

For information
on 15 June 2010

Legislative Council Panel on Commerce and Industry

Interim Report on the Comprehensive Review of R&D Centres

PURPOSE

This paper updates Members on the general direction in conducting a comprehensive review of the Research and Development (R&D) Centres set up under the Innovation and Technology Fund (ITF).

BACKGROUND

2. In November 1999, the Government set up the \$5 billion-ITF to fund applied R&D projects and established the Innovation and Technology Commission (ITC) in early 2000. In 2001, Government set up the Hong Kong Applied Science and Technology Research Institute (ASTRI) to perform high quality R&D for technology transfer to industry.

Setting up of R&D Centres

3. 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. ***In April 2006, Government set up five R&D Centres to drive and coordinate 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) under ASTRI.

In relation to Chinese medicine, the HKJC Institute of Chinese Medicine has been set up since May 2001 to provide R&D support to the industry with funding from the HKJC Charities Trust.

4. *In June 2005, the Finance Committee (FC) of Legislative Council (LegCo) approved \$273.9 million under the ITF to meet the operating costs of the R&D Centres (except for ICT under ASTRI) for the first five-year period from 2006-07 to 2010-11.* The key features of the Centres' *modus operandi* envisaged in 2005 are –

- (a) a hosting organization will be identified for each R&D Centre to ensure the Centres can start operation as soon as possible;
- (b) R&D Centres will be set up as a subsidiary of the hosting organization under Companies Ordinance i.e. with a separate legal entity;
- (c) each R&D Centre should have a board of directors to oversee the operation of the Centre;
- (d) the Centre's R&D teams will be headed by a Centre CEO and staffed mainly by full-time R&D personnel ;
- (e) the Centres should serve as a focal point for driving and coordinating applied R&D in the relevant areas (viz. creating synergies); and
- (f) through industry contributions and income generated from IPs (e.g. licensing fees, royalties) and contract research, the R&D Centres would be expected to continue operation beyond the first five-year period on a self-financing basis.

The operating cost of ICT, being part of ASTRI, was funded separately by the Government's annual subvention to ASTRI.

5. For each R&D Centre, the ITC, the hosting organization and the Centre have entered into a tripartite agreement (except for ICT which is governed by the Memorandum of Administrative Arrangements between the Government and ASTRI). The main provisions in the tripartite agreement include –

- (a) the total operating funding for the Centres' first five-year period (i.e. the commitment approved by Finance Committee);
- (b) the requirement to draw up the Centres' corporate governance manual; and
- (c) submission of quarterly operational reports, annual audited accounts and annual plans to CIT for approval, etc.

6. The 2005 FC paper has also set out a series of performance indicators, including –

- (a) industry participation as measured by the number of companies involved in R&D projects and the level of contribution made by them;
- (b) project performance as measured by whether the pre-set milestones are met timely and cost-effectively;
- (c) quality of R&D programme as measured by the number of IPs created e.g. patents registered and other IPs generated;
- (d) utilization of research output as measured by the adoption of research output by the industry and the number of licensing agreements signed and consulting services offered, etc.;
- (e) amount of revenue generated from R&D projects;
- (f) number of researchers trained and participated in R&D projects; and
- (g) overall contribution to the economy of Hong Kong.

Most of these performance indicators were included in the tripartite agreement on the setting up of the R&D Centres and are monitored in the quarterly and annual reports from the Centres to ITC as required by the agreement.

7. ***Originally, we undertook to FC to conduct two reviews during the first five-year period (viz. 2006-07 to 2010-11) to examine the following issues –***

- (a) whether the R&D programme and direction can meet the industry demand as reflected by industry contribution and participation and whether the planned R&D programme would need to be adjusted;
- (b) whether the R&D Centres would likely meet the objectives and targets set at the beginning of their operation;
- (c) whether it is necessary for the Centres to continue to operate after the five-year funding period and if so, their funding sources in the long run.

A report on the Mid-Term Review of the R&D Centres - covering the period from April 2006 to December 2008 - was submitted to LegCo Panel on Commerce and Industry (C&I Panel) in April 2009.

The 2009 Mid-Term Review and the Need for Further Review(s)

8. ***Upon submission of the Mid-term Review Report, we obtained FC's approval in June 2009 for increasing the funding commitment by \$369 million which has extended the operation of the R&D Centres by three years up to March 2014. In that context, we 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 is 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).

9. This paper aims to present to Members the framework of the 2010 review as required by (a) above which will also lay the foundation for (b) and (c) in due course.

CURRENT SITUATION OF R&D CENTRES

Operating Expenditure

10. The accumulative operating expenditure of the R&D Centres up to March 2010 against the total funding approved by FC, and the their latest staffing position are as follows –

	<i>(in \$million)</i>		
	Total 8-year funding approved by FC	Actual expenditure from April 2006 to March 2010 (% of the approved funding)	Staffing <i>(as at March 2010)</i>
APAS	167.6	54.8 (33%)	21
HKRITA	153.6	34.3 (22%)	17
LSCM	131.9	49.2 (37%)	40
NAMI	189.8	59.1 (31%)	39
Total:	642.9	197.4 (31%)	117
ICT/ASTRI	590.4 ^(Note 1)	412.9	567 ^(note 2)

Notes:

- (1) *The operating expenditure of ASTRI is funded separately by an annual subvention block grant from Government. This sum represents the total Government subvention to ASTRI from 2006-07 to 2010-11 (viz. five years).*
- (2) *Around 70 are administrative staff who are not involved directly in undertaking the R&D work under ASTRI.*

The operating expenditure includes salaries and related staff benefits (including those for R&D staff, administrative staff and staff responsible for marketing and commercialization), accommodation, administrative support (including accounting/audit and IT) as well as other expenditure items incurred for commercialization such as legal fees, patent registration, marketing/promotion, technical demonstration, etc.

Analysis of Projects

11. The Centres' R&D projects are funded under the ITF. The approved R&D project expenditure for the R&D Centres is summarized as follows –

	<i>(in \$million)</i>		
	Indicative R&D budget (2006-07 -2013-14)	Approved R&D project expenditure from April 2006 to March 2010 (% of the 8-year indicative budget)	Industry* Contributions
APAS	500.5	125.5 (25%)	14%
HKRITA	489.1	142.0 (29%)	13%
LSCM	569.9	198.3(35%)	12%
NAMI	872.2	134.9 (15%)	27%
ICT	2,317.4	1,054.7 (46%)	14%
Total:	4,749.1	1,655.4 (35%)	-

- * There are broadly two types of projects under the ITF funding mechanism -
- (a) under platform projects, the project team is required to secure 10% industry contribution, while the ITF will fund 90% of the project expenditure, whereas
- (b) under collaborative projects, the industry partners are normally required to contribute 50% of the R&D project cost i.e. ITF provides a 50-50 matching grant.
- * The income from contract service (i.e. project cost met entirely by industry) and licensing fees are also counted towards industry contributions.

The longer history of ASTRI allows it to undertake more projects, hence a much higher R&D expenditure than those of other Centres.

Technology Roadmap

12. The R&D Centres' latest technology areas/roadmaps are summarized as below –

Major Technology Areas

APAS	<ul style="list-style-type: none">• Electronics and software• Safety• Hybrid electric drive and environment• New materials and processes
HKRITA	<ul style="list-style-type: none">• New Materials, Textiles and Apparel Products• Advanced Textiles and Production Technologies• Innovation Design and Evaluation Technologies• Enhanced Industrial Systems and Infrastructure
LSCM	<ul style="list-style-type: none">• RFID hardware and systems• Networking and infrastructure technologies• Applications and decision support technologies
NAMI	<ul style="list-style-type: none">• Nanomaterials: functionalisation and applications• Nanotechnology enabled nano opto-electronics• Nano-structured/ textured material applications• Advanced materials for electronic packaging and other applications• Forming of advanced materials
ASTRI	<ul style="list-style-type: none">• Communication Technologies• Enterprise and Consumer Electronics• IC Designs• Materials and Packaging Technologies• Biomedical electronics

13. According to the initial business plans drawn up by the hosting organizations in 2005 before the setting up of R&D Centres, the level of industry contributions to be achieved by the R&D Centres would reach 40% as they ramped up to the fifth year of operation. This was subsequently adjusted downwards to 15% in the 2009 Mid-Term Review.

SCOPE OF THE COMPREHENSIVE REVIEW

Objective

14. *Having regard to Members and other stakeholders' concerns, 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 we will compare their achievements vis-à-vis the resources put in. We 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.*

15. A broader issue underlying this Review is how our innovation and technology policy should dovetail with policies of the Mainland and the macro economic environment worldwide. For example, how Hong Kong SAR can contribute to the "12-5" National Development Plan and our R&D community can play a part in the Framework Agreement on Hong Kong/Guangdong Cooperation signed recently. Given the transformation of our industry landscape in the past years notably the relocation of the manufacturing base to the Pearl River Delta (PRD), we need to focus our efforts to better help our industries, in particular the Small and Medium Sized Enterprises (SMEs), to upgrade and transform and leverage on the opportunities under these national and regional frameworks to enhance their competitiveness and help them to move up the value-chain. The Review should hence not solely be taken as a cost-rationalization and efficiency enhancement exercise. We would also examine ways to ensure the work of the R&D Centres meets the demands of the industry (e.g. more proactive outreach liaison and support for SMEs) and the worldwide trend.

16. A summary of key information to be gathered from the R&D Centres and further analyzed under the Comprehensive Review is at Annex A. The key issues to be addressed in the Comprehensive Review are highlighted in the ensuing paragraphs.

Key Issues

(a) Operating Cost

17. In the context of the 2009 Mid Term Review, Members have expressed concern over the high operating cost of the R&D Centres, and that the Centres should explore means to reduce the level of operating expenditure

where practicable. We will analyze in detail the operating budgets of the Centres and discuss with the Centre CEOs on ways to enhance the operational efficiency. Given that the size of some of our Centres is quite small (e.g. 21 full-time staff for APAS and below 20 for HKRITA) but they still need to provide the full range of administration functions (HR, financial and audit control etc.) in view of corporate governance requirements, the percentage of total resources devoted to administration may be higher than generally expected. Should this be the case, we will look into the feasibility of providing some form of central support (e.g. providing basic information for annual salary adjustment) and common guidelines in individual aspects (e.g. policy on IP/benefits sharing, legal support). This would also help the Centres to focus valuable resources on actual R&D and commercialization work.

18. It has also been suggested that Science Park Phase 3 development (approved by LegCo on 23 April 2010) provides a good opportunity for co-locating the R&D Centres to achieve greater economy of scale through shared services, enhancing inter-R&D Centre cooperation (e.g. ASTRI and NAMI can cooperate on LED lighting) and possibly to provide one-stop contact with the industry and research community, thereby creating greater synergies for the R&D community. We will however consult the views of individual Centres to take into account their unique requirements, mode of operation, etc. before making any decision.

(b) Institutional Setup

19. At present, the governance structure of the R&D Centres involves four major players –

- (a) Hosting organization(s);
- (b) Board of Directors;
- (c) Centre CEO and his senior staff; and
- (d) ITC.

While there were good reasons for such arrangement when the Centres were set up in 2006, we now need to review to see if such arrangement meets present day needs or there can be scope for streamlining to prevent duplication of work. For example, in the case of LSCM, it has three hosts i.e. HKU, CUHK and HKUST. We will review the working relationships among different parties and solicit their views.

(c) Role of the R&D Centres

20. In the past four years, the R&D Centres have evolved to perform the following roles to varying degrees –

- (a) undertaking direct research: to conduct R&D projects using its own staff or in collaboration with the industry and/or other research institutions (e.g. universities). Due to the long history of PolyU in technology research for the textiles industry, HKRITA has hitherto not undertaken any in-house R&D projects. As for ASTRI, most of the R&D work is undertaken by in-house research personnel and hence a much larger staff establishment;
- (b) building an R&D platform: In discharging the mission to drive and coordinate applied R&D, they maintain close liaison with other local research institutions to solicit worthy project proposals and assist ITC in vetting the project proposals, including the prospects for commercialization and the cluster effect for individual technologies or sectors taking on the advice of the Technology Committees established under the Boards; and
- (c) pursuing commercialization of R&D results: with the increasing number of completed R&D projects since last year, it is necessary for the Centres to put in more effort and resources to promote commercialization of their R&D results.

21. We will consider the relative priority of these roles for individual Centres to better meet the needs of the industry.

(d) Achievements and Cost-effectiveness

22. We need to review these to see if funds have been well spent. Apart from reviewing the cost-effectiveness of the R&D Centres through financial indicators like industry contributions and level of income (such as licensing fees or royalties), we consider it equally important to evaluate the non-financial impact from the R&D results delivered by the Centres – the public mission angle. This may include –

- (a) nurturing R&D talent (e.g. R&D positions provided under/after the project and scientific personnel trained);

- (b) sharing of knowledge (e.g. academic/professional publications, seminars/conferences attended to disseminate the R&D results, and other channels e.g. web sites);
- (c) international and local industry/technology awards;
- (d) contributions to government policies and initiatives (e.g. green economy, medical devices to meet the needs of an ageing population);
- (e) further development of R&D results by another party(parties); and
- (f) soft power (e.g. setting new standards or enhancing Hong Kong's reputation as an innovation and technology centre).

These will be taken into account in reviewing the outcome of R&D projects. A draft proforma to this effect is at **Annex B**.

23. To identify the key issues for the Comprehensive Review, we organized a full-day brain-storming workshop on 3 March 2010 at the Science Park. Over 100 participants attended the workshop (including non-official directors and senior staff from R&D Centres, Hong Kong Productivity Council, Hong Kong Science and Technology Parks Corporation, representatives from local universities and chambers of commerce, non-official members of ITC's R&D project assessment panels etc). One key issue raised by participants is how applied R&D projects should be derived and what their focus should be. We will look further into this and discuss with the Centres and other stakeholders the following approaches in undertaking and funding applied R&D projects in future –

(a)	Supply-led	vs.	Demand-led
(b)	Technology solutions oriented	vs.	Problem-solving oriented
(c)	Generic, open approach	vs.	Theme-based approach*
(d)	Quantity	vs.	Quality
(e)	Input-based	vs.	Output-based
(f)	Platform projects	vs.	Collaborative projects

(g) Licensing/transfer of IP vs. Spin-off

- * *To focus academic research effort of UGC-funded institutions on themes of strategic importance to the long-term development of Hong Kong, the “Theme-based Research Scheme” administered by the Research Grants Council has selected three themes for the first round to be launched in 2010, namely, promoting good health; developing a sustainable environment; and enhancing Hong Kong’s strategic position as a regional and international business centre*

24. As a pilot, we have recently introduced a new Focused Project Facilitation Programme (FPFP) to provide greater and prompt support to chosen projects of R&D Centres with good potentials. The focus is more on quality instead of quantity, and we will accord more priority to collaborative projects which should reflect strong market interest and hence greater chances for commercialization (and where time is of the essence).

INTERFACE WITH THE ITF MECHANISM

25. The R&D expenditure of the R&D Centres is met from the ITF, and the funding guidelines are more or less the same as those applicable for other ITF-funded projects undertaken by local universities and other institutions like the Hong Kong Productivity Council. The funding requirements and procedures hence have an important bearing on the work of the R&D Centres. We have received useful feedback from R&D Centres and other stakeholders on the difficulties encountered in meeting the ITF funding and procedural requirements. With the ITF in operation for ten years by now, we plan to commence a full review of the funding programmes under ITF and the funding requirements and procedures in due course. To help the Centres implement their R&D projects and subsequent commercialization smoothly, we will try to identify and put in place improvements where appropriate to address the following issues –

- (a) whether the existing ITF funding mechanism gives rise to fragmented R&D work by different parties and hence not sufficient synergy;
- (b) whether the existing funding arrangements under ITF are too restrictive to sustain the momentum of the local research community and to push for commercialization;
- (c) whether the present requirements on industry contribution and

benefit sharing arrangements are too straight-jacketed;

- (d) whether there are sufficient incentives in the ITF framework to motivate universities, R&D Centres and the industry to collaborate more in applied R&D;
- (e) whether the current project vetting requirements and procedures are too complex and cumbersome to facilitate worthy projects to be undertaken quickly; and
- (f) whether ITF can dovetail with the various Government-funded research programmes to create greater synergy e.g. the Research Grants Council (RGC), Environment Conservation Fund, and the Research Fund for the Control of Infectious Diseases under the Food and Health Bureau. In regard to the interface between UGC/RGC and ITF, the general dividing line is that UGC/RGC will fund high quality academic research primarily focusing on basic research and upstream applied research while ITF will fund downstream research normally with private sector participation. We will work closely with the Education Bureau and the UGC/RGC to ensure that there will be synergy to sustain R&D work, thus bringing maximum benefit to the community.

----- 26. A list of the initial observations on problems encountered in the administration of ITF and possible areas of improvements is at **Annex C**.

CONSULTATION

27. Apart from organizing a brain-storming workshop in March 2010, we have consulted the Steering Committee on Innovation and Technology as well as the five Boards of Directors of the R&D Centres in May 2010 on the general direction for the Review. We are also seeking the views of other stakeholders (e.g. chambers of commerce, universities, government departments whose works have innovation and technology elements).

TIMETABLE OF THE REVIEW

28. The following is the tentative timetable for undertaking the comprehensive review in 2010 –

- (a) 15 June 2010 To brief Members of this Panel on the general direction of the Review
- (b) September/
October 2010 To consult the Steering Committee on Innovation and Technology and the Board of Directors of the R&D Centres on the findings of the Review
- (c) November/
December 2010 To submit a report to this Panel on the review of operating costs and possible areas of improvement
- (d) By end 2011 Further down the road, to conduct a full review on the R&D Centres operation and overall performance for the first five year period

ADVICE SOUGHT

29. Members are invited to note the general direction of the Comprehensive Review in paragraphs 14 to 28 and give views on them and other strategic issues on innovation and technology development.

Innovation and Technology Commission
June 2010

Comprehensive Review of R&D Centres

Data and information to be gathered and analyzed

A. Institutional Framework

1. The areas to be looked at will include –
 - (a) whether the present ‘Company’ approach is best in discharging the role of the R&D Centres;
 - (b) the level of support currently provided by the hosting organization(s); the relationship among the host organization(s)/R&D Centre management/ITC (e.g. whether there is duplication in work);
 - (c) the governance e.g. whether management has supplied sufficient information to the Board of Directors/ITC respectively to ensure good governance (or whether the information has been too mammoth as to prevent the Boards from focusing on strategic planning); whether regular reports have been submitted to the Board/ITC on time;
 - (d) whether the sub-committee structure of the Boards is appropriate, etc.

B. Staffing

2. The areas to be looked at include –
 - (a) the number of staff presently engaged, the trend/pace of expansion;
 - (b) the staffing complement and whether it is most appropriate in discharging the Centres’ role(s) effectively (e.g. too many/few administrative staff, ability in ensuring propriety in administration and financial management);
 - (c) whether the Centres have attracted the quality staff (e.g. secondment of professors from universities) as originally foreseen; staff turnover, pay level, etc.

C. Financial Arrangements

3. The areas to be looked at include –
- (a) whether there has been over-spending/under-spending in the past years; if yes, the reasons; the trend in general;
 - (b) the split among various components in the operating cost e.g. administrative cost vs. research costs;
 - (c) number of ITF projects applied;
 - (d) number of ITF projects vetted (not submitted by the Centre itself);
 - (e) number of platform projects started/completed (with money value);
 - (f) number of collaborative projects started/completed (with money value);
 - (g) absolute amount of industry contribution; percentage of total project costs; trend; etc
 - (h) number of partners in projects (whether they are always the same ones; profile (e.g. large firms vs. SMEs)) etc;
 - (i) average cost of projects conducted.

D. Nature of Project and Propensity of Being Applied/Commercialised

4. The ITF's mission is to fund projects which contribute to innovation or technology upgrading in industry. The R&D Centres are also set up to upgrade and enhance the competitiveness of our industry. Hence, the focus has always been on 'applied' rather than 'upstream', foundation or academic research which should have appropriately been funded by UCG.
5. There has always been discussion on how to commercialize the results of our R&D work. However, different people may have different interpretation of the word 'commercialization' e.g. whether it means selling a component to a manufacturer on a small scale or whether it means getting the ultimate product to be sold in the consumer market. Furthermore, the process from the conception of an idea to full scale commercialization is a long road. Without a strategic plan spelling out

the actions at all stages, it would be difficult for projects to come to fruition and bring real impact to benefit the community. Hence, it will be necessary to take a holistic view.

6. In the light of the above, we need to find out –
 - (a) currently where our R&D Centres stand; and
 - (b) if this is too upstream and is far away from commercialization, we need to consider how best to improve the process.

E. Role of R&D Centres

7. For each R&D Centre, we need to examine –
 - (a) how well they have done in the different roles. For example, as a research agency, how many success stories it has; if the time is still early, how many products with good potentials there are and the timing we can expect to harvest. By 2011, the Centres have been in operation for some 5 years. Even though most people agree that innovation and technology is something which takes time, there will still be expectation for the Centres to deliver a reasonable outcome; and
 - (b) the priority to be accorded to each role (e.g. primary vs. secondary role if appropriate).

F. Intellectual Property (IP) and Benefit Sharing

8. It will be necessary to examine the current situation e.g.
 - (a) whether it takes an unduly long time to arrive at an agreement with parties concerned. To commercialize a product, timing is a concern for fear of the technology being overtaken by new breakthrough or even rendered obsolete;
 - (b) whether concerned stakeholders find the present arrangements generally fair and conducive to motivating parties to collaborate; and
 - (c) if Centres are spending too much time and energy on this, whether it will be desirable for ITC to provide some form of support.

Draft Form to Assess Success of R&D Project
(position as at [date])

Name of R&D Centre: _____

Project Title: _____

Project period _____

Project Investigator(s): _____

Collaborating partner(s) _____

Brief description of project: _____

Total Project Cost (i) _____ (to be met from ITF/ __%)
(\$million): (ii) _____ (to be met by industry contributions/ __%)

Nature of R&D	Details
<input type="checkbox"/> Technology breakthrough (e.g. rocket science)	
<input type="checkbox"/> performance/reliability/capacity enhancement in existing products/processes	
<input type="checkbox"/> lowering of cost	

Expected R&D results <i>(as stated in the original application)</i>	R&D results finally delivered	IP created (e.g. patents filed/registered)

Analysis of “Success”#				
Financial			Non-financial	
	Actual (w/ time- frame)	Projected (w/ time- frame)		
<input type="checkbox"/> Licensing <i>(i) no. of companies</i> <i>(ii) licensing income (\$million)</i> <i>(iii) royalty received (\$million)</i>			<input type="checkbox"/> Nurturing of R&D talent (i) no. of R&D positions provided/ duration (ii) no. of research interns trained/ duration	
<input type="checkbox"/> Transfer of IP (i.e. exclusive)			<input type="checkbox"/> Sharing of knowledge (i) no. of academic/professional publications (ii) no. of seminars/conferences attended to disseminate the R&D results	
<input type="checkbox"/> No. of samples/prototypes/products produced/sold				

and income (\$ million)			
<input type="checkbox"/> Spin-off			(iii) other channels (e.g. web sites, company visits)
<input type="checkbox"/> Income from contract research for further development of R&D results (\$million)			<input type="checkbox"/> International and Local Industry/ Technology Award(s)
<input type="checkbox"/> Subsequent income generated from the licences granted/transfer of IP/spin-off			<input type="checkbox"/> Contribution to Government Policy and social value
<input type="checkbox"/> Others			<input type="checkbox"/> Further development of R&D results by another party (parties)
Total: \$ _____ million			<input type="checkbox"/> Soft power (e.g. setting new standards or enhancing Hong Kong's reputation as an innovation and technology centre)
			<input type="checkbox"/> Others

Please include the timeframe for all estimated income and achievements (up to 10 years).

Reasons rendering the project not successful in meeting the objectives and achieving the desired deliverables (if applicable) –

[Name of CEO] _____

[R&D Centre] _____

[Updated as at *date*] _____

**Review of ITF^(Notes)
Funding Mechanism**

Problems Observed	Possible Areas of Improvement
<p>(1) <u>Need to improve the overall framework of ITF</u></p> <p>The ITF mechanism was first introduced in 1999. Its framework has been revised over the years to meet various needs at different junctures. As a result it is quite complicated. There may also be overlap among different funding programmes, e.g. collaborative projects under the R&D Centres and under the University-Industry Collaboration Programme. There hence appears to be a need to rationalise and simplify the mechanism so it is easier</p>	<p>A comprehensive review will be undertaken with a view to consolidating, simplifying and improving upon the whole mechanism.</p>

(Notes)

There are at present four major programmes under ITF –

- (a) Innovation and Technology Support Programme (ITSP) – there are 2 categories:
- platform projects which require industry contribution of at least 10% of the project cost. The industry sponsors will not be entitled to own the project IP; and
 - collaborative projects which require industry contribution of at least 30% (for R&D Centres' projects) or 50% (for non-R&D Centres' projects) of the project cost. Upon provision of industry contribution, the industry partner(s) will be entitled to exclusive right to utilise the project IP for a defined period or own the project IP;
- (b) University-Industry Collaboration Programme (UICP) - under which the company is required to contribute no less than 50% of the project expenditure;
- (c) General Support Programme (GSP) – under which non-R&D projects and activities are supported, e.g. surveys, seminars, etc; and
- (d) Small Entrepreneur Research Assistance Programme (SERAP) - which operates as a matching grant for companies under the size of 100, i.e. company contributing 50%.

<p style="text-align: center;">Problems Observed</p>	<p style="text-align: center;">Possible Areas of Improvement</p>
<p>for applicants (especially new comers) to understand as well as making it more ‘user friendly’.</p>	
<p>(2) <u>Need to shorten the process</u></p> <p>The entire process is lengthy. On average, it takes 6 to 10 months to process a project. In cases where the industry sponsor is keen to bring this to the market speedily, this will be a problem, i.e. it hampers commercialisation.</p> <p>There also appears to be a need to rationalise the roles of parties involved in the vetting process – the vetting team in the R&D Centre, the Technical Committee of the Board, the technical vetting team in ITC, the admin and finance vetting team in ITC, etc.</p>	<p>There is a need to speed up the process, in particular the collaborative projects where the industry contribution is over 30%. At present, we have introduced on a pilot basis a Focused Project Facilitation Programme (FPFP) to speedily deal with those projects of great potentials under our R&D Centres. The outcome will be reviewed.</p> <p>The roles of the parties involved in vetting will be reviewed to see if there is any room for streamlining. Also we will see if certain steps can be done in parallel instead of consequential to speed up the process.</p>
<p>(3) <u>Need to extend the scope of ITF to provide sustainability</u></p> <p>The current ITF mechanism stops too early (usually upon submission of a report which summarises the technological achievement and financial position of the project). There is no provision for actual production of prototype and samples. Without these,</p>	<p>Having regard to the feedback from the industry and research institutions, we shall explore if the scope of ITF funding should be expanded to production of tools, prototype and samples which are essential in the commercialization process of the relevant new technologies. We also need to consider</p>

Problems Observed	Possible Areas of Improvement
<p>it will be difficult to test the products in a real setting and hence be refined to meet users' needs. Hence commercialisation/realisation of invention is more difficult.</p> <p>Also, an ITF project usually takes 18 to 24 months. Once the project is completed, even though there is need for further research to bring the 'innovation' to a more mature stage, there is no guarantee for the next phase of funding which is subject to another round of application. The employment of the research assistants hired will have to be discontinued. Eventually even if funding can be satisfactorily attained, there will be a need to start everything afresh leading to a waste in effort.</p>	<p>when and how to fund the production of these prototypes amongst completed ITF projects.</p> <p>The above refers to <u>extending the ITF 'vertically'</u> to provide for greater flexibility and assisting in realisation.</p>
<p>(4) <u>Need to extend the scope of ITF to provide synergy and enhance impact</u></p> <p>Under the current mechanism, ITF projects are conducted very much on an 'individual' basis. While this is understandable in most cases, there would be a need to see if it is possible to create synergy among the various projects so as to move</p>	<p>ITC will play a more active role to identify projects with possible interface with other parties and bring all together. For example, in the case of LED lighting, at present, ASTRI, a number of universities, HKPC and private companies are all conducting research on this. We will bring them</p>

<p style="text-align: center;">Problems Observed</p>	<p style="text-align: center;">Possible Areas of Improvement</p>
<p>more speedily towards productisation/commercialisation and create a greater/splash effect.</p>	<p>together to see if there is a chance of cooperation.</p> <p>If there are a few applications all in the same area (e.g. how to combat water pollution) but on different aspects (e.g. odour, lack of oxygen, bacteria level), while the projects will still need to be assessed based on their individual merit, we will also consider them from a macro angle to see if they together can bring a much wider positive impact to the community. If yes, we will fund them accordingly – the ‘cluster project approach’ or <u>extending the ITF ‘horizontally’</u>.</p>
<p>(5) <u>Need to refine the current vetting criteria to give greater emphasis to relevant factors apart from the scientific factor</u></p> <p>At present, the vetting criteria focus mainly on the scientific aspect. There is also no clear marking scheme made known to applicants. While this is understandable, there will be need to give regard to other factors which may be relevant and will bring a good outcome to the project.</p>	<p>We will review the criteria to take into account other relevant aspects, for example:</p> <ul style="list-style-type: none"> - whether the proposal can dovetail Government policies or have a good social value – In the process of vetting, we will hence seek the input of relevant bureaux/departments as appropriate; and - whether the proposal has a reasonable commercialisation/realisation plan (e.g. support from

Problems Observed	Possible Areas of Improvement
	university technology transfer office; indications of interest by Government departments; interested industry partners to adopt the R&D results; etc). If yes, the chance of success will be higher.
<p>(6) <u>Need to review the ITF mechanism to meet latest developments</u></p> <p>The ITF mechanism needs to be reviewed to see if it can meet the following:</p> <ul style="list-style-type: none">- best promote technology collaboration with Mainland given the rapid developments in recent years, e.g. the “12-5” National Development Plan, setting up of Partner State Key Laboratories, etc;- able to dovetail effort on the testing and certification side with the issue of the report in late March 2010; and- provide more assistance to our SMEs.	We will review the situation and propose improvements where appropriate, e.g. opening a new ‘line’ on R&D for new testing methods.

Problems Observed	Possible Areas of Improvement
<p>(7) <u>Need to review the existing industry contribution models and the IP and benefit sharing arrangements</u></p> <p>There is a need to encourage more contribution from the industry (in HK, the percentage of R&D expenditure by the private sector is around 50% which is lower than the usual 70% in other developed economies), shorten the period of negotiation among parties in benefit sharing and motivate all parties concerned to conduct more R&D.</p>	<p>This is a most complex area and ITC will form a task force to review the situation to ensure a fair, transparent model for distributing the commercial benefits amongst all parties concerned - researchers/professors, universities, R&D Centres, industry sponsors, etc.</p>
<p>(8) <u>Need to overcome the difficulty in securing 10% industry contributions in exceptional cases</u></p> <p>This is not a common problem. However, it may occasionally arise in cases where the research has a high social value but little commercial value, e.g. devising a super-CCTV system to detect falling objects from high buildings.</p>	<p>To consider in exceptional cases for waiving the industry contributions where there is strong policy support from Government bureaux/departments and the R&D results will bring exceptional benefit to the community.</p>
<p>(9) <u>Need to make greater use of GSP to enhance innovation and technology and build up a culture</u></p> <p>The GSP is a programme under ITF to support projects which seek to foster an innovation and</p>	<p>There is a need to enhance the usage of this Programme. We feel that with greater effort, it can be a most useful vehicle to promote an innovation and technology culture in</p>

Problems Observed	Possible Areas of Improvement
<p>technology culture in Hong Kong, e.g. studies, surveys, conferences, exhibitions, promotional and training programs. In the past three years (2007 to 2009), only 10 projects were supported with a total funding of about \$10 million which is quite low.</p>	<p>Hong Kong. We will review the Programme to see how best it can be improved as well as publicise it to attract more applications (from universities, trade associations, NGOs, Government departments, etc).</p>