For discussion on
21 March 2017

Legislative Council
Panel on Commerce and Industry

Policy on "Re-industrialisation" and the Latest Development of the Industrial Estates and Hong Kong Science Park

PURPOSE

This paper briefs Panel Members on Government's policy and related measures to promote "re-industrialisation" as well as the latest work of the Hong Kong Science and Technology Parks Corporation ("HKSTPC") in this regard.

BACKGROUND

2. The 1960s to 1970s was a golden age for manufacturing industries in Hong Kong. In 1977, Hong Kong was a hub for light manufacturing and the manufacturing sector employed more than one million people and accounted for around 30% of the Gross Domestic Product ("GDP"). However, local industries have started to relocate to the Mainland since the mid-1980s and Hong Kong gradually evolved into a service economy, leading to our "de-industrialisation". Following the transformation in Hong Kong's economic structure, the manufacturing sector's contribution to the GDP has decreased to around 1.2% in 2015 (i.e. $27.2 billion).

3. The 21st century is an era of globalisation and the knowledge-based economy. We believe that the trend of "de-industrialisation" has to be reversed in order to enhance Hong Kong's competitiveness and diversify our economic development. By applying innovation and technology ("I&T") to drive "re-industrialisation", introducing and developing high-end manufacturing industries suitable for Hong Kong and carrying out high value-added production processes in Hong Kong, we could restore Hong Kong's manufacturing industries to the rise, promote economic growth and create high-quality job opportunities. "Re-industrialisation" is not about the return of traditional land and labour intensive manufacturing industries. Instead, we would focus on manufacturing industries leveraging Internet of Things ("IoT"), artificial intelligence, new materials and smart manufacturing processes, etc. "Re-industrialisation" does not necessarily refer to the development of

brand-new industries; it could be the marriage of I&T elements and existing industries to bring them to a new level, enhancing quality and efficiency and achieving product diversification.

4. We need a multi-pronged approach to further encourage the development of the I&T ecosystem in order to achieve "re-industrialisation". Apart from providing land and suitable infrastructural facilities, quality research and development ("R&D") capabilities and talents are also necessary to support "re-industrialisation". Since its establishment, the Innovation and Technology Bureau has formulated a series of measures to promote technology R&D; encourage co-operation among local, Mainland and overseas institutes; promote "re-industrialisation"; and assist the upgrading of Small and Medium Enterprises ("SME"), etc. This paper gives an account of these measures and introduces the latest work of HKSTPC in this regard.

GOVERNMENT'S MEASURES TO PROMOTE "RE-INDUSTRIALISATION"

(i) Infrastructure

Development of Two Projects in Tseung Kwan O Industrial Estate ("TKOIE")

5. On the hardware side, the Government has been working closely with HKSTPC in promoting "re-industrialisation". We have revised the policy on Industrial Estates ("IE") in order to encourage smart production, attract high value-added technology industries as well as high value-added manufacturing processes. In future, HKSTPC will build and manage specialised multi-storey industrial buildings for rental to multi-users. On 28 May 2016, the Legislative Council ("LegCo") Finance Committee ("FC") approved the injection of $6,598 million from the Capital Investment Fund ("CIF") to HKSTPC and for the CIF to provide $1,650 million as a loan to support the Corporation to develop a Data Technology Hub ("DT Hub") and an Advanced Manufacturing Centre ("AMC") at TKOIE. The Government injected capital into HKSTPC and increased the authorised share capital of the Corporation in October 2016.

6. The DT Hub consists of a 12-storey tower over a three-storey podium and a basement, with a gross floor area ("GFA") of about 27 015 m^2. The basement will provide parking spaces and spaces to accommodate building services installations and associated plant rooms. The proposed building comprises purpose-designed infrastructure for data technology and telecommunications services. We will also take the opportunity to provide general supporting facilities to the more than 10 000 employees at TKOIE,

including a business centre, showcase arena and offices, etc. HKSTPC has engaged a consultant to carry out the detailed design of the DT Hub. The project is expected to be completed in 2020, with an estimated cost of $1,615 million.

7. The AMC will include two building blocks which are respectively 13-storey and 9-storey and a 4-storey car park, with a total GFA of about 108 588 m^2. This project will focus on five major areas including (i) medical, healthcare, and hospital devices and apparatus; (ii) biomedical engineering devices, implants and apparatus; (iii) intelligent electronic and optical apparatus; (iv) intelligent sensors and advanced assembly of semiconductors; and (v) robot electronics and intelligent power devices that dovetail with smart city development. An industrial planning consultant is conducting a detailed study on these advanced industries' latest technological and operational requirements on infrastructure so as to set out the preliminary design standards, including ceiling height, floor loading, mechanical vibration standard, electrical and mechanical facilities, internet security, communal facilities (e.g. automated storage and 3D printing) and clean room environment, etc. in order to cater for the needs of advanced automated production. After the concept design of the AMC is completed, HKSTPC will appoint a lead architectural consultant to carry out the detailed design. We expect the AMC to be completed by 2021/22 at an estimated cost of $6,633 million.

Efficient Use of Existing IE Sites

8. At present, Tai Po IE, Yuen Long IE and TKOIE have only been developed to about 53% of the overall maximum plot ratio of 2.5. HKSTPC has been negotiating with the factory operators of the IE sites, encouraging them to surrender unused plot ratio or premises which have not been fully utilised. So far, through enforcement of the relevant lease terms and provision of other incentives, HKSTPC has successfully repossessed seven sites with an area of about eight hectares ("ha"). In addition, it has also clawed back about 116 000 m^2 of undeveloped GFA and released about 118 000 m^2 in GFA from the seawall at TKOIE.

9. HKSTPC will identify suitable premises from the surrendered factories and refurbish them for leasing to the technology industry. The first project is a five-storey building with a GFA of 8 500 m^2 on a 0.35 ha site at Tai Po IE, with an estimated total cost at around $67 million. HKSTPC is carrying out refurbishment works and has started receiving applications for admission since this month. It is anticipated that tenants can move in in September 2017 at the earliest.

Setting New Admission Criteria and Leasing Arrangements

10. HKSTPC is proposing to focus its resources on selected industries that can bring the most benefits to Hong Kong and complement the development of its three over-arching technology platforms, namely smart city, healthy ageing and robotics. On the other hand, the new admission criteria for the IEs should be flexible enough to cater for the fast-changing market trends in the I&T sector and capable of accommodating the entire value chain covering R&D, prototyping, product design, production, testing and distribution, administration to marketing and branding, so that a "through-train" service could be provided.

11. Under the new IE policy, instead of building their own factories, most tenants would be leasing specialised multi-storey industrial buildings built by HKSTPC. The lease term will be longer than that usually available in the market. It is recommended that the first lease should last up to six years, and a nine-year term can be given on special considerations. Subject to no breach of lease conditions, there would be an option to renew thereafter for three years at a time. To tighten control and monitoring against under-utilisation and abuse of facilities, HKSTPC would carry out on-site inspections by prior appointment/notice, as well as requiring tenants to submit business updates every three years under the lease terms.

Hong Kong-Shenzhen Innovation and Technology Park in Lok Ma Chau Loop

12. We will develop a Hong Kong-Shenzhen Innovation and Technology Park ("the Park") at the Lok Ma Chau Loop. The key base for cooperation in scientific research in the Park would complement the industrial strength of Shenzhen, thereby promoting commercialisation and industrialisation of R&D outcomes.

Planning for New IEs (Liantang/Heung Yuen Wai)

13. The 2016 Policy Address pointed out that there would be an anticipated increase in the demand for sites for scientific research and new industrial use. The Planning Department and the Innovation and Technology Commission have provisionally identified a site of about 56 ha near the Liantang/Heung Yuen Wai Boundary Control Point for the long-term development of IEs. HKSTPC initiated a tender exercise in January 2017 for appointment of a professional planning consultant to conduct a preliminary planning study. It is anticipated that the consultant will commence the related study in March 2017.

(ii) R&D relating to "re-industrialisation"

14. "Intelligent Manufacturing" is one of the focused R&D application areas of the Hong Kong Applied Science and Technology Research Institute ("ASTRI"). ASTRI has developed technologies on robotic vision, integrated power module packaging and predictive analytics for big data, etc., that enable information-centric operations to replace labour intensive arrangements. For example, the development of a handset cover glass and touch panel glass automatic defects inspection system can effectively reduce the workload and cost of the surface quality control and inspection of product appearance, improve the efficiency and quality of product line inspection, thereby facilitating the progress of manufacturing industry towards Industry 4.0. The system won ASTRI the "2016 Hong Kong Awards for Industries - Equipment and Machinery Design" last year.

15. Separately, the Hong Kong R&D Centre for Logistics and Supply Chain Management Enabling Technologies has developed new IoT and robotic technologies such as a smart IoT warehouse management system and Automated Guided Vehicles, and an interoperable e-logistics exchange platform. These facilitate more flexible application of internet technology for the manufacturing industry, thereby enhancing the efficiency of its warehouse management and supply chain system.

16. The Nano and Advanced Materials Institute has also proactively developed a number of platform technologies, such as nanofibres and anti-bacterial materials, etc., for application on new products. Amongst these technologies, advanced nanofibre materials, rechargeable batteries for extreme temperatures, highly flexible batteries, etc., are useful for the manufacturing industry to design new products, furthering the promotion of "re-industrialisation" in Hong Kong.

17. Separately, the Hong Kong Research Institute of Textiles and Apparel assists the industry to ride on the trend and capture business opportunities in areas such as high performance materials (for sports, industrial, and healthcare applications), wearable electronics and green materials, etc. Successful examples include waterless dyeing technology, fabric touch tester and the use of food wastes for production of polylactate fibres.

18. In recent years, the Automotive Parts and Accessory Systems R&D Centre has been focusing in the areas of electric vehicle charging technology, smart mobility and advanced materials for automobiles, etc., and has been transferring the relevant R&D results to related industries to support local enterprises.

(iii) Promoting the upgrading and transformation of industries

19. As mentioned above, one of the most important elements of "re-industrialisation" is to assist existing manufacturing industries in adopting smart and clean production, increasing their efficiency, reducing reliance on labour and minimising impact on the environment. The Hong Kong Productivity Council ("HKPC") has been assisting the manufacturing sector to move towards high value-added production and gradually into "Industry 4.0".

20. Last year, HKPC was officially accredited as an "Industry 4.0 Expert" by the Fraunhofer Institute for Production Technology, Germany ("Fraunhofer IPT"), and proceeded to organise a series of value-added activities for enhancing the industry's understanding of Industry 4.0. These included organising international conferences and seminars on industrial innovation strategy, and establishing the "Industry 4.0 Upgrade and Recognition Programme" with Fraunhofer IPT to help the industry gradually upgrade its operation towards "Industry 4.0". HKPC will inaugurate the "Industry 4.0" technology demonstration centre this year to showcase and promote information exchange on the concept and smart features of Industry 4.0.

21. The Government has also commissioned HKPC to establish an Inno Space. The Inno Space will provide workspace and technical support to assist users in developing their innovative ideas into industrial design, which may subsequently be translated into products through prototyping. The Inno Space will be open to the public, with the main target users being start-up entrepreneurs, secondary or university students and graduates, and is expected to commence operation within this year.

22. The Massachusetts Institute of Technology ("MIT") Hong Kong Innovation Node will be set up at the HKPC Building to provide various technology and entrepreneurial education and training to MIT and Hong Kong undergraduates, academics and researchers. HKPC will leverage MIT's expertise in the areas of smart manufacturing, makerspace and technology entrepreneurship, which will bring value to the local manufacturing industry and create more business opportunities.

(iv) Financial assistance

23. The Innovation and Technology Fund ("ITF") was established in 1999 to finance applied R&D projects that contribute to I&T upgrading in manufacturing and services industries in Hong Kong and promotion of innovation. As of end 2016, the ITF has supported over 5 800 projects with a total funding of some $11.9 billion.

24. There are various funding programmes under the ITF, including the Innovation and Technology Support Programme, the University-Industry Collaboration Programme, the Enterprise Support Scheme, the Patent Application Grant, etc. One of the aims of these funding programmes is to encourage more R&D from universities and enterprises and promote "re-industrialisation".

25. In order to strengthen talent cultivation, we have 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 students and professors to start technology businesses and commercialise their R&D results. To encourage more university graduates to pursue a career in I&T, the Internship Programme has been extended to fund the recruitment of local graduates as interns by incubatees and SME tenants of HKSTPC and Cyberport since December 2016.

26. The Government's policy on support for the industry is to create a business-friendly environment and provide the necessary support so that they can flourish. In addition to the aforementioned measures implemented by HKSTPC and HKPC, various government departments and quasi-government organisations have set up support schemes, e.g. Trade and Industry Department's SME Loan Guarantee Scheme, SME Export Marketing Fund, SME Development Fund and Dedicated Fund on Branding, Upgrading and Domestic Sales to assist the industry in areas such as obtaining finance and enhancing their overall competitiveness.

(v) <u>Hong Kong Science Park ("HKSP")</u>

27. The missions of HKSTPC are to provide land to support technology-based companies and activities; to facilitate the R&D and application of technologies in Hong Kong; and to support the development, transfer and use of new or advanced technologies. In addition to the development of the IEs, the work of the HKSP also forms an integral part of our "re-industrialisation" policy.

28. HKSP occupies a 22-hectare site with a GFA of about 330 000 m^2. As at end-January 2017, the average occupancy rate is 81%. There are a total of about 630 local, Mainland and overseas R&D companies operating in HKSP, employing over 13 000 persons.

29. HKSP has been offering its facilities and support services through a clustering strategy since its establishment. The five technology clusters are biomedical technology, electronics, green technology, information and communications technology, and material and precision engineering. HKSTPC has also established three over-arching cross-disciplinary platforms, namely healthy ageing, robotics and smart city, to facilitate integration of technologies in innovative products. These technology clusters and platforms are all closely connected with "re-industrialisation".

Expansion of HKSP

30. Stage 1 of the Science Park Expansion Programme ("SPX1") involves the construction of two respectively 14-storey and 15-storey building blocks on a site which covers about 1.18 ha on the vacant western corner of Phase 3 and the existing transport terminus. The estimated development cost is $4,428 million and the LegCo FC approved the funding proposal in May 2016. Upon completion, the total GFA of HKSP will increase from 330 000 m^2 to around 400 000 m^2. The architectural design and construction of the buildings have commenced in June and August 2016 respectively. SPX1 is expected to complete by 2020.

InnoCell

31. The 2017 Policy Address announced that the Government supports the HKSTPC in building an InnoCell adjacent to the HKSP. The InnoCell will provide residential units with flexible design and ancillary facilities such as shared working spaces for leasing to staff of the incubatees and other tenants of the HKSP. The InnoCell will be located on a piece of "Government, Institutions or Community" land of 0.28 ha at the corner of Chong San Road and Science Park Road in Pak Shek Kok, next to the southeast entrance of HKSP.

32. HKSTPC is proceeding with planning, preliminary design, cost estimate and other associated work for the InnoCell. The Corporation is following planning procedures under the Town Planning Ordinance (Cap 131). We will also consult the LegCo Panel on Commerce and Industry on this project and submit a funding application to the LegCo FC within this year.

Assisting the development of technology enterprises

33. Having developed the three Cs strategy, namely "Connect", "Collaborate" and "Catalyse", the HKSTPC is playing an active role as the super-connector for Hong Kong's I&T community and the relevant enterprises.

Under its "Technologies from Science Park" programme, the Corporation arranges business sharing and product demonstration sessions, as well as one-on-one business matching for local enterprises and technology start-ups in the HKSP. These activities would assist the manufacturing industries to adopt new products or technologies.

Promoting smart city development

34. In addition, the HKSTPC has set up a Data Studio in September 2016, providing a shared data exchange platform open to the public, private sector and information and technology ("IT") personnel from different organisations. The programme aims to (i) create a shared data exchange platform for the government, private sector and non-profit-making organisations, and encourage developers to build solutions for the huge volume of smart city data, so as to promote the international status of Hong Kong as a smart city; and (ii) establish an open and secure data exchange environment comprising data visualisation tools and an extended data repository that are open to academic and research institutions, start-ups and IT companies, promoting smart city and encouraging disclosure of data.

35. The HKSTPC is also partnering ASTRI in establishing a Smart City Innovation Centre at the HKSP, which is expected to commence service within this year. The Centre will provide a platform for R&D, testing and demonstration of 5G mobile communications and IoT communications technologies, to encourage research teams, local enterprises and communications service providers to conduct R&D and innovative applications of high-speed wireless network technologies in Hong Kong, and provide technical support for building a smart city for the future.

ADVICE SOUGHT

36. Members are invited to note and provide views on the Government's policies and related measures to promote "re-industrialisation" and the latest developments of the IEs and HKSP.

Innovation and Technology Bureau
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March 2017