LCQ14: Research and development centres and parks for innovation and technology

Following is a question by the Hon Holden Chow and a written reply by the Secretary for Innovation and Technology, Mr Alfred Sit, in the Legislative Council today (May 5):

Question:

At present, there are five research and development (R&D) centres (namely Automotive Platforms and Application Systems R&D Centre, Hong Kong Applied Science and Technology Research Institute, Hong Kong Research Institute of Textiles and Apparel, Logistics and Supply Chain MultiTech R&D Centre, as well as Nano and Advanced Materials Institute) under the purview of Innovation and Technology Commission. In the financial years from 2015-16 to 2018-19, the total operating cost and total R&D expenditure of such centres exceeded $1.15 billion and $2.3 billion respectively, but their total income from commercialisation of R&D results (commercialisation) during the same period was only around $190 million. On the other hand, the Governments of Hong Kong and Shenzhen are jointly developing a Shenzhen/Hong Kong Innovation and Technology Co-operation Zone, and the Batch 1 development of its park in Hong Kong – the Hong Kong-Shenzhen Innovation and Technology Park (HSITP) located at the Lok Ma Chau Loop will soon commence. In the light of the results of a related consultancy study, the HSITP will accord priority to the development of the following six major R&D areas: healthcare technologies, big data and artificial intelligence, robotics, new material, microelectronics, and financial technology (the six major areas). In this connection, will the Government inform this Council:

(1) of the total commercialisation income of the five R&D centres in the past two financial years; whether the Government last year reviewed and improved the operation of those R&D centres as well as formulated new measures to enhance their effectiveness in commercialisation;

(2) of the Government's considerations in and justifications for determining the six major areas for the HSITP; given that the first batch buildings in the HSITP will only be completed in phases from 2024 to 2027, whether the Government will, before then, continue to conduct reviews and studies on the six major areas so as to ensure that such positioning suits the latest situation;

(3) whether it has reviewed the commercialisation experience of the five R&D centres and made reference to the relevant practices in other countries/regions in order to formulate more effective commercialisation strategies and quantitative key performance indicators for the HSITP;

(4) whether it has formulated plans and set quantitative objectives for the work on attracting large-scale Mainland and international enterprises/organisations to apply for admission to the HSITP; whether it will regularly make public the names of the enterprises/ organisations which have newly been admitted to the HSITP and the numbers of new jobs to be created by them; and

(5) how the six major areas for the HSITP are expected to promote the development of Hong Kong's financial services industry, and what synergy effects will be created?

Reply:

President,

A consolidated reply to different parts of the question is provided as follows:

(1) The Government has set up five research and development (R&D) centres to drive and coordinate applied R&D in selected focus areas. The five R&D centres are:

(a) Automotive Platforms and Application Systems R&D Centre (APAS);
(b) Hong Kong Applied Science and Technology Research Institute (ASTRI);
(c) Hong Kong Research Institute of Textiles and Apparel (HKRITA);
(d) Logistics and Supply Chain MultiTech R&D Centre (LSCM); and
(e) Nano and Advanced Materials Institute (NAMI).

The R&D centres play an important role in creating a vibrant innovation and technology (I&T) ecosystem. They act as a focal point for technology collaboration among the Government, industry, academia and research sectors.

As the R&D centres are platforms for coordinating applied research and facilitating technology transfer to the industry, from 2017-18 onwards, the Government implemented a new indicator on the level of industry income of the R&D centres, in order to gauge the level of support of the industry in their work. The indicator mainly covers the sponsorship and commercialisation income on R&D projects contributed by the industry and a target of 30 per cent has been adopted.

The level of industry income of the R&D centres in 2018-19 and 2019-20 meets the target and is tabled as follows:

Level of Industry Income

	2018-19	2019-20
APAS	49%	44%
ASTRI	36%	33%
HKRITA	34%	79%

LSCM	46%	94%
NAMI	55%	47%

Commercialisation income includes contract service income, licensing fees and royalties. In addition to conducting applied R&D in key areas, the R&D centres also work closely with the industry to carry out applied R&D projects that suit the needs of the industry, and to transfer technologies to the industry and strive to commercialise R&D outcomes. In 2018-19 and 2019-20, the commercialisation income of the five R&D centres are listed as follows:

	Commercialisation Income ($ million)	
	2018-19	2019-20
ASTRI	21.16	25.88
NAMI	17.11	12.25
LSCM	10.09	15.95
HKRITA	10.98	29.30
APAS	1.87	2.58
Total:	61.21	85.96

The commercialisation income of the five R&D centres in 2019-20 has increased by about 40 per cent compared to that in 2018-19. Due to the social incidents and the outbreak of the novel coronavirus disease in 2019-20, it was not easy for commercialisation income to increase.

In addition, the R&D centres also conducts R&D projects relating to government departments. The related R&D outcomes can help participating departments improve their service quality and operational efficiency. By participating in the Public Sector Trial Scheme, the R&D centres will put R&D outcomes to trials in government departments and public sector organisations, thereby obtain suggestions from users on improving products and services and improve their scientific research outcomes so as to increase the opportunities for realisation and commercialisation of their R&D outcomes.

On the whole, the R&D centres have received more income other than industry sponsorship in recent years, including contract service income, licensing fees and royalties. Each of the centres has also established their reputation and has become a reliable R&D partner internationally, with the Mainland and locally in the technology fields they belong to. Facing the opportunities brought by the development of the Guangdong-Hong Kong-Macao Greater Bay Area (Greater Bay Area), the R&D centres will actively promote their R&D outcomes, seek cooperation and development opportunities in the Greater Bay Area, and facilitate the commercialisation of their outcomes.

(2) to (4) The Government is taking forward in full swing the development of the Hong Kong-Shenzhen Innovation and Technology Park (HSITP) located in the Lok Ma Chau Loop. Upon its full development, the HSITP will provide a gross

floor area of 1.2 million square metres and become Hong Kong's largest-ever I&T platform. The vision of the HSITP is to become the world's knowledge hub and I&T centre, converging technology enterprises, R&D institutions and higher education institutions from local, the Mainland and overseas, which can connect upstream and midstream research to downstream market, further enhancing the collaboration among the industry, academic and research sectors. High value-added processes including R&D, prototyping, product design and testing can be conducted at the HSITP.

To plan for the development of the HSITP, the Hong Kong-Shenzhen Innovation and Technology Park Limited (HSITPL) conducted the Master Planning Study and the Business Model and Business Planning Study. Taking into account of the relevant findings of the consultancy studies, the HSITP will focus on the development of six R&D areas, including healthcare technologies, big data and artificial intelligence (AI), robotics, new material, microelectronics, and financial technology (fintech). In researching for the focus R&D areas, the consultant has taken into account factors such as the global trend of key emerging technologies, Hong Kong's advantages, regional demand and innovation cost, etc.

Currently, the HSTIPL is pressing ahead with the construction works of Batch 1 development, in which the primary goal is to complete the first eight buildings in phases from 2024 to 2027. Regarding the key performance indicators (KPIs) for HSITP in the next phase, the HSITPL will discuss with the Government according to its stage of development, taking into account the dynamics of the I&T market and making reference to the KPIs of the Hong Kong Science and Technology Parks Corporation and the Hong Kong Cyberport Management Company Limited, where appropriate. However, as the HSITPL is not a R&D centre, their positioning, functions, and organisation are not identical. Therefore, the strategy and experience of the R&D centres in commercialisation may not be applicable.

(5) In consultation with the Financial Services and the Treasury Bureau, the reply to part (5) of the question is as follows:

The Government is committed to making good use of Hong Kong's position as an international financial centre in providing convenient cross-boundary financial support measures and financial support measures that meet international standards to enterprises (especially those which seek to tap into the international market or attract international capital). These will incentivise the setting up of I&T enterprises with international competitiveness in the HSITP.

The Government also hopes to support the development of I&T start-ups to promote the sustainable development of local financial services industry. For example, the Hong Kong Exchanges and Clearing Limited has reformed its listing regime to allow the listing of new economy companies, including high growth and innovative enterprises which have weighted voting rights structures possessed by individuals and pre-profit / pre-revenue biotechnology companies, subject to appropriate safeguards on investor protection. The new listing regime is gradually delivering results, with

around 50 companies successfully listed in Hong Kong, raising a total of over $500 billion of funds through initial public offerings. Furthermore, the Government established the Limited Partnership Fund (LPF) regime in August 2020 to allow private equity or venture capital funds to set up through this regime and operate in Hong Kong, which helps channel capital into start-ups in the I&T field. Over 200 funds have been set up under the LPF regime in eight months. It is expected that the HSITP's development vision and wide-ranging fields will attract many investors.

The financial services sector in Hong Kong can even reinforce the position of Hong Kong as an international fintech hub through the HSITP’s focused R&D areas, which cover fintech, big data and AI, to develop advance technologies in blockchain, cybersecurity, data analysis, etc. Enterprises and start-ups in other areas can also capitalise on Hong Kong's position as a world financial capital market centre in fundraising and establishing connections with financing channels, providing opportunities for business development and bringing in vast demand for financial services. With the HSITP's advantage in converging financial services and I&T in Hong Kong, it is envisaged to build a strong fintech ecosystem.