Technology Parks Corporation, the Hong Kong Productivity Council), recognised certification authorities, the Expert Group on Cloud Computing Services and Standards and its Working Groups	Central Government Offices	- Ditto -	<ul style="list-style-type: none"> • How to nurture ICT talents • Providing platforms and support to SMEs and ICT startups • Encouraging R&D of innovative technology • Building up ICT industry 	19
6.	4 March 2013	Representatives of Information Technology Management Units of various government departments	Central Government Offices	- Ditto -	<ul style="list-style-type: none"> • Personal e-account and broader e-government services 	52
7.	5 March 2013	Digital 21 Strategy Advisory Committee and its Task Forces	Efficiency Unit, Revenue Tower	- Ditto -	<ul style="list-style-type: none"> • Future ICT development trends • How to nurture ICT talents • Providing platforms and support to SMEs and ICT startups • Personal e-account and broader e-government services • Opening up more types of public 	25

	Date	Participants/ Organisations	Venue	Purpose of meeting	Content of discussion	Number of participants
					sector information for re-use to create business opportunities, encourage entrepreneurship and promote innovation <ul style="list-style-type: none"> • Building up ICT Industry 	
8.	5 March 2013	Chief Information Officer Board of Hong Kong Computer Society	HSBC Main Building, Central	- Ditto -	<ul style="list-style-type: none"> • How to nurture ICT talents • Providing platforms and support to SMEs and ICT startups • Encouraging R&D of innovative technology • Building up ICT Industry 	15
9.	6 March 2013	Academia	Central Government Offices	- Ditto -	<ul style="list-style-type: none"> • How to nurture ICT talents • Providing platforms and support to SMEs and ICT startups • Encouraging R&D of innovative technology • Building up ICT Industry 	7

Note 1: The consultant firm also met with relevant government departments to understand that development of ICT in individual policy areas and the way forward.

Examination of Estimates of Expenditure 2013-14

**CONTROLLING OFFICER'S REPLY TO
INITIAL WRITTEN QUESTION**

Reply Serial No.

CEDB(CT)099

Question Serial No

2645

Head: 47 – Government Secretariat : Subhead (No. & title):
Office of the Government Chief
Information Officer

Programme: (3) IT in the Community

Controlling Officer: Government Chief Information Officer

Director of Bureau: Secretary for Commerce and Economic Development

Question: Regarding facilitating the development of data centres in Hong Kong, given the unique and stringent technical and site requirements for data centres, would the Administration inform the Committee of the following:

- (a) In 2013-14, does the Administration have any specific plan to increase the supply of land suitable for data centre development? If so, what are the details?
- (b) The Administration plans to allocate a site of 1 hectare next to the Tseung Kwan O Industrial Estate dedicated for the development of data centres. When will the other adjacent site of about 1 hectare be made available?

Asked by: Hon. MOK, Charles Peter

- Reply:
- (a) The Government launched incentive measures in June 2012 to encourage the industry to use industrial buildings and industrial lots for data centre development. As of mid-March 2013, the Government has received 4 applications for converting parts of industrial buildings into data centres, of which 2 have already been approved while the remaining 2 are being processed. The industry can also identify sites for setting up data centres via other channels. To our understanding, in 2012 an operator has successfully identified a site in the private market for setting up data centre. Furthermore, in the industrial estates managed by the Hong Kong Science and Technology Parks Corporation, there are still no less than 4 hectares of land available for bidding by various sectors (including data centre sector). The Government will also provide land for the industry through the Land Sales Programme, including putting up a piece of land for data centre use in Tseung Kwan O for open bidding in mid-2013.
 - (b) With respect to the reserved land in Tseung Kwan O, the Office of the Government Chief Information Officer is liaising with relevant government departments on preliminary planning, including land use modification. We have not yet decided on the timing of making available the reserved land to the market.

Name in block letters: Daniel LAI

Post Title: Government Chief Information Officer

Date: 8.4.2013

Press Releases

LCQ14: Green data centres

Following is a question by Dr Hon Elizabeth Quat and a written reply by the Secretary for Commerce and Economic Development, Mr Gregory So, at the Legislative Council meeting today (February 6):

Question:

In recent years, the Government has been actively attracting investors to set up data centres in Hong Kong. A consultancy study commissioned by the Government pointed out that the demand for data centre space in Hong Kong, measured in terms of Raised Floor Space (RFS), would grow at a compound annual rate of 9.8% from 2009 to 2015. However, some environmentalists have pointed out that the huge electricity consumption by information and communications technology facilities and data centres has an impact on the environment. In this connection, will the Government inform this Council:

(a) of the current number, total area and total RFS of the data centres in Hong Kong, as well as the respective rates of increase of these figures in 2012;

(b) of the total number of data centres set up in Hong Kong as a result of the facilitation efforts made by the Data Centre Facilitation Unit since its establishment in July 2011; of the respective areas, locations and completion dates/expected completion dates of such data centres, as well as the respective companies to which they belong;

(c) whether it has compiled statistics on the annual total electricity consumption of the data centres in Hong Kong; if it has, of the outcome;

(d) given that the average power usage effectiveness (PUE) value of data centres around the world is currently about 1.8 and that of some new data centres can even be as low as 1.1, whether the Government has compiled statistics on the PUE of the data centres in Hong Kong; if it has, of the outcome;

(e) whether it has assessed the impact of the development of data centres on future electricity demands, as well as the impact on tariffs brought about by the investments on power supply facilities made to meet such demands;

(f) given that the Singaporean Government launched the Green Data Centre certification in 2012 and is offering tax concessions ranging from 30% to 50% for investments in energy-saving equipment for data centres, whether the Government has

any plan to formulate, by making reference to such a practice and collaborating with the trade, a set of "Green Data Centre Standards" for the data centres in Hong Kong, and provide financial incentives to encourage data centres to save energy and implement environmental protection measures; and

(g) of the following information relating to the data centres owned by the Government:

(i) current number;

(ii) total area and total RFS;

(iii) total power consumption in 2012;

(iv) average PUE; whether the Government has any plan to set PUE targets for its data centres;

(v) the percentage of data centres implementing the green data centre practices promulgated by the Office of the Government Chief Information Officer in early 2012, as well as the effectiveness of such practices since their implementation; and

(vi) given that the Government has raised the room temperature of its data centres from 22°C to 23°C, and according to the recommendations of the American Society of Heating, Refrigerating and Air-Conditioning Engineers, the standard room temperature of a data centre is 18°C to 27°C and the acceptable temperature can be as high as 32°C, whether the Government will consider gradually raising the room temperature of the data centres to 25°C or 26°C by improving the air distribution in data centres, so as to enhance the PUE of the data centres?

Reply:

President,

My reply to Dr Hon Elizabeth Quat's seven-part question is as follows:

(a) Organisations and enterprises of different sectors may set up data centres having regard to their operational needs. Some of their data centres are set up in their offices or inside commercial or industrial buildings. As the setting up of such data centres does not require government approval, we do not have the number, total area and total raised floor space of all data centres in Hong Kong.

(b) Since its establishment, the Data Centre Facilitation Unit has assisted three overseas operators to set up two high-tier data centres in Hong Kong, with total site area of about three

hectares. Moreover, we also encourage the industry to make use of the incentive measures to convert existing industrial buildings or industrial lots into data centres. As at end December 2012, the Government received a total of four applications for exemption of waiver fees for changing parts of an industrial building into data centre use. Of these, one application has been approved and the remaining three are being processed. Information on their size, locations and completion dates as well as the companies to which they belong is commercial in nature. The Government is not in a position to disclose such information.

(c) and (d) Data centres are not required to report their electricity consumption to the Government. Therefore we do not have the information on the power usage effectiveness (PUE) of data centres. However, we believe that data centres will try their best to use energy efficiently to reduce operating costs.

(e) In searching sites and prior to construction, data centre operators would liaise closely with the power companies on their electricity requirements and the impact on overall power supply. In respect of any proposals to invest in power supply facilities, the Government will continue to perform the gate-keeping duties with best endeavour to safeguard the interests of the public.

(f) In 2012, the Office of the Government Chief Information Officer (OGCIO) promulgated good practices on green data centre management, setting out requirements for green procurement and disposal of information technology equipment and data centre facilities for reference by the industry. Regarding the setting up of new data centres, the Government issued a Practice Note in June 2012 for applications for high-tier data centre development on industrial lots, which requires submission of green building designs and other green measures, with a view to encouraging data centres to achieve energy conservation and enhance energy efficiency. The data centre industry has also implemented various green and energy-saving measures in design and operation to reduce carbon emission and operating costs. For instance, some data centres which have been recently upgraded and new ones will have adopted energy-saving measures in construction and operation, optimisation of air flow and chiller systems, as well as virtualisation of computer servers.

(g) Regarding the information of government data centres:

(i) There are currently 29 government data centres in 18 bureaux and departments (B/Ds).

(ii) The total area and total raised floor space of these data centres are about 19 530 square metres and 12 780 square

metres respectively.

(iii) and (iv) Government data centres are located in the offices of relevant departments or government properties, and their power consumption has been included as an inseparable part of the overall power consumption of those offices or government properties. Hence, we do not have information on the power consumption and PUE of individual government data centre, and have not set any relevant targets.

(v) and (vi) In 2010, OGCIO promulgated the Green Data Centre Practices for reference and adoption by B/Ds in their data centre management. In 2011, OGCIO exchanged views with the Environment Bureau and the Electrical and Mechanical Services Department on these practices (including the latest recommendations of the American Society of Heating, Refrigerating and Air-Conditioning Engineers). Taking into account existing operational considerations of data centres in various B/Ds, it was recommended to raise the room temperature of government data centres to 23°C ($\pm 3^\circ\text{C}$), i.e. 20°C to 26°C. The updated Green Data Centre Practices (version 2012) has reflected this recommendation.

In 2011, OGCIO conducted a survey on green data centre practices among B/Ds, which showed that all B/Ds have undertaken to adopt the recommended practices, and would fully implement these recommendations when renewing systems and facilities as well as setting up new data centres. Moreover, they would enhance existing facilities for better energy efficiency while maintaining normal operational services. For example, in the three data centres managed by OGCIO, we have made reference to the Government's green procurement policy and green product standards promulgated by the Environment Bureau in procuring computer equipment. In addition, we are progressively switching to energy-efficient air conditioning systems, uninterruptible power systems and diesel generators. We have installed green fire protection and lighting systems, raised the room temperature, implemented virtualised infrastructure, and adopted the design to separate hot and cold air when enhancing existing computer systems and installing new systems. We also arrange training, experience sharing sessions and workshops for B/Ds from time to time to promote these practices and increase their awareness on green data centre management.

Ends/Wednesday, February 6, 2013
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