

**For information
on 21 February 2006**

Legislative Council Panel on Commerce and Industry

**Research and Development Centre
on Information and Communications Technologies**

Purpose

This paper informs Members of the progress in establishing the Research and Development (R&D) Centre on Information and Communications Technologies (ICT) by the Hong Kong Applied Science and Technology Research Institute Company Limited (ASTRI).

Background

2. At the meeting on 17 May 2005, Members of this Panel were informed of the Administration's plan to set up five R&D Centres for implementing the new strategy of innovation and technology development, including the R&D Centre on ICT to be hosted by ASTRI.

3. On 24 June 2005, the Finance Committee approved funding for the establishment of four of the R&D Centres. Regarding the R&D Centre on ICT, we informed the Finance Committee that since it would be subsumed within ASTRI's existing organizational infrastructure and Government had been supporting ASTRI's operating cost through recurrent subvention, we would critically review how the additional R&D-related operating expenses could reconcile with the recurrent subvention to ensure optimal and cost effectiveness of public resources, and that we would seek the Committee's approval to fund ASTRI's requirement as appropriate.

Progress in setting up the R&D Centre on ICT

Organizational and financial arrangements

4. ASTRI has since examined the organizational arrangements critically with a view to leveraging on existing organization structures and achieving efficiency and economy in taking up the role of the R&D Centre at the least possible additional costs.

5. ASTRI has decided that its Chief Executive Officer will be responsible for overseeing and managing the operation of the Centre; and that it will strengthen its liaison with the ICT industry, the project selection and assessment process, the technology transfer and commercialization functions, and the associated legal and other support services.

6. ASTRI has created a new market research team to provide market intelligence and industry analysis to the R&D Centre and the ICT industry. In addition, ASTRI will later expand the technology transfer team responsible for commercialization and technology dissemination functions. As regards the project selection and assessment process, ASTRI has introduced a new and more complete mechanism in project selection, project assessment and monitoring, and the R&D project management team has also been expanded to effect the new mechanism (details in paragraphs 13 to 16 below.) ASTRI will also strengthen international collaboration with global research institutions and related industry corporation as well as provide education and training for the industry and the public.

7. ASTRI's organization chart as at January 2006 is at **Annex**. ASTRI will continue to augment its structure to support its new role of the R&D Centre for ICT.

8. The Administration and ASTRI have critically studied the financial implications entailed by the organizational changes required to support its new role. It is estimated that ASTRI's operating expenses will need to increase from the original \$93.3 million in 2005-06 to \$119.9 million in 2006-07 and the following four years. The increase is due to the need to increase the number of R&D staff from some 290 in 2005-06 to some 350 in 2006-07, and to

increase support staff in finance, business strategy, market research, human resources, project and programme coordination, etc.

9. ASTRI aims to complete all the preparatory work for setting up the R&D Centre on ICT within the 2005-06 financial year, and to absorb the resources required for the preparatory work from within existing resources.

10. The Administration will take into account ASTRI's extra financial requirements (as set out in paragraph 8 above) when the 2006-07 estimates for recurrent subvention for ASTRI are to be drawn up.

Five-year plan and R&D programme

11. ICT is a fast-changing area. Based on latest market analyses and consultation with stakeholders, ASTRI's current plan is to focus on four technology areas -

(a) Communications technologies

The focus will be on next generation mobile devices with multimode and multifunction capabilities that will use 3G / 4G digital cellular, WiMAX, and advanced WiFi, DAB / DVB and UWB core technologies. Such devices and related infrastructure will be used in personal and home networking, broadband wireless access mobile platforms, cellular communications and digital TV broadcast;

(b) Consumer electronics

The focus will be on home media networking, portable media, multimedia communication, pervasive services and digital broadcasting. Technologies to be developed include wireless / broadband, digitisation, 3C convergence / triple play and miniaturization / mobility, etc.;

(c) IC design

The focus is on H.264 video compression, Java computing, data converter codec, AMS cell library, RF architecture, bio-medical, digital TV receiver, advanced IPs and IC for consumer, telecommunications and other applications. Technologies to be

developed will include power management, analog / mixed-signals, embedded software, integration and testing; and

(d) Opto-electronics

The focus will be on low-cost optical interconnect, optical transmission media, novel transmission device, optical sensor and LED based solid-state lighting. Core technologies to be developed will include POF (Plastic Optical Fiber), OEIC (Opto-electronics IC), key optical devices, packaging and optical sensors, etc.

12. Based on to the latest work plan, the total R&D funding requested from the ITF for the ITC R&D Centre in the coming five years will be about \$1,400 million, with cashflow requirement increasing from \$213 million in the first year to \$332 million in the fifth year.

Project selection, vetting and management

13. ASTRI has established a rigorous project vetting and management mechanism to ensure the quality of its projects. There are three main elements in this mechanism: annual planning cycle, individual project vetting and regular monitoring.

14. ASTRI's Board of Directors has approved a five-year strategic plan. At the beginning of each financial year, ASTRI will draw up a detailed annual plan on the basis of the approved five-year strategic plan. In drawing up the annual plan, ASTRI will first consult the industry and academia on the technology roadmap through various workshops and seminars. With the input and comments received from the industry and academia, ASTRI will draw up draft annual plan and submit it to its Technology Advisory Committee (composed of international experts) and four Domain Advisory Committees (each composed of local academic and industry leaders in the respective technology area) for advice. Based on their advice, ASTRI will revise the annual plan as appropriate and submit the plan to the Board for approval.

15. In addition, for each individual R&D project, it needs to undergo a series of reviews conducted by internal reviewers from within ASTRI and then by external reviewers who will include industry leaders and potential customers.

After incorporating the comments from the internal and external reviewers, each project proposal will be examined by a Technology Committee Panel (composed of ASTRI Technology Committee members, industrial experts and academics in the related field). With the endorsement of the Technology Committee Panel, the project proposal will be submitted to the Innovation and Technology Commission (ITC) for funding approval from the Innovation and Technology Fund. The ITC will review the technical merits and budget in detail before approving funding.

16. ASTRI will monitor approved projects by reviewing each month progress achieved against its own schedule and against competition trends every month. Half-yearly progress reports will be submitted to the ITC to examine the project progress against its stated milestones. Each research group is also subject to quarterly reviews on technology and strategy. In short, continuous competition intelligence on the field of research is monitored to ensure that the projects continue to be of relevance and use to the industry.

Support and collaboration with the industry

17. Over the years, ASTRI has been building up core competencies in ICT and transferring technologies to our industries through licensing arrangements, providing service contracts, spinning-off new technology companies. With the establishment of the ICT R&D Centre, ASTRI will further strengthen its efforts in upgrading the technology level of our industry and expanding the technology base, creating more high-tech employment opportunities, and enriching Hong Kong's human resources in technology.

18. Industry will be encouraged to participate in the R&D Centre's activities by making cash or in-kind contributions (such as existing intellectual property, R&D personnel, equipment, etc). Collaboration with the Centre may also be in the form of forming expert groups, participating in individual projects, joining as sponsors or consortium members, or contracting research work. In return, ASTRI will license technologies and intellectual properties to industry players, and they may be given a discount on future licence fees, right of first refusal on exclusive licensing, sharing of intellectual property rights or benefits generated from the project, etc, and the terms of which will be considered by the Board of Directors on a case by case basis.

19. In addition, ASTRI will continue to hold seminars and workshops for industry players. Through these seminars and workshops, industry players in Hong Kong and the Pearl River Delta region will be introduced the latest technology trends, and at the same time, ASTRI could obtain feedback and understand the needs of industry with a view to identifying technology solutions for our industry.

20. Apart from industry participation, ASTRI welcomes and actively seeks collaboration with leading technology companies, universities and other R&D institutions with a view to inviting them to participate in the ICT R&D Centre. These research partners and ASTRI will complement each other in technology expertise and business acumen.

Way Forward

21. ASTRI is now finalising the detailed operational system and the estimates for setting up the R&D Centre on ICT. It is expected that the Centre will begin operation in April 2006.

Commerce, Industry and Technology Bureau
14 February 2006

Organization Chart of ASTRI by Functions (as at January 2006)

