

For discussion  
on 17 July 2018

**Legislative Council  
Panel on Commerce and Industry**

**Government's Measures to Promote "Re-industrialisation"  
and the Latest Development of the Hong Kong Science Park  
and Industrial Estates**

**Purpose**

This paper briefs the Panel on the Government's measures to support "re-industrialisation", as well as the latest development of the Hong Kong Science Park ("Science Park") and the Industrial Estates ("IEs").

**Background**

2. The application of innovation and technology ("I&T") covers various sectors and industries, and is the key to enhancing Hong Kong's competitiveness and promoting a diversified economy. Advanced manufacturing involves technological integration and innovative designs in different aspects, as well as application of new technologies arising from research and development ("R&D") in product development process. Promoting I&T development and "re-industrialisation" are main foci of the current-term Government and the two are closely related.

3. In recent years, with the investment of a huge amount of resources for I&T development and the launch of various targeted measures on multiple fronts including encouraging R&D, supporting start-ups, nurturing I&T talent, developing a smart city, and making use of I&T to improve people's livelihood, the atmosphere for I&T in Hong Kong has largely built up with internationally renowned research institutions establishing their presence here one by one. The Government will continue to leverage these favourable trends, with a view to building an ecosystem conducive to I&T development.

4. Manufacturing has a solid foundation in Hong Kong, and its development was once prosperous. The "Made in Hong Kong" brand is world renowned for its reputation and quality. However, with the economy entered a new phase of development and the swift in social environment, manufacturing activities in Hong Kong have gradually relocated to the Mainland or other

places of lower production costs in the Asia-Pacific region. In 2016, there were about 97 700 employees in the local manufacturing sector, taking up 2.6% of the overall employment in Hong Kong. The contribution of manufacturing to our economy accounted for 1.1% of the Gross Domestic Product in the same year.

5. Yet, while industrial activities have declined in Hong Kong, we are still well-positioned for “re-industrialisation” in the technology era. Hong Kong has a strong technology foundation, world-class universities and eminent R&D talents, as well as an established legal system and robust protection for intellectual property. All these have laid a firm cornerstone for industrialists to apply R&D results and create high value-added and high technology manufacturing in Hong Kong. Besides, given Hong Kong’s proximity to the vast Mainland market, our excellent technology infrastructure and telecommunication network as well as strong service industries, industrialists are provided with integrated support across the value chain to expand their business. The Government will capitalise on these edges and the brand image of “Made in Hong Kong” to seize the opportunities for “re-industrialisation” while fostering local I&T development.

### **Government’s Measures to Promote “Re-industrialisation”**

6. Through R&D and a wider application of innovative technologies, the Government aims to inject new impetus into traditional industries and develop high value-added and less land-intensive manufacturing industries that are based on new technologies and smart production. The Government set up the Committee on Innovation, Technology and Re-industrialisation (“the Committee”) in April 2017, chaired by the Financial Secretary, to gather views and suggestions from the I&T sector on matters relating to local I&T and “re-industrialisation” in a high-level and cross-bureaux setting. Five meetings have been held so far, with deliberations on the latest I&T development in Hong Kong, the Committee’s work focus and a range of I&T-related topics, to advise on the support and implementation of measures in promoting “re-industrialisation”.

7. The Government has been actively creating favourable conditions for “re-industrialisation” along the following four major fronts, which are: (1) provide suitable infrastructure to create more space for sustainable development; (2) provide appropriate financial support to encourage industrial R&D and create new advanced manufacturing industries; (3) provide technological support to drive the upgrading and transformation of industries; and (4) nurture and pool talents to boost the productivity and adaptability of the labour force. Details of the initiatives and outcomes are set out in the ensuing paragraphs.

## Infrastructure

8. As the flagship institution that manages and develops Hong Kong's I&T infrastructure, the Hong Kong Science and Technology Parks Corporation ("HKSTPC") endeavours to provide the necessary infrastructure and facilities for fostering industrial R&D and advance manufacturing, thereby promoting "re-industrialisation".

### *Latest Development of the Industrial Estates*

9. In order to dovetail the Government's policy on "re-industrialisation", HKSTPC revised the Industrial Estate policy in 2015, under which HKSTPC would develop specialised, highly efficient multi-storey industrial buildings for rental to multiple users, thereby encouraging manufacturers to set up their production bases in Hong Kong and to attracting high value-added technology industries and manufacturing processes suitable for Hong Kong.

10. To optimise the use of land, HKSTPC encourages factory operators in the IEs to surrender premises which have not been fully utilised, and identifies therefrom suitable premises for refurbishment and leasing. In the past three years, through enforcing relevant lease terms and providing other incentives, HKSTPC has repossessed 12 sites of about 12 hectares ("ha") in total. Among the sites, a four-storey factory (with a total gross floor area ("GFA") of around 7 800 square metres ("sq. m.") in the Tai Po IE was refurbished into the Precision Manufacturing Centre ("PMC") in 2017 for leasing to multiple manufacturers with a view to fostering high technology smart production. So far, four enterprises engaging in the precision engineering and assembling, new material manufacturing, and advanced indoor hydroponic industries have moved into PMC, occupying over 70% of the building. Separately, HKSTPC will grant two repossessed sites to new factory operators and negotiation on the lease agreement is underway. It will also identify suitable premises in the Tai Po or Yuen Long IE to develop Good Manufacturing Practice grade facilities for use by the healthcare technology industries. HKSTPC is planning the development of the remaining repossessed sites. In the interim, HKSTPC will consider granting short-term lease to make optimal use of land resources.

11. HKSTPC is developing the Data Technology Hub ("DT Hub") and Advanced Manufacturing Centre ("AMC") in the Tseung Kwan O IE. The DT Hub, which has a GFA of about 27 000 sq. m., will be a purpose-designed infrastructure mainly for data technology and telecommunications services and provide general supporting facilities, including business centre, showcase arena and offices, etc. The foundation works of the DT Hub have been largely completed, and the construction works will commence soon. The whole project is expected to be completed in 2020. The AMC, which has a GFA of

about 108 600 sq. m., will foster smart production and advanced assembling of the high value-added manufacturing industries and cover extended activities such as R&D, logistics support, prototyping and design, etc. The foundation works of the AMC have commenced and the detailed design of the building is being finalised. The whole project is expected to be completed in 2022. The total cost of the two projects is \$8.248 billion. The Government has injected \$6.598 billion and will provide a loan of \$1.65 billion to HKSTPC for the projects.

### *Long-term Planning*

12. We anticipate an increase in the demand for sites for R&D and new industrial uses. To this end, the Government has been actively identifying land to provide space for the sustainable development of the industry. According to an earlier study commissioned by HKSTPC, it is technically feasible to expand the Yuen Long IE on a nearby site of about 15 ha. HKSTPC has taken this into its medium- to long-term development plan. In addition, the Government has set aside a site of about 56 ha near the Liantang/Heung Yuen Wai Boundary Control Point for development into an IE in the long run. HKSTPC will carry out studies on the development vision, detailed works, development models etc. of the site within this year.

13. It is known to all that we will develop the Hong Kong-Shenzhen Innovation and Technology Park (“the Park”) in the Lok Ma Chau Loop (“the Loop”) to establish a key base for cooperation in scientific research, which, coupled with the industrial strength of Shenzhen, helps promote commercialisation and industrialisation of R&D results. The Government proposed in the 2018-19 Budget to set aside \$20 billion to support the site formation and infrastructure works for the first stage of the Loop development, as well as the superstructure and initial operation of the Park. The Finance Committee approved the funding application for the Advance Works, as well as detailed design and site investigation of the Main Works Package 1 (“MWP1”) of the Loop on 18 May 2018. The Advance Works were commenced in June 2018, while the relevant consultancy contract for the design and site investigation of MWP1 is expected to be commenced in September this year.

### Financial Support

14. Industrial R&D is crucial to enhance the productivity of manufacturing industries. The Government has been encouraging more local R&D activities through financial support in different areas, with a view to fostering scientific research and the development of industrial technologies, thereby spurring advanced manufacturing industries that are suitable for Hong Kong to operate locally and grow in the long run.

15. The Government established the Innovation and Technology Fund (“ITF”) in 1999 to finance applied R&D projects that contribute to I&T and the technology upgrading of the manufacturing and services industries. As at March 2018, the ITF supported about 7 400 projects with a total funding of some \$14 billion. There are various funding programmes under the ITF. One of the aims is to encourage universities and enterprises to conduct more R&D to promote “re-industrialisation”.

16. To encourage enterprises to carry out more R&D projects locally, the Government will provide enhanced tax deduction to enterprises for their qualifying expenditure on local R&D activities. The first \$2 million of qualifying R&D expenditure incurred by enterprises will be eligible for 300% tax deduction, and 200% deduction will be provided for the remaining balance. There is no cap on the amount of enhanced tax deduction. Relevant amendment bill is being scrutinised by a Bills Committee of the Legislative Council. If the legislative process goes smoothly, the enhanced tax deduction will be applicable for qualifying R&D expenditure incurred by enterprises on or after 1 April 2018.

17. Apart from stimulating R&D, the Government also encourages advanced manufacturing industries that are suitable for Hong Kong to operate locally, so as to bring the local manufacturing sector back on a rising track. The Government announced in the 2018-19 Budget that \$10 billion would be injected for the Science Park to further reinforce its role in I&T development and “re-industrialisation” of Hong Kong. To dovetail with the efforts of “re-industrialisation”, HKSTPC will allocate part of its resources to offer incentives for advanced manufacturers to set up operations in the IEs. HKSTPC will discuss with individual enterprises the form of support, including rental concession and equity in lieu of rent etc., having regard to their size and needs.

18. In addition to the above measures led by the Innovation and Technology Bureau, the Trade and Industry Department has also set up various support schemes for small and medium enterprises (“SME”) as well as manufacturers, such as the SME Loan Guarantee Scheme, the SME Export Marketing Fund, the SME Development Fund, and the Dedicated Fund on Branding, Upgrading and Domestic Sales, to provide support for small and medium manufacturers in respect of financing, market development and enhancement of overall competitiveness, etc.

## Promoting the Upgrading and Transformation of Industries

19. The Government endeavours to support and encourage Hong Kong's industries to adopt new technologies, such as automated equipment and smart production planning, and assist the existing manufacturing industries in the adoption of smart production for increasing efficiency. Among others, the Hong Kong Productivity Council ("HKPC") has been assisting the manufacturing sector to migrate to high value-added production and gradually upgrade into "Industry 4.0".

20. HKPC was officially accredited as an "Industry 4.0 Expert" by the Fraunhofer Institute for Production Technology, Germany ("Fraunhofer IPT") in 2016, and has been organising a series of value-added activities (for example conferences and seminars) for enhancing the industry's knowledge of Industry 4.0. As at end of March this year, such activities had already attracted more than 3 700 participants from the industry. At the same time, HKPC has implemented the "Industry 4.0 Upgrade and Recognition Programme" with Fraunhofer IPT since 2016 to help the industry gradually upgrade its operation towards "Industry 4.0". So far, 30 enterprises joined the programme to implement Industry 4.0 in different aspects. HKPC also plans to set up an Invention Centre jointly with Fraunhofer IPT in the second half of 2018 to accelerate the adoption of innovative industrial technologies by the industry, and to promote the development of smart industry.

21. Besides, HKPC established the "Smart Industry One" in August 2017 to demonstrate the concept and smart features of Industry 4.0 and to promote adoption of the Industry 4.0-related technologies by the industry. It also established the Inno Space in October 2017 to provide workspace and technical support to assist users in developing innovative ideas into industrial design, which may subsequently be translated into products through prototyping. Since its establishment till end of March this year, the Inno Space attracted over 5 300 visitors and around 340 enquiries, and recruited 137 members. During this period, related promotional activities were organised, including 50 prototype workshops, 18 safety training orientations and 24 seminars/gatherings, etc. HKPC also set up the "Smart Industry One Consortium" in March this year, which provides a platform to facilitate exchange of the latest information on smart industry to assist enterprises in becoming smart enterprises. HKPC will also set up the HKPC Shenzhen Innovation and Technology Centre in Shenzhen to provide solutions and services for Hong Kong enterprises in the Greater Bay Area in areas of smart manufacturing, artificial intelligence ("AI"), big data and environmental technology, etc.

22. In recent years, the five R&D Centres<sup>1</sup> established by the Government have also been actively engaging in R&D related to “re-industrialisation”, covering various areas such as big data, Internet of Things (“IoT”), robotics technology, new materials, smart mobility, environmental technology, etc. There are examples of applying R&D results to assist the industry to capture and capitalise on business opportunities. They include —

- (a) The Hong Kong Applied Science and Technology Research Institute (“ASTRI”) has recently developed the 3D scanning and 3D object recognition technologies for industry robot to realise random bin picking function, which allows more flexibility for production lines and facilitates the migration of manufacturing industry towards “Industry 4.0”. These technologies have been adopted in a vision system for automated quality inspection and robot guidance, which won the “2017 Hong Kong Awards for Industries - Equipment and Machinery Design”.
- (b) The Hong Kong Research Institute of Textiles and Apparel has recently developed a clean and enclosed industrial system for recycling old clothes to fibres. Through a sanitisation process and mechanical means, the system up-cycles old clothes to fibres so that the good physical properties of the fibres can be kept for re-producing textiles products such as yarn, fabric and garments. The up-cycling process makes use of a high degree of automation through the use of automated guided vehicles and intelligent control of conveyors. Colour-sorted fibres can be used directly for spinning without the need for dyeing and finishing. According to the ISO 11737-1:2018 test method, the sanitisation process in the system effectively reduces at least 90% of the micro-organisms in the old clothes. A local company will adopt this new technology to set up an environmentally-friendly yarn production line in the IE.
- (c) The Nano and Advanced Materials Institute has developed four skincare formulations with its proprietary nano-carrier technology to enhance the skin penetration of active ingredients. The nano-emulsion penetrates the outermost dead skin layer and brings active ingredients deep into skin layer so as to exert its effectiveness. Two different product lines offering four products have been launched in the market.

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<sup>1</sup> Viz. the Hong Kong Applied Science and Technology Research Institute, the Logistics and Supply Chain MultiTech R&D Centre, the Nano and Advanced Materials Institute, the Hong Kong Research Institute of Textiles and Apparel, and the Automotive Parts and Accessory Systems R&D Centre.

- (d) The Logistics and Supply Chain MultiTech R&D Centre and the University of Hong Kong have jointly developed a cloud-based Smart Logistics Management System by using IoT, mobile and wearable technologies. The system has been adopted by two local companies and has improved their order fulfilment and warehouse operations. This Smart Logistics Management System can help enhance the efficiency of supply chain management and strengthen the competitiveness of the industry.
- (e) With technical support from the Automotive Parts and Accessory Systems (“APAS”) R&D Centre, HKPC established partnership with a local electric vehicle (“EV”) charging service provider last year to collaborate in the design, development, operation, maintenance and promotion of EV charging solutions. So far, the EV charging stations have been installed in 25 locations. Besides, APAS has developed a EV Portable Charger Kit (“PCK”) for EVs. The installation and maintenance cost of the PCK charging socket is only one tenth of a traditional EV charger, thus encouraging more car parks to install charging facilities.

#### Strengthening Training and Pooling of Talent

23. In order to strengthen the nurturing of talent, the Internship Programme under the ITF provides funding for the recruitment of local university graduates as interns to assist in R&D projects by ITF-funded R&D projects, as well as tenants and incubatees of HKSTPC and Cyberport. We have set aside a total of \$500 million under the ITF for launching a five-year Technology Talent Scheme on a pilot bases, with a view to nurturing and bringing together more technology talent. The scheme comprises: (a) the Postdoctoral Hub programme which provides funding support to ITF recipients and incubatees/I&T tenants of the HKSTPC and Cyberport to recruit postdoctoral talents for R&D work; and (b) the Reindustrialisation and Technology Training Programme, which subsidises local companies on a 2:1 matching basis to train their staff in advanced technologies, especially those related to “Industry 4.0”, with a view to driving “re-industrialisation”.

24. Besides, we set up the Technology Start-up Support Scheme for Universities in September 2014 to provide an annual funding of \$4 million to each of six local universities, encouraging their university teams to start technology businesses and commercialise their R&D results. The above measures help encourage more university graduates to pursue a career in I&T.



25. We are facing intense global competition for technology talent. To strengthen Hong Kong's competitiveness in terms of attracting I&T talent from the Mainland and overseas, HKSTPC is constructing an InnoCell adjacent to the Science Park, which will provide around 500 residential units with flexible design and ancillary facilities, such as shared working spaces, to promote cross-fertilisation among I&T talent. The design works of the InnoCell is about to begin, and the project is expected to be completed by 2021.

26. Besides, the Government rolled out in end-June this year a Technology Talent Admission Scheme ("TechTAS") on a pilot basis for three years to provide a fast-track arrangement for the admission of overseas and Mainland R&D talent. The TechTAS is applicable to tenants and incubatees of HKSTPC and Cyberport that are engaged in the areas of biotechnology, AI, cybersecurity, robotics technologies, data analytics, financial technologies and material science. In order to help nurture local I&T talent, TechTAS requires the companies and institutes concerned to employ one new local full-time employee plus two local interns engaging in technology-related work for one to three non-local persons admitted under the Scheme. By doing so, local graduates and university students will be provided with more opportunities to gain valuable experience in working in technology companies and institutes. For the first two weeks since the launch of TechTAS, HKSTPC and Cyberport have already received applications for about 50 quotas for admitting talents.

### **Latest Development of the Science Park**

27. The mission of HKSTPC is to create a vibrant I&T ecosystem, facilitate knowledge transfer and nurture talents, and accelerate technology application and industrialisation. The work of the Science Park forms an integral part of the "re-industrialisation" policy.

28. The Science Park currently occupies a GFA of about 330 000 sq. m. As at end-May 2018, the average occupancy rate was 87.4%, with a total of over 680 local, Mainland and overseas R&D companies operating and over 13 000 persons working in the Science Park. HKSTPC pools its resources and focuses on the development of five key technology clusters, including biomedical technology, electronics, green technology, information and communications technology, and material and precision engineering, with a view to promoting innovative R&D and developing Hong Kong into an I&T hub. HKSTPC has also established three application platforms on smart city, healthy ageing and robotics, which are closely related to the public, to facilitate integration of technologies in innovative products.

29. HKSTPC has been nurturing start-ups and supporting the growth of technology enterprises by providing research facilities and a range of professional and financial support, as well as organising various programmes and events. The work focuses of HKSTPC in the past one to two years are as follows —

### Building an Environment Conducive to I&T Development

30. HKSTPC endeavours to provide the I&T sector with more laboratory and research work spaces. Stage 1 of the Science Park Expansion Programme, involving the construction of two buildings of 14-storey and 15-storey respectively, was commenced in August 2016. Upon its completion in 2020, the GFA of the Science Park will increase to 400 000 sq. m.

31. With a view to supporting Hong Kong's development into a smart city, HKSTPC is planning to set up a Smart Campus in the Science Park, serving as a living laboratory to allow trials of innovative and technological projects of the Science Park or other technology companies. HKSTPC has put in place key facilities for the Smart Campus, including the Data Studio set up in February last year to serve as a shared data exchange platform. In addition, HKSTPC partnered with ASTRI in July 2017 and established a Smart City Innovation Centre, which is a platform for R&D, testing and demonstration of 5G mobile communications and IoT communications technologies, to provide technical support for building a smart city for the future. HKSTPC has set up an advisory committee to advise on the development of the Smart Campus.

### Supporting Start-ups, Nurturing Technology Institutions

32. In recent years, HKSTPC has stepped up its efforts to actively support start-ups in multiple aspects. At present, HKSTPC has in place three incubation programmes to provide comprehensive support for start-ups at the Science Park that focus on technology, biotechnology and web and smartphone-based apps. There are currently 268 incubatees<sup>2</sup> at the Science Park. Over 540 companies have graduated from the incubation programmes and four of them successfully secured a public listing. Apart from the three major incubation programmes, HKSTPC runs the Leading Enterprises Acceleration Programme<sup>3</sup> to nurture high potential incubatees and incubation

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<sup>2</sup> Figures as at May 2018.

<sup>3</sup> The Leading Enterprises Acceleration Programme ("LEAP") was launched in early 2014. Participating enterprises will be provided with targeted assistance in various aspects, which includes strategy consultation, business and corporate development, and fundraising support, etc. As at end-May 2018, a total of 19 companies were enrolled in LEAP.

graduates into regional or global companies, and operates “Lion Rock 72”<sup>4</sup> in Kowloon Tong.

33. In collaboration with private enterprises, HKSTPC launched the “Global Acceleration Academy” in April 2017 to facilitate start-ups in commercialising their R&D discoveries. HKSTPC and the industry leaders collectively assist participants to develop products under specific themes that serve the needs of the industry as well as to showcase to potential business partners and investors their end-products. Since its inception, 65 start-ups have participated, of which 14 cases have successfully secured follow-up actions by potential business partners or investors in terms of capital financing, proof-of-concept exercise, technology adoption and business referrals, etc.

34. HKSTPC’s efforts in supporting I&T start-ups have been fruitful. In 2017-18, partner companies under HKSTPC raised a total of \$1.2 billion. In addition, its incubatees won a total of 558 local and international awards. HKSTPC was awarded as a State-level Scientific and Technological Enterprise Incubator by the national Ministry of Science and Technology in November 2017 in recognition of its outstanding achievements in promoting social entrepreneurship and innovation.

#### Facilitating Technology Adoption

35. HKSTPC has been committed to facilitating technology adoption, assisting technology enterprises in commercialising their R&D results, and encouraging companies in the IEs to adopt new technologies, so as to foster “re-industrialisation”. Under its “Technologies from Science Park” programme, HKSTPC arranges business sharing and product demonstration sessions, as well as one-on-one business matching for enterprises in the Science Park and other institutions. Since the launch of the programme in March 2015, HKSTPC has cooperated with over 50 leading local business entities/public organisations and arranged for them to meet over 300 technology companies in the Science Park.

36. In addition, HKSTPC launched the “First@Science Park” programme in 2010 to provide partner enterprises with suitable venues for showcasing to the public their innovative products and conducting product testing in the Science Park. Over 40 cases were completed so far.

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<sup>4</sup> “Lion Rock 72”, established in October 2016, is located in the InnoCentre, Kowloon Tong with a floor area of about 10 000 square feet. It is a 24-hour co-working space dedicated for start-ups. Currently, there are 28 incubatees under the programme.

## Hong Kong-Shenzhen Innovation and Technology Park Limited

37. To support the development of the Park in the Loop, HKSTPC established in October 2017 a wholly-owned Hong Kong-Shenzhen Innovation and Technology Park Limited (“HSITPL”), which is vested with the responsibilities to build the superstructure of the Park, as well as to operate, maintain and manage the same. The first Board meeting of HSITPL was held early this year. HSITPL is conducting the Master Planning Study and the Business Model and Business Planning Study for the development of the Park. Both studies are expected to be completed in early 2019. Upon completion of the studies, the Government and HSITPL will make reference to their findings and conduct further planning on the Loop’s development.

### Way Forward

38. In the coming years, HKSTPC will take a more proactive role in promoting I&T development and “re-industrialisation”, and devote more resources to continue its efforts in —

- (a) enhancing the infrastructure in the Science Park and IEs to further reinforce Hong Kong’s capabilities in scientific research and “re-industrialisation”;
- (b) strengthening its connection with I&T enterprises, government agencies, investors and the industrial and commercial sectors;
- (c) fostering collaboration with international and local universities and research institutions across different technological disciplines; and
- (d) promoting innovative development by creating an inspiring and vibrant ecosystem and offering customised services to I&T enterprises at different R&D stages.

39. HKSTPC will also make good use of the Government’s allocation of \$10 billion and fully support the Government’s policy direction by implementing various new measures conducive to I&T development, enhancing support for its tenants and incubatees, and fostering the development of the research clusters on healthcare technologies and on AI and robotics technologies.

## **Advice Sought**

40. Members are invited to note and provide views on the Government's policies and measures to promote "re-industrialisation" and the latest development of the IEs and the Science Park.

Innovation and Technology Bureau  
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July 2018