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Panel on Commerce and Industry

Meeting on 20 December 2011

**Updated background brief on Research and Development Centres set up
under the Innovation and Technology Fund**

Purpose

This paper provides background information on the review of the Research and Development (R&D) Centres set up under the Innovation and Technology Fund (ITF)¹. It also summarizes the views and concerns expressed by the Panel on Commerce and Industry (the Panel) on the subject during previous discussions.

Background

2. Following public consultation in 2004, the Government promulgated a new strategic framework in early 2005 which aimed for a more focused approach to promote innovation and technology development.

3. After consulting the Panel on 17 May 2005 on the proposal to implement the new strategic framework, the Administration submitted a funding proposal to allocate \$358.7 million from the ITF to take forward the new strategic framework. The proposal was approved by the Finance Committee (FC) on 24 June 2005.

¹ The ITF was set up as a statutory fund under the Public Finance Ordinance (Cap. 2) by resolution of the Legislative Council on 30 June 1999. On 9 July 1999, the Finance Committee approved the proposed injection of HK\$5 billion into ITF which came into operation on 1 November 1999. The ITF is currently administered by Innovation and Technology Commission (ITC) and comprises four programmes, namely the Innovation and Technology Support Programme, University-Industry Collaboration Programme, General Support Programme and Small Entrepreneur Research Assistance Programme.

4. In April 2006, the Government set up the following five R&D Centres to drive and co-ordinate applied R&D in the selected focus areas and to promote commercialization of R&D results and technology transfer:

- (a) Automotive Parts and Accessory Systems R&D Centre (APAS);
- (b) R&D Centre for Logistics and Supply Chain Management Enabling Technologies (LSCM);
- (c) Hong Kong Research Institute of Textiles and Apparel (HKRITA);
- (d) Nano and Advanced Materials Institute (NAMI); and
- (e) R&D Centre for Information and Communications Technologies (ICT)² under the Hong Kong Applied Science and Technology Research Institute (ASTRI).

Review of R&D Centres

5. Apart from conducting regular annual reviews on the performance of the Centres and project review of individual R&D projects, all R&D Centres are required to conduct two major reviews (i.e. the mid-term review and the comprehensive review), one in 2007 and the other in 2011. The mid-term review should critically examine the following -

- (a) whether the R&D programme and direction could actually meet the industry demand as reflected by the industry contribution and participation; and
- (b) whether the planned R&D programme would need to be adjusted to ensure that adequate industry contribution and income could be generated to sustain the programme for the whole five-year period.

The mid-term review aimed to provide input to the Administration to decide whether the R&D Centre should continue to exist and receive funding support from the ITF.

² Unlike the other four R&D Centres which are established as independent legal entities, ICT is established within the existing operational infrastructure of ASTRI, which is a limited company wholly owned by the Government. The operating cost of ICT is funded separately by the Government's annual subvention to ASTRI.

6. The comprehensive review, to be conducted by the end of 2011, will critically examine the following -

- (a) whether the R&D Centre would likely meet the objectives and target set at the beginning of its operation;
- (b) whether it is necessary for the Centre to continue to operate after the five-year funding period;
- (c) the funding source of the Centre beyond the five-year funding period if the Centre continues to operate; and
- (d) the plan to wind down the Centre if it ceases operation.

7. According to the Administration, if an R&D Centre is to continue operation beyond the five-year period, it is expected to do so on a self-financing basis, counting on its ability to obtain adequate industry contribution and generate income to meet its operating cost. However, if the Centre has already completed its mission or for other reasons, ceases operation before or after the five-year funding period, all the residual funds and any surplus income generated from the ITF funding during the project period will be returned to the ITF.

Discussion by the Panel on Commerce and Industry

8. Since 2006, the Administration has periodically updated the Panel on the income and expenditure of the R&D Centres and their progress since their establishment in April 2006. In general, Panel members supported the role of R&D Centres to spearhead the advancement of R&D of Hong Kong, and hoped that the R&D results could help the local industries in the long run.

Mid-term review of the R&D Centres

9. At the meetings on 21 April and 19 May 2009, the Panel followed up on the mid-term review of the operation of the R&D Centres and discussed the funding proposal to extend the operation of the four R&D Centres, namely APAS, HKRITA, LSCM and NAMI, up to 2013-2014. Panel members in general supported the continuous development of the R&D Centres, and welcomed the Administration's proposal to adjust the industry contributions to platform projects from 40% to 15% in response to members' suggestions.

10. Following consultation with the Panel, the Administration obtained FC's approval on 19 June 2009 to further allocate a total of \$369 million from the ITF to support the continued operation of the four R&D Centres up to 2013-2014. The Administration undertook to:

- (a) conduct a review in 2010 to look into the modus operandi and operating costs of the R&D Centres to see if there was any room for achieving greater savings and higher cost-effectiveness;
- (b) conduct a full review in 2011 on the R&D Centres' operation and overall performance for the first five-year period, taking full account of their experience in technology transfer and commercialization; and
- (c) review the targeted level of industry contributions (which was adjusted from 40% in the original 2005 proposal to 15% in the context of the 2009 mid-term review).

Interim report on the comprehensive review of the R&D Centres

11. At the Panel meeting on 15 June 2010, members were briefed on the progress report of the R&D Centres in 2009-2010 and the interim report on the comprehensive review of the R&D centres. Panel members noted that the key issues to be addressed in the comprehensive review included the operating cost, institutional setup and role of the R&D Centres, as well as the achievements and cost-effectiveness of the Centres. Details of the scope of the comprehensive review provided by the Administration is in the **Appendix**.

12. Some Panel members urged the Administration to simplify the ITF funding procedures, widen the scope of application of R&D deliverables, and ensure that the ITF funding could be extended to sustain the development of the R&D projects to achieve the commercialization of the research deliverables. They were also concerned that the manpower establishments of individual R&D Centres were weak, rendering them incapable of performing effective corporate management duties and providing audited financial reports. Some members called for the reorganization and integration of the Centres to achieve economies of scale and to lower their operating costs. The Administration advised that ITC was looking into the feasibility of providing some form of central support to help the centres strengthen the corporate governance. This would help them focus valuable resources on actual R&D and commercialization work, with a view to achieving synergy and lowering the operating costs.

13. Panel members welcomed the Administration's initiative to promote the R&D deliverables in the public sector. With the wider use of R&D deliverables such as the radio frequency identification technology and the light-emitting diode lighting amongst Government departments and public bodies, members expected that the cost of development and production would be lowered, enabling more popular use of such technologies in the private sector. The Administration agreed that efforts should be focused on the promotion of the research deliverables by providing a reasonable number of prototypes for trial use by both the private and public organizations. A "demand-led" rather than a "supply-led" approach would be adopted in undertaking and funding applied R&D projects in future.

14. Some Panel members expressed concern about the sufficiency and transparency in the sharing of knowledge with the small and medium enterprises (SMEs) relating to R&D deliverables. These members suggested that the R&D Centres should enlist the assistance of trade associations in promoting research deliverables to the private sector. The Administration advised that apart from online information made available at Centres' websites, the Centres continued to network with different industry sectors, including major players in the Mainland, and seek to establish greater collaboration in research and commercialization.

Review of operating costs of the R&D Centres

15. At the Panel meeting on 16 November 2010, members were briefed on the findings and observations from the review of operating costs of the R&D Centres and the salient features of individual R&D Centres. Panel members noted that a dual stream of funding approach was adopted for the R&D Centres. While the operating costs of four R&D Centres (i.e. APAS, HKRITA, LSCM and NAMI) were funded by ITF, the operating cost of ICT was funded separately by the Government's annual recurrent subvention to ASTRI. The R&D projects undertaken by the R&D Centres, including ASTRI, were all funded under ITF. In some R&D Centres, the expenditure on administrative support in 2009-2010 was over 30% of the total operating cost. Some Panel members called on the reduction of operating costs of the R&D Centres through the provision of central supporting services.

16. Panel members noted that amongst the five R&D Centres under review, only ASTRI and NAMI were able to meet the targeted level of industry contribution of 15%. These members opined that the Administration should step up effort to enhance the level of industry contribution to the projects run by the Centres. Some other members considered the current level of industry contribution of at least 10% for platform projects reasonable, given that the industry sponsors would not own the intellectual property of the projects. They considered that more contract

research projects could be undertaken in future as these were good indicators of the strength of the R&D Centres.

17. At the meeting on 16 November 2010, some Panel members opined that R&D was vital to the overall economic development of Hong Kong. Noting that the projects of some of the Centres, such as NAMI and ASTRI, were more popular than others, these members considered that resources should be focused on these Centres to speed up commercialization. The Administration should also identify the most popular R&D projects in each of the Centres with a view to speeding up their commercialization process. The Administration advised at the meeting that with the completion of the comprehensive review in about one year's time, the Administration would be in a better position to determine the technology areas where resources should be focused. Meanwhile, the Administration would explore the possibility of shortening the processing time of applications for funding under the ITF framework, as well as facilitating the trial of R&D products in the public sector, so that researchers and product developers could gain more solid experience to fine-tune their products and increase the chances of commercialization.

18. Some Panel members expressed concern about the way forward for the R&D Centres, and the dwindling number of young talents joining the R&D industry. These members hoped that the Administration would nurture a more supportive atmosphere for scientific research in Hong Kong, encourage private participation and help the R&D Centres tap the business opportunities in the Mainland. The Administration advised that a scholarship programme would be organized in the coming year in collaboration with the private sector to stimulate the interest of the young people in R&D. On a strategic level, Hong Kong's R&D development would be geared toward complementing the implementation of the National 12th Five-Year Plan.

Performance of the R&D Centres and commercialization of R&D results

19. At the Panel meeting on 21 June 2011, the Administration briefed members on the operation of the five R&D Centres in 2010-2011. The Panel noted that NAMI had performed the best amongst the five Centres in terms of the level of industry contribution. It was conducting projects of great potential demand, probably due to the fact that nanotechnology and advanced materials were upcoming areas with lots of applications in its focused market sectors. Panel members considered that more resources should be allocated to the R&D Centres which had performed better, in particular NAMI.

20. Panel members noted that one of the key issues to be looked at in the comprehensive review would be the institutional setup, including the relationship between the R&D Centres and the hosting organization(s), and whether there was any need for change. They called on the Administration to rationalize the institutional setup of the R&D Centres where necessary to avoid hindrance to the development of the R&D Centres.

21. Some Panel members opined that the Administration and the R&D Centres should step up efforts in promoting commercialization of R&D results and technology transfer. They also considered that the Administration should endeavour to raise the industry's awareness of the role and work of the R&D Centres, and to increase the industry participation. The Administration advised that it had helped linking up the R&D Centres with Government departments and public bodies to explore opportunities of collaboration, and provided the necessary funding under the ITF to cover the production of samples/prototypes and conducting of trial schemes by Government departments, public bodies and trade associations. It was hoped that this would facilitate realization of the R&D results by providing a "reference" (by public sector users) for the new technology as it found its way to the open market.

22. Panel members also called on the Administration to speed up the conducting of trial schemes of R&D deliverables by trade associations and the commercial sector, in particular the food waste processor and the radio frequency identification enabling technologies for retail industry.

23. Panel members concluded that R&D was vital to the overall economic development of Hong Kong. They opined that the R&D Centres had an important role in the innovation and technology development, and that more resources should be deployed to R&D.

Latest position

24. The Administration will brief the Panel on 20 December 2011 on the overall performance of the R&D Centres in the first five-year operating period.

Relevant papers

Information papers provided by the Administration for the Commerce and Industry Panel meeting on 17 May 2005

<http://www.legco.gov.hk/yr04-05/english/panels/ci/papers/ci0517cb1-1496-3e.pdf>

Background brief prepared by the Legislative Council Secretariat for the Commerce and Industry Panel meeting on 17 May 2005

<http://www.legco.gov.hk/yr04-05/english/panels/ci/papers/ci0517cb1-1497e.pdf>

Minutes of the Commerce and Industry Panel meeting on 17 May 2005

<http://www.legco.gov.hk/yr04-05/english/panels/ci/minutes/ci050517.pdf>

Information paper provided by the Administration for the Finance Committee meeting on 24 June 2005

<http://www.legco.gov.hk/yr04-05/english/fc/fc/papers/f05-21e.pdf>

Minutes of the Finance Committee meeting on 24 June 2005

<http://www.legco.gov.hk/yr04-05/english/fc/fc/minutes/fc050624.pdf>

Information papers provided by the Administration for the Commerce and Industry Panel meeting on 21 February 2006

<http://www.legco.gov.hk/yr05-06/english/panels/ci/papers/ci0221cb1-903-5e.pdf>

Background brief prepared by the Legislative Council Secretariat for the Commerce and Industry Panel meeting on 21 February 2006

<http://www.legco.gov.hk/yr05-06/english/panels/ci/papers/ci0221cb1-904-e.pdf>

Minutes of the Commerce and Industry Panel meeting on 21 February 2006

<http://www.legco.gov.hk/yr05-06/english/panels/ci/minutes/ci060221.pdf>

Information paper provided by the Administration for the Commerce and Industry Panel meeting on 21 April 2009

<http://www.legco.gov.hk/yr08-09/english/panels/ci/papers/ci0421cb1-1286-7-e.pdf>

Updated background brief prepared by the Legislative Council Secretariat for the Commerce and Industry Panel meeting on 21 April 2009

<http://www.legco.gov.hk/yr08-09/english/panels/ci/papers/ci0421cb1-1286-8-e.pdf>

Minutes of the Commerce and Industry Panel meeting on 21 April 2009

<http://www.legco.gov.hk/yr08-09/english/panels/ci/minutes/ci20090421.pdf>

Information paper provided by the Administration for the Commerce and Industry Panel meeting on 19 May 2009

<http://www.legco.gov.hk/yr08-09/english/panels/ci/papers/ci0519cb1-1551-5-e.pdf>

Updated background brief prepared by the Legislative Council Secretariat for the Commerce and Industry Panel meeting on 19 May 2009

<http://www.legco.gov.hk/yr08-09/english/panels/ci/papers/ci0421cb1-1286-8-e.pdf>

Minutes of the Commerce and Industry Panel meeting on 19 May 2009

<http://www.legco.gov.hk/yr08-09/english/panels/ci/minutes/ci20090519.pdf>

Information paper provided by the Administration for the Finance Committee meeting on 19 June 2009

<http://www.legco.gov.hk/yr08-09/english/fc/fc/papers/f09-27e.pdf>

Minutes of the Finance Committee meeting on 19 June 2009

<http://www.legco.gov.hk/yr08-09/english/fc/fc/minutes/fc20090619a.pdf>

Information papers provided by the Administration for the Commerce and Industry Panel meeting on 15 June 2010

<http://www.legco.gov.hk/yr09-10/english/panels/ci/papers/ci0615cb1-2191-6-e.pdf>

<http://www.legco.gov.hk/yr09-10/english/panels/ci/papers/ci0615cb1-2191-7-e.pdf>

Updated background brief prepared by the Legislative Council Secretariat for the Commerce and Industry Panel meeting on 15 June 2010

<http://www.legco.gov.hk/yr09-10/english/panels/ci/papers/ci0615cb1-2191-8-e.pdf>

Minutes of the Commerce and Industry Panel meeting on 15 June 2010

<http://www.legco.gov.hk/yr09-10/english/panels/ci/minutes/ci20100615.pdf>

Information papers provided by the Administration for the Commerce and Industry Panel meeting on 16 November 2010

<http://www.legco.gov.hk/yr10-11/english/panels/ci/papers/ci1116cb1-389-3-e.pdf>

<http://www.legco.gov.hk/yr10-11/english/panels/ci/papers/ci1116cb1-389-5-e.pdf>

Updated background brief prepared by the Legislative Council Secretariat for the Commerce and Industry Panel meeting on 16 November 2010

<http://www.legco.gov.hk/yr10-11/english/panels/ci/papers/ci1116cb1-389-4-e.pdf>

Minutes of the Commerce and Industry Panel meeting on 16 November 2010

<http://www.legco.gov.hk/yr10-11/english/panels/ci/minutes/ci20101116.pdf>

Information paper provided by the Administration on the detailed breakdown of the industry contribution secured by the various R&D Centres by different types of projects in 2009-2010

<http://www.legco.gov.hk/yr10-11/english/panels/ci/papers/ci1116cb1-1907-1-e.pdf>

Information paper provided by the Administration for the Commerce and Industry Panel meeting on 21 June 2011

<http://www.legco.gov.hk/yr10-11/english/panels/ci/papers/ci0621cb1-2481-10-e.pdf>

Updated background brief prepared by the Legislative Council Secretariat for the Commerce and Industry Panel meeting on 21 June 2011

<http://www.legco.gov.hk/yr10-11/english/panels/ci/papers/ci0621cb1-2481-11-e.pdf>

Minutes of the Commerce and Industry Panel meeting on 21 June 2011

<http://www.legco.gov.hk/yr10-11/english/panels/ci/minutes/ci20110621.pdf>

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**Scope of the Comprehensive Review
of R&D Centres to be conducted by end-2011**

(A) Objectives

The comprehensive review will evaluate critically whether the Centres can meet the objectives and targets set when they were approved for establishment in 2005. In doing so, the Administration will compare their achievements vis-à-vis the resources put in. The Administration would also look into how the Centres' work can create greater synergy in innovation and technology development and build up a good eco system for further development, covering all stakeholders i.e. the Government, industry, R&D institutions and universities (viz. 官產學研).

(B) Key Issues to be Looked at

(a) Operating Cost

- (i) breakdown of operating budgets;
- (ii) need for central support (e.g. providing basic information for annual salary adjustment) and common guidelines on individual areas (e.g. policy on IP/benefits sharing);
- (iii) desirability of co-location e.g. in Science Park Phase 3;

(b) Institutional Setup

Relationship among the four major players –

- (i) Hosting organization(s);
- (ii) Board of Directors;
- (iii) Centre CEO and his senior staff; and
- (iv) ITC;

and whether there is any need for change;

(c) Role of the R&D Centres

Relative priority of various roles including undertaking direct research, building R&D platform and assisting ITC in vetting of 'non-Centre' projects, commercialization, etc.;

(d) Achievements and Cost-effectiveness

The Administration will review if funds have been well spent by making reference to both financial (e.g. level of industry contribution and level of income such as licensing fees, royalty, etc.) and non-financial indicators (e.g. R&D positions created, sharing of knowledge, contribution to Government policies and initiatives, soft power, etc.)

(C) **Timeframe:** to be completed by end-2011/early 2012.