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Panel on Commerce and Industry

Meeting on 17 May 2016

Background brief on the new initiatives for promotion of innovation and technology

Purpose

This paper provides background information on a series of new initiatives to promote innovation and technology ("I&T"), including the Midstream Research Programme for Universities ("Midstream Research Programme"), the Pilot Technology Voucher Programme ("PTVP"), the Research and Development ("R&D") Cash Rebate Scheme, the Internship Programme and the Public Sector Trial Scheme ("PSTS"). This paper also gives a summary of the views and concerns expressed by Members on related issues during previous discussions.

Background

Measures to nurture I&T in the 2016-2017 Budget

2. In the 2016-2017 Budget, the Financial Secretary announced the introduction and enhancement of various funding schemes to encourage more private enterprises to invest in R&D and applied technology, and to translate outstanding local R&D achievement into products and services with commercial value. These measures include:

- (a) injecting \$2 billion to launch a Midstream Research Programme to provide funding support for universities to carry out more midstream and applied research projects in key technology areas;
- (b) increasing the level of cash rebate under the R&D Cash Rebate Scheme to 40% to encourage private enterprises, small and medium enterprises ("SMEs") in particular, to put more resources into R&D works; and

(c) extending PSTS to cover the incubatees of the Cyberport and the Hong Kong Science Park ("HKSP") for funding their production of prototypes or samples and conduct trials of their R&D results in the public sector, with a view to facilitating commercialization of R&D results.

3. Furthermore, the Government will launch a three-year PTVP under the Innovation and Technology Fund ("ITF")¹ to enhance the long-term competitiveness of SMEs by subsidizing SMEs' use of technological services and solutions to improve productivity and upgrade or transform business processes. Under PTVP, a maximum subsidy of \$200,000 will be provided to each eligible SME on a matching basis. The estimated expenditure of PTVP is \$500 million.

4. To encourage more university graduates to enter the field of I&T, the Government will increase the monthly allowances of the Internship Programme under ITF and extend the scope to cover the incubatees and SME tenants of the Cyberport and HKSP, as well as the start-ups to be funded by the Innovation and Technology Venture Fund.

Development of the Internship Programme, PSTS and R&D Cash Rebate Scheme

Internship Programme

5. Launched in July 2004, the Internship Programme supports organizations undertaking R&D projects funded by ITF to recruit graduates from local universities as interns to assist in the R&D projects. The Internship Programme is one of the two sub-programmes² under the General Support Programme³ of ITF. Each project can engage up to two interns at any one time for a maximum period of 24 months. Since 24 February 2016, the internship allowance for graduates with a Bachelor degree has been increased from \$12,000 to \$14,000 and that for

¹ ITF is a statutory fund administered by the Innovation and Technology Commission ("ITC") to provide financial support to a spectrum of activities that boost Hong Kong's I&T capability, ranging from applied research and R&D, technology transfer and commercialization of related activities to promotional activities that foster an innovation culture within the community. On 9 July 1999, the Finance Committee ("FC") approved the proposed injection of \$5 billion into ITF which came into operation on 1 November 1999. FC subsequently approved the Administration's proposal to inject a further \$5 billion into ITF to provide sustained and comprehensive support for the development of I&T on 27 February 2015.

² The other sub-programme is the Patent Application Grant which provides funding support for patent applications from an individual or a company who/which has never owned a patent before.

³ The General Support Programme is the only funding scheme under ITF catering for non-R&D projects that contribute to the upgrading and development of Hong Kong industries, as well as fostering an I&T culture in Hong Kong. Organizations in Hong Kong such as non-profit making organizations, public bodies, charitable organizations, local universities or private companies are eligible to apply.

graduates with a Master or higher degree from \$14,000 to \$16,500. According to the Administration, the Programme has nurtured over 2 000 talents since its launch in 2004. Over 60% of the interns have subsequently either found a job or indicated interest in working in the scientific research field.

R&D Cash Rebate Scheme

6. On 1 April 2010, the Government introduced the R&D Cash Rebate Scheme to reinforce the research culture among private companies and to encourage them to establish stronger partnership with local research institutions. With a funding commitment of \$200 million approved by FC, the R&D Cash Rebate Scheme provided cash rebate to private companies on their investment in R&D projects funded by ITF or conducted in partnership with designated local public research institutions⁴.

7. Initially, the R&D Cash Rebate Scheme was administered by ITC and the level of cash rebate was 10% of the investment in R&D projects. To enhance the effectiveness of the Scheme and to encourage the private sector to invest more in R&D, the level of cash rebate was raised to 30%, effective from 1 February 2012, and to 40% from 24 February 2016.

8. Subsequently, the comprehensive review of ITF ("Review")⁵ conducted by the Administration in mid-2013 recommended merging the Scheme into ITF with a view to providing a more stable and longer term financial support to promote private sector investment in R&D and to simplify administration. The recommendation was supported by the Panel on Commerce and Industry ("Panel") at its meeting on 20 January 2015.

PSTS

9. To promote realization or application of the R&D results in the public sector, the Government introduced PSTS in March 2011, whereby additional funding is provided to complete R&D projects funded by ITF for the production of tools/prototypes/samples and the conducting of trials in the public sector, including government departments, public bodies and trade associations.

10. In April 2014, the Government improved PSTS by raising the funding ceiling for PSTS projects from 30% to 50% so as to encourage the conduct of larger scale trial scheme to assess speedily and comprehensively the effectiveness of the new innovation.

⁴ Designated local public research institutions under the R&D Cash Rebate Scheme include local universities; R&D Centres set up under ITF; Hong Kong Productivity Council; Vocational Training Council and Hong Kong Institute of Biotechnology.

⁵ To evaluate the operation of ITF after some 15 years of operation and identify areas of improvement, the Administration conducted the Review and briefed the Panel on the progress and recommendations arising from the Review at its meetings on 18 February, 18 March and 18 November 2014 vide LC Paper No. CB(1)885/13-14(03), LC Paper No. CB(1)1072/13-14(07) and LC Paper No. CB(1)211/14-15(03) respectively.

11. As recommended by the Review, the funding ceiling of PSTS projects has been raised from 50% to 100% of the original project costs for projects undertaken by R&D Centres to speed up the process of industry adoption of R&D results.

Previous discussions

12. The Panel was briefed on issues relating to the promotion of I&T at its meetings on 19 February 2013, 18 February, 18 March and 18 November 2014, as well as 20 January 2015. FC discussed the proposed injection of \$5 billion into ITF and related issues at its meeting on 27 February 2015. At the special meeting of FC to examine of Estimates of Expenditure 2016-2017 on 7 April 2016, Members also asked questions related to the promotion of I&T. Major views expressed by Members are summarized in the ensuing paragraphs.

Effectiveness of R&D Cash Rebate Scheme and PSTS

13. To promote the R&D Cash Rebate Scheme to SMEs, some members suggested that the Administration should collaborate with relevant chambers of commerce and trade associations to arouse SMEs' interests in applying I&T in their business operations, as well as strengthening their collaboration with local research institutions and academia on research projects. Efforts should also be made to publicize the successful R&D results under the Scheme to the general public.

14. The Administration advised that it would publicize the relevant improvement measures of ITF and engage the major chambers of commerce and industry organizations in this endeavor, so as to heighten awareness of the Scheme to benefit more companies in the business sector.

15. Other members were of the view that the R&D Cash Rebate Scheme was not an effective means to drive private sector's R&D investment and suggested the Administration to consider introducing tax concession for R&D expenditure incurred by enterprises. The Administration advised that it had to take into account factors such as the structure of tax-paying companies, financial implication and implications on public finance in considering any proposal for tax concession for R&D expenditure. At present, the Scheme offered incentives to enterprises to undertake R&D activities by providing cash rebate to enterprises on their investment in ITF-funded R&D projects or conducted in partnership with designated local public research institutions.

16. Members also enquired about the latest amount of resources deployed to the R&D Cash Rebate Scheme. The Administration advised that the total number of projects with cash rebate applications approved under the Scheme in 2015 was 219, benefiting more than 200 enterprises. The average cash rebate amount per project was about \$220,000, involving a total cash rebate amount of over \$48 million.

17. To enhance PSTS, some members suggested that, besides raising the funding ceiling, the Administration should expand the scope of PSTS to cover trials in the private sector to promote wider exploitation of local R&D results and facilitate their commercialization in the open market. The Administration replied that increasing the funding limit of PSTS projects would facilitate the conduct of larger scale product trials and repeated trials, which would speed up assessment of the effectiveness of new innovations and promote their commercialization in the open market.

Encouraging midstream and applied research under the Midstream Research Programme

18. Members were concerned about the stability of the funding of the Midstream Research Programme, given the fluctuations in the investment returns. Some Members enquired about the expenditure and manpower involved in establishing the Midstream Research Programme. The Administration advised that as the Hong Kong Monetary Authority would consider the average investment return in the past five to six years as the investment return of the fund, the investment return of a particular year would not have a significant impact on the amount of funds available for financing research projects. Moreover, past experience suggested that the projected annual investment return of the fund at about \$80 million to \$100 million should be sufficient to finance quite a number of research projects each year. The Administration also replied that about five additional staff members would be required to launch the Midstream Research Programme, and the annual expenditure would be approximately \$3.8 million.

19. Other members were concerned that the Midstream Research Programme might overlap with some other funding currently provided by the University Grants Committee ("UGC") and the Research Grants Council ("RGC"), and that shifting the emphasis to midstream R&D projects might affect the basic research work of local universities. The Administration advised that since currently local universities were not provided with sufficient funding from UGC and RGC to conduct midstream research projects, the Midstream Research Programme should enable local universities to conduct theme-based research in key technology areas independently and encourage these institutions to attach importance to commercialization of R&D results.

20. Members also asked whether universities would be allowed to choose their own R&D areas when applying for the Midstream Research Programme. The Administration replied that it would set specific research topics, such as smart city, healthy ageing, and encourage the institutions to explore relevant technologies to address the issues. Upon finalizing the application details, the Administration would consult the relevant panels and seek funding approval from FC.

Effective management of ITF

21. Members were keen to ensure effective utilization of ITF. Noting that the initial appropriation of \$5 billion to ITF was still in use after some 15 years, some members urged the Administration to speed up the usage of ITF to vigorously promote the development of I&T in Hong Kong. The Administration advised that besides the initial injection of \$5 billion into ITF in 1999, ITF also earned revenues over the years from the investment income from the Exchange Fund and the project incomes ploughed back to ITF. As the scope and schemes of ITF had expanded over the years, it was forecast that the further injection of \$5 billion into ITF would last shorter than the initial financial injection.

22. On the proposal of subsuming the R&D Cash Rebate Scheme under ITF, some members were concerned that the proposal would exhaust the funds of ITF quickly and enquired about the financial position of the Scheme. The Administration assured members that since its implementation, the Scheme had been operating smoothly and received positively by the industry, especially after the increase of cash rebate level to 30% in 2012. Having considered the estimated annual new cash rebate commitment in the coming few years and the average yearly expenditure of ITF in recent years, the Administration advised that subsuming the Scheme under ITF would not have significant impact on the financial position of ITF.

23. Some members commented that too much emphasis on industry contribution and revenue return under the ITF funding mechanism might hinder the development of new R&D initiatives. These members suggested that projects should also be assessed on the basis of their social and economic contributions to the broader community.

Encouraging private sector investment in R&D

24. Members commented that Hong Kong's gross expenditure on R&D as a percentage to Gross Domestic Product was low compared to other knowledge-based economies and urged the Administration to increase resources to encourage private sector investment in R&D and vigorously promote the development of I&T in Hong Kong. The Administration replied that it had strived to create a vibrant ecosystem for collaboration on R&D and innovation activities. Over the years, various enhancements had been introduced to ITF for creating a favourable ecology for I&T development and realization and commercialization of R&D results.

Commercialization of R&D results

25. Some members opined that ITF should identify specific technology areas with development potential, such as biotechnology and the medicine industry, and focus on funding projects that were commercially viable and suitable for manufacturing locally, thereby helping to boost the development of the manufacturing and other industries in Hong Kong. The Administration replied

that by introducing the refined vetting criteria in 2011, the holistic plan of realization/commercialization of ITF applications would also be considered to better identify projects with greater commercial prospect. Furthermore, the number of projects and funding approved for biotechnology and Chinese medicine showed an increasing trend in recent years.

26. Other Members were concerned about the lack of effective policies to support commercialization of R&D results. The Administration advised that in recent years, the scope of ITF had been expanded to provide support to more downstream R&D activities and commercialization of R&D results. Furthermore, ITF would also support projects involving procurement of third party intellectual property.

Council meeting

Questions

27. At the Council meetings of 25 February and 16 December 2015, Hon Martin LIAO and Hon Charles MOK asked questions respectively on initiatives of promotion of I&T.

28. At the Council meeting of 25 February 2015, Hon Martin LIAO asked a question about measures to enhance competitiveness of Hong Kong. Mr LIAO asked whether the Administration would implement new measures or provide other incentives, apart from the measures currently implemented by ITC, to encourage and induce enterprises and universities to deploy resources for R&D of I&T. The Administration replied that it had implemented a series of measures to encourage university graduates to pursue a career in the I&T sector, among them were the Internship Programme by ITC, which provided funding support for science, technology and engineering graduates to work on R&D projects funded by ITF. To encourage enterprises to deploy resources for R&D, the R&D Cash Rebate Scheme had been launched in 2010 to provide cash rebates on the investment by enterprises in conducting R&D projects either funded by ITF or in partnership with designated local public research institutions. The level of cash rebate of the Scheme had been increased from 10% to 30% in 2012 to enhance its effectiveness.

29. At the Council meeting of 16 December 2015, Hon Charles MOK asked a question about promoting development of I&T industry. Mr MOK enquired about whether the Administration would expand the scope of PSTS to include the R&D projects not funded by ITF and allow more organizations, including private organizations, to participate in the trials of tools, prototypes or samples. Mr MOK also asked whether the Administration would make reference to the experience of other countries and provide I&T vouchers to local SMEs to encourage them to procure the relevant products and services, so as to promote the development of the I&T industry. The Administration replied that to further promote the adoption of R&D results funded by ITF in the public sector, the

Administration had raised the funding ceiling of PSTS from 30% to 50% in 2014, so as to encourage the conduct of trials in larger scale. The Administration would consult the industry and relevant stakeholders and consider whether to further expand the scope of PSTS. On I&T vouchers, the Administration replied that it noted that certain overseas regions provide "innovation vouchers" or similar assistance to SMEs, it would draw on the experiences of these places to facilitate its consideration on measures to improve the technological level and the competitiveness of the industry.

Latest position

30. The Administration will brief the Panel on a series of new initiatives to promote I&T, including launching a \$2 billion Midstream Research Programme, introducing PTVP, enhancing the R&D Cash Rebate Scheme and the Internship Programme, as well as expanding PSTS. The Administration will also seek the Panel's support for the funding proposal relating to the Midstream Research Programme which will be submitted to FC for approval afterwards.

Relevant papers

31. A list of relevant papers is shown in the **Appendix**.

Council Business Division 1
Legislative Council Secretariat
13 May 2016

List of relevant papers

Date of meeting	Meeting	Paper
19/2/2013	Panel on Commerce and Industry	<p>Administration's paper on "Review of Research and Development Cash Rebate Scheme" (LC Paper No. CB(1)534/12-13(03))</p> <p>Updated background brief on the Research and Development Cash Rebate Scheme prepared by the Legislative Council Secretariat (LC Paper No. CB(1)534/12-13(04))</p> <p>Minutes of meeting (LC Paper No. CB(1)830/12-13)</p>
18/2/2014	Panel on Commerce and Industry	<p>Administration's paper on "Comprehensive review of the Innovation and Technology Fund – proposed improvement measures" (LC Paper No. CB(1)885/13-14(03))</p> <p>Background brief on improvements to the Innovation and Technology Fund to promote innovation and application of research and development outcomes prepared by the Legislative Council Secretariat (LC Paper No. CB(1)885/13-14(04))</p> <p>Minutes of meeting (LC Paper No. CB(1)1234/13-14)</p>

Date of meeting	Meeting	Paper
18/3/2014	Panel on Commerce and Industry	<p>Administration's paper on "Promotion of innovation and technology " (LC Paper No. CB(1)1072/13-14(07))</p> <p>Updated background brief on promotion of innovation and technology prepared by the Legislative Council Secretariat (LC Paper No. CB(1)1072/13-14(08))</p> <p>Minutes of meeting (LC Paper No. CB(1)1418/13-14)</p>
18/11/2014	Panel on Commerce and Industry	<p>Administration's paper on "Final Report on Comprehensive Review on the Innovation and Technology Fund" (LC Paper No. CB(1)211/14-15(03))</p> <p>Background brief on improvements to the Innovation and Technology Fund to promote innovation and application of research and development outcomes prepared by the Legislative Council Secretariat (LC Paper No. CB(1)211/14-15(04))</p> <p>Minutes of meeting (LC Paper No. CB(1)345/14-15)</p> <p>□</p>
20/1/2015	Panel on Commerce and Industry	<p>Administration's paper on "Injection into the Innovation and Technology Fund" (LC Paper No. CB(1)438/14-15(05))</p> <p>Background brief on the Innovation and Technology Fund prepared by the Legislative Council Secretariat (LC Paper No. CB(1)438/14-15(06))</p> <p>Minutes of meeting (LC Paper No. CB(1)582/14-15)</p>

Date of meeting	Meeting	Paper
25/2/2015	Council	Question No. 1 on "Measures to enhance competitiveness of Hong Kong" raised by Hon Martin LIAO (Hansard) (Page 7033-7040)
27/2/2015	Finance Committee	Administration's paper on "Innovation and Technology Fund" (FCR(2014-15)57) Minutes of meeting (LC Paper No. FC238/14-15) (LC Paper No. FC239/14-15)
16/12/2015	Council	Question No. 5 on "Promoting development of innovation and technology industry" raised by Hon Charles MOK (Hansard) (Page 3004-3016)
19/1/2016	Panel on Commerce and Industry	Administration's paper on "2016 Policy Address – Policy Initiatives of Commerce, Industry and Tourism Branch, Commerce and Economic Development Bureau" (LC Paper No. CB(1)436/15-16(03)) Administration's paper on "2016 Policy Address – Policy Initiatives of Constitutional and Mainland Affairs Bureau in relation to Mainland and Taiwan co-operation" (LC Paper No. CB(1)436/15-16(04)) Administration's paper on "2016 Policy Address – Policy Initiatives of Innovation and Technology Bureau" (LC Paper No. CB(1)436/15-16(05)) Minutes of meeting (LC Paper No. CB(1)665/15-16)

Date of meeting	Meeting	Paper
7/4/2016	Special meeting of the Finance Committee to examine the Estimates of Expenditure 2016-2017	Administration's replies to Members' initial written questions (Reply serial nos. ITB070, 097, 102, 103 and 118)