For discussion
on 21 June 2011

Legislative Council
Panel on Commerce and Industry

Progress Report on Research and Development (R&D) Centres for 2010-11

PURPOSE

This paper is an annual update to Members on the 2010-11 operation of the R&D Centres set up under the Innovation and Technology Fund (ITF).

BACKGROUND

2. In April 2006, Government set up five R&D Centres to drive and coordinate applied R&D in selected focus areas and to promote commercialisation of R&D results and technology transfer –

(a) Automotive Parts and Accessory Systems R&D Centre (APAS);

(b) Hong Kong R&D Centre for Information and Communications Technologies under the Hong Kong Applied Science and Technology Research Institute (ASTRI);

(c) Hong Kong Research Institute of Textiles and Apparel (HKRITA);

(d) Hong Kong R&D Centre for Logistics and Supply Chain Management Enabling Technologies (LSCM); and

(e) Nano and Advanced Materials Institute (NAMI).

3. On 19 June 2009, Finance Committee approved an increase in the funding commitment from $273.9 million to $642.9 million to meet the

operating expenditure of the APAS, HKRITA, LSCM and NAMI[1] for extending their operation up to March 2014. In response to comments from Members, the Administration then undertook to conduct -

(a) a review of the institutional setup in 2010 to look into the *modus operandi* of the R&D Centres to see if there is any room for achieving greater savings and higher cost-effectiveness; and

(b) 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 commercialisation.

4. We have completed the first review in (a) above by reviewing the Centres' operating expenditure, including the cost structure, and submitted a report to the Panel on 16 November 2010 (vide paper ref. CB(1)389/10-11(03)). In brief, the operating expenditure supports a wide range of activities, including direct research, project vetting and monitoring, commercialisation and administrative support. It is not limited to the expenditure for the administrative, financial and management staff. Whilst they are not excessively high, it will be necessary to examine what positive outcome they have generated – hence the full review on overall performance (paragraph 3(b) above).

5. Regarding the full review, the findings will be submitted to Members later this year. We would then also propose the way forward for the R&D Centres taking full account of their operation and experience in the past 5 years e.g. maintaining status quo; refinement/improvement through merging with other organizations; etc.

Assistance Provided to R&D Centres in the Past Year

6. Before we present the facts and analysis of the operation of the R&D Centres in 2010-11, we would like to briefly list out the efforts made by the Innovation and Technology Commission (ITC) in the past year to further assist the work of the Centres –

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[1] *The operating expenditure of ASTRI is funded separately by Government's annual recurrent subvention. The annual subvention to ASTRI in 2009-10 and 2010-11 are $113.1 million and $96.1 million respectively.*

(a) Expanding the scope of the Innovation and Technology Fund (ITF) to provide R&D Centres with funding for the production of samples/prototypes and conducting of trial schemes by Government departments, public bodies and trade associations;

(b) Linking up the R&D Centres with Government departments and public bodies to explore opportunities of collaboration:

(i) APAS – Transport Department, Correctional Services Department, Electrical and Mechanical Services Department, Environmental Protection Department, etc.;

(ii) ASTRI – Education Bureau, Highways Department, Housing Department, the Hong Kong Police Force, Development Bureau and various works departments, Hospital Authority, etc.;

(iii) HKRITA – Correctional Services Department, Fire Services Department, Food and Environmental Hygiene Department, the Hong Kong Police Force, Hospital Authority, etc.;

(iv) LSCM – Customs and Excise Department, Construction Workers Registration Authority, Hospital Authority, Hong Kong Council of Social Services, etc.; and

(v) NAMI – Architectural Services Department, Highways Department, Water Supplies Department, Hospital Authority, etc.; and

(c) Organising networking events in different technology areas/sectors to promote closer collaboration among stakeholders i.e. Government, industry, academia and research (官產學研) e.g. health and welfare services, environmental protection, works, etc.

PROGRESS OF WORK FOR R&D CENTRES IN 2010-11

7. As background, the cumulative expenditure of R&D Centres in the past 5 years (since 2006 when the Centres were set up) is as follows –

(in $million)

	(A) Operating Expenditure	(B) R&D Project Expenditure	(C) = (A) + (B) Total Expenditure	(A)/(C) Ratio of Operating Expenditure to Total Expenditure
APAS	71.2 (*8.9%*)	89.9 (*5.9%*)	161.1	0.44
ASTRI	526.3 (*65.7%*)	1,114.0 (*72.8%*)	1,640.3	0.32
HKRITA	47.0 (*5.9%*)	98.0 (*6.4%*)	145.0	0.32
LSCM	71.0 (*8.9%*)	139.4 (*9.1%*)	210.4	0.34
NAMI	85.3 (*10.6%*)	89.5 (*5.8%*)	174.8	0.49
Total:	800.8 (*100%*)	1,530.8 (*100%*)	2,331.6	-

8. Staff size of the Centres is as follows (as at end-March 2011) –

APAS	25
ASTRI	585
HKRITA	19
LSCM	37
NAMI	45

9. To examine the performance of the R&D Centres in the past year, we will analyze the following –

(A) Number of new projects that commenced in the year and the number of on-going projects;

(B) Expenditure of R&D projects;

(C) Operating expenditure;

(D) Level of industry contribution achieved; and

(E) Projects that have been applied or will have good propensity to be applied i.e. technology transfer and commercialisation.

Highlights of the operation of the R&D Centres are at ***Annexes A to E***. Analysis of the overall situation is in the ensuing paragraphs.

(A) Number of New Projects that Commenced in the Year and the Number of On-going Projects

The Facts

10. The situation is as follows –

No. of New Projects That Commenced in 2010-11
and No. of On-going Projects as at End-March 2011

	No. of New Projects Commenced			No. of On-going Projects		
	2009-10	2010-11	% change over 2009-10	As at Mar 2010	As at Mar 2011	% change over Mar 2010
APAS	17 (0)	10 (5)	-41%	24 (0)	23 (5)	-4%
ASTRI	48 (2)	44 (4)	-8%	57 (5)	63 (6)	+11%
HKRITA	13 (0)	10 (0)	-23%	33 (1)	26 (1)	-21%
LSCM	9 (2)	3 (0)	-67%	21 (2)	21 (2)	0%
NAMI	17 (4)	14 (6)	-18%	26 (8)	34 (12)	+31%

Note 1: Under ITF, there are broadly two types of R&D projects:

(i) platform projects which require industry contribution of at least 10% of the project cost. The industry sponsors (minimum of two) will not own the project intellectual property (IP); and

(ii) collaborative projects which require industry contribution of at least 30% (for R&D Centre projects only) or 50% (for non-R&D Centre projects) of the project cost. The industry sponsor(s) will be entitled to utilize the project IP exclusively for a defined period or own the project IP.

Note 2: Figures in brackets denote number of collaborative projects.

Analysis

11. In general, the number of new projects has dropped. This is due to the need to focus effort on projects of quality rather than just going for quantity. Furthermore, collaborative projects are encouraged as they normally have higher chance of commercialisation in future. NAMI and APAS have done pretty well in attracting collaborative projects.

(B) Expenditure of R&D Projects

The Facts

12. The situation is as follows –

Expenditure of R&D Projects
(in $million)

	2009-10 (*actual*)	2010-11 (*funding disbursed by ITC*)
APAS	37.0	30.0
ASTRI	272.8	292.9
HKRITA	31.8	19.3
LSCM	49.0	41.4
NAMI	31.0	45.4

Analysis

13. Expenditure of NAMI's R&D projects has grown significantly as it has embarked upon a few larger-scale collaborative projects (e.g. thin-film photovoltaic (PV) technologies and solar cells). Expenditure for ASTRI has also slightly increased. The other Centres' expenditure saw a drop of different degrees. However, it should be mentioned that a growth in expenditure *per se* may not mean a good outcome – the value for money aspect has to be considered carefully.

(C) Operating Expenditure

The Facts

14. The situation is as follows –

Operating Expenditure
(in $million)

	2009-10	2010-11	% change over 2009-10
APAS	17.1	15.7	-8%
ASTRI	116.3	113.4	-2%
HKRITA	10.2	12.3	+21%
LSCM	16.6	18.5	+11%
NAMI	27.1	26.2	-3%

Analysis

15. HKRITA and LSCM have the largest extent of increase in expenditure this year, due mainly to the setting up of a Business Development Team (in case of HKRITA) and an expansion in laboratory facilities (in case of LSCM) respectively. It should again be noted that an increase in expenditure *per se* does not mean an improvement in situation. Expenditure level has to be compared against the outcome to see whether there is cost-effectiveness. To do so, we have to examine the outcome - i.e. the percentage of industry contribution, projects that have been applied or have propensity to be applied - technology transfer or commercialisation. Please see below.

(D) Level of Industry Contribution Achieved

The Facts

16. Industry contribution is a most important indicator as it reflects the degree of industry interest in the work of the R&D Centres.

17. The situation is as follows –

Industry Contribution in the Year
(in $million)

	2009-10	2010-11
APAS	6.8 (11.7%)	8.8 (28.1%)
ASTRI	47.2 (16.9%)	61.0 (20.3%)
HKRITA	4.5 (11. 6%)	4.8 (12.3%)
LSCM	8.2 (13.4%)	3.4 (12.1%)
NAMI	23.0 (29.7%)	31.5 (41.1%)

Note 1: Figures in brackets indicate the level of industry contribution –

$$\frac{\textit{Industry Contribution Pledged}}{\textit{Approved Project Expenditure}} \times 100\%$$

Note 2: In the case of ASTRI, due to historical reason, income from contract research, licensing and royalty is counted towards the calculation of industry contribution.

Analysis

18. NAMI has secured the highest level of industry contribution (over 40%) in 2010-11. APAS and ASTRI have also made progress. However, performance of HKRITA and LSCM is less than desired given that the level of industry contribution after 5 years are still 12.3% and 12.1% respectively (given that the minimal requirement is 10%). However, both Centres are working hard and have a number of collaborative projects under discussion recently which hopefully will help push up the percentages.

(F) Projects That Have Been Applied or Will Have Good Propensity to be Applied (i.e. Technology Transfer or Commercialisation)

The Facts

19. This is a most important indicator as it is mainly for such purpose that we have set up the R&D Centres.

20. The situation is as follows –

(a) APAS

Among the new projects commenced, 5 of them are collaborative projects with a total industry contribution of about $7 million. This represents a growing industry interest in the work of APAS.

APAS is now working with the Transport Department on a trial scheme to install prototype of a traffic information device on 18 Green Minibuses from a few selected routes. Manufacturing of the prototypes is in progress.

(b) ASTRI

ASTRI has secured some good projects in the past year e.g. –

- During the year, ASTRI attracted 3 new start-ups to establish their R&D and marketing centres in Hong Kong. These new companies are funded by investors from the U.S. and are actively recruiting young R&D engineers in Hong Kong (around 20-30 posts).

- Licensing its compact anti-shaking technologies for camera phones to a company which offered a minimum licence fee-cum royalty income of US$2 million. It is envisaged that new products using ASTRI's technologies will be launched in the global consumer market in 2012.

- Signing an agreement with a company in Chengdu to co-develop high speed data processing integrated circuits modules which are planned to be deployed in the communication system of China's High Speed Train in the coming few years.

It is also working on a number of projects with Government departments/public bodies with a good propensity of application e.g. –

- Education Bureau – MyID, the first generation e-book developed by ASTRI, was put into trial use in more than 30 local schools and was well received by students and teachers. The second generation of ASTRI's home-grown e-book, PAL, was in production in March 2011.

- Police – ASTRI has built a mobile surveillance device prototype for trial in mid-2011. It will develop an optimised design to provide high quality mobile video for use by the Police. The design, depending on whether it can be suitably adapted, can be offered for use by other disciplinary services e.g. Fire Services Department in providing emergency medical services.

- Hospital Authority – ASTRI has commenced several projects to develop samples and prototypes for trial use at individual hospitals e.g. handy device for community nurses during home visits; login device for doctors/nurses accessing main computer system; and special computer with Skype capability for bed-ridden senior citizens; etc.

- Highways Department/Housing Department/Science Park – 6 sample LED street-lamps have been installed at a Highways Department depot for trial. 50 more are being planned. ASTRI has also provided Housing Department (in estates in Tsz Wan Shan and Ma On Shan) with samples of LED lamps for corridor lighting for trial. In addition, 20 streetlamps are being installed and evaluated at Science Park.

(c) HKRITA

On commercialisation, HKRITA has so far issued licences to use deliverables from 6 completed projects. The most successful one is the Nu Torque^{TM} Singles Ring Yarns technology which has been licensed to 3 companies with a total licence fee of $5 million. Discussion continues with other companies which have indicated an interest in using the technology. It is expected that deliverables from another 6 projects can be commercialised in the coming year.

HKRITA is actively pursuing the promotion of R&D deliverables in the public sector. One project has been approved under which the Centre will manufacture 70 sets of uniform with functional finishing for trial use by the corpse collection team of the Food and Environmental Hygiene Department. Manufacturing of the sample uniform is in progress. Discussions with several departments are on-going on possible collaboration.

(d) LSCM

LSCM's performance can have room for improvement. Apart from the low level of industry contribution after 5 years, the licensing income received during the period was small. Nevertheless, the Centre has recently concluded 5 licences for use of the technologies developed under its Food Safety project. It is currently working with the Hospital Authority on the application of RFID technology in a number of facilities and services, and has started the development of an E-lock system for the Customs and Excise Department for trial in the fourth quarter of 2011. Work has also started on use of RFID in the Correctional Services Department's key handling and management system and Radio Television Hong Kong's AV equipment inventory. It has been requested by ITC to bring projects to fruition more speedily.

(e) NAMI

NAMI has certainly done the best. It has reached agreement with companies to conduct 19 collaborative projects which has attracted a total of $69 million in industry contribution. These include 3 larger-scale R&D projects relating to the development of renewable energies with a total project cost estimate exceeding $100 million. This will be helpful to the building up of a cluster of research interest and efforts in photovoltaic (PV) technology and related areas in the long run.

It is also working with individual works departments on the trial use of galvanised steel with enhanced corrosion resistance and PV installations at government buildings.

Analysis

21. Please refer to the section on Observations below.

OBSERVATIONS

22. After analysing the facts and figures to date, our observations on the performance of the R&D Centres at this point in time are as follows –

(a) APAS

The work of APAS has been slower in the early years. However, improvement has been made in the last year as shown by the enhanced level of industry contribution. However, in examining its operation, we note that there is a certain degree of duplication of work with the Hong Kong Productivity Council (HKPC) i.e. its hosting organisation. About 40% of APAS's projects commenced in the past 5 years are undertaken by HKPC's Automotive and Electronics Division (AED) which has about 60 staff (as compared with APAS's strength of 25). Apart from providing administrative support for the Centre operation, HKPC has also rendered assistance to APAS in its commercialization effort (e.g. organizing seminars and publicity to disseminate technologies developed by APAS/HKPC and linking up with potential commercialisation partners).

Furthermore the small size of APAS's staff establishment makes it difficult to create a critical mass. There has also been difficulty in filling individual research posts. We will review the situation comprehensively and make a recommendation in the full review.

(b) ASTRI

ASTRI is making improvement as shown by its number of good projects with propensity of application. In particular, it has established a technology platform which attracts industry players to collaborate with the Institute, e.g. in Mainland's TD-LTE (pre-4G) technology and High Speed Train project in Chengdu.

It has also got a number of good projects in collaboration with the public sector. The Institute is also reviewing its strategy for future development as well as management structure to determine how best to deploy resources to areas with good potentials. Furthermore different business models like spin-off, exclusive licensing, contract research, etc. will be offered in future to cater for different circumstances/needs of clients to enhance the performance of ASTRI.

(c) HKRITA

HKRITA's operation is different in that it does not have any in-house research personnel. HKRITA draws on the expertise of the Institute of Textiles and Clothing of the Hong Kong Polytechnic University which is the only university in Hong Kong specialising in textiles research. HKRITA's role focuses on project solicitation (partly through its extension and project matching services), vetting/monitoring and commercialisation. With the establishment of the Business Development Division in September 2010, commercialisation of project deliverables has been gaining momentum.

It is recognized that the textiles and apparel industry is very mature. Nonetheless the Centre is making effort to pioneer new areas for research, e.g. medical and electronic textiles and priority is also being given to the production of prototypes for the public sector. We will carefully examine the situation together with HKRITA to see how best to bring about more impact and higher industry contribution.

(d) LSCM

The performance of LSCM is less than desired for 2010-11, as shown by the low level of industry contribution, lack of collaborative projects and low licensing income. Nevertheless, LSCM has now started signing up new licensing agreements and is stepping up its work on commercialisation. It is currently working in conjunction with Government departments and public bodies to deliver projects which will have good opportunities of application (see paragraph 20(d) above). We will continue to urge LSCM to make greater effort to seek new opportunities (given the vibrancy of the logistics trade and

possible demand for RFID technologies) and speed up delivery of projects.

(e) NAMI

NAMI has done the best with a high level of industry contribution and is conducting projects of great potential demand. Apart from effort made by the Centre, this may be probably due to the fact that nanotechnology and advanced materials are upcoming areas with lots of applications in its focused market sectors – sustainable energy, display and solid state lighting, environmental technologies, building materials, and medical devices and healthcare materials. We hope it will continue to deliver a positive outcome to the benefit of the community.

With its level of industry contribution reaching a high level, NAMI has to ensure smooth delivery of the projects and head towards commercialisation further down the road.

Overall

23. Innovation and technology is intrinsically not an easy task and the risk of failure is higher when compared with other sectors. The R&D Centres have tried to deliver a positive outcome through direct research, building a platform for stakeholders to work together and render assistance to the industry as necessary. In the past year or so, all Centres have been impressed that apart from conducting research, it is most important to bring the outcome of research to the level of realisation/commercialisation. ITC has also made effort to enhance the application of R&D outcome by linking Centres up with Government departments and industry (see paragraph 6 above). Some Centres have responded better than others. The good performance of certain Centres (e.g. NAMI as demonstrated by its high level of industry contribution) shows that the concept of making focused effort in specific sectors of good potentials does work. All Centres have also made effort to serve the industry (e.g. a total of more than 1 700 seminars and visits reaching out to the industry have been organised in the past 5 years). For Centres with less than desired performance, we have urged them to review their situation to tackle problems and introduce improvement speedily so as to bring about a more positive outcome (e.g. higher industry contribution, more projects to be

applied, etc.) before the completion of the full review at the end of the year. The key issue then will be whether the overall outcome, after the experience of 5 years, justifies the total resources put in and/or whether there are better alternatives to meet the objectives than the present arrangements and setup.

ADVICE SOUGHT

24. Members are invited to advise on the above.

Innovation and Technology Commission
June 2011

Annex A

Automotive Parts and Accessory Systems R&D Centre (APAS)
Highlight of Operation in 2010-11

I. New R&D Projects and Industry Contribution (in $million)

	2009-10			2010-11		
	No. of new projects	Project Cost	Industry Contribution	No. of new projects	Project Cost	Industry Contribution
Platform	13	54.5	6.8 (12.5%)	5	17.2	1.8 (10.5%)
Collaborative	-	-	-	5	14.1	7.0 (49.6%)
Seed	4	3.6	n/a	-	-	n/a
Total:	17	58.1	6.8 (11.7%)	10	31.3	8.8 (28.1%)
Contract Research	-	-	-	-	-	-

Note: Figures in brackets denote the level of industry contribution.

II. Operating Expenditure (in $million)

Operating Expenditure: Breakdown by Activities

	2009-10	2010-11
Direct research	6.0	5.5
Project vetting and monitoring	4.8	4.4
Commercialization	3.3	3.0
Admin. Support	3.0	2.8
Total:	17.1	15.7

Operating Expenditure: Breakdown by Cost Components

	2009-10	2010-11
Staffing	7.4	6.8
Accommodation	1.6	1.5
Equipment	6.4	5.9
Others	1.7	1.5
Total:	17.1	15.7

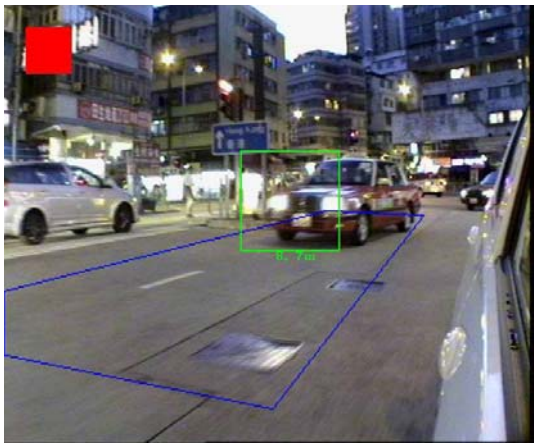
III. Industry Income Received (in $million)

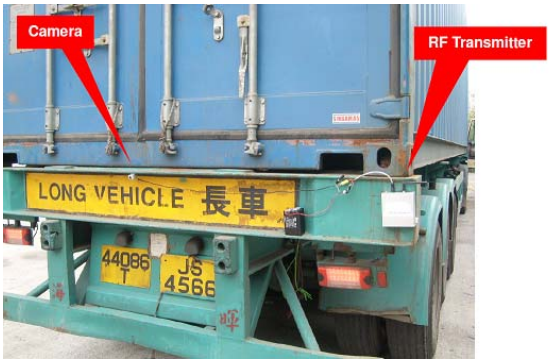
	2009-10	2010-11
Sponsorship for projects	4.14	4.62
Licensing/Royalty	-	-
Contract services	-	-
Others	0.21	0.34
Total:	4.35	4.96

IV. Progress of Commercialization

Project Name	Progress
Development of Automobile Advanced Frontlight System	This is a collaborative project with a 51% contribution from the industry partner ($3.6M). It is estimated that APAS will receive an accumulative income of $14.6 M.

Project Name	Progress
	
Integrated Smart Electric Vehicle Charging Station with Professional E-payment System	This is a collaborative project with 41% contribution from the industry partner ($0.54M). The project will be finished by mid-2011. It is estimated that APAS will receive a total income of $1.1M. 
Development of Integrated Lane Assist System Development of Advanced Collision Avoidance System	The projects have attracted two companies interested in the technology developed. It is estimated that APAS will receive a total income of $1.7M and $7.2M respectively.

Project Name	Progress
	 
Development of Automotive Headlamp System for LED Light Source	The project has attracted a company interested in the technology developed.

Project Name	Progress
	
Long Vehicle Wireless Backup Monitor System	The project has attracted a company interested in the technology developed. It is estimated that APAS will receive a total income of about $0.59M. 

Details of the R&D projects undertaken by APAS are available at *http://www.apas.hk/index.php?option=com_content&view=article&id=9&Itemid=18&lang=en*.

V. Promotion of Use of R&D Deliverables in Public Sector

Project Name (Government Department/ Public Body)	Progress
Prototype of vehicle safety and passenger information services (Transport Department)	18 Green Mini-Buses (GMB) from 7 routes will be installed with the prototype for trial in mid-2011. The routes cover areas in Kowloon Tong, Hunghom, Tsimshatsui and Kwai Chung. 
Modified MyCar with Battery Management System, based on project: Development of ECU for Power Management Platform for (Correctional Services Department (CSD))	It is expected to commence trial in mid-2011 at CSD's Hei Ling Chau Island institutions. 
Prototype of long vehicle wireless backup monitor system for road trials (Water Supplies Department, CSD, Electrical and	Prototypes will be installed in the shuttle buses or long vehicles of these departments for trial in September 2011.

Project Name (Government Department/ Public Body)	Progress
Mechanical Services Department, and Agriculture, Fisheries and Conservation Department)	

Automotive Parts and Accessory Systems R&D Centre
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Annex B

Hong Kong Applied Science and Technology Research Institute (ASTRI)
Highlight of Operation in 2010-11

I. R&D Projects and Industry Contribution (in $million)

No. of Projects
(Including projects completed during the year)

	2009-10		2010-11	
	No. of projects	Project Cost	No. of projects	Project Cost
Platform	56	222.9	63	233.1
Collaborative	8	14.2	9	30.0
Seed	37	35.7	29	29.8
Total:	101	272.8	101	292.9

Industry Contribution

	2009-10		2010-11	
	Project Cost	Industry Contribution	Project Cost	Industry Contribution
Platform	222.9	30.1 (13.2%)	233.1	30.3 (12.6%)
Collaborative	14.2	8.5 (52.8%)	30.0	13.8 (44.5%)
Seed	35.7	n/a	29.8	n/a
Contract Research	-	2.9 (100%)	-	5.5 (100%)
Royalty and Others	-	5.7	-	11.4
Total:	272.8	47.2 (16.9%)	292.9	61.0 (20.3%)

Note: Figures in brackets denote the level of industry contribution, which is calculated on the basis of audited project cost plus accrual adjustments in the following year (i.e. $272.8 M + $7.4M = $280.2M for 2009-10; and $292.9M + $7.3M = $300.2M for 2010-11). Due to historical reason, income from contract research, licensing and royalty is also counted towards the calculation of industry contribution.

II. Operating Expenditure (in $million)

Operating Expenditure: Breakdown by Activities

	2009-10	2010-11
Direct research	59.4	57.7
Project vetting and monitoring	-	-
Commercialization	19.7	20.8
Admin. Support	37.2	34.9
Total:	116.3	113.4

Operating Expenditure: Breakdown by Cost Components

	2009-10	2010-11
Staffing	62.0	64.0
Accommodation	15.6	20.0
Equipment	11.9	2.2
Others	26.8	27.2
Total:	116.3	113.4

III. Industry Income Received (in $million)

	2009-10	2010-11
Sponsorship for projects	38.6	44.1
Licensing/Royalty	4.5	10.7
Contract services	2.9	5.5
Others	1.2	0.7
Total:	47.2	61.0

IV. Highlights of Centre's Operation in 2010-11

1. During 2010-11, ASTRI has achieved or exceeded most of its key performance targets. Indeed, records were set on different fronts including the number of ITF funded platform and collaborative projects as well as the number of license agreements signed and the level of industry contributions achieved. It is particularly worth mentioning that its efforts on commercialization have continued to reap fruit.

The following cases of successful commercialization are particularly worth noting:

(a) A guaranteed US$2 million contract with additional royalty income upon licensee's successful commercialization was signed on licensing its compact anti-shaking technologies for camera phones involving eight patents to a newly established Hong Kong-based company tapping into the global camera phone market. Agreements between the company and major international mobile phone manufacturers in wielding ASTRI's anti-shaking module in the new generation of camera phones are either being signed or under negotiation. It is expected that camera phones powered by ASTRI's technologies will be hitting the global consumer market in the first quarter of 2012.

(b) The patent-protected "birdcage" housing structure that facilitates heat dissipation of the MR16 LED lamps was licensed to a Hong Kong based enterprise, to develop its LED lighting product series. The products were launched to the market in August 2010, and are now available in more than 300 stores worldwide.

(c) MyID, the first generation e-book developed by ASTRI, was put into trial use in more than 30 local schools and was well received by students and teachers alike. MyID was also available for purchase at a local book store. The second generation of ASTRI's home-grown e-book PAL was in mass production in March 2011.

2. During 2010-11, ASTRI continued to develop its collaboration with the industry through the Industry Collaborative Project (ICP) Scheme. The co-development of a USB 3.0 chip with a company of Silicon Valley is an exemplary case. To exploit the rapidly expanding market, the collaboration sees most of the design work done by ASTRI and the company's headquarters in the U.S. preparing for the production.

3. ASTRI's LTE technology has forged further ahead towards national deployment. The world's first TD-LTE (pre-4G technology) dongle jointly developed by ASTRI and its industry partner Innofidei was used in the TD-LTE showcase network set up by China Mobile at the World Expo in Shanghai. The network provided coverage in major areas of the Expo Sites and as far as Huangpu River, enabling visitors to experience mobile HD video conferencing and streaming and other Internet browsing applications at exceptional high speed of 70Mbit/s.

4. During the same year, the "I&T in Public Sector" Programme was initiated and spearheaded by the Innovation and Technology Commission. Under the Programme, ASTRI is undertaking many innovative projects with different government agencies, which include:

(a) LED Lighting (with Highways Department, Electrical and Mechanical

Services Department and Housing Department);

(b) E-books (with Education Bureau);

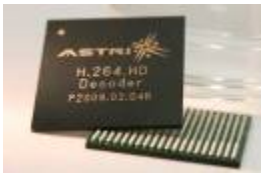
(c) Mobile surveillance system (with the Police); etc.

5. ASTRI also filed 87 patents and was granted a total of 65 patents in the U.S., the Mainland and Taiwan during the same period.

6. In terms of headcounts, it grew from 567 in 2009-10 to 585 in 2010-11, representing an increase of 3.2%. Among them, R&D staff grew from 491 to 508 while administration staff increased from 76 to 77.

V. Progress of Commercialization

Project Name	Progress
Advanced Broadband Wireless Technologies Platform	A technology transfer agreement was signed with a Hong Kong based wireless equipment company for the development of base stations of broadband wireless data networks such as WiMAX, LTE and so on.
Customizable Element Management System (EMS) for Wireless Networks: CWMS	Technology licensing agreements were signed with a wireless equipment company in Hong Kong, a system integrator in Hong Kong, and a wireless equipment provider in Mainland for respective product development.
LED for General Lighting - Area Light Source (Phase 1 & Phase 2)	Two licensing contracts were signed with 2 companies in January 2007 and January 2008. Five in-kind contributions were made by 4 companies between September 2007 and March 2008.

Project Name	Progress
Wireless Personal Area Networking and Streaming Media Access Control	Three technology licensing agreements were signed in 2007 with 3 companies. Since the Ultra Wide Band (UWB) market began to crumble and vendor shakeout in 2009, we decided to on-hold the UWB development until the industry can find its market identity.
Portable Dual Mode Wireless and Broadcast Multimedia Platform (Phase 1 & Phase 2)	Three license agreements and 1 contract service agreement were signed.
Smart Optical Sensors	Optical HDMI cable, distance sensor, tilt sensor and smart proximity sensor prototypes were developed and demonstrated in various exhibitions. Three technology licensing agreements were signed with 3 companies in October 2006, July and August 2007. Prototypes were delivered to those companies.
Advanced Indoor MIMO Platform	The technology was licensed to a world leading wireless IC provider to achieve higher performance of WiFi chipset product.
Multi-Media Platform for Algorithm & Application Development (MMP-EMU) (Phase-1 & 2) 	Two contract service agreements were signed. Under ASTRI's consulting service, the company successfully taped out their AVS Video Decoder SoC. ASTRI continues to work with the company for the follow-up product roll-out.
Application Specific AMS IC Design Platform for Integrated CCD Image Sensor Processing	Two licensing agreements were signed with 1 company in August 2006 and March 2008.

Project Name	Progress
Power Management Integrated Circuits for Portable consumer Electronics	Three licensing agreements were signed with 2 companies in August 2006, September 2006 and December 2007.
Digital Living Platform Full Project	Project ended successfully in April 2008. During the project period, both Digital Living Consortium and Digital Living Lab have started to operate. Moreover, the UPnP SDK source code was licensed to a HK telecom company and is being deployed and commercialized.
Client-based wireless Hotspot Access Technology	Two licensing agreements, 2 in-kind agreements and 3 contract services were obtained within project period in 2007.
High Dynamic Range (HDR) Display System - Using Active-Dynamic LED Backlight	The technology was awarded 2009 IDW Best Post Paper Award in Japan. Three hybrid licensing and contract service agreements were signed between July 2007 and January 2008 with 3 companies. Subsequently, the team collaborated with China tier-one TV companies and TFT-LCD, BLU and LED package companies to explore the applications of ASTRI's HDR technology to home TV and digital signage display, etc.
Low-Cost Solution for High Performance and High-Density Packaging	The technology was awarded the CES'2006 award in USA. Five service agreements were signed between August 2007 and October 2008 to implement ASTRI's know-how on High-Density Packaging to develop the tailor-made packaging design for the customers.
OFDM Core for Digital TV Applications	Three technology licensing agreements were signed with 3 companies in 2008 and 2009.

Project Name	Progress
DTMB Instrumentation and Testing Platform	A technology licensing agreement was signed with a Hong Kong based broadcast equipment vendor in 2008.
DTMB SFN Technology Adaptors and Systems	A technology licensing agreement was signed with a Hong Kong based broadcast equipment vendor in 2008.
Thermal Energy Management with Advanced Materials and Structures	Three licensing agreements with 2 companies were signed on January 2005 and September 2008. Two contract service agreements were signed with 2 companies between December 2007 and May 2008. The TEMA technology street lamps were installed in HKSTP for trial. The prototypes can meet the US specifications of the street lamp.
Advanced Wireless Super-Physical Layer for Wireless Personal Area Networking Core Technology Platform	Two technology licensing agreements were signed with 2 companies in 2008. Since the Ultra Wide Band (UWB) market began to crumble and vendor shakeout in 2009, we decided to on-hold the UWB development until the industry can find its market identity.
Interactive TV Technologies Platform 	Licensing agreements were signed with 4 companies for Interactive TV platform, including hardware and software reference design.
iShare Media Sharing Platform iShare 	Nine contract service agreements and 1 license agreement were signed during the project period with 10 companies.

Project Name	Progress
Next Generation Antenna Sub-Assemblies	A number of technology licensing agreements and service contracts were signed with 8 companies for product development. The directional car finding device using our technology is a commercialized product being sold in the market.
Dualmode CWPAN/ZigBee RFIC Transceiver	A technology licensing agreement was signed with a leading player in Personal Area Network industry in 2008. Another service contract was signed with a different organization in the same year. The developed RFIC/SoC chip has wide applications in wireless sensor networks and Internet of Things.
A Novel method of removing sapphire for solid-state lighting power GaN LEDs	Two licensing agreements were signed between May and August 2008 with 2 companies. The team then focused on the development of the vertical LED technology.
Mixed Signal System-On-Chip (AMS SoC) Design Platform	Three licensing agreements were signed with 3 companies in May and July 2008. Sponsors shipped products with ASTRI IPs incorporated.
Integrated Driver Solution for LED Solid State Lighting (SSL)	Three licensing agreements were signed with 3 companies in November 2007, November 2008 and March 2009. One Contract Service Agreement was signed in January 2009. Sponsors shipped products with ASTRI IPs incorporated.

Project Name	Progress
Advanced Compact Camera Module (ACCM) for Cellular Phone Applications	The team developed the world smallest anti-shaking compact camera module and demonstrated the module in various exhibitions and press conferences. The technology was awarded the Certificate of Merit in ICT Hong Kong in 2009. Three contract services with royalty were signed on January 2008 and February 2009. One more contract service was also signed on August 2008. An exclusive licensing agreement with royalty amount of $15.6M was signed in September 2010. Also, in-kind contribution was received from a major electronics component provider based on an MOU signed in April 2008.
Mobile WiMAX Basestation Technology Platform	A technology licensing agreement was signed with a Hong Kong based wireless equipment company to facilitate the development of broadband wireless base stations.
LED Based Intelligent Outdoor Lighting System 	The technology was awarded the Silver Award in ICT Hong Kong 2009. Seven licensing agreements were signed in Hong Kong and the Mainland between September 2009 and March 2011. The LED outdoor lighting system was installed in the streets in Hong Kong and 7 major cities in the Mainland. The team intends to install the LED systems in more cities in China.

Project Name	Progress
Flexible and Adaptive - Active Dynamic LED Backlight Control ASIC Development (FA-ADBC)	One company has licensed the technology in their high-end LCD TV product line. Total amount of service contract, licensing fees and in-kind contributions collected was over $1.3M. Other 2 companies showed interest in licensing the technology in their IC products.
Practical MIMO for WiMAX/LTE Device WiMAX/LTE	A technology licensing agreement was signed with a leading wireless IC company in Mainland. Owning to the technology transfer, ASTRI and the licensee have been playing leading roles in TD-LTE technology worldwide and corresponding trials in Mainland.
WiMAX Access Service Network Gateway (ASN-GW) Platform	A technology licensing agreement was signed with a Hong Kong based wireless equipment company in 2008 to extend the customer's product portfolio in broadband wireless communications.
Multi-Mode Mobile TV Baseband Demodulator	Two in-kind contributions from a global leading test equipment vendor and a Hong Kong based chip provider were received to support the project development. The technology developed in this project has drawn the interests from many companies for technology licensing.
Near-Field Antenna Sub-Assemblies	A technology licensing agreement was signed with a sponsor on RF Coil R&D.

Project Name	Progress
Social Networking Internet Tablet 	Three contract services were signed within project period in 2008.
Next generation Anode material for Lithium lon batteries (NALI)	One licensing agreement was signed in December 2008. The material technology developed has attracted strong interests from LiB manufacturers for applications in the LiB owning to its high capacity performance. The technology will be further integrated into the design of LiB for different applications.
Reliability Engineering for 3D Packaging (REF3D)	The technology was awarded the best paper awards in ICEPT-HDP 2008 and 2009. Four licensing agreements were signed in October 2009 to April 2010 to implement ASTRI 3D packaging technologies. Five service agreements were signed from October 2008 to April 2010 to develop tailor-made 3D packaging design for customers. Three in-kind sponsors contributed to the project between September 2008 and January 2010.
Mobile Peer Group Service Platform	Four contract services were signed within project period in 2008.

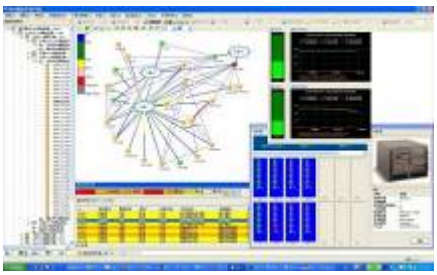
Project Name	Progress
Micro-Display Personal Miniature Projection System 	The technology was awarded 2010 Product Innovation Award in China's Solid State Lighting National Contest. Three technology licensing contracts were signed with 3 companies between March 2009 and October 2009. Two service contracts were signed with 2 companies in March 2009. ASTRI intends to engage more potential customers and explore new applications in using ASTRI embedded pico-projector solution platform.
Configurable Multi-Standard Video Encoder with Embedded DSP Core and Hardware Accelerators (ENC-CMSD)	Several industry collaborations were kick-started, including the joint-promotion work with a Beijing-based Video IP company to promote ASTRI's Multi-Standard Video Encoder IP; the work with an international electronic corporation to utilize ASTRI-designed Video Encoder IP in their video phone product; and the work with several surveillance companies.
BE-DRM for Embedded P2P IPTV over Internet	Seven contract service agreements with 5 companies and 2 license agreement with 2 companies were signed.
Reconfigurable Multimode Digital TV RF Tuner 	A technology licensing agreement was signed with a top IC enterprise in Mainland in 2008. The licensee is satisfied with the deliverables and the technology is being commercialized by the customer.

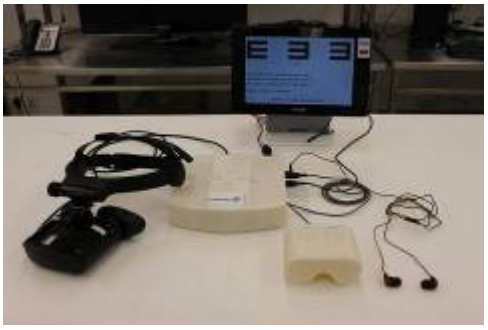
Project Name	Progress
Nanometer SoC Design Technology (NSDT)	One contract service agreement was signed to develop a customized version of yield enhancement IP. Another Industrial Collaboration Project on mobile entertainment processor incorporating two of the project IPs is under planning.
High Performance Storage Controller Platform (HPSC))	Five Contract Service Agreements on NAND Flash based solid state storage products have been signed with 5 companies in China, HK and USA.
Next generation MMI for Digital Home	One license contract for network box reference design (supporting HK DTV and network VOD) and 1 contract service with a local telecom service provider for Man Machine Interface design were signed.
Interactive TV technologies and Standard - Hong Kong Profile	Three license contracts were signed with 3 manufacturers, which utilized ASTRI's HD STB solution for mass production. Moreover, 1 contract service was signed with a local telecom company.
TD-LTE Femto BTS Baseband Core 	A contract service agreement was signed with a global leading base station chipset and platform provider. Besides, an additional option fee agreement was signed with the customer in 2010 to intensify commercialization.

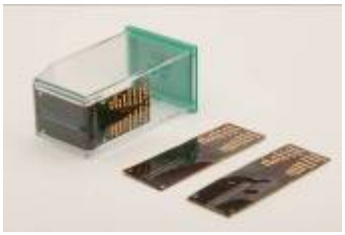
Project Name	Progress
Dual Mode Digital TV Receiver Chip and Reference Design	A technology licensing agreement was signed with a company in 2010. As the DTV deployment in Mainland is picking up, more and more companies have come to us for technology transfer negotiations.
Innovative MMI for mobile	Two licensing agreements and 5 contract services were signed within project period in 2009.
High Voltage Motor Driver Silicon IP Platform	One contract service agreement was signed in February 2009.
ESD design and device modeling	Two contract service agreements were signed with 2 companies in March and May 2009.
RF Assemblies	A number of agreements or contracts regarding advanced RF hardware and antenna technology have been signed with 10 companies. One of the commercialization examples is to provide technical consultation in wireless charger product design, which passed all the certification tests and was sold in the market.
Design and Fabrication Methodology of Production-Ready MEMS Devices: (1) A “Fabrication-able” MEMS Scanning Mirror Device	Two technology licensing contracts were signed with 2 companies in October 2009 and 1 contract service was signed in September 2009. The production-ready MEMS scanning mirror technology platform was built to attract more potential customers and explore new applications by utilizing the platform.

Project Name	Progress
Common Platform for Intellectual Property Qualification	Project completed on 30 November 2010 with over 20% industry contributions. One foundry from China already expressed interest in licensing the technology. Moreover, the Common Platform is installed in HKSTP now. ASTRI may provide contract service to companies that are using the Common Platform inside the HKSTP.
Integrated Vertical LED Technology	The technology was awarded 2010 Product Innovation Award in China's Solid State Lighting National Contest. The project is a collaboration with 2 companies to demonstrate our proprietary VLED process on the wafers. The team is currently discussing with 3 companies on commercializing the technology.
TD-LTE Terminal Baseband Core 	A technology licensing agreement was signed with a leading IC company in Mainland. ASTRI and the licensee jointly developed the world's first TD-LTE base band SoC for TD-LTE data card, and it was selected by China Mobile in its technical trial in 2010 Shanghai World Expo. Field trials in several major cities in Mainland are under preparation.

Project Name	Progress
Wafer Level LED System-in-Package Platform Development 	7 companies signed the technology licensing contracts with the project between November 2009 and February 2010. 9 contract service agreements were signed with 9 companies between December 2009 and April 2010. 1 in-kind contribution was received in February 2010. The team is currently discussing with potential customers to license the related IP developed in the project. The technology will be further developed in the Panel Level.
Interactive Display – Touch & Multi-Touch Sensing Technology	The technology was awarded 2009 Korean Merk Grant Award. Four technology licensing contracts were signed with 4 companies between December 2009 and May 2010. Two service contracts were signed in May 2010 with 2 companies. Most prototypes were able to attract potential customers to explore new applications, such as the interactive whiteboard for HK e-learning platform.
Energy Harvesting (EH) Solutions for Electronic Products	One licensing agreement was signed in January 2010 to implement ASTRI energy harvesting and management design. Three service agreements were signed between January 2010 and March 2011 to provide tailor-made energy harvesting design to the customers. Meanwhile 3 companies provided in-kind contributions to the project. The team further applied the energy harvesting technology to consumer and automotive electronics applications, and is currently working with 2 companies on commercializing the technology.

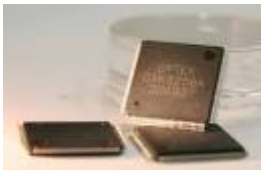
Project Name	Progress
Wireless Network Edge Platform (WNEP) 	A technology licensing agreement was signed with a Hong Kong based wireless equipment company in 2008. Service contracts to provide technical consultations were signed with companies in Hong Kong and Taiwan. Additional licensing or service contracts are under discussion.
Wafer Level Chip Scale Camera Actuator 	The team developed the world smallest auto-focus chip scale camera prototype, which was demonstrated in various exhibitions. One licensing agreement was signed in August 2009. Many major companies in the related industries have expressed their interest and licensing negotiations are currently in progress.
Ultra Low Energy Analog-to-Digital Converter Technologies	One licensing agreement was signed in December 2009.
Integrated LCoS Imager IP Development For Pico-projectors	One licensing agreement was signed in December 2009.
P2P IPTV Quality of Experience	Working on 10 contract services with 6 companies; and 2 license agreements with 2 companies.
Dual-mode TD-LTE/TD-SCDMA RFIC Transceiver (TDLTERF)	A technology licensing agreement was signed in 2011 with a leading wireless IC and solution provider in Mainland.
Mobile Social Networking Framework (MSNF-F)	Three licensing agreements and 1 contract service agreement were signed in 2010. ASTRI will continue looking for commercialization opportunities.

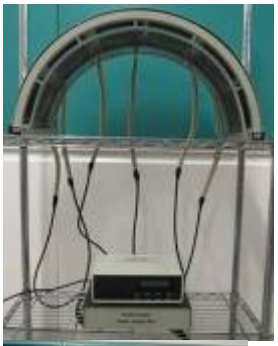
Project Name	Progress
Multi-Mode Mobile TV Baseband + Media Processor SoC (MTVBB+MP)	A technology licensing agreement was signed with a company in the Mainland in 2011. A service contract was signed with a company to work on demodulator related technology. Additional technology licensing agreements are under negotiation with potential customers.
LCD TV Display Enhancement Controller (LDEC)	One licensing agreement was signed with a US company. Three more companies have showed interest in licensing the technology.
Multiple Function Brain Training Device (BTD) for amblyopia treatment and binocular vision training (BTD-F) 	A technology licensing agreement has been prepared and is being under review by the industry partner.
Ultimate e-Book for e-Learning (eBook-F) 	Two licensing agreements and five contract service agreements were signed in 2010-11. ASTRI will continue looking for commercialization opportunities.

Project Name	Progress
MEMS Ink Jet Head for Wide-Format Printing (ASIJ) 	Three contracts were signed with 3 customers. We are currently developing the technologies for the TLA customer. The team is exploring the China market and is talking to 2 potential customers. We will demonstrate the deliverables/technologies to large format printer manufacturers in the upcoming Shanghai APPPEXPO exhibition in July 2011.
Android Digital Home Technology Platform (ANDROID)	Income of three license agreements and one contract service agreement have been received from 4 different companies already. Two more potential contracts are under the pipeline for DTV/IPTV extension on Android platform.
Modularized Ubiquitous Healthcare Electronics (MUHE) (MUHE-F)	Three licensing agreements were signed between October 2009 and March 2011 for ASTRI's portable Oximeter module. The team is currently working with 2 companies on the commercialization plan of mass production of the module.
LTE TDD/FDD Dual Mode Baseband Cores (DMLTE)	A contract service agreement was signed with a global leading base station chipset and platform provider. Besides, an additional option fee agreement was signed with the customer in 2010 to intensify commercialization. Meanwhile, additional contract service or technology licensing agreements are under negotiation.

Project Name	Progress
Reconfigurable RF (RRF) 	A licensing agreement regarding RF jamming technology was signed for road toll application. The RF jamming device has been developed and prepared for installation in the field.
Integrated Concentrating Photovoltaic Module (CPV module) (CPVF)	Two licensing agreements were signed with 2 companies between January and May 2010.
3D Wafer-Level Packaging (3D-WLP) Technologies for Low-Cost CMOS Image Sensor (CIS) (3D-WLP)	Two licensing agreements were signed between September 2009 and August 2010. The team is working with 2 companies on the commercialization plan of 5M pixel COMS image sensor mass product targeting for 2012.
Advanced AC-DC Power Conversion Platform for LED SSL (PSRACDC)	One licensing agreement was signed in March 2011. Four Contract Service Agreements were signed in October 2010, February and April 2011.
Open Research Platform for Learning Management System (ORPLMS)	Five well-known publishers have shown interest in working with ASTRI as the Content Bridge has been developed and is interoperable with publishers' servers. One MOU was signed with a company and 3 school clusters (total 18 schools) have been participating in EDB's eLearning Pilot Program using ASTRI's LMS for evaluation. In addition, there are 1 contract service signed and 1 discussion underway with a textbook alliance on building a content bridge and LMS for their use.

Project Name	Progress
Access Gateway Platform for LTE Access Networks (LTE-AGW) (LTEAGW)	A technology licensing agreement was signed with a Hong Kong based wireless equipment company in 2010. Service contracts were signed with a wireless company in Hong Kong and a system integrator in Taiwan to provide technical consultations in product design or improvement. Discussion of service contract with a company in the Mainland is in progress.
Intelligent mobile surveillance technology platform (IMST)	One license agreement was signed with a company, and 5 contract service agreements were signed. ASTRI's work has been deployed to the public in the Mainland's 3G network and its relative application has been published in App store. ASTRI is also working with Hong Kong Police Force on a 2-stage field trial of mobile surveillance solution in Hong Kong.
Intelligent Display - Personalized Advertising Display System (IAA)	Two technology licensing contracts were signed in March 2011 with 2 companies, and 1 service contract was signed in March 2011. The project will continue to develop technology platform and strengthen the IP portfolio along with the project progress.
Core technology for multimedia signal processing and productization, intelligent embedded multimedia information processing platform	ASTRI designed and verified an android based multimedia information processor platform, and will further incorporate the platform technology into the ASTRI production ready SoC for potential customers.

Project Name	Progress
Development and Commercialization of Key IC Packaging Technologies for Tire Pressure Monitoring System 	This is an Industry Collaborative Project. In addition, there are 2 contract services. The first was signed and the customer plans to move to mass production later this year. The second contract will be signed in June 2011. Meanwhile one of the major cargo terminal operation companies agreed to sponsor the further development of TPMS on the Rubber-tyred Gantry implementation. The team is currently working closely with 3 potential customers for commercializing ASTRI's TPMS solution in the Mainland market.
Advanced & Affordable MRI	A technology licensing agreement was signed with the sponsor on MRI research and development.
Optek Multimedia SoC Development (OMM-SoC)  	This is an Industry Collaborative Project with a Mainland company. ASTRI's work had been fully commercialized and in mass production since December 2010 for iPhone/iPAD type Audio Docking products launched by a well-known international Japanese electronics brand. In addition, ASTRI continues the engagement with the Mainland company for another SoC project.

Project Name	Progress
High definition single/4 channels streaming player  HD TV Wall 	A licensing agreement was signed with the sponsor on the commercialisation of the technology developed by the Project. In year 2010, the customer has reported over 1000 channels HD TV wall sale. A lot of the systems have been deployed in government sites.
Thermal Therapy Apparatus & Devices (TTAD) for Surgical Applications  	An exclusive licensing agreement was signed with a Hong Kong-based partner in 2008. The partner plans to commercialize the thermal therapy apparatus & devices in health and medical caring area. Besides, the technology is also used to develop other commercial electronic products, such as cup and hand warmer.
10 Gigabit Ethernet Silicon IP Platform	One Industry Collaborative Project Agreement was signed in March 2009.

Project Name	Progress
90nm CMOS High-End High Definition Multimedia SoC ASIC Chip - HT5001 - Updated Version	This is an Industry Collaborative Project with a Mainland company. The Project is in the final stage of SoC development and ASTRI will support the collaborating company in targeting one of the largest Telecom and Consumer Electronics Product Design and Manufacture Conglomerates in Shenzhen.
Multi-Role Configurable USB3.0 Application Procesor (U3AP)	The Industry Collaborative Project is still on-going. First test chip (USB3.0 storage controller) worked successfully with outstanding performance. ASTRI is working with the collaborator for mass production and USB3.0 compliance testing.
Radio Frequency Power Amplifiers using Gallium Arsenide (GaAs) Hetero-junction Bipolar Transistors (HBT) (RFPAM)	One collaboration agreement was signed in May 2010.
Digital Living Platform	Three special interest groups have been formed: 1. Interactive TV Hong Kong Profile; 2. Working Group on Android ™ Application; 3. eBook for eLearning. A total of 76 members have been recruited to join Digital Living Consortium.

Details of the projects undertaken by ASTRI are available at *http://www.astri.org/main/index.php?contentnamespace=technologies:home*.

V. Promotion of Use of R&D Deliverables in Public Sector

Project Name (Government Department / Public Body)	Progress

Project Name (Government Department / Public Body)	Progress
Telehealth Platform (United Christian Hospital (UCH))	Project team had meetings with UCH and HA to collect the requirements of the trial. A trial is planned to start in mid 2011 with UCH for community nurse home visit application. Met a group of social service organizations led by HKCSS to explore the possibility of utilizing the telehealth platform for their organizations. Visited 5 hospitals under Tung Wah Group of hospitals and Christian Family Service Centre to gain understanding of their operations.
Feasibility Study of high speed digital pathology (HSDP) system (Queen Mary Hospital)	The testing Motic virtual microscope (VM) system has been installed in ASTRI and performance evaluation and technical analysis has been completed. QMH has completed the trial scanning with the Motic VM system using trial pathology slide in May 2011. A collaboration scheme proposal on a following platform project is being discussed between ASTRI and Motic.
Convenient login device for doctors/nurses to login HA main system (Hospital Authority (HA))	Based on the clarified user needs with HA IT, the original proposed seed project has been modified and was entitled "ASTRI Proximity-Based Biometric Identification System". The trial for the first prototype and final system is planned to start in the second half of 2011.
Special computer with Skype capability for bed-ridden senior citizens (Community Nursing Service)	A demonstration of the privacy technology using microphone array was given March 2011. A trial is planned to start in the first half of 2012.
Computer designed for easy sterile for Pediatric Ward	A prototype solution was completed using ASTRI HD STB (set top box) and PC in

Project Name (Government Department / Public Body)	Progress
(HA)	February 2011. Working with UCH IT to collect and verify user requirements and operations. The prototype solution has been shown to HA. The trails for STB, user interface and content management software are planned to be in the second half of 2011 and Q1 2012.
TD-LTE Propagation Study and Cell Planning (Hong Kong Science & Technology Park (HKSTP))	Coverage tests have been conducted with temporary TD-LTE cell setup with industrial partners in Hong Kong Science & Technology Park. Cell planning has been performed and 2 TD-LTE base stations are undergoing deployment in HKSTP. Multi-UE tests have also been conducted to facilitate the actual deployment scenarios. 2 TD-LTE base stations have been constructed and deployed. Tests have been done for the deployment and throughput evaluations in different propagation environments. The existing sites will continue to be used to test ASTRI's new release of TD-LTE UE equipment. 4G Internet kiosk will also be set up in Science Park for demonstration and testing purposes in the future.
Building Energy Management System (Environmental Protection Department (EPD), HA)	ASTRI is in dialogue with HA on the collaboration and the availability of some buildings to be used for demo trial site. Science Park has committed to providing two floors of the new Building 20 for test site. The trial is planned to start in Q4 2011. ASTRI is in discussion with a company on collaboration on the project.
Ultimate e-Book for e-Learning, Open Research Platform for Learning Management System	<u>EB Pilot program</u>: ASTRI has engaged two winning school clusters (total 12 schools) to provide e-Learning total

Project Name (Government Department / Public Body)	Progress
(Education Bureau (EB))	solutions including learning management system, content bridge, e-Learning SW and e-Learning device (PAL-Personal Assistant for Learning). Another 2 winning clusters (6 schools) have also shown their interests in working with ASTRI. Project team is now working with the winning clusters/schools to collect their requirements on eLearning SW and device (PAL); so that the team can develop and fine tune the SW and device based on their requirements. A three-year pilot school trial is planned to be started in 2011. <u>e-Learning device:</u> Project team has lined up a manufacturer to produce ASTRI e-Learning device (PAL) and started sample pilot production. <u>e-Book standard:</u> Project team has circulated a HK e-Book specification to publishers for review, and also submitted an annotation standard draft for e-Learning to the e-Pub international standard committee. Besides, we collaborated with DAISY (www.daisy.org) on a proposal addressing synchronized audio with text (i.e. karaoke mode) and it was adopted in the e-PUB v3 draft. <u>Cross platform e-Reader:</u> Phase 2 development, which supports multimedia e-Book, was completed in February 2011. A trial version will be released for evaluation. Regarding Phase 3 development, it will incorporate the reference implementation of annotation, and enhancement of supporting multimedia content. Its release date is planned for early Q3 2011.

Project Name (Government Department / Public Body)	Progress
	<u>e-Reading Program</u> The team launched a seminar on 16 April 2011 to introduce the e-Reading program. Around 200 guests from schools, publishers, Education Department, ITC and media attended the event. We start to collect applications from schools to participate in the program.
Intelligent Mobile Surveillance Technology Platform (Hong Kong Police Force)	The project team has built a mobile surveillance device prototype, and performed trial in the Mainland in Q2 2011. The device has been tried in Shenzhen, and the video transmission from China Telecom mobile to China Telecom ADSL broadband is good.
LED lamps trial deployment and research performance evaluation in HKSTP (Hong Kong Science & Technology Park (HKSTP))	Twenty LED lamps were installed and tested in HKSTP in August 2010. Three luminance measurements had been conducted and HKSTP is satisfied with the results.
Intelligent sensing lighting control module LED lamp for corridor lighting application (Housing Department (HD))	Housing Department will have internal review and advise the venue and timeline for the lighting control module trial test, which is expected to start in Q3 2011. ASTRI has sent LED lamp prototypes to Tsz Wan Shan DMO for trial and to Housing Department as reference sample.
LED Street-Lamp Deployment on Public Roads of Hong Kong LED (Highways Department (HyD))	Six units of LED streetlamps have been installed at the depot of HyD and illumination performance is under evaluation. According to the request raised by HyD, ASTRI acquired certificates from HKSTP and delivered to HyD. For the subsequent test (50pcs lamp) on public roads in HK, the project team is negotiating with different parties for a new collaboration model

Project Name (Government Department / Public Body)	Progress
	setup. The trial is planned to start in Q4 2011.
LED streetlamp for TKO Hospital Expansion project (Architectural Services Department (ASD))	A project proposal is under internal review. 10 units of LED streetlamps (including 15% spare parts) are requested by Architectural Services Department for TKO Hospital Expansion Project. Expected delivery is around July 2011. The trial is expected to start in Q3 2011.
Modularized Ubiquitous Healthcare Electronics (Senior Citizen Home Safety Association (SCHSA), United Christian Hospital (UCH))	ASTRI are working with SCHSA on the possibility of integrating the healthcare module with the safety alarm of SCHSA to provide value-added functions to elderly. The healthcare module will be used for the "Telehealth Platform" project to be tested by UCH involving the community nurses and patients at home. The trial is planned to start in Q4 2011.

Hong Kong Applied Science and Technology Research Institute
June 2011

Annex C

Hong Kong Research Institute of Textile and Apparel (HKRITA)
Highlight of Operation in 2010-11

I. New R&D Projects and Industry Contribution (in $million)

	2009-10			2010-11		
	No. of new projects	Project Cost	Industry Contribution	No. of new projects	Project Cost	Industry Contribution
Platform	13	38.9	4.5 (11.6%)	10	38.9	4.8 (12.3%)
Collaborative	-	-	-	-	-	-
Seed	-	-	n/a	-	-	n/a
Total:	13	38.9	4.5 (11.6%)	10	38.9	4.8 (12.3%)
Contract Research	-	-	-	-	-	-

Note: Figures in brackets denote the level of industry contribution.

II. Operating Expenditure (in $million)

Operating Expenditure Breakdown: by Activities

	2009-10	2010-11
Direct research	-	-
Project vetting and monitoring	4.8	4.5
Commercialization	2.1	3.9
Admin. Support	3.3	3.9
Total:	10.2	12.3

Operating Expenditure: Breakdown by Cost Components

	2009-10	2010-11
Staffing	8.5	9.7
Accommodation	0.5	0.5
Equipment	-	0.1
Others	1.2	2.0
Total:	10.2	12.3

III. Industry Income Received (in $million)

	2009-10	2010-11
Sponsorship for projects	8.85	12.59
Licensing/Royalty	0.07	5.19
Contract services	-	-
Others	-	-
Total:	8.92	17.78

IV. Progress of Commercialization

Project Name	Progress
Development of an Innovative Finishing System for Wet Processing of Garments and Accessories	One non-exclusive license has been issued to a machine manufacturer for the wet finishing system fabrication at a fee of $0.05M.
Development of a Problem Solving Model for the Hong Kong Textiles and Clothing Industries	This is to benefit SMEs. Two training courses have been organised.
Conversion to an Industrial Scalable Technology - "Advanced Textile and Garment Manufacturing Process Technology"	To-date, one non-exclusive license on the warehouse management system has been issued. Discussions are on-going with several other interested companies.
High-Performance Sportswear and Devices *(See figure 1)*	Two non-exclusive licenses have been issued. Several individual business promotions have been conducted to draw up interest.
Development of an Innovative Manufacturing Solution for Energy-saving and Environmental-friendly Production of Brassiere Cup	A non-exclusive license has been granted to the Hong Kong Productivity Council, to manufacture and sell the machine. Over 300 copies of the “The Molding & Lamination Technology Handbook for Lingerie Industry” have been sold with an income of $0.029M.

Project Name	Progress
Finer Nu-Torque Cotton Yarn Production (V1 to V4) *(See figure 2)*	Three non-exclusive licenses have been issued to companies for use of the Nu Torque™ Singles Ring Yarns Technology at a total licensing fee exceeding $5M. Discussions are on-going with several other interested companies.
Development of a Fashion Sales Forecasting Decision Support System using Artificial Intelligence Techniques	The system was presented and promoted in 9 seminars to attract potential industrial users. Discussions are on-going with several interested companies.
Biofunctional Materials & Applications (I) & (II)	Discussion with interested companies is in progress.
Advanced Clothing Functional Design CAD Technologies (I) & (II)	Discussion with interested companies is in progress.

Details of the R&D projects undertaken by HKRITA are available at *http://www.hkrita.com/html/projectdatabase.php*.

Remarks:

The Business Development Division of HKRITA was set up in September 2010 to promote commercialisation. This is now gaining momentum. We shall also engage agents in the Mainland to generate interest in our research deliverables.

In addition to the 12 projects, another 15 projects including 1 prototype project will be completed by March 2012. We have started to consider how best to promote/commercialise these projects.

Figure 1.

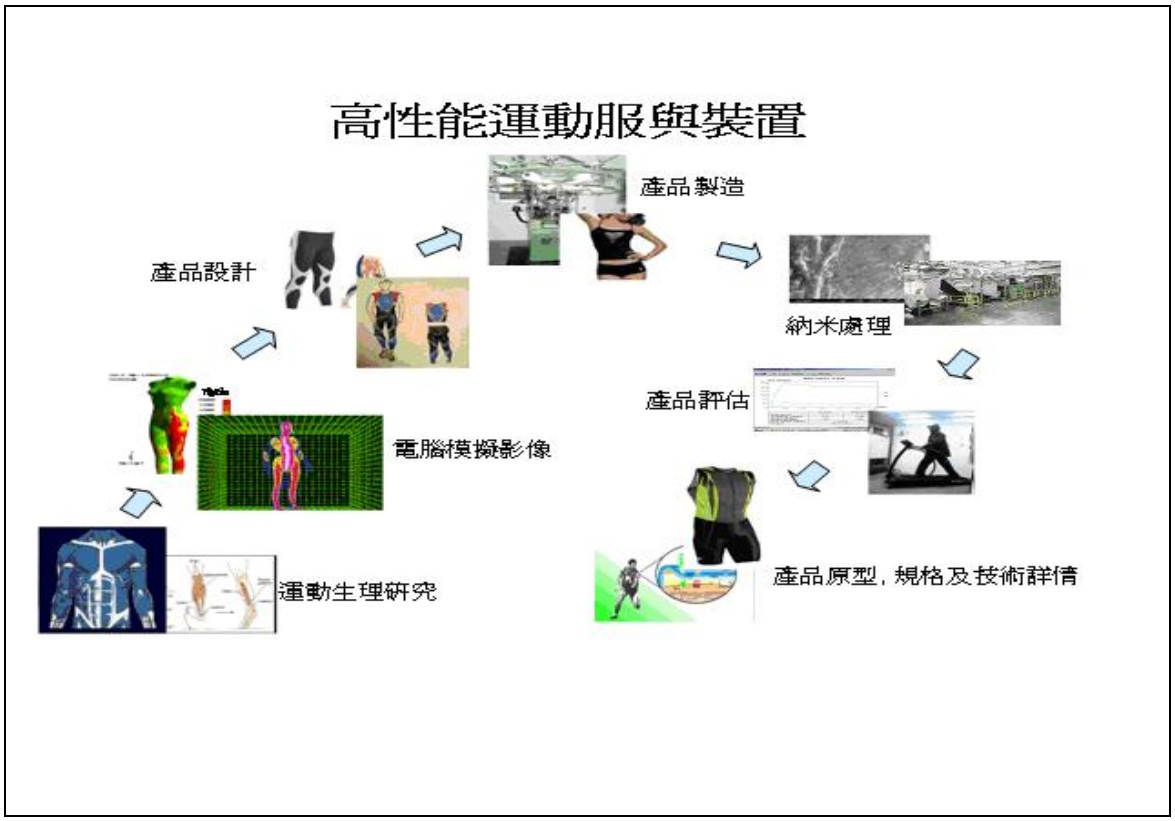


Figure 2.

V. Promotion of Use of R&D Deliverables in Public Sector

Project Name (Government Department/ Public Body)	Progress
Multi-function Odour-Control uniform for Food and Environmental Hygiene Department (FEDH) (FEHD))	Work commenced in May 2011 to produce 70 sets of prototype uniforms for frontline staff handling corpses. The trial is planned to start in Q2 2011.
Performance Sportswear Support for Hong Kong Sports Institute Elite Athletes in Olympic 2012 (Hong Kong Sports Institute)	To develop 180 sets of high performance sports wear for cycling and triathlon teams for training for the 2012 Olympics. The trial is planned to be started in Q3 2011.
Monitoring Patients with Diabetic Foot Syndrome by Intelligent Footwear System *(See Figure 3)* (Hospital Authority)	A prototype project in developing 50 sets of the "intelligent footwear system" for monitoring patients with diabetic foot syndrome. The trial is planned to start in Q4 2011.
Functional Design Optimization of Hong Kong Fire Service Uniform (Fire Services Department)	To develop 160 sets of working uniform with good moisture management and thermal conductivity. The Department will then conduct wear-trial by their officers for product evaluation in Q3 2011.
Enhancement of Uniform and Ballistic Vest (Hong Kong Police Force)	HKRITA is discussing with Hong Kong Police Force to enhance their current uniform and ballistic vest.
Identification of Waterproof/breathable fabric and enhancement of Winter Jacket (Correctional Services Department)	HKRITA is discussing with Correctional Service Department tto explore available fabrics to replace Gore-Tex which will have the same performance and functionality.
Enhancement of Special Garment for Infant Eczema Patient, Flexible Biliblanket, Nesting and Towel for new Born	HKRITA is discussing with United Christian Hospital on enhancing their current textiles and clothing for baby patients with eczema, jaundice, etc.

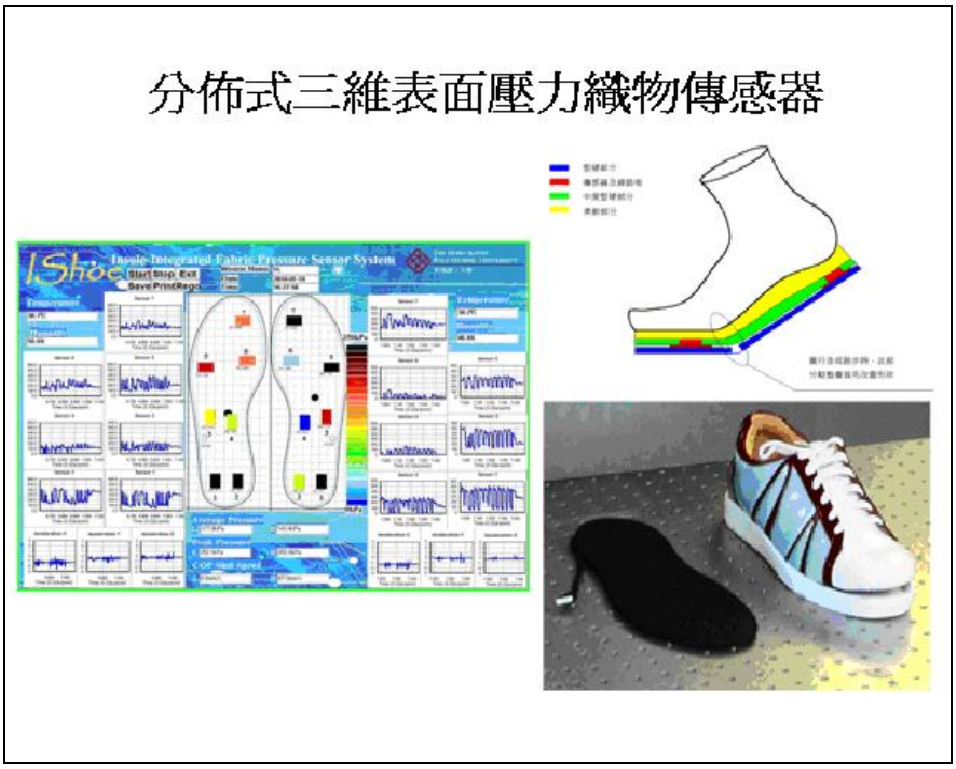
Project Name (Government Department/ Public Body)	Progress
Baby (United Christian Hospital)	

Remarks:

The seven projects listed above seek to draw on project deliverables to provide prototypes of functional uniforms for government departmental/ institutional use. The longer term expectation/potential is that government departments will include "specifications" drawn from these prototypes in their future procurement exercises for vast number of uniforms, etc. This in turn will benefit local manufacturers.

In addition to the above seven projects , HKRITA is also exploring another 6 potential prototype projects.

Figure 3.



Hong Kong Research Institute of Textile and Apparel
June 2011

Annex D

Hong Kong R&D Centre for Logistics and Supply Chain Management Enabling Technologies (LSCM) Highlight of Operation in 2010-11

I. New R&D Projects and Industry Contribution (in $million)

	2009-10			2010-11		
	No. of new projects	Project Cost	Industry Contribution	No. of new projects	Project Cost	Industry Contribution
Platform	7	57.5	6.2 (10.8%)	3	28.0	3.4 (12.1%)
Collaborative	2	3.9	2.0 (51.3%)	-	-	n/a
Seed	-	-	n/a	-	-	n/a
Total:	9	61.4	8.2 (13.4%)	3	28.0	3.4 (12.1%)
Contract Research	1	0.0065	0.0065 (100%)	-	-	-

Note: Figures in brackets denote the level of industry contribution.

Remarks:

The sudden dip in the number of projects in 2010-11 was attributed to the low successful rate of R&D applications from university applicants. Only 1 out of 13 university-initiated projects was approved because the others were unable to meet the ITF vetting requirements. However, LSCM itself maintained a good R&D capability and effort during 2010-11. Both proposals submitted by LSCM's in house R&D team were amongst the three newly approved projects. With its restricted R&D roadmap, LSCM was successful to re-steer its attention to build up a stream of platform projects and prototype projects, for the public sectors and trade associations. One of these projects has already commenced.

In approaching 2011-12, LSCM has collaborated with various university applicants to form "cluster" projects. A rich pipeline has been built of 3 prototype projects, 2 collaborative and 2 platform projects, and another batch is underway. LSCM expects to see an increase of projects in a good growth out of the sudden dip in the number of projects in 2010-11 due to the aforementioned roadmap restructuring.

II. Operating Expenditure (in $million)

Operating Expenditure: Breakdown by Activities

	2009-10	2010-11
Direct research	3.5	5.6
Project vetting and monitoring	2.0	2.4
Commercialization	5.4	4.8
Admin. Support	5.7	5.7
Total:	16.6	18.5

Operating Expenditure: Breakdown by Cost Components

	2009-10	2010-11
Staffing	8.5	10.3
Accommodation	2.8	3.6
Equipment	1.5	0.5
Others	3.8	4.1
Total:	16.6	18.5

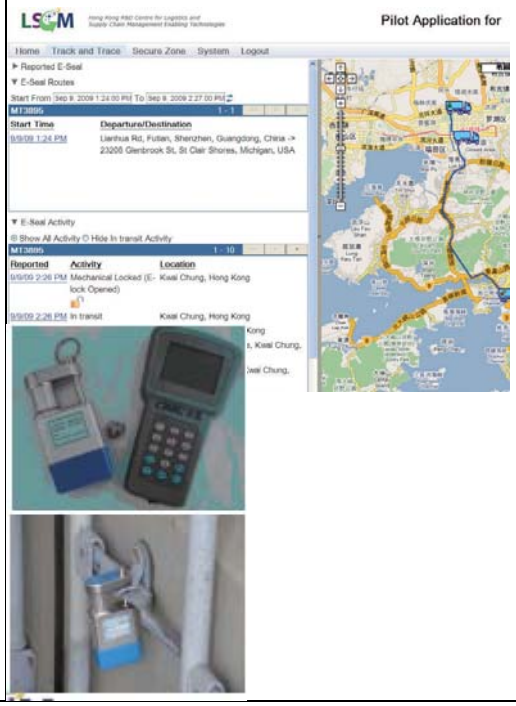
III. Industry Income Received (in $million)

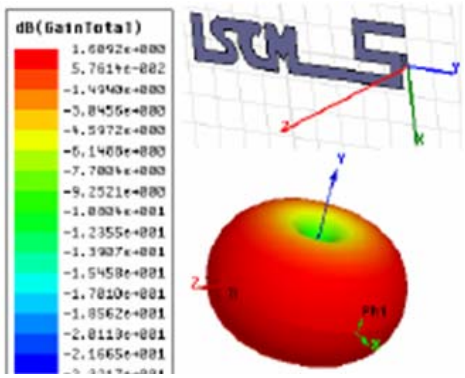
	2009-10	2010-11
Sponsorship projects	5.65	7.96
Licensing/Royalty	-	0.002
Contract services	-	-
Others	17.63	0.13
Total:	23.28	8.092

Note: The figures shown under "Others" denote the income from a batch of six early projects which commenced before April 2006 and commercialised jointly by LSCM and the concerned university.

IV. Progress of Commercialization

Project Name	Progress
RFID Enablement Middleware for Enterprise Applications	13 companies have been licensed with a total income of $17M.
Establishing an EPC Network Infrastructure to Enable End-to-End Supply Chain Visibility	89 companies have subscribed to the system, with a total income of $680,000.
The Development of RFID-based Business Solutions for Counterfeit Prevention, Physical Asset Management (PAM) and Commercial Applications	A company has been licensed to use the two patents developed with a total fee $78,000.
RFID Enabling Technologies for Retail & Logistics Industry	A company has been licensed in 2010 for a fee of $1,600. A tooling project with the support from Hong Kong Retail Management Association will be further developed in 2011. 
RFID-enabled Platform Technology for the Integrated Shenzhen-Hong Kong Food Safety and Supply Chain Management Public Information Platform (Part A)	A company has been licensed for a fee of $50,000. A tooling project with the support from the Hong Kong Food Council is under planning.

Project Name	Progress
	
Interoperability Technology and Applications for Container RFID and e-seal	A commercial pilot is undertaken with a company who runs a container/cargo logistics business with a view to licensing the technology in Q4 2011. Another commercial pilot will be run by another company in Q4 2011. A tooling project with the support from The Chamber of Hong Kong Logistics Industry will be developed in second half of 2011. 

Project Name	Progress
Package-specific RFID Tagging and Embedding Technology	Various companies have - shown interests in the technology. A collaborative project with an interested company is under planning. 
• RFID-based Interoperable Gateway for Logistics Service Platforms (RIG) • An eLogistics Appliance with Data Exchange and Conversion Technologies for Infrastructure Connectivity • Study the Design Challenges of 90nm Technology UHF RFID Tag IC • Integrated Passive UHF RFID Tags and Readers	The deliverables are being promoted to the industry.

Details of the R&D projects undertaken by LSCM are available at *http://www.lscm.hk/RD/RdProject.do?year=2010*

Remarks:

Discussions on two collaborative project proposals are currently under way –

(a) Service-Oriented System for Real-time Optimization and Execution of RFID-Enabled Smart Container Loading; and

(b) One-time e-Seal for feeder logistics

They are expected to start in 2011.

To promote the R&D Centres and technologies developed from its projects, LSCM has organized and participated in over 250 activities over the years.

V. Promotion of Use of R&D Deliverables in Public Sector

Project Name (Government Department/ Public Body)	Progress
E-Lock-Based Enabling Technology for Container Cargo Transshipment Process (Customs and Excise Department(C&ED))	■ Pilot project kick-started to develop an integrated track and trace platform to C&ED. ■ Trial to begin in Q4 2011.
RFID and Sensor-based Productivity Enhancement System for Human-operated Workplace (Correctional Services Department (CSD), C&ESD, Radio Television Hong Kong (RTHK))	<u>Correctional Services Department</u> ■ Pilot project kick started to improve keys handling and management process. ■ Trial to begin in Q4 2011. <u>Customs and Excise Department</u> ■ Pilot project kick started to improve seizure management process. ■ Trial to begin in Q4 2011. <u>Radio Television Hong Kong</u> ■ Pilot project kick started to improve operation efficiency and productivity in managing the audio-visual equipment inventory including loan and return process ■ Trial to begin in Q4 2011.
RFID Traceability for Risk Management in Hospital (Prince of Wales Hospital)	■ Developed RFID traceability technologies for better patient care including (i) interaction traceability (ii) Real-time tracking (iii) Continuous monitoring. ■ Trial in progress.

Enabling Technologies for Baby Tracking in Hospital Environment (Tamper resistant & reusable baby tag) (United Christian Hospital)	Discussion underway for starting trial in late 2011.
RFID Tags and Management System for Paediatric Mixed Specialties Ward (detect and avoid close contact between male and female patients) (United Christian Hospital)	Discussion under way.
RFID Tags and Management System for tracking tools and gauzes used in operating theatre in hospital (United Christian Hospital)	Discussion under way.
Smart Ward Infrastructure and Applications Integration (United Christian Hospital)	Discussion under way.
Product Authentication System (Hong Kong Chinese Medicine Industry Association & Hong Kong Food Council)	Discussion under way.
Construction Workers Registration System (Construction Workers' Registration Authority)	Discussion under way.
Sampling/prototype project for RFID-enabled Technology for Food Safety and Management Information Platform (Hong Kong Food Council)	Discussion under way.

Sampling/prototype project for RFID Traceability for Risk Management in Hospital (Prince of Wales Hospital)	Discussion under way.
Sampling/prototype project for Retail management (Hong Kong Retail Management Association)	Discussion under way.

Hong Kong R&D Centre for
Logistics and Supply Chain Management Enabling Technologies
June 2011

Annex E

Nano and Advanced Materials Institute (NAMI)
Highlight of Operation in 2010-11

I. New R&D Projects and Industry Contribution (in $million)

	2009-10			2010-11		
	No. of new projects	Project Cost	Industry Contribution	No. of new projects	Project Cost	Industry Contribution
Platform	8	35.6	5.5 (15.4%)	5	19.9	2.1 (10.6%)
Collaborative	4	35.7	17.5 (49.0%)	6	52.9	29.4 (55.6%)
Seed	5	6.2	n/a	3	3.9	n/a
Total:	17	77.5	23.0 (29.7%)	14	76.7	31.5 (41.1%)
Contract Research	1	0.03	0.03 (100%)	-	-	-

Note: Figures in brackets denote the level of industry contribution.

II. Operating Expenditure (in $million)

Operating Expenditure: Breakdown by Activities

	2009-10	2010-11
Direct research	14.7	11.7
Project vetting and monitoring	2.0	2.3
Commercialization	4.1	5.0
Admin. Support	6.3	7.2
Total:	27.1	26.2

Operating Expenditure: Breakdown by Cost Components

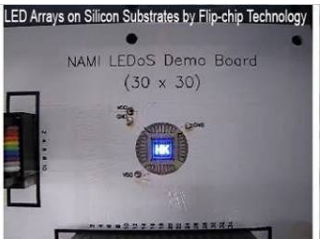
	2009-10	2010-11
Staffing	14.5	19.0
Accommodation	1.6	4.2
Equipment	9.0	0.6
Others	2.0	2.4
Total:	27.1	26.2

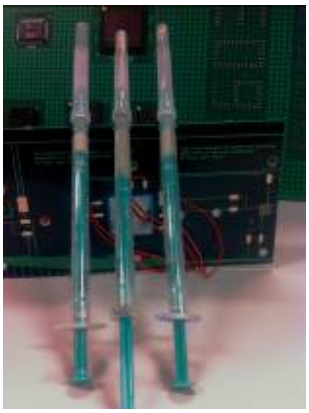
III. Industry Income Received (in $million)

	2009-10	2010-11
Sponsorship for projects	10.13	33.52
Licensing/Royalty	0.06	0.04
Contract Research	0.03	-
Others	-	-
Total:	10.22	33.56

IV.Progress of Commercialization

Project Name	Progress
Demonstration Line for the Production of Low-cost Humidity Sensor	2 licensing agreements were signed in May 2009. One company renewed the agreement in December 2010 and the commercial products are ready for order.  Humidity Sensor Testing Kit

Project Name	Progress
Development of Reactive Hybridization SOL-GEL Technology on Extra Hard and Non-Stick Silicon Coating as an Alternative to Teflon Coating for Cookware	A licensing agreement was signed with a company in January 2011 on the commercialisation of the project invention on cookware.  Sol-Gel Technology on Cookware
LED Arrays on Silicon Substrates by Flip-chip Technology	Early prototypes have been developed to attract interests for technology licensing as well as for investment for further technical development. The technology will be further developed for display applications in addition to pico-projector. The associated development such as drivers, improved resolution, etc. will be considered.  LEDoS Demonstration
Development of Advanced Multi-Functional Coating Technologies for Environmental and Health Industries	NAMI aims at developing a coating that can be applied on surface with a 20% improvement of NO2 reduction compared to some similar solutions on the market. This project will be exploited for licensing opportunities as well as for further R&D work.  TiO2 Ceiling Trial Site

Project Name	Progress
Development of Advanced Die Attach Adhesives with Nano-fillers/ Microcapsules for High Brightness LED	When this project was introduced to the public during the Innovation Design Expo in December 2010, it has received a lot of interests and the knowhow from this project is expected to be available for licensing around second half of 2011.  Die Attach Adhesives
Development and Production of Novel Polymer Based Multi-Functional Materials and Products	When this project was introduced to the public during the Innovation Design Expo in December 2010, NAMI has also received interest from industry. Discussion with a potential licensee is now in advanced stage and an agreement is expected.  Novel Polymer

Project Name	Progress
White Anodized Aluminium Oxide Products	NAMI aims at filling the void of the absence of white color with aluminium casing. In addition, anti-scratch capability has also been added. Work is being done to improve the stability of this white anodizing process. It is expected this project would be ready for commercialization during the second half of 2011.  White Anodized Aluminium Oxide Products
Research and Development for High Efficient Anti-Bacteria Porous Filters for use in Air Purifiers	Undergoing further tests on anti-bacteria performance to fine-tuning the air filter performance  Anti-Bacteria Porous Filters for use in Air Purifiers

Details of the R&D projects undertaken by NAMI are available at http://www.nami.org.hk/clb_rnd_e.html.

Promotion of Use of R&D Deliverables in Public Sector

Project Name (Government Department / Public Body)	Progress
Enhanced Ductility and Service Life of Galvanized Structural Steel Members (Water Supplies Department (WSD))	A total of 18 sets of steel hangers/brackets, with half galvanized with conventional method, and the other half galvanized with nano-additives, were installed in November 2010 at the following corrosive environments at WSD: • Chlorination plant room at Red Hill WTW • Electrochlorination plant room at Sai Wan Ho salt water pumping station • Salt water pump hall at Sai Wan Ho salt water pumping station. NAMI is also in contact with Housing Authority, Architectural Services Department, Hong Kong Science Park and Construction Industry Council regarding trials. We are in the process of identifying the suitable sites.  Water Supplies Department Installed Hangers
Research on high efficiency amorphous Si solar cells by introducing new functional materials (Architectural Services Department)	Design & Build a 10 kW solar cell demonstration system as turn-key installation at Tseung Kwan O Hospital Project. Installation expected to be carried out in July and August 2011.

Project Name (Government Department / Public Body)	Progress
	
New Proposal (to be submitted) Field Trial of Anti-bacteria Coating for Disinfection Applications (United Christian Hospital (UCH))	NAMI developed anti-bacteria coating will be coated on working surfaces (focused on computer keyboard) at UCH to evaluate its disinfectant capability in a hospital environment. Anti-bacteria capability and the durability of the coating will be measured and documented. Preliminary data on UCH provided keyboard show good and consistent results. Sampling methodology agreed and confirmed by UCH. Project proposal is being finalized.  United Christian Hospital Antibacterial Coating Test Procedures

VI. Other Major Activities

Symposia, Workshops and Tradeshows

NAMI organized a number of symposia and workshops as a platform to 1) bridge collaboration between industry and the research community and b) facilitate the transfer of knowledge.
In the year 2010/2011, the following symposiums were held with the Trade Development Council.

May 7, 2010	**"Light the Passion, Share the Dream"** – When Technology Innovation meets Business
Jul 16, 2010	**"An Ounce of Prevention"** – Applications and Technology of Fire Resistant Building Materials
Oct 8, 2010	**"A Nano-Sized Doctor"** – Nanotechnology and Smart Materials for Medical & Healthcare Applications
Jan 28, 2011	**"The Impulse to Soar"** – Advances in the Materials & Processing of Organic LEDs
Mar 18, 2011	**"Catching the Wave"** – Latest Development in Electronic Packaging & Thermal Management for LED

On March 12, 2011, a **"Green Construction Materials Workshop"** was organized at City University of Hong Kong, in collaboration with Hong Kong Institution of Engineers – Materials Division and the Department of Physics and Materials Science of City University of Hong Kong. Due to the capacity of venue, the workshop accommodated 300 participants out of 598 registrations. Similar workshops will continue to be organized in 2011/12.

Other notable events that NAMI have organized or participated in the current year include China Hi-Tech Fair 2010 (CHTF) and Inno Design Expo 2010 (IDT). These participations are to be continued for the coming year.

These events have been very successful in raising the industry's awareness of NAMI's role and work, promoting the potentials of projects, and widening NAMI's business

network (e.g. as reflected in the increase of consortium membership).

Another approach taken by NAMI to increase its awareness and exploration of the collaboration opportunities is through direct contact with different trade associations and professional organizations. As a result, a number of visits to NAMI and meetings took place. Examples include visits by 23 members of the Hong Kong Institution of Engineers (Electronics Division) and 33 members of HK Metal Finishing Society. Similar visits by other organizations such as the Hong Kong Institution of Engineers (Materials Division) and (Environmental Division) are planned for the coming year as a vehicle to enhance mutual understanding and facilitate further discussions on collaboration opportunities.

Relationship Building

One of the means NAMI uses to communicate regularly with its industrial and research collaborators are through its e-newsletter. The e-newsletter, positioned as a technical magazine for professionals, is issued quarterly to NAMI's consortium members, who are genuinely interested in learning about new technologies and industrial trends. In 2010-11, the topics covered included how to achieve successful technology commercialization, wastewater treatment and surface treatment technology.

It is worthwhile noting that NAMI has recruited 460 new consortium members in 2010/11. The total number of consortium members in March 2011 therefore stood at 922.

Nano and Advanced Materials Institute
June 2011