Annual Report for FY 2009/10

on

UGC Funding for Knowledge Transfer

31 July 2010

INTRODUCTION

1 The allocation of knowledge transfer ("KT") funding from UGC was dispersed to PolyU in late October 2009. The funding has since been used by the Institute for Enterprise ("IfE") at PolyU to carry out various KT functions within PolyU. The IfE units namely the Innovative Technology Research Syndicate ("ITRS"), the Management and Executive Development Centre ("MEDC") and the Partnership Development Office ("PDO") are the main drivers of KT functions at PolyU (please see Appendix 1).

1.1 This report outlines the activities associated with KT activities at PolyU which were supported by the additional funding provided by the UGC for the enhancement of KT capacity and capability at PolyU. The prevailing university environment for KT is also outlined, together with the quantitative indicators achieved over the remainder of FY2009/10, as well as the plan for FY2010/11.

1.2 Due to the late arrival and UGC funding, KT activities had already been planned and started for FY2009/10. Therefore, the KT funding from UGC was predominantly used for enhancement of the ongoing KT activities. Although new activities have been planned, these new activities will be executed in the financial years after FY2009/10.

MARKETING ACTIVITES CARRIED OUT ASSOCIATED WITH THE KT FUNDING

2. **Marketing and Promotion** - extensive activities have been carried out by PolyU to promote KT both internally within the university campus and externally to the broader business community. During FY2009/10, PolyU held 28 major marketing events in Hong Kong, the Mainland and overseas.

2.1 KT funding was used to supplement the PolyU efforts in 8 large scale **trade and industry exhibitions** in Hong Kong (please see Appendix 2). These exhibitions were effective for showcasing relevant technologies developed by various departments at PolyU.

2.2 Connecting to industry via the **alumni network** is another effective means to promote technologies developed by PolyU and expedite the KT transfer to the market where PolyU alumni engage their businesses. Four such connecting-via-the-alumni events were organized (please see Appendix 3).

2.3 **Technology seminars** with technical presentations by the researcher and commercial support were organized by PDO. These seminars focused on reaching the targeted audience in the industry, which can generate tangible leads for commercialization and knowledge transfer follow up. The KT fund contributed to 3 of the 10 technology specific seminars organized by PolyU (please see Appendix 4).

2.4 Participation in 4 **major technology exhibitions** in the **Mainland** China helped showcase PolyU's innovations and promote the relevant knowledge transfer to industries and market outside of Hong Kong. PolyU booth was set up at the internationally renowned Shenzhen Hi-Tech Fair, China Beijing International High-Tech Fair ("CHITEC") and the China International Industry Fair in Shanghai.

The participation in CHITEC was supported by the UGC KT fund. PolyU booth attracted the attention of the press, industry members and VIPs such as the Minister of Science & Technology, Prof. Wan Gang, and State Councilor Ms. Liu Yandong. It also opened the door for the PolyU developed Fibre-optics Railway Signaling System to be considered for use in China's National High Speed Railway development (please see Appendix 5).

Minister of Science & Technology
Prof. Wan Gang

China's State Councilor Liu Yandong

The participation in the China International Industry Fair, also supported by the UGC KT fund, also generated immediate interests and enquiries to PolyU's "Mega-structure Diagnostic and Prognostic System" for potential application in major infrastructure development in the Mainland. With the adoption of the PolyU system at the World tallest TV tower in Guangzhou, the New Shenzhen Stock Exchange towers also joined list of successful transfer of the same PolyU developed technology (please see Appendix 6).

New Shenzhen Stock Exchange

Guangzhou TV tower

2.5 Participation in 3 overseas **invention and technology exhibitions** to increase the awareness and profile of PolyU developed technologies internationally (please see Appendix 7). In particular, the participation in the Tech-Connect Conference & Technology Showcase held in Los Angeles in June 2010 was supported by the UGC KT fund. Tech-Connect links research in nanotech, clean technology, micro technology and biotech with the industry. The KT funding helped the PolyU researchers to attend the event and made presentations personally. It was a unique training opportunity for the researchers to understand the requirements of industry, and learn about the technological trend of the industry. Marketing materials and presentations were enhanced as result of the support from the UGC KT funding.

2.6 **Showcase of University's Innovations** - PolyU has conducted over 70 tours to the House of Innovation located on campus for

over 1,000 visitors from schools, companies and industry groups to showcase PolyU's technologies. The House of Innovation displayed about one hundred innovative PolyU projects which are ready for commercialization (please see Appendix 8).

This outreach effort to showcase PolyU developed technologies has been effective in letting the broader community see the relevance and importance of R&D carried out by the university. Many of these tours led to further visits of various laboratories and researchers at PolyU.

2.7 **Successful international debut of PolyU innovation** – MyCar, the innovative electronic vehicle developed in Hong Kong, was widely publicized by local and international press last year during the launch by the Financial Secretary the Hon. Mr. John Tsang and the Secretary for Commerce and Economic Development the Hon. Mrs. Rita Lau. It drew further attention during the subsequent merger of the partner company with a major US green technology group in May 2010. There merger ceremony was witnessed by the US Secretary of Commerce, Mr. Gary Locke, and the HKSAR Secretary for the Environment the Hon. Mr. Edward Yau. In his speech commending PolyU's innovative contribution to the MyCar development, Secretary Locke said ***"… We are really creating these win-win scenarios with the technologies pioneered here in China and Hong Kong, and some of the great college and University in China*** **[PolyU],** ***and they will be manufactured in the USA, so it's creating jobs for the people here in China, and creating jobs for people in America."*** http://www.pdo.polyu.edu.hk/fileupload/past_event/gary_locke.wmv

The KT fund was used to support the marketing event of MyCar. The event drew a lot of attention on a global innovation created in Hong Kong (please see Appendix 9).

2.8 **Specially written articles** on technology were written to promote research outputs in trade magazines to targeted readers, or published in prominent trade journals such as the Chinese Manufacturers' Association Magazine, the Federation of Hong Kong Industries magazine and in Mainland's China Fortune World (published by the Ministry of Science and Technology). A monthly e-newsletter on new technologies called "Technology Frontier" was also launched in FY2009/10 with circulation of over 2,000 executives in the industry (please see Appendix 10).

2.9 **Building Partnership with Companies** – several company specific seminars were organized as part of the marketing effort to attract companies to collaborate with PolyU on R&D. Partnership has been established with renowned companies such as Eli Lilly Pharmaceuticals, Huawei Technologies, INVISTA S.à r.l. and others. PolyU has also built relationship with SME companies and focused on the needs of local industries through various marketing and networking functions. Many of these industry networking events and functions were supported by the KT fund (please see Appendix 11).

3. **Patent Protection** – KT funding has been used to support patent applications. About 110 patents were filed in FY2009/10. Thirty of these patents were attributed to the KT funding. PolyU researchers now have the desire to protect the intellectual property of their R&D outputs while facilitating KT. The KT funding supported some researchers to file for patent protection in more than one country.

KT Fund was also used to organize seminars for researchers to learn about patents, and partnership sessions with IP firms who can support the researchers in IP filing and prototyping building (please see Appendix 12).

36 new patents were granted during FY2009/10 and the total number of patents granted to PolyU has increased to 275, with another 506 pending.

4. **Promoting KT Culture and Share Practice** – with the support of KT fund, extra personnel were recruited to support the organization of KT related platforms and activities to promote seamless KT process and culture within the Poly community.

PolyU has been instrumental in building a cross institutional KT network with Mainland and overseas universities via the **International Strategic Technology Alliance ("ISTA")** (please see Appendix 13).

4.1 The **China-Europa Forum** hosted by PolyU in July 2010 involved over 700 participants from all over China and Europe, including senior government officials, political leaders, renowned academics and influential thinkers. There was a specific session on Science, Technology, and Responsibility toward the Society, discussing the impact of university-industry technology transfer (please see Appendix 14).

4.2 **Knowledge Transfer Conference 2010, Hong Kong 3-9 November 2010** – PolyU initiated the concept, sought and received funding support from the Innovation and Technology Commission and UGC. PolyU is working together with the other 7 UGC funded institutions and the Hong Kong Science and Technology Park to jointly organize this major international event. With the theme of "Partnering for Success: Mastering Innovation, Leveraging Opportunities, Engaging Community", this conference has 3 components: a) Policy Discussion Forum, b) Knowledge Transfer Conference and c) Student Entrepreneurial Forum (please see Appendix 15). It is expected that over 400 people will attend this conference and all 8 institutions will benefit from this KT event.

5. **Entrepreneurial Contest for Students 2009/10 –** the KT funding supported activities and promoted entrepreneurial spirit of the students at PolyU. The entrepreneurial student contest named Pre-GSC 2009/10 attracted 48 inter-department and interdisciplinary teams to participate. Each team received training on business plan writing, presentation skill and was coached by a mentor.

5.1 **PolyU Global Student Challenge June 2010** – this large scale international business plan challenge was held for the first time in Hong Kong and attracted 78 university teams and 62 secondary school teams from all over the World. The high profile challenge event was widely reported and has inspired many local students about entrepreneurship (please see Appendix 16).

6. **Proof of Concept Scheme -** The KT fund provided supplement to the Proof of Concept scheme at PolyU to turn research outputs into workable prototype/solution. Two of

eight projects were supported by fund: "Backpack with Inherent Spine Protection Features", which aims to minimize spinal growth problems in school children carrying heavy schoolbooks in rucksacks; and "Double-glazed windows with inherent noise attenuation" which tackles the challenge for noise control (please see Appendix 17).

7. **Consultancy as a means of KT** - during the reporting period, income from high-level consultancy activities involving PolyU teaching and research staffs reached $94.8 million, including 426 new projects and 253 ongoing projects. Over 350 clients spanning from private sectors, government bodies, public authorities, and NGOs, both locally and internationally were served (please see Appendix 18).

8. **Licensing** – although only 6 new technologies/designs were licensed to industry in FY2009/10, bringing the total number of current licenses to 118, effort on developing technology license continued at PolyU, including the "single yarn" technology for textile industry and a contact lens technology that can retard myopia deterioration. Total income derived from licensing during FY2009/10 was $1.1 million (please see Appendix 19).

9. **Collaborative Research** – the combination of the extensive outreach, marketing and partnership building effort by PolyU has resulted in many industrial contacts and leads for researchers. PDO has supported the follow up, which then led to collaborative research contracts. Over this period, the number of applied research projects approved through funding body such as the Innovation and Technology Fund reached a record high of 63 projects and total project funding of $115m. Over 100 companies participated as sponsors of these projects which produced tangible results for the industry.

10. **Executive Education** – the MEDC has served the business sector with customized in-house training courses. This mode of knowledge transfer has expanded during the year with 391 courses delivered covering 400,000 student contact hours. There were over 13,000 attendees and the total training fees generated was $35m. The School of Professional Education and Executive Development (**SPEED**) during the period delivered training courses equivalent to over 120,000 contact hours. A total over 520,000 contact hours of executive training courses were delivered by PolyU as an integral part of its KT effort.

ENABLING ENVIRONMENT FOR KT

11. **Consultancy Environment** – PolyU has maintained and refined the procedures and environment for consultancy with the view to streamline and encourage such effort as a

means of KT. PolyU's consultancy management systems are ISO9001 certified and efficient, while in full compliance with university governance and regulations.

12. **Policy on Intellectual Property** – the existing Policy on Intellectual Policy has been in place since 2001. The ownership of IP belongs to the institution and the benefits are shared with staff proportionally. However whether or not this current policy is conducive to staff and offers sufficient incentive to encourage KT is the subject of a review on KT policy and framework which is being carried out by PolyU senior management currently.

13. **Spin-off Companies** - the current policy of supporting spin-off companies has been in place for about ten years. However, the success rate has been undesirably low. The policy on supporting spin-off companies is now under review by PolyU senior management (please see Appendix 21).

QUALITATIVE INDICATORS

14. The comparison of qualitative indicators between target and actual performance is as follows:

Performance Indicators	2009/10 Target	2009/10 Actual	Variance (+/- %)	Note
No of Patents filed	65	114	+ 75%	Due to popular demand
No. of patents granted	55	36	- 35%	Increased patent pending cases
No. of license granted	31	6	- 80%	Many cases deferred
Income generated from IPR	$3m	$1.1m	- 57%	Many cases deferred
Expenditure involved in generating income from IPR	$0.2m	$0.2m	-	
No of economically viable spin-off	10	10	-	
Net income generated from spin-off companies				
No of collaborative researches and income generated	45 $60m	63 $115.7m	+ 40% + 93%	Increased marketing effort resulted in high demand
No of consultancy and income generated including contract research	540 $95m	679 $94.8m	+ 25% -	
No of pro bono research	30	30	-	
No of student contact hours for business or CPD needs	510,000	520,000	-	
No of equipment and facility service agreement and income	350 $3.6m	290 $4.0m	- 17% + 11%	

USAGE OF KT FUND in FY2010/11 AND BEYOND

15 The usage pattern of KT fund for the reporting period is mentioned in Appendix 22. It should be noted that due to the late arrival of the fund, some or most of the newly planned activities won't be carried out until next fiscal year. However, the KT fund has been effective in creating significant impact in the activities and results mentioned above. The unspent amount will be used in FY 2010/11 to maximize impact of the new and continuing activities planned. It is expected that the overall goals of the triennium as stated in the Initial Statement will be achieved.

The usage of KT fund for the new FY will focus on the following areas:

Staffing – filling of 4 new positions to enhance and strengthen marketing, follow up of enquiries and project management of KT projects with industry.

Training – on KT for the academic staff are expected to be continued. Relevant courses opportunities are being identified and suitable staff will be invited to attend. The example of attending KT event such as the TechConnect conference in the US will be considered as juxtaposed marketing and training functions.

Marketing – enhance and organize more marketing and business development activities to align technologies with industry needs. The KT fund will provide the means for participation in 8-10 large scale events and exhibitions.

Patent – support 20-30 additional patent applications which otherwise would not be filed due to funding limitation.

Proof of concept – some KT fund will be injected into the PolyU Micro Fund Scheme to be launched later in FY2009/10 to support 10 more projects in proof of concept.

15.1 The PolyU senior management is reviewing the existing IP Policy, support of spin-off companies, and KT organizational structure. This review will enable PolyU to further enhance its capability and capacity to carry out KT activities, and to build the KT culture among the academic and research staff.

15.2 PolyU will create the **Micro Fund** Scheme (please see Appendix 23) to support proof of concept of innovations at PolyU.

15.3 **Spin-off companies** – an improved framework of supporting spin-off companies will be developed. Upon reviewing the business plan, staff will be encouraged to find investor to support the formation of the spin-off company. PolyU will allow the IPs to be licensed to the spin-off companies in exchange for a small equity share. The primary goal will be to ensure that the spin-off company has the right IP capital to allow it to raise funding for the startup. This framework is expected to be launched during FY2010/11.

CONCLUSION

16. The usage of KT fund in FY2009/10 has proven to be effective and resulted in the delivery of many tangible KT results by PolyU in accordance with the performance indicators specified in the Initial Statement.

16.1 Additional resource provided by the KT fund was instrumental in the increased awareness within the PolyU and business community of the importance of KT, in areas such as marketing to business, patent application, collaborative research, executive education etc.

16.3 The KT fund will continue to be leveraged in FY2010/11 an onwards to further enhance the capacity and capability of PolyU to deliver on KT activities and tangible results more effectively.

Appendices

1. The IfE consists of 3 units namely the Innovative Technology Research Syndicate ("ITRS"), the Management and Executive Development Centre ("MEDC") and the Partnership Development Office ("PDO"), ITRS handles the proof of concept and technology development support to academics, MEDC provides executive training services to the business community, and PDO handles marketing, partnership building, licensing, patent protection and collaboration building. The PolyU Technology and Consultancy Co. Limited ("PTeC") executes all consultancy services with external companies as well as licensing agreements. The PolyU Enterprises Limited ("PearL") represents PolyU in the joint venture company.

2. The PolyU had participated in 8 large scale trade and industry specific exhibitions in Hong Kong and showcased our technologies. These were major industry fairs organized by Hong Kong Trade and Development Council (HKTDC) and industry associations attracting attendees from all over the World. They included the Hong Kong Electronics Fair Autumn 2009 and Spring 2010, the Hong Kong International Medical Devices and Supplies Fair, Inno Design Tech Expo, Design Mart @Detour 2009 and others.

3. Four large scale events at the PolyU for promotion of KT to the vast PolyU alumni network with the view to engage the alumni who are working in the industry to help expedite the transfer of knowledge had been organized. Alumni were briefed on the most up to date research outcomes in major events included the annual Home Coming Carnival. Leads were followed up by IfE units and subsequently involved the academic staff when the opportunity became tangible.

4. Ten technology specific seminars were organized in conjunction with researchers targeting industry audience. These seminars were designed primarily for dissemination of the technology, encourage 2-way discussions of commercialization and follow up. The attendees were selected from industry database and were invited to participate. These technology seminars provided a very good platform as the researchers had to tune the presentation to suit the commercial application framework, and the audiences were matched for the purpose. Support was rendered by PDO on follow-up in support of the academic staff. These seminars resulted in significantly higher retention rate with tangible follow-up taking place that may lead to consultancy work, licensing or further contract research.

5. Participation in these exhibitions was planned in accordance with the themes and appropriate R&D outputs were selected for their readiness for commercialization. Effort was rendered in support of the researchers with professionally prepared marketing materials and presentations in order to achieve the highest impact yet minimizing work for academic researchers. For example in the CHITEC fair in May 2010, four key technologies were introduced including the much acclaimed Fibre-Optics Railway Signaling System developed by the PolyU. The preparation and relentless effort paid off handsomely with the Mainland media focuses on the effort of PolyU as the only exhibiting University from Hong Kong to exhibit there and widely reported the technologies on display. Many industrial companies visited the booth as a result of the media coverage. Several dignitaries also visited the PolyU booth including the State Councilor Ms. Liu Yandong who publicly commended the PolyU in the official press release for our effort to stitch closer link with industries in the Mainland.

Minister of Science & Technology
Prof. Wan Gang

China's State Councilor Liu Yandong

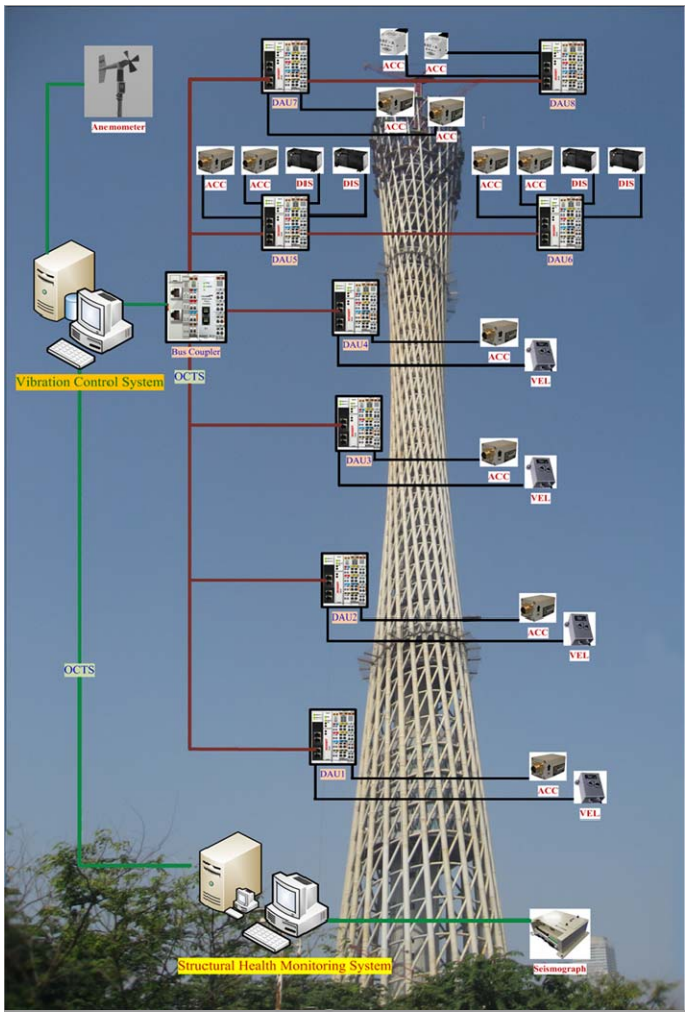
The marketing effort has opened doors of discussion with relevant parties such as the Ministry of Railways in Beijing, the Beijing-Shanghai High Speed Railway Corporation and the Mass Transit Railway Corporation in Fuzhou, Fujian Province.

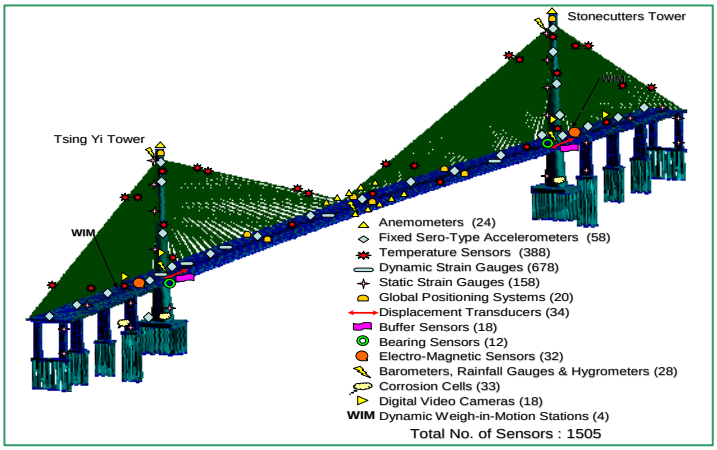
The PolyU team was invited to visit the high speed railway site in Xuzhou in early July to explore the utilization of our technology in this internationally acclaimed 350km per hour high speed railway line.

Onsite inspection of railway track by PolyU team at Xuzhou station for installation of fibre-optics system as part of the Beijing-Shanghai High Speed Railway project

6. The PolyU was the first tertiary institution from the Hong Kong SAR to be awarded one of the most coveted Gold Prize for its "Mega-structure Diagnostic and Prognostic System" at the China International Industry Fair. This national event showcased more than 5,000 innovations of 1,860 exhibitors from 19 countries and territories. The marketing effort has helped the technology to gain wide acceptance and PolyU was

invited to bid for mega structure projects in the Mainland. The PolyU team has since been successful in contracting this system for usage in China's iconic mega structures such as the Guangzhou TV Tower, Sutong Bridge crossing the Yangtze River, and the Shenzhen Stock Exchange towers (in construction) and also in major infrastructures in Hong Kong such as the Stonecutters Bridge and the Tsing Ma Bridge.





7. These oversea exhibitions were targeted specifically to increase the awareness and profile of our technologies and capability, and to solicit KT related opportunities with international companies. One example is the Tech-Connect Conference & Technology Showcase held in Los Angeles in June 2010, a major US event to link research in nanotech, clean technology, micro technology and biotech with industry. It had attracted country delegations from Canada, Germany, Korea, Japan, Singapore, UK and many North American universities, laboratories and research institutions. Through the KT funding, researchers were provided with financial support to attend the event and made presentations personally. It served both as a unique training opportunity for researchers to understand and align with the requirements of the industry, and at the

same time to learn and apprehend the technological trend in the industry. Marketing materials and presentations were enhanced using the KT funding in support of the researchers. Contacts were made by PDO with major international companies such as Samsung, Sanyo, GE health care, P&G, Merck, Medtronics, Fuji Electric and others that were interested to acquire technologies.

TechConnect Conference

8. PolyU has conducted over 70 tours to the House of Innovation for over 1000 visitors covering all walks of life from schools, companies and industry groups to showcase PolyU's technologies. The House of Innovation displayed close to one hundred projects with innovative technologies that are ready for commercialization and transfer to the society. This major outreach effort to showcase technologies has been effective in changing the society's view of the relevance of R&D carried out at PolyU to affect daily life. Many of these tours were extended to various laboratories in departments to showcase the R&D outputs and involved the lead researchers.

Visitors at HoI

9. The Hong Kong launch of MyCar in November 2009 and the subsequent announcement of the merger with GTA group in May 2010 were widely reported by over 100 electronic and print media coverage both locally and internationally in the Chinese Mainland, Germany, India, Japan, Singapore, US, UK and other non-English speaking countries in Europe. It was reported in CNN, CNBC and other prominent media sites. As a result of the coverage on this KT event, PolyU received many approaches from international companies for R&D support and technological exploration that may be translated into several million dollars of R&D contracts in the future. It mirrored the successful model in the US of the leveraging effect of KT success in creating new R&D funding opportunity for the institution.

As a result of the coverage on these KT events, PolyU received many approaches from international companies for R&D support and technological exploration that may be translated into several million dollars of R&D contracts in the future. It mirrored the successful model in the US of the leveraging effect of KT success in creating new R&D funding opportunity for the institution. The KT fund supported the acquisition of two vehicles for demonstration to the general community and for proving of newer electric drive technologies developed by PolyU.

10. Specially written articles on technology were prepared to promote research outputs in trade magazines to targeted readers. During this period, over 20 articles were published in prominent magazines such as the Chinese Manufacturers' Association Magazine and the Federation of Hong Kong Industries magazine and in Mainland in the China Fortune World, an official magazine on science and technology published by the Ministry of Science and Technology.

A monthly e-newsletter on new technologies namely "Technology Frontier" was launched in the period with circulation of over 2000 executives in the industry. This e-newsletter has been effective in receiving useful enquiries from industry and PDO has followed up with each enquiry received in conjunction with researcher from academic departments. This follow-up work has minimized administrative and routine work for researchers and therefore helping them to focus on key technical content only. Business and agreement negotiation support was provided to assist in the completion of the deal.

Over 30 new posters introducing innovations and technologies were prepared with technical input from researchers and the design and write up by PDO. These are used as e-copy for researchers to dispatch to interested parties and they are also put on PDO website for easy download. This has brought to a total of close to 180 such posters available on the website.

11. **Building Strategic Partnership with Companies** – Several company specific seminars were organized as part of the marketing effort to entice companies to collaborate on R&D with the PolyU. PDO organized for companies to build direct dialogue with key researchers so that long term strategic relationships can be built and maintained. Eli Lilly Pharmaceuticals and Huawei Technologies each conducted a seminar at PolyU to address their R&D needs with researchers. INVISTA S.à r.l. a World leader in international polymer and fibre producer conducted two seminars at PolyU during the year.

Through the TechConnect conference held in US, dialogue was built with major companies that were acquiring technologies. Their respective areas of demand were documented by PDO for dissemination to academic departments. Suitable patent and research outputs were also filtered and identified for approach to these multinationals.

PolyU has maintained close linkages with industry network and associations. Through such close linkages and periodical networking functions, clustered demand were identified with industry groups for technologies development that can be transferred from PolyU to industry. Example cases carried out during the period were sensors technology with the Electronics Industry Association, nano technology for textile on textile with the textile industry.

Industrial networking events were regularly held to create opportunities for our faculty member to be in contact with executives from industry. Throughout the year the IfE units had organized over 30 such networking functions including the CEO club functions, association networking functions and others.

12. With the KT funding from UGC, additional patent applications were supported and close to 110 patents were filed. The KT funding was used to support researchers with filing of protection in more than one country to offer a better and wider protection of the intellectual property.

A series of 4 seminars were provided to researchers on patent. Areas covered included how to prepare more inclusive and wider coverage claims in patent applications, detailed explanation on the process and procedure involved, and what form of protection is most appropriate. These seminars were provided by our internal patent lawyer plus external patent firms. The sessions were well attended by research staff indicating increased awareness and interest in the patent process.

Partnership sessions were also held with external IP firms that were interested to support researchers to file patent and early development work and in return share the downstream commercialization returns. Such framework provided an alternate funding mechanism to assist researchers to expedite knowledge transfer to the industry.

13. **International Strategic Technology Alliance ("ISTA")** – the Alliance was led by PolyU and involved 24 institutions in Mainland, Hong Kong, US and UK. It served as a strategic platform for KT partnerships. The ITRS unit has been serving as secretariat of the Alliance, and has organized and participated in various KT related activities with its

members. ISTA held its Annual General Meeting in Wuhan in October 2009. Attended by more than 80 participants from 23 universities from China, USA and Australia, the meeting fostered exchange of best practices in KT related issues, in particular developments related to international collaboration and governance. ISTA members had participated in several of PolyU's overseas KT marketing and outreach events.

14. **China-Europa Forum** – planned during the year and hosted by the PolyU in July 2010, the forum received about 700 participants from all over China and Europe, including senior government officials, political leaders, renowned academics and influential thinkers, with the aim of sharing knowledge and experiences across a selection of themes key to the sustainable development of the Chinese and European societies. ITRS facilitated discussions and dialogues for participants under the theme Science, Technology, and Responsibility toward the Society, with particular interest in the impact of university-industry technology transfer on the institutions themselves and the society at large. The focused workshop on the topic was attended by participants from 10 regions from across Europe and China, including a former city mayor from China on regional innovation policies and a former university council chair from UK on KT governance and practices.

15. **Knowledge Transfer Conference 2010, Hong Kong 3-9 November 2010** – PolyU took leadership in initiating the concept, sought and received funding support from the Innovation and Technology Commission and UGC, and is working collectively with the other 7 UGC funded institutions and the Hong Kong Science and Technology Park to jointly organize this major international event. With a theme of "Partnering for Success: Mastering Innovation, Leveraging Opportunities, Engaging Community", the conference has 3 components namely a) Policy Discussion Forum, b) Knowledge Transfer Conference and c) Student Entrepreneurial Forum.

The Policy Discussion Forum will involve discussion on KT in respect to economic development and will be addressed by the Minister of Science and Technology of China Prof. Wan Gan (invited) and Dr. Ronan Stephan, Director of Directorate General for Research and Innovation, Ministry of Higher Education and Research, France. More than 12 Presidents/Vice Chancellors from leading overseas universities have already agreed to attend the forum including Peking University, University of California Santa Barbara, Georgia Institute of Technology, University of Warwick etc.

On the aspect of KT and University Policy session, sharing will be carried out by senior members of the University of Cambridge, University of Oxford, Massachusetts Institute of Technology and University of California San Diego.

The KT Conference will involve leading multinational companies such as IBM, Colegate-Palmolive, Microsoft, China Mobile, Nestle, Pfizer, GE, TDK sharing with the academics of local institutions on their respective research and technology needs. On the second day of the conference, over 60 presentations will be given by the local institutions, R&D centres and R&D laboratories on technologies for commercialization with the industry.

The Student Entrepreneurial Forum is planned to be held with the Cambridge Education with Border Society of the University of Cambridge in conjunction with the AIESEC Hong Kong chapter. It is expected that over 400 students from the 8 institutions will be sharing over entrepreneurialship and knowledge transfer.

16. **Entrepreneurial Contest for Students 2009/10 -** PolyU has continued to nurture the entrepreneurial spirit amongst the student community to encourage and stimulate undergraduate and post-graduate level students. The contest aims to foster an entrepreneurship spirit among PolyU students while preparing them for the ever-changing and highly competitive business world. This is indeed an invaluable opportunity for students from different disciplines to turn their ideas into products and services. The contest in 2009/10 attracted the participation of 48 inter department and inter disciplinary teams. They were provided with training on how to write business plan, presentation skill and each team was coached by an academic staff. Feedback from students had been very positive in terms of what they had learned through the exercise.

PolyU Global Student Challenge June 2010 – this large scale international business plan challenge was held for the first time in Hong Kong and has attracted 78 University

teams and 62 secondary school teams from all over the World. The teams were first selected by teams of judges to enter into the final competition. Each team then had to submit a business plan and present their plan to a group of leading business people who served as panel. The high profile challenge event was widely reported and inspired many local students both at tertiary level at PolyU and at the secondary school level, about entrepreneurialship and raised their inspiration to succeed.

17. **Proof of Concept Scheme** - the PolyU "Industry Guided Applied Research & Development fund" is a proof of concept programme aims to support academic staff on applied R&D activities that would result in innovative products and technology solutions of value to the industry. During the reporting period, the programme funded 8 new projects with a total funding of $1.26m. ITRS office rendered project management and engineering support services to 7 ongoing projects. Examples of projects funded are High-Frequency Switch Voltage Dip Restorer, Economic Production of Carbon Nanotube, Solar-Powered LED Lighting and Advanced Fibre Bragg Grating Railway Monitoring System. During the reporting period, several IGARD deliverables had been transferred to industry either through consultancy or through product sales. Examples include the sales of an innovative manikin "Walter" system which simulates human body sweating patterns to the major sports brand company Li Ning in China for product design improvements in functional sports clothing; consultancies on nano-surface polymerization for a world-ranked producer of clothing polymers and fibers; customized development of a multi-touch interactive display for the Hong Kong Jockey Club's interactive betting and entertainment solutions; sales of sensory cueing wristwatches to Hong Kong hospitals for stroke patient therapy.

    To support the development of innovative ideas that may eventually find its way to commercialization, a Proof of Concept funding scheme was set up during the year with the earmarked KT fund from UGC. As time was needed to promote the new funding and the funding was made available in the middle of the fiscal year, two projects only were supported with funding of over $220,000 by the end of the period. They were "Backpack with Inherent Spine Protection Features" which aims to minimize spinal and growth problems in school children carrying heavy schoolbooks in rucksacks; and the "Double-glazed windows with inherent noise attenuation" which tackles the challenge for noise transmission control through a modular noise-abatement device for windows.

18. **Consultancy as a means of KT** - Operating as a not-for-profit company, the PolyU Technology and Consultancy Co. Ltd. (PTeC) is an ISO9001 accredited consultancy

management arm of the University. It is responsible for carrying out execution and administration of all consultancy work, commercially contracted research and licensing arrangements with the government, business and industry.

During the reporting period, income from high-level consultancy activities reached $94.8 million, with a total of 426 new high level projects secured whilst 253 ongoing projects from preceding years were still active. Over 350 clients spanning from private sectors, government bodies, public authorities, and NGOs, both locally and internationally were served.

Development for strategic knowledge transfer platforms has been an emphasis in PTeC. Active support has been rendered to the following technology/knowledge service teams, namely Structural Health Monitoring (SHM); Knowledge Management; Digital Media Development & Entertainment and Rapid Product Development. To systematically nurture the development of more strategic units from the PolyU community, guidelines for regulations, resources and development support have been revised to facilitate academic units/staff interested in pursuing such KT endeavours.

19. **Licensing** - On the licensing front, lesser activities were evident than in previous years, with only 6 new technologies/designs licensed to industry, bringing the total number of licenses to 118. These included a portal site for apparel manufacturing knowledge to Clothing Industry Training Authority; an interactive upper limb training robotic system to a medical equipment provider; and wool yarn spinning technology to an international wool manufacturer. Total income derived from licensing during the reporting period was $1.1 million.

Significant efforts were spent focusing on key technology that can be nurtured into high income generating license with a view to maximize licensing income. Over this period, discussion and negotiation of the licensing of “single yarn” technology to textile industry had taken place and there are over 15 companies who have expressed interest to take up license. With a fee of $3m to $5m per license, it is expected that several licenses can be executed in the current fiscal year.

Effort has been also been spent on negotiation with the World’s third largest contact lens maker on the licensing a certain patented contact lens technology developed by PolyU. It is expected that the license can be executed in FY2010/11 that may potentially bring in over $100m of licensing fees over the duration of the license.

20. **Consultancy Environment** - to cultivate a harmonious environment for KT, PolyU has in place supportive and structured institutional policies such as the newly revised Regulations Governing Consultancy Work and Regulations Governing Conflict of Interest (2010) with enhanced insurance coverage to more effectively contain risks and liability exposure of both PolyU and its staff members involved in consultancy as a form of KT activities through PTeC.

Emphasis in the PolyU has been on improving the information flow and approval process to facilitate KT activities to industry more quickly with continuous improvement in a web-based outside activity information system. The periodic upgrades of the system have allowed staff members to spend lesser time on necessary planning and governance requirements.

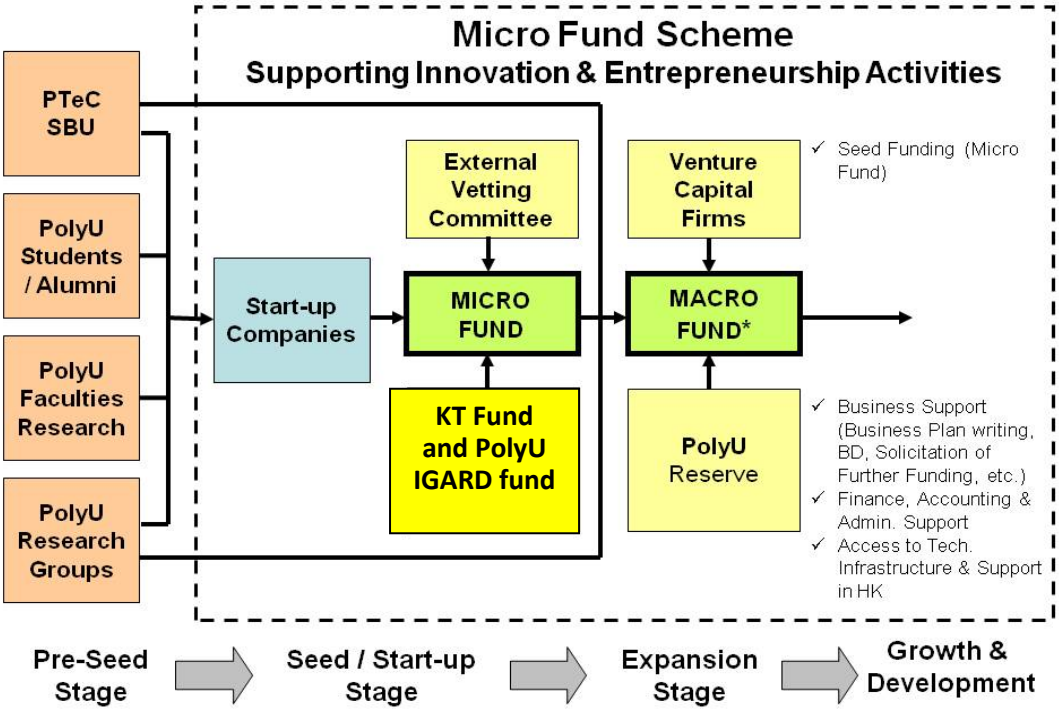
21. **Spin-off Companies** - It is considered that the primary purpose of institution supporting the formation of spin-off companies is to transfer knowledge from research through these spin off companies to the society thus creating employment, economic value and realize the full commercial potential of the research outputs. The past framework adopted a more closely governed monitored mode by PolyU administrator. This mode of operand is under review by management as part of the holistic review on KT framework and policy. The thinking ahead will be to charter towards a more conducive environment to encourage academic staff to undertake spin-off companies as a form of KT. Reliance will rest upon market and commercial forces to drive the management framework and corporate governance, as true spin-off company free from University administrative encumbrance and allowed to achieve rapid growth.

The thinking is towards the creation of an environment that encourages free form development of research outputs into commercial product or services and to maximize its value beyond bureaucratic boundary instead of limiting its potential through restrictive and over managed framework on IP. Such free form model on IP exploration is commonly used in the US system with high degree of success.

22. The KT fund covering the period has been used and the balance has been fully committed for use in 2010/11.

23. Through the pilot Micro Fund scheme, seeding funds will be granted to support pre start-up projects or start-up entities that materially involve PolyU faculties, students or alumni. The pilot scheme aims to encourage participants' entrepreneurial pursuit without significant involvement of PolyU, while tapping on the potential value of the

University's intellectual properties for the benefits of students, faculties, PolyU and the community at large. For ease of illustration, a conceptual framework of the scheme is shown below:



It is believed that the Micro Fund scheme will further boost innovation activities and entrepreneurial pursuit of students and faculties.

The scheme can also bring strategic value to PolyU and its people in long run in the following aspects:

- ***For Students:*** employment opportunities, development of students in terms of creativity, leadership, entrepreneurship, and management problem solving, etc.
- ***For Faculties / Academics:*** funding for pre start-up projects aiming to ultimately transformed into start-up ventures, and R&D collaboration opportunities with the start-up companies
- ***For PolyU:*** knowledge transfer and diffusion to the community by means of entrepreneurial venturing, spanning PolyU's potentials in creativity and innovation on a commercially viable manner
- ***For the Community:***
  - Economic & social benefits generated from commercialization of IPs
  - Nurturing of entrepreneurs and young future leaders
  - Employment opportunities for youngsters
  - Induction of innovative and creative culture in the society