

LCQ22: Work of Research and Development Centres

Following is a question by Professor the Hon William Wong and a written reply by the Acting Secretary for Innovation, Technology and Industry, Ms Lillian Cheong, in the Legislative Council today (November 8):

Question:

The Government established five Research and Development (R&D) Centres in April 2006, namely the 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, and Nano and Advanced Materials Institute. Regarding the work of these R&D Centres, will the Government inform this Council:

- (1) whether it will consider reviewing the role and positioning of the aforesaid R&D Centres, as well as the need for restructuring, so as to dovetail with the strategies set out in the Hong Kong Innovation and Technology Development Blueprint and achieve the objective of developing Hong Kong into an international innovation and technology centre;
- (2) whether it has set key performance indicators for the aforesaid R&D Centres in respect of their work on enhancing social benefits; if so, of the details; if not, whether it will consider setting such indicators;
- (3) of the respective numbers of new R&D projects undertaken by the aforesaid R&D Centres in each of the past five years and, among them, the number of those for which patents were granted;
- (4) of the respective numbers of patents owned by the aforesaid R&D Centres, the patent maintenance costs involved and the number of patent transactions made in each of the past five years;
- (5) of the respective numbers of cases of successful transformation and realisation of patents by the aforesaid R&D Centres in each of the past five years and, among them, the number of those which generated revenues for the R&D Centres concerned and the amount involved;
- (6) of the respective numbers of patents of the aforesaid R&D Centres which were not renewed in each of the past five years, and the criteria and procedure for determining whether such patents should be renewed; and
- (7) whether it will consider drawing up relevant guidelines on patent management for the aforesaid R&D Centres?

Reply:

President,

In response to the various parts of the question raised by Professor the Hon William Wong, the reply is as follows:

(1) and (2) The Government has established five Research and Development (R&D) Centres, i.e. Hong Kong Applied Science and Technology Research Institute (ASTRI), Hong Kong Research Institute of Textiles and Apparel, Logistics and Supply Chain MultiTech R&D Centre (LSCM), Nano and Advanced Materials Institute, and Automotive Platforms and Application Systems R&D Centre (APAS), to drive and co-ordinate applied R&D in selected focus areas. The five R&D Centres have clear positioning and play an important role in driving applied R&D, conducting technology transfer and commercialising R&D outcomes, thereby offering more innovative technologies for the industry in Hong Kong and boosting the competitive edge of Hong Kong enterprises. The current positioning of the R&D Centres is at Annex I. Besides, the Chief Executive announced in the 2023 Policy Address that the Hong Kong Microelectronics Research and Development Institute (MRDI) will be established in 2024 to lead and facilitate collaboration in research and application of microelectronics, as well as industry development among universities, R&D Centres and the industry, which will include jointly exploring the third-generation semi-conductor core technology.

The R&D Centres play an important role in creating a vibrant innovation and technology (I&T) ecosystem and act as a focal point for technology collaboration among the Government, industry, academia and research sectors, thereby complementing the implementation of the relevant development directions and strategies under the Hong Kong Innovation and Technology Development Blueprint and developing Hong Kong into an international I&T centre. In this connection, the Government has been closely monitoring the operation of the R&D Centres. To evaluate the overall work progress and performance of various aspects of the R&D Centres, the Innovation and Technology Commission (ITC) has been adopting the following six indicators since 2017-18:

- (i) Level of industry income;
- (ii) Number of on-going projects involving industry participation;
- (iii) Number of companies participating in the on-going projects;
- (iv) Number of organisations benefitting from the Public Sector Trial Scheme;
- (v) Number of researchers engaged under the Research Talent Hub; and
- (vi) Number of patents filed and granted.

Regarding the aforementioned indicator (i) (i.e. level of industry income), the ITC has raised the target from 30 per cent to 35 per cent from 2023-24, and subject to steady economic growth, gradually raises the target to 50 per cent in a few years' time.

Regarding the indicators (ii) to (vi), as the scale and focal points of the R&D Centres are different, it is difficult to devise a set of uniform quantifiable key performance indicators. However, in the regular progress report on the R&D Centres to the Panel on Commerce, Industry, Innovation and Technology of the Legislative Council, the ITC will set out the Centres' respective performances under items (ii) to (vi) of the indicators. Besides, as a standard practice, the R&D Centres are required to prepare and submit

annual plan, quarterly and annual reports and annual audited accounts for approval by their respective Board and the ITC every year.

On bringing social benefits, a number of R&D outcomes generated by the R&D Centres have been adopted by public organisations or public service providers. For example, the low-floor height e-minibus developed by APAS is supporting the Government's trial of electrification of public light buses; ASTRI and MTR Corporation Limited jointly developed a non-contact smart visual system to measure the gaps in escalators, replacing manual inspection, to ensure public safety by enhancing measurement and maintenance efficiency; LSCM has developed a combination-type wireless radio frequency identification tags for use in road tolling systems, and the technology has been applied to the HKeToll system. These R&D outcomes help Government departments and other public organisations enhance their service quality and efficiency, making people's daily living more convenient, comfortable and safe, thereby providing a greater sense of fulfilment. As such, it is difficult to quantify these benefits and devise quantifiable key performance indicators.

In the past few years, due to the COVID-19 epidemic, different industries have been affected to different extents. Despite facing such adverse circumstances, the R&D Centres have continued to drive applied R&D in selected focus areas and closely collaborated with the industry to understand their needs and the latest technological trends. As at end-March 2023, there were 405 on-going projects, including 243 projects (around 60 per cent) involving participation from 470 companies, representing an increase of about 13 per cent over the past year. This shows that the R&D Centres' applied R&D projects can address market needs and solve industry pain-points, thereby assisting the industry in grasping the opportunity for restructuring and upgrading. The Government will continue to review and adjust the resources provided to the R&D Centres (including MRDI which will be established soon), as well as their roles, positioning and key performance indicators taking into account the needs of the industry and technological development in accordance with the aforementioned mechanism. In the meantime, the Government will continue to encourage collaboration amongst the R&D Centres to achieve synergy.

(3) to (7) The five R&D Centres bear the public mission of conducting technology transfer to the industry, and their objective for conducting applied R&D and technology transfer is not about making profits. If an industry partner contributed at least 50 per cent of the total project cost, it is entitled to the intellectual property (IP) generated from that R&D project. Besides, as it often takes years to apply for a patent, some R&D Centres will opt to directly transfer technological know-how to the industry to help them cope with the ever-changing market in time. The patent-related figures and commercialisation and other income of the five R&D Centres in the past five financial years are at Annex II. The ITC does not keep the number of patents which have been successfully commercialised and the income concerned.

Owing to the difference in technological areas between the R&D Centres and the fast-changing technological development, the Centres devise their own strategies for managing their patents, and will decide whether they will

extend their patents according to their own mechanisms. Generally speaking, the R&D Centres will consider a basket of factors when making such decision, including the commercialisation income generated by the patent, the maintenance cost, the likelihood for the patent to be a background IP for R&D projects in the future, whether there are similar patents utilising more advanced technologies in the market, and whether the patent is still relevant to the Centres' future development, etc.