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Panel on Information Technology and Broadcasting

Meeting on 9 April 2018

**Updated background brief
on building a government data centre complex**

Purpose

This paper provides background information on building a government data centre complex in Hong Kong and summarizes the views and concerns expressed by Members in previous discussions.

Background

2. In the 2017 Policy Address, the Chief Executive announced that the Administration placed key importance on the promotion of innovation and technology development in Hong Kong. The plan for the Administration to construct a government data centre complex was included as part of the e-government initiative in the 2017 Policy Agenda. The objective was to meet the demands of bureaux and departments for data centre services and to support the promotion of long-term information technology ("IT") development in Hong Kong.

Development of data centres in Hong Kong

3. Data centres are critical infrastructure to support different economic sectors in Hong Kong by supporting high value-added economic activities and providing a catalyst for the development of new contents and applications. They are fundamental to the overall growth of the Information and Communications Technology industry. To sustain and enhance Hong Kong's competitiveness in the region, the Administration has pledged support to the development of data centres as the backbone of Hong Kong's economic growth, in particular, in the

areas of high-frequency stock trading, e-commerce and cloud computing services serving both international and Mainland users in addition to meeting local demand.

4. Since 2009, the Administration has implemented a number of facilitation measures for the development of data centres. In July 2011, the Administration established a Data Centre Facilitation Unit to provide information and one-stop support to parties interested in setting up data centres in Hong Kong. It also introduced a scheme to encourage the development of data centres in existing industrial buildings and industrial lots. Under the scheme, waiver fees for changing part(s) of eligible industrial buildings into data centre use would be exempted, and the premium for lease modification of industrial lots for development of data centres would be assessed on the basis of actual development intensity and the use of the data centre. The Administration has also reserved three hectares of land in Tseung Kwan O for development of data centre by the private sector, and encouraged conversion of industrial buildings with data centres and development of high end data centres on industrial lots.

The need for a government data centre complex

5. Currently, government data centres are hosted in different locations and are usually co-located with the relevant Government Bureaux and Departments ("B/Ds") in general office buildings. These data centres are built in different times. More than 60% of the existing government data centres have already been set up in operation for more than 15 years; about 80% of the Government data centres have reached their capacity limits in terms of space, power and cooling efficiency. The Administration considers it difficult to increase capacity and improve the efficiency of existing facilities.

6. To address the problem, the Office of the Government Chief Information Officer completed a consultancy study ("the Study") in 2012 to formulate a blueprint for the sustainable arrangements of data centre services with a view to addressing the long-term hosting needs of the government IT services. The Study recommended that the Administration should establish a consolidated data centre complex to address such needs of the Administration as far as possible in a holistic manner so as to achieve better economy of scale, cost effectiveness as well as greener management in the overall government data centre operations. The Study also recognized that some B/Ds might need to operate their own data centres due to specific statutory, business or operational needs, and some might engage public cloud services or outsourcing to meet specific, urgent or short-term demand on hosting services.

Plans to build the proposed government data centre complex

7. The Administration envisages that a newly designed data centre complex would provide a suitable environment to support cloud computing infrastructure, and would enhance the agility, reliability, security, capacity and availability of government data centre services and bring about performance and energy efficiency improvements with the aid of the latest technologies. The proposed government data centre complex is expected to address the long-term need of hosting government IT services in a holistic manner, and would reap the benefits arising from economy of scale and technology advancement. Furthermore, the Administration has indicated that the proposed government data centre complex could:

- (a) reprovision existing government data centres which have to be relocated;
- (b) accommodate data centre services for B/Ds which need to switch their IT operations from outsourced data centres to government data centres so as to avoid potential risks of service interruption and significant increase in service cost arising from contract renewal or change of service providers; and
- (c) enhance the current capacities of data centres.

8. The Administration sought and received the support of the Panel on Information Technology and Broadcasting ("the Panel"), the Public Works Subcommittee and the Finance Committee ("FC") in December 2014 and June 2015 respectively to conduct pre-construction consultancy services for carrying out the design and site investigation for the construction works of the proposed government data centre complex. The estimated cost of the pre-construction works approved by FC was \$52.6 million.

9. The proposed government data centre complex would be situated at King Lam Street, Cheung Sha Wan, Kowloon. The design would comply with the Government's computer security standards, as well as featuring advanced green technologies and modern power-saving design which would reduce operating cost, energy consumption and carbon footprint. The construction work was tentatively scheduled to commence in the third quarter of 2018, for completion in the third quarter of 2021. The indicative cost of the proposed project was more than \$500 million.

Previous discussions

Panel on Information Technology and Broadcasting

Synergizing government data centre facilities and services

10. At the meeting of the Panel on 8 December 2014 when members were briefed on the funding proposal to conduct pre-construction consultancy services for the proposed government data centre complex, members enquired about the approximate time for all the existing government data centres to reach their capacity limits and the measures the Administration would take to tackle the situation. The Administration advised that the ageing government data centres were expected to approach their capacity limits in five to 10 years' time. The proposed government data centre complex, if completed on time, could address the capacity problems of existing government data centres.

11. The Administration also informed the Panel that the majority of B/Ds currently using data centre outsourcing services would continue to use such services due to operational needs. Only a small number of B/Ds would move their data centre outsourcing services into the proposed government data centre complex upon its completion. That being the case, some Panel members queried whether the Administration could fully address B/Ds' long-term demand for data centre services and address the deficiencies of using outsourced data centres. The Administration advised it would co-ordinate the data centre needs of B/Ds and encourage them to join the proposed government data centre complex.

Site location

12. Members queried whether the prepared location in Cheung Sha Wan, which was a centrally located site, would be suitable for building the proposed government data centre complex. The Administration advised that it would be a reasonable investment for building the proposed government data centre complex at the selected site. The available power supply infrastructure at the location could meet the operational needs of the proposed government data centre complex without significant infrastructure enhancements. Moreover, the site could provide sufficient construction floor area for the proposed government data centre complex to accommodate the anticipated demands. The Administration added that the operation of the proposed government data centre complex would in general cause no adverse effect on the surrounding environment.

Financial implications

13. Members expressed concerns about possible high construction cost of the proposed government data centre complex, and enquired about the saving in capital and recurrent operating costs after consolidating government data centres into the proposed complex. The Administration advised that according to the consultancy study completed in 2012, through the consolidation of data centre facilities and operations, the proposed government data centre complex could improve synergy and flexibility in terms of resource sharing. The Administration might, as a whole, spend 5% less in capital cost and 20% less in recurrent operational cost every year in data centre services. The Administration suggested that there would be a breakeven of investment in about five years with the anticipated cost saving and cost avoidance for building and operating new data centres by individual B/Ds.

Security level of outsourced data centre services and back up data centres

14. Members were concerned about maintenance of IT security standards by B/Ds when using outsourced data centre services. The Administration explained that the government data centre outsourcing services and cloud computing services adopted international IT security standards such as ISO 27001 to keep up with the updated security requirements. All existing government data centres were operating in full compliance with the Administration's security policies, guidelines and procedures to maintain confidentiality, integrity and accessibility of IT services and data. The proposed government data centre complex would comply with the same security standards.

15. In response to members' queries, the Administration advised that two back-up government data centres were located in Tsuen Wan and Sai Kung. They would continue to be used for such purpose, if necessary, upon the establishment of the proposed government data centre complex.

Finance Committee

16. At the special meeting of FC held on 3 April 2017, Hon Charles MOK enquired about the cost of operating data centres to support the work of the Administration and the progress of the proposed government data centre complex. The Administration's reply is listed in **Appendix**.

Latest position

17. The Administration will brief the Panel on 9 April 2018 to seek support for funding the construction works of a government data centre complex.

Relevant papers

18. A list of the relevant papers with their hyperlinks is in **Appendix**.

Council Business Division 4
Legislative Council Secretariat
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Appendix

List of relevant papers

Issued by	Meeting date/ Issue date	Paper
Panel on Information Technology and Broadcasting	8 December 2014	<p>Administration's paper on building a government data centre complex (LC Paper No. CB(4)201/14-15(03))</p> <p>Updated background brief on building a government data centre complex (LC Paper No. CB(4)201/14-15(04))</p> <p>Minutes of meeting (LC Paper No. CB(4)405/14-15)</p>
Public Works Subcommittee	9 June 2015	<p>Head 703 – Buildings 120KA – Building a government data centre complex (PWSC(2015-16)6)</p> <p>Minutes of the 23rd meeting (LC Paper No. PWSC245/14-15)</p>
Special Finance Committee	3 April 2017	<p>Administration's replies to Members initial written questions (Reply Serial No. ITB188) (http://www.legco.gov.hk/yr16-17/english/fc/fc/w_q/itb-e.pdf)</p>