



Annual Report  
on  
Activities and Advancement  
of  
Knowledge Transfer

Supported by earmarked UGC Funding

FY 2010/11

5 August 2011



*Chang'e 3  
China's Moon Mission*



*Phobos  
Russia's Mars Mission*



*Canton Tower*

## Making a Difference Above and Beyond



*Beijing-Shanghai High Speed Rail*

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## 1. Introduction

This report highlights key PolyU programs, activities, and projects supported by KT Fund that aim to meet the developmental needs of Hong Kong, with impact extended to Chinese Mainland and other parts of the world.

The KT activities for the year saw a balanced approach by PolyU juxtaposing conventional KT activities with high impact new initiatives. Several KT projects undertaken were unprecedented accomplishments that no one else had ever achieved in Hong Kong before.

UGC's observations in last year's report were duly considered and acted upon in this year's activities, with expanded outcome measurements using both conventional and newly established Key Performance Indicators. At policy level, strategic reviews had been conducted to ensure the University's proper stance in leveraging KT practice for advancing institutional objectives.

## 2. KT Fund Deployment in 2010/11

In addition to continuous efforts in the commonly accepted KT areas of consultancy, applied research, and technology licensing, PolyU has been giving further strategic emphasis in the following:

- a) Strategic review of the KT framework and related policies to foster KT practice to achieve desired outcomes.
- b) Strategic focus on realizing the use of technologies in areas of high societal impact to demonstrate PolyU's commitment in KT to benefit the community at large.
- c) Instigation of an innovative and entrepreneurial ambiance for both student and staff to induce their appreciation and involvement in KT.

With regards to UGC's observations on the 2009/10 PolyU KT report, we also addressed upon the following:

Deployment of marketing resources is now managed under an overall KT performance portfolio for which key operations with definitive performance indicators are given resource priority. Marketing budget is then approved for a range of above-the-line and below-the-line programs and activities serving different purposes. While generic measures such as reach, awareness and lead generation are used to gauge effectiveness of exhibitions, trade shows, and seminars, targeted marketing campaigns are planned to achieve specific outcomes in focused technologies or targeted audiences. This "mix-and-match" planning process ensures a balance in reach coverage and specific pursuit of financially rewarding KT opportunities.

The strategic reviews carried out this year have already led to innovative approach to induce KT activities safeguarded by good governance to prevent undue exploitation of the goodwill of the university. While the University encourages a more conducive ambiance for KT, it would also make clear its stance in not compromising its education objectives for commercial gains, with exit mechanism planned for positions it may take in commercialization engagements. The finding of the ICAC reviews on selected KT systems can certainly be shared among other sister institutions through formal channels, whereas events like KT Conference 2010 are ideal venues for sharing of community practice for common benefit of all.

## 3. Strategic Reviews

During the reporting period, several strategic review exercises were conducted, including i) a PolyU Council-appointed Knowledge Transfer Committee for a comprehensive review of the KT framework and policies, ii)

review by the Corruption Prevention Division (CPD) of the Independent Commission Against Corruption (ICAC) on the Management of Joint Venture Projects and iii) review on Consultancy Operations by CPD, ICAC.

### 3.1 Knowledge Transfer Committee Review

A comprehensive review of the KT framework and policies was conducted by a Knowledge Transfer Committee (KTC) appointed by Council in October 2010. Chaired by Council member Professor John Chai with membership comprising both accomplished professionals in the Council and university executives holding relevant management portfolio. The KTC, being the first-ever Council level committee for KT, aims to examine the current policies, systems and practice to come up with recommendations for the strategic way forward.

#### 3.1.1 Staff Survey on KT practice

An independent survey was conducted for all full-time academic staff in spring 2011 for opinions and views on KT as an integral component of scholarly portfolio among teaching and research. 18% of the staff participated at the Survey with honest opinions and valuable suggestions. Throughout the exercise, management had the opportunities to appreciate staff sentiment on KT activities and how they could be better facilitated from staff perspectives.

#### 3.1.2 Staff Communication and Consultation Sessions

To encourage open dialogue and communication, six focus groups were conducted with department heads and academic staff active in KT to supplement the information collected from the Staff Survey. In these group discussions, survey results were discussed with views solicited on KT policies and practice. The exercise, first ever conducted in the history of the PolyU, sent a strong and positive signal to the PolyU community that the management cares about the KT and will labour to derive better policies to facilitate more coherent KT engagement and practice on the part of academic staff.

Together the Staff Survey and open consultation served to encourage staff in showing University's desire to develop a positive and participative culture in KT. A summary of the preliminary findings on views on IP policy, the environment, recognition, support sought are attached in Appendix 1.

The KTC review is expected to complete by Q4, 2011 with likely changes in policies and regulations. Hitherto new ideas are already being formulated with great impact potentials. Radical but well-contemplated approaches will be considered for handling of PolyU's interests in joint ventures/start ups. Mandatory exit within fixed term to avoid perceived conflict of interest and undue commitment of university management resources for running business ventures is just one of the suggestions being contemplated. In fact the University has already exercised its strategy to exit (or shut down) business entities that no longer facilitates KT. This includes not only companies that are not viable but also profitable operations.

### 3.2 ICAC Review

Being a forerunning institution in KT activities, PolyU was approached by the CPD of ICAC in late 2009 to carry out related PolyU system benchmark reviews with a view for sharing good community practice among other universities. Studies were conducted with satisfactory results for two key KT activities, namely, spin-off / joint venture companies and consultancy operations with satisfactory results.

#### A) ICAC (CPD) Review on Management of Joint Venture Projects

In the final report, the Commission found that the PolyU's management of joint venture projects is in order. Established systems, processes, and practices are in place for partner selection, engagement and operations management. The Commission made several recommendations for improvement for which PolyU had duly adopted. More information is presented in Appendix 2.

Further improvement will be brought about upon the recommendation of the KT Committee in related areas when it completes its review by Q4, 2011.

## B) Consultancy operations

The Commission also reviewed the consultancy operations under the management of PolyU Technology and Consultancy Ltd. (PTeC). In general, the Commission considered PolyU's operation model for consultancy work efficient and robust, with a few recommendations for operation improvement in corruption prevention and against perceived favoritism. All recommendations have since been implemented. More information is presented in Appendix 2.

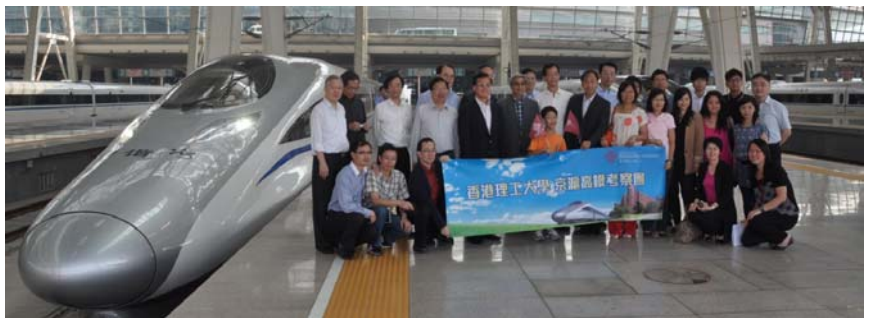
## 4. Capturing Research Value with Application – High Impact KT Projects

Engaging the industry for effective transfer of knowledge to support innovation and development for society has always been a priority at the PolyU. The KT fund has enabled PolyU to pursue several KT projects of high societal impact with strategic significance for the nation.

### 4.1 China High Speed Railway (HSR)

PolyU has a strong track record in its applied research for railway signaling and infrastructure safety and is the **first institution in Hong Kong** involved in applying related technologies to the Chinese High Speed Railway (HSR) system. The KT fund enabled PolyU to support cross-functional research teams with experts from a multiple of departments in application development, on-site installations, and testing of relevant PolyU technologies on the recently commissioned Beijing-Shanghai railway; pre-service in-factory testing of high-speed trains (designed for 380km/h); and the rail instrument train for high speed rail safety. Supported by the Mainland authorities, the monitoring systems are directly linked to the laboratories in Hong Kong, providing valuable on-line and real-time data for further research and development.

PolyU is the only Hong Kong institution invited to participate in the next stage development and deployment of the monitoring system for the **entire 1318km railway line from Beijing to Shanghai**. The recent Wenzhou train accident in late July would likely expedite the kick-off of the project. The engagement is set to **improve the safety standards** of the high-speed railway system by providing early warning of approaching problems at very early stage. The raising of safety standards will help alleviate public concern on safety. At the same time, the technologies will equip the national HSR system with cutting edge safety monitoring technologies at internationally recognized standards. The PolyU technologies, once fully adopted at the Beijing-Shanghai Railway line, have a good chance to become the core reference of the new national standard for railway safety monitoring for China. Such was the significance of our technological participation, that the PolyU management and the project team, led by President Tim Tong, were invited to experience the HSR ride immediately after its passing of all safety requirements for certified operations in June 2011. More information is presented in Appendix 3.



### 4.2 Solving local problems at MTR

After the highly publicized rail track crack that caused severe disruption of commuter service between Admiralty and Tsimshatsui station in February 2011, the MTR Corporation invited proposals from major worldwide railway companies to provide an early detection system. But no commercially viable solution was available. MTR turned to PolyU to roll out its fibre Bragg gratings sensing system to help solve the problem. This KT will create **high societal impact** by reducing the chance of rail crack failure that led to breakdown of services causing severely disruption to the public. This is a fine example of the impact of KT on the local economy.

#### 4.3 National and International Space Programs

PolyU has been in partnership with the China Academy of Space Technology (CAST) with regards to collaborations in the national space program. With the support of the KT Fund, PolyU entered into an agreement with CAST (President of CAST Yang Baohua pictured here with Prof. Philip Chan, Provost of PolyU) to develop specific devices to be used in the lunar exploration program. Till now, PolyU is the only Hong Kong institution involved with the national space program with focused development for the Chang'e 3 mission scheduled in late 2012.



Russia's Phobos Mission on Mars exploration is another space program in which PolyU has active participation. The PolyU-developed rock corer will be installed on the landing unit for actual rock sampling on Mars' surface. While involvement in these space explorations provided PolyU researchers opportunities to face with technology and engineering challenges at the scientific frontier, Hong Kong's participation in space programs with home-made devices actually onboard spaceships also inspire students and the public about how Hong Kong can contribute to advancement of frontier technologies through academic technology transfer.

#### 4.4 Monitoring of Mega structures for Urban Safety

During the year, PolyU's much-acclaimed structural monitoring system was commissioned for the Canton Tower, the icon of the 2010 Asian Games. Monitoring the Tower's dynamic structural integrity, all data are evaluated at the laboratory in Hong Kong real time and on-line, providing valuable means for further research for mega structural safety. With demonstrated advanced capabilities, the system is the first one of its kind developed by Hong Kong higher education institutions used in urban landmarks and structural icons in the region, including the Shenzhen Stock Exchange Tower, and the 652m high Shanghai Centre. More information is presented in Appendix 3.

#### 4.5 Torque-free Single Yarn

Upon ten years of continuous applied R&D in collaboration with renowned institutes and leaders in the trade, the successful licensing of this technology to four major companies worldwide this year marks the significance of this technology to the industry. Six companies from Hong Kong, Mainland, Australia, Thailand and Malaysia now use the technology as licensees, with another ten licensing discussions in the pipe line. Mill trials have been underway with top fashion brands like Ermenegildo Zegna and Loro Piana, for introducing new product lines under single-yarns. Current discussions will likely lead to further adaptation for the use of the technology in milling machines (Switzerland) and wool processing (Australia). The decade-long development exemplifies the commitment and capability of the PolyU in sustaining application-oriented research for high impact KT, both locally and globally.

## 5. Showcasing our Technology Value to the Industry

PolyU has maintained its long tradition of connecting with industries through systematically planned outreach activities, comprised of exhibitions, tradeshows, marketing seminars, trade publications and other targeted publicity events.

#### 5.1 Theme-based Exhibitions and Targeted Trade Shows

For the reporting period, PolyU has participated in 19 exhibitions and trade shows, most of them locally held, covering important ones like Electronics Fair, ICT Expo in Hong Kong, and strategic showcases like the widely reported Swiss Exhibition of Inventions of Geneva.

Such participation opens up KT opportunities. Many SMEs in Hong Kong approached PolyU for KT support as a result. At the international front, participation at a German exhibition 3 years ago was the first step to

bring in EUR500,000 for sponsored research this year (More information in Appendix 4). The premier railway technologies exhibition InnoTrans 2010 in Berlin attracted over 100,000 trade visitors. Our related safety monitoring technologies, now being deployed in the Chinese HSR system, immediately drew the attention of railway operators in Italy and Australia for future collaboration.

For Chinese mainland, our focus is on strategic technology-related exhibitions. Due to its close proximity, Shenzhen Hi-Tech Fair is of special interest to PolyU, as many Pearl River Delta companies come to explore further collaborations with PolyU after initial contacts at the event. Our participation at the China High Tech Fair (CHITEC) in Beijing resulted in the coverage of PolyU technologies by more than 30 media, drawing the interests of the Beijing Party Secretary Liu Qi and Mayor Guo Jinlong to come specifically to see our Robotic rehabilitation arm technology. Positive responses were also received in the China International Industry Fair held in Shanghai, where PolyU won an Innovation award for its complex building energy saving technology already deployed in ICC, the tallest commercial building in Hong Kong. More information is presented in Appendix 5.



Last but not least, the benefit of these events goes both ways. Participation by academic staff actually helped to enhance their knowledge of updated industrial demand and market trend so as to better equip them for teaching and research back on campus.

## 5.2 Technology and Networking Seminars for Industry and Trade

More than 10 technology seminars and 20 networking seminars were organized for industry, aiming to fostering academic-industrial partnerships. In addition, a luncheon series was organized for industrialists and business people to solicit their technology and knowledge transfer needs, with over 420 executive participants over 6 sessions throughout the year. More information is present in Appendix 6.

## 5.3 Articles and Publications for the Trade

PolyU continued to send its articles for trade magazines and appropriate media to promote knowledge transfer. Examples are official publications by the Federation of Hong Kong Industries, Chinese Manufacturers Association, 中国科技财富 by the Ministry of Science & Technology in China.

A book titled “卓越卓越产学研” (“Excellence in Knowledge Transfer”) on PolyU technology and the related transfers to society was published for Chinese readers, pairing its English version “Reaching for the Stars”.



## 5.4 Special publicity events

Theme-based and technology-based events were held on special arrangements to associate our values and commitment to certain development for the good of the society at large.

Such effort included the launching of Electric Vehicle and Green Technology for Vehicles with a commercial partner, Green-Power, in October 2010 to target use of related green technologies on mini-buses and taxis. Secretary of Environment Edward Yau specifically inspected the truck installation during the Macao International Environmental Co-operation Forum and Exhibition in April 2011. More information is presented in Appendix 7.



A PolyU Green Innovation Campaign was launched in this reporting period. A series of events including press conference, exhibitions held at InnoCarnival 2010, China Hi-tech Fair were all part of this campaign. The campaign highlighted numerous examples of PolyU's effort in the green technology R&D, how knowledge transfer is benefitting the society.



In practice, PolyU runs 3 myCar EVs and is the first institution to develop and operate a rapid EV charging station on campus; a solar electric air conditioning system is also developed for the 16-seat PolyU bus.

## 6. Fostering Understanding and Interest for University-Industry Knowledge Transfer

Bridging the gap between academic and industry is a difficult but critical part of the KT process. To promote understanding and value of KT and its best practices, three major conferences were organized, each emphasizing cooperation among industry and **all** UGC institutions, not just for PolyU alone. It is hoped that through PolyU's initial efforts, other institution will continue to help nourish the culture and practice of KT across the entire higher education sector under UGC support.

### 6.1 KT Conference 11.2010

PolyU took the helm to organize the first ever all institution KT Conference ([www.ktconference.com](http://www.ktconference.com)) for Hong Kong in November 2010. The event was supported together by a special UGC allocation and also the General Support Program under the Innovation and Technology Fund. The two-day event attracted close to 600 participants with 26 speakers from leading universities worldwide. The Policy Forum opened up sharing for improvement in practice among senior management of the institutions. The associated student forum, co-organized with the Cambridge University Education Without Borders Society (CUEWB) and AIESEC, was enthusiastically attended by 250 students from all eight institutions. With highly positive feedbacks from academia and industry, we hope PolyU had helped set up a platform for which HKU and other sister institutions can continue to build up from strength to strength. More information is presented in Appendix 8.

### 6.2 InnoAsia 2010

PolyU partnered with the Hong Kong Science and Technology Parks Corporation (HKSTP) in organizing InnoAsia 2010 in November 2010 at the Science Park in Shatin ([www.innoasia.net/2010/about.html](http://www.innoasia.net/2010/about.html)). Titled "Innovate for a Sustainable World", the event was a signature event of the HKSAR Technology Month series of events, promoting green technology to the business community and encouraging innovation through technology transfer. Over 1,000 targeted visitors participated at the three-day event. More information is presented in Appendix 9.

### 6.3 Forum on Creating Synergy in Innovation and Technology 7.2011

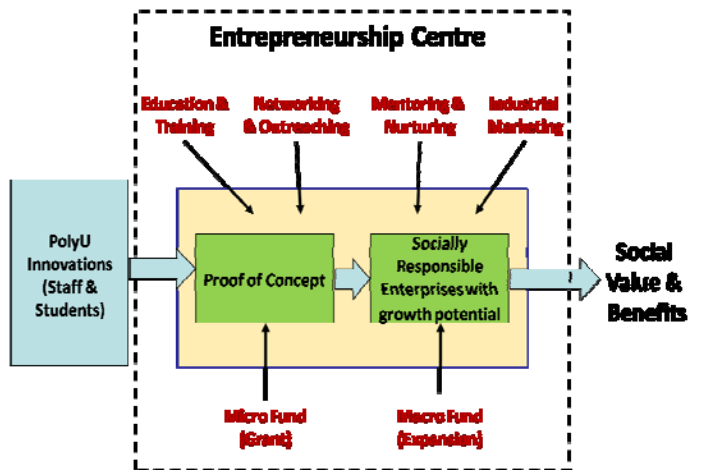
This Forum ([www.szhkforum.com](http://www.szhkforum.com)) was organized by the PolyU with the support of the Innovation and Technology Commission of the HKSAR Government and the Science, Industry, Trade and Information Technology Commission of the Shenzhen Municipal Government (SZSITIC) to promote the Shenzhen-Hong Kong Innovation Circle as a hub for sustainable innovation and technology collaboration for enhancing growth and competitiveness of the region. By invitations only, more than 200 top executives from Hong Kong and Shenzhen attended the event. More information is presented in Appendix 10.

## 7. Student-based Innovation and Entrepreneurship for Knowledge Transfer

PolyU continues to commit resources into building up institutional KT capacities through new infrastructure and programs with the earmarked UGC KT fund. One key initiative relates to the inception of a series of entrepreneurship programs aiming to foster innovation and entrepreneurial culture and practices within PolyU community, including pre-incubation/incubation of entrepreneurial operations that leverage on PolyU technologies and applied research outcomes. The programs would facilitate student-based innovations and entrepreneurial activities as an essential part of the PolyU KT eco-system to further PolyU’s KT efforts and mission alongside the conventional staff-driven KT activities.

### 7.1 The Innovation and Entrepreneurial Process

The UGC KT Fund has made possible the jump-starting the knowledge transfer process through hands-on entrepreneurial operations, with pre-incubation supports (e.g. education and training, mentorship and nurturing, networking and outreaching) along the value-added process. Under this model, the University not only propagates its KT endeavour through student-based entrepreneurial ventures, but also nurture students and young graduates into socially responsible entrepreneurs, achieving the double-bottom line “do well, do good” objectives in a sustainable manner.



### 7.2 PolyU Micro Fund Scheme for Innovation and Entrepreneurship (Pilot)

The first ever PolyU Micro Fund for Innovation and Entrepreneurship is a new KT initiative aiming to stimulate and encourage student-based innovations and entrepreneurship through seed funding and pre-incubation support.

The scheme was set up under two interlinked streams: (1) The Innovation Stream rewards innovative project ideas that could be readily adopted for campus life enhancement. (2) The Entrepreneurship Stream supports good entrepreneurial propositions with a seed fund for their actual implementation.

The scheme attracted more than 200 applications from March to May 2011, engaging more than 260 students and 80 alumni. 53 PolyU staff were also materially involved as advisors or assessors. After rigorous assessment, 20 innovation projects for campus enhancement were granted awards and 9 entrepreneurial propositions were supported with \$100,000 micro fund. More information is presented in Appendix 11.



### 7.3 Entrepreneurship Parade

As pre-cursor to future Entrepreneurship Centre programs, a series of events were organized under the “*Entrepreneurship Parade*” banner to stimulate interest and knowledge in industrial practice involving creativity, innovations and entrepreneurs. Highlights of the events are as follows (more information is presented in Appendix 12):

#### Entrepreneurship Workshops:

Six workshops with inter-linked entrepreneurial topics were successfully organized between April and June 2011, and were well received by close to 1,200 participants (about 50% students and 50% alumni).

Study Mission:

A 5-day study mission is organized in August 2011 for Micro Fund awardees to visit university incubators and KT intermediaries in the Shanghai/Suzhou area, aiming to provide the participants a learning opportunity in their entrepreneurial venturing and deeper understanding of relevant KT practices in the region.

PolyPreneur:

The exercise aims to show case the entrepreneurship spirit amongst the PolyU alumni with a view to stimulating students' entrepreneurship as a way to prosper KT activities. Commenced in April 2011 till early 2012, a series of enrichment events will be organized, and employment and economic impact created by the entrepreneurial activities of alumni will be measured.

## 7.4 Pilot-Scale Entrepreneurship Centre at Shenzhen

A pilot-scale centre of approximately 300 m<sup>2</sup> has been set up within PolyU's own research and KT building at the Shenzhen Hi-Tech Zone, with UGC KT fund supporting its initial setup and direct operation expenditure. The centre will provide infrastructure support to qualified young PolyU entrepreneurs to execute their KT endeavours serving both Hong Kong and China markets.



The centre is pivotal to enhance PolyU's KT capacity and commercialization effectiveness under a regional superstructure, with all activities closely knitted to the Hong Kong-driven programs managed by PolyU. The Centre will also effectively support outreach of PolyU's innovations/technologies to industries of much higher technology absorptive capacities, many of those being Hong Kong-owned entities operating in Pearl River Delta.

Along this direction, the University is planning to establish an Entrepreneurship Centre in the coming year to augment PolyU's existing KT superstructure. The Centre aims to (a) cultivate "Do Well Do Good" entrepreneurial ambiance within PolyU community; (b) nurture creative and socially responsible young entrepreneurs; and (c) provide an out-of-classroom learning platform for students' innovations and entrepreneurship. With the support of earmarked UGC KT fund, the Centre will provide further capacity, resources (e.g. funding through PolyU Micro Fund scheme) and supports (e.g. pre-incubation support and infrastructural support at the centre in Shenzhen) for innovation and entrepreneurial activities of PolyU students and staff as a mean to achieve KT objectives.

## 7.5 Other Activities Encouraging Student-based Innovations and Entrepreneurship

Throughout the year PolyU has also organized many different activities aiming to cultivate innovation and entrepreneurship among student community. To name a few, a first ever National Space Technology Study Tour for Hong Kong tertiary students, an international business plan competition in "Global Student Challenge" and a related entrepreneurship development programme organized for PolyU students to enhance their entrepreneurship skills and thinking. More information is presented in Appendices 13, 14 and 15.

## 8. Performance Measurement – Key Performance Indicators

A summary of the key performance indicators for various KT areas is tabulated as follows:

Performance Indicators	2010/11 Target	2010/11 Actual	Note
<b>Patenting &amp; Licensing</b>			
No. of patents filed	65	76	
No. of patents granted	55	43	Due to widely publicized backlog at patent offices worldwide.
No. of license granted	42	18	Many cases under discussion.
Income generated from IPR	\$3m	\$7.1m	
Expenditure involved in generating income from IPR	\$0.2m	\$0.2m	
<b>Consultancy, Collaborative and Contract Research</b>			
No. of collaborative researches and income generated	50 \$65m	37 \$61.2m	Increased marketing effort resulted in high demand, timing of funding approval application changed, some outcomes will reflect in FY2011/12.
No. of consultancy projects and income generated including contract research	570 \$97m	727 \$85m	Increased in demand from SME, led to smaller contracted sum but larger number of companies. This is creating higher impact to society.
No. of pro bono research	30	30	
<b>Marketing &amp; Outreaching</b>			
Creating impact to industry, economy and society through KT – No. of high impact research & KT projects	-	5	<ul style="list-style-type: none"> <li>· High Speed Railway (China)</li> <li>· MTR (Hong Kong)</li> <li>· Chang'e 3 Moon mission (China)</li> <li>· Phobos Mars mission (Russia)</li> <li>· Canton Tower (Guangzhou)</li> </ul>
Outreaching to industry - <ul style="list-style-type: none"> <li>• No. of Exhibitions / Conference and Forum attended</li> <li>• No. of people reached</li> </ul>	- - -	19 2,000	<ul style="list-style-type: none"> <li>· Worldwide</li> </ul>
<b>Innovation and Entrepreneurial Activities Enabling KT</b>			
Instigating entrepreneurial culture – No. of students & alumni reached	-	1,460	Micro Fund and Entrepreneurship Workshop participants
Engaging students' participations in Innovation & Entrepreneurial activities – <ul style="list-style-type: none"> <li>• No. of Micro Fund applications</li> <li>• No. of students &amp; alumni involved</li> <li>• No. of entrepreneurial propositions supported</li> </ul>	-	205 340 9	120 applications for entrepreneurial practice and 85 applications from students for innovative ideas. (selected ideas shall be implemented with student teams' participation in the actual KT process)
Putting entrepreneurship into practice – <ul style="list-style-type: none"> <li>• No. of new companies to be established</li> <li>• Expected no. of new employment to be created (within next year)</li> </ul>	-	6 20	9 out of 120 applications supported with the grant of seed fund, with 6 new companies to be established.
<b>KT Supporting Activities</b>			
No. of student contact hours for business or CPD needs	550,000	530,000	
No. of equipment and facility	360	353	

Performance Indicators	2010/11 Target	2010/11 Actual	Note
service agreement and income	\$3.7m	\$3.3m	

## 9. Usage of KT Fund

The usage of the KT fund covering the period is as follows (more information in Appendix16):

Activities	Allocation 2009/11 (\$'000)	Actual Expenditure (\$'000)	Carried Forward (\$'000)
Dedicated staff	2,500	2,435	65
PR / Marketing activities	6,740	6,372	368
Proof of concept fund	1,100	1,100	-
Micro-fund and Startup Project Support	2,000	2,000	0
Patent	2,280	2,280	0
Technology display halls in Hong Kong and Shenzhen	1,500	1,495	5
<b>Total</b>	<b>16,120</b>	<b>15,682</b> <small>Note 1</small>	<b>438</b>

Note 1 – Figures reported include commitments in Q3, 2011 for planned activities that are aligned with summer programs after regular semesters.

## 10. Summing Up of Achievements in Year 2 and The Way Forward

Building upon the strength with strategic directions, Year 2 has been a highly successful year for advancing our KT agenda. In addition to conventional KT activities, PolyU has made excellent in-roads to the following initiatives with solid achievements:

- Carried out comprehensive reviews of KT framework and policy to enable dynamic integration of KT into mainstream academic activities
- Collaborated with acclaimed authorities and experts in series of high impact KT exemplar projects such as the Chinese high speed railway system, Chinese Chang'e 3 Lunar mission, Russian Phobos Mars mission, Canton tower. All such engagements were first of its kind for Hong Kong higher education institutions.
- Fostered a community-of-practice spirit amongst institutions in KT through the organization of high level, high impact conferences and forums promoting KT and sharing of best practice.
- Embarked on major initiatives to engage students on innovative and entrepreneurial activities as preemptive to KT endeavours. The concerted effort achieved high participation rate, with overwhelming staff and student support for related strategic development in future.

Moving into FY2011/12, PolyU will continue to strive for excellence in KT exemplars as well as improvements in systems, methodologies and cultural ambiance, with specific actions as follows:

- Complete the review of the institutional KT framework to introduce robust policies conducive to integrating KT as a component of mainstream scholarly activities with strategic dimension
- Focus on realizing the knowledge transfer of high impact applied research outcome to demonstrate the role of institutions in regional innovation and development for the benefit of the society
- Establish operation superstructure to facilitate hands-on learning experience for students and young graduates in innovation and entrepreneurial endeavours for KT, converging both codified and tacit knowledge for personal and societal development
- Promote "do well, do good" ethos for KT engagements, with more attention to endeavours related to the entrepreneurial practice of social science applications.

Nicholas Yang  
Executive Vice President



Appendix  
to  
Annual KT Report for UGC

FY 2010/11

5 August 2011

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## Appendix 1 – Summary of Preliminary Findings on Staffs’ Views on University’s Knowledge Transfer Policies

### THE CONSULTATION

1. A Task Force was set up by the Knowledge Transfer Committee (KTC) to solicit view and opinions from staff for KT mechanism and matters relating to KT. In order to solicit a wider view from the PolyU academic community, the Task Force first conducted an online questionnaire survey in April 2011. A total of 157 questionnaires were received, making up an overall response rate of 18%.
2. In early June a series of sharing sessions was arranged to report to the academic community on the findings from the questionnaire survey and to have in-depth discussion on the PolyU KT framework and policies. Forty staff members, including Deans, Heads and other KT-active colleagues, participated in five small group sessions.

### OBSERVATIONS

3. In general staff members are interested in KT activities. They consider these activities part and parcel of the core business of PolyU as a university, which emphasizes the application value of research. The majority regard KT activities equally important as teaching and research as a demonstration of academic excellence. There seems to be a very high consensus among the academic community that undertaking KT activities is conducive to teaching and research. On the other hand, staff members have expressed various concerns over the recognition of KT activities by the department and University, which may have deterred them from conducting KT activities.
4. Staff members have also raised issues about limitation of infrastructural support from the University and department, which have discouraged their KT activities. It is important that a favourable ambiance and the necessary support for KT activities are provided to promote KT endeavours.
5. Staff members generally agree that in view of rising patent expenditure, patent filing should be based on genuine commercial interest to license or exploit instead merely on scientific uniqueness. The overwhelming majority believe that patent reviews should be carried out by both academic members and external members.
6. It appears that financial reward is the least important factor in motivating staff to undertake a KT activity. The majority do not disagree with the view that the current benefit sharing arrangements between staff, department and PolyU are fair and equitable. However, as the University has not had much monetary gain by filing so many patents over the years, there is no good reason for not introducing a change. A better mechanism should be introduced.

### RECOMMENDATIONS

#### *KT model*

7. The current scope of KT activities should be expanded to cover the activities across departments for all disciplines, such as the Humanities and Applied Social Sciences. The Faculties concerned should come up with the kind of KT activities, other than teaching, that are suitable for their disciplines for consideration by the University in revisiting and broadening the current definition of KT.
8. KT activities should be counted into the total workload. The University should give more guidance to departments and faculties in establishing a fair workload calculation system. The issue of double dipping should be addressed.



9. There should be more recognition of KT achievement in staff performance appraisal and promotion. The University should give clear indications on what degree of KT activities will be recognized in the assessment.
10. As survey respondents strongly agree that an academic staff member desiring to be actively engaged in the operation and benefit-sharing of a spin-off company should be reappointed to a part-time position or else take no pay leave, the University should actively consider such provisions and the approval procedures / criteria, and to define the scope of KT activities that are applicable under these provisions to avoid abuse.

***Intellectual property policies***

11. A patent should be filed only if there is genuine commercial interest. To evaluate the patentability and commercialization potential of a technology, expertise should be built up for the evaluation process, and the evaluation criteria should be tightened up to ensure better chance of success. A transparent process with the involvement of both academics and members from industries should be in place.
12. The overall patent policy should be explained clearly to staff members that the patentability of a technology is linked with its commercialization potential, otherwise patent filing would be no different from publication of a paper, which is not the intention of the University. Colleagues would be supported through alternative ways, e.g. given the first right of refusal in the patent filing process.

## Appendix 2 – ICAC Review

### **Management of Joint Venture Projects**

In the final report, the Commission found that the management of joint venture projects was in order with established processes and practices, and a system was in place to select partners and manage such operations. Three areas of improvement were recommended by the Commission namely:

- More detailed policy and documentation on how to manage JVs
- Improvement in making disposal decisions
- The inclusion of independent representation on the boards of the holding companies

PolyU has responded by putting into practice majority of the recommendations of the ICAC with the remainder to be implemented subject to the revision of KT framework that is being reviewed by the KT Committee. These are expected to be implemented towards the fourth quarter of 2011.

### **Consultancy operations**

During the reporting period, the ICAC's Corruption Prevention Department conducted a review of PTeC's consultancy operations, whereby many aspects of its work were examined. These included its procedures and practices for the registration of its academic staff as independent consultants, the processing of external consultancy enquiries, the preparation of consultancy proposals, the calculation of service fees, commercial contract vetting, the making of purchases for projects, billing arrangements, disbursement of income to consultants concerned, and the monitoring of consultants' performance.

Their final report indicated that in general, the commission considered PolyU's operation model for consultancy work as efficient and robust, with just a few operational changes recommended for improved measures in corruption prevention and equitable treatment against perceived favoritism. While taking into consideration their recommendations, PolyU management has taken a balanced view to maintain business agility with a pragmatic adoption of ICAC's recommendations, which have now been fully implemented into the operation workflow. Key recommendations made by the ICAC included: (1) refining present probity requirements to prevent consultants' diversion of subcontracts from consultancy work to business associates or close personal friends; (2) updating regulations on accepting 'token gifts' from external parties; (3) ensuring consultants are given fair and equal opportunities from enquiries received by PTeC; (4) establishing guidelines for payment terms; (5) establishing clear guidelines and procedures to manage under-performing consultants; (6) aligning, to the extent practical, project purchases and fixed assets management guidelines with relevant systems and practice of the university.

PTeC has also continued to develop and improve its online Outside Activities System and project management workflow with the aim of streamlining academic staff's administrative reporting requirements while not compromising on quality. The latest system version with improvement patches was launched in June 2011, while further improvements are planned for FY2011/12.

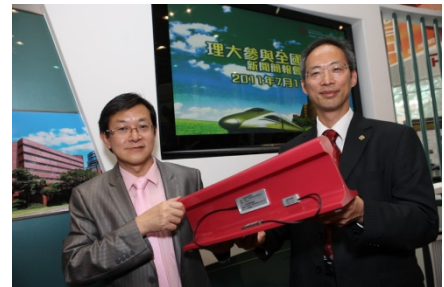
## Appendix 3 – High Speed Railway & Structural Health Monitoring Projects

### Collaborations and KT for High Speed Rail Monitoring

The Hong Kong Polytechnic University (PolyU) is collaborating with Southwest Jiaotong University and Dalian Jiaotong University to study the use of its proprietary Advanced Fibre Bragg Grating Sensor (FBG) Systems for monitoring the structural health and safety of the nation’s fast-expanding High-Speed Rail.



PolyU researchers and their mainland partners have already installed the “Advanced Fibre Bragg Grating Railway Monitoring System” in several parts of the high-speed rail across the country. The hundreds of optical sensors will provide information on vibration, acceleration and temperature change for engineering staff, helping them to monitor the condition of tracks and railcars as well as structural health of the rail foundation. The unique characteristics of optical fibre sensing technology offer many advantages that make them ideal for use in railway systems.



### The PolyU’s Expertise

The University has already established a strong inter-departmental research team to study the use of optical fibre technology in different settings. Its key members include Professor Ho Siu-lau, Professor Tam Hwa-yaw and Dr Michael Liu of the Department of Electrical Engineering; Professor Ni Yiqing and Professor Yin Jianhua of the Department of Civil and Structural Engineering; Professor Zhou Limin and Professor Cheng Li of the Department of Mechanical Engineering; and Dr Wang Dan of the Department of Computing.

In regard to monitoring track and trains, the team under Professor Ho Siu-lau and Professor Tam Hwa-yaw has already completed the installation of the “Advanced Fibre Bragg Grating Railway Monitoring System” in several important parts of the high-speed rail. The system now provides real-time data for analysis by engineering experts of PolyU. It can also keep track of train speed, axle balance and vibration data for record and further analysis. The system not only benefits the high-speed rail in operation, but also contributes to further research in this important area.

PolyU has a Smart Railway Research Laboratory on its campus. Under the headship of Professor Ho Siu-lau, the lab focuses on the study and improvement of the railway operation and safety. PolyU researchers have also made concerted efforts to improve such technology and explore their use in different real-life settings.

On the other hand, Professor Ni Yiqing, Co-coordinator for the University-wide Interdisciplinary Research on Railway-related Projects, has been working closely with Dalian Jiaotong University to install PolyU’s optical sensors on the new generation of high-speed inspection trains for monitoring purpose. The optical sensors for wind pressure measurement developed by the team have been successfully installed and used for this important pilot run.

At the same time, Professor Ni and Professor Yin Jianhua are collaborating with Southwest Jiaotong University to monitoring the settlement of rail foundation with the use of another kind of optical sensors. The study is important for understanding the safety of foundation and related changes. The team has also kicked off a project together with China CNR Corporation, Southwest Jiaotong University and Dalian Jiaotong University on the use of smart damping technology for enhancing the stability of high-speed trains.

Meanwhile, the research team at the Department of Mechanical Engineering will consolidate their experience and expertise in the area of structural health monitoring for use in the High-Speed Rail. Using ultrasonic wave technology, the team has already developed an instantaneous diagnosis system which can detect cracks arising from metallic fatigue and corrosion of key parts in the track and rail. This new technology can be also combined with the use of laser actuating/sensing technology for monitoring the structural health of bridges, tunnels, tracks, train bodies, bogie frames and wheel axles.

### **Recent Events**

In June 2011, Professor Timothy W. Tong, President and Professor Alex Wai, Vice President (Research Development) of PolyU were invited to lead a delegation to join a test ride along the Beijing-Shanghai High-Speed Rail before its official opening. The delegation members included several Council Members, key researchers and student representatives. They were all impressed by the expedient services of the High-Speed Rail.

From 20 to 22 July 2011, PolyU has hosted the First International Workshop on High-Speed and Intercity Railways in Shenzhen and Hong Kong. The workshop was co-organised with Southwest Jiaotong University, Beijing Jiaotong University, Dalian Jiaotong University, China Engineering Consultants, Inc. (Taiwan), Zhejiang University and Tsinghua University.

### **Structural Health Monitoring**

This cutting-edge technology has been used by PolyU in different large-scale projects. One of the recent applications is in the structural health monitoring of the 600-meter Canton TV Tower, which is currently the tallest TV tower in the world.



### **Shanghai Tower 上海中心大厦**

The latest addition to the team's success is the 652m tall Shanghai Tower, which will be the tallest building in China. PolyU has secured a contract to design the structural health monitoring system.



## Appendix 4 – List of Exhibitions attended - from July 2010 to June 2011

	Exhibitions Attended	Location
1	International Conference & Exhibition of the Modernization of Chinese Medicine & Health Products (ICMCM 2010)	HK
2	TEDxHongKong 2010	HK
3	17th National Medicine & Healthcare Products	Guangzhou
4	InnoTrans 2010	Berlin
5	Expo Central China 2010	Nanchang
6	Hong Kong Electronics Fair (Autumn Edition) 2010	HK
7	World Expo 2010 - WTCA Pavilion	Shanghai
8	The 62 <sup>nd</sup> International Trade Fair>>Ideas-Inventions-New Products<< iENA 2010	Germany
9	2010 中國（溫州）新能源與節能技術交易會	Wenzhou
10	Hong Kong International Medical Devices and Supplies Fair	HK
11	InnoCarnival 2010	HK
12	China High Tech Fair 2010	Shenzhen
13	Modern Railways 2010	Beijing
14	Guangdong Industrial Design Exhibition 2010	Guangzhou
15	2011 中國深圳國際模具制造技術及產品展	Shenzhen
16	International ICT Expo 2011	HK
17	Geneva Invention Exhibition 2011	Geneva
18	The 14 <sup>th</sup> China Beijing International High-Tech Expo (CHITEC 2011)	Beijing
19	BIO 2011	USA

### **E-T-A Partnership**

On 8 July 2011, PolyU has signed a Memorandum of Understanding (MoU) with German industry giant E-T-A Elektrotechnische Apparate GmbH (E-T-A). Both parties will enter a research collaboration to further develop the Self-Sustainable Magnetolectric Smart Sensor Technology invented by PolyU researchers for commercial use.



E-T-A is a world market leader in the design and manufacture of electrical circuit protection products for a variety of market fields, including aerospace, automotives, railways, marine, telecommunications, power, renewable energy, automation and process control, environmental technology and equipment, etc. Under the MoU, E-T-A will provide cash sponsorship of EUR500,000 for PolyU to further advance and commercialize this innovative and high value-added technology for electrical circuit protection applications.



The Self-Sustainable Magnetolectric Smart Sensor Technology was developed by Dr Derek Or Siu-wing, Associate Professor of PolyU's Department of Electrical Engineering, with funding supported by the General Research Fund of the Research Grants Council and the University since 2003. The Technology was also awarded a Bronze Award in the 58th International Trade Fair "Ideas - Inventions – New Products" of Nuremberg in 2006. Its debut appearance also caught the attention of E-T-A, with its corporate headquarters in Altdorf near Nuremberg. The University subsequently entered into this agreement with E-T-A.

Over the years, Dr Or and his research team have made steadfast progress in exploring the frontiers of sensor technology for condition or health monitoring. Specifically, the Self-Sustainable Magnetolectric Smart Sensor Technology has led to new generation Power Supply-Free, Signal Conditioner-Free Passive Current Sensors. The related research has been granted two US patents, besides publishing more than 60 SCI Grade-A journal papers. Dr Or was also ranked number 3 (27 papers) in the ISI Web of Knowledge in terms of number of SCI papers published in the "magnetolectric" topic in the recent three years from 2008 to 2010.

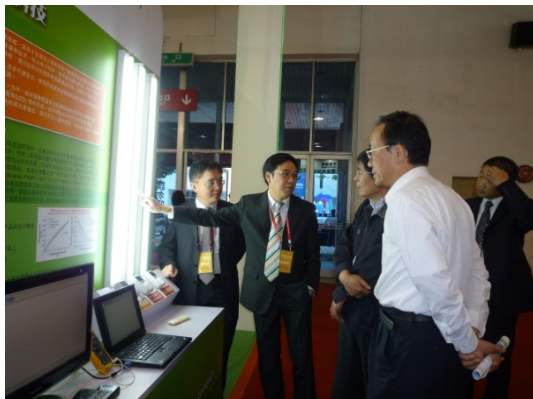
In addition, Dr Or and Professor Ho Siu-lau, Head of PolyU's Department of Electrical Engineering, have been successful in deploying these passive current sensors and wireless communication units for self-powered wireless condition monitoring of modern railway and/or electric power distribution systems in Hong Kong, Mainland China, Macao and Thailand.

E-T-A has approximately 1,300 employees worldwide and a globe-spanning network of representatives and subsidiaries covering more than 60 countries. Through E-T-A's strong international network, PolyU developed Self-Sustainable Magnetolectric Smart Sensor Technology will be fully explored for potential applications in different industrial settings.

## Appendix 5 - CHITEC Beijing and China International Industry Fair (Shanghai)

### The 14<sup>th</sup> China Beijing International High-Tech Expo (Beijing, May 2011)

China Beijing International High-tech Expo (CHITEC) is a major national hi-tech expo that takes place every May in Beijing. It is jointly sponsored by the Ministry of Science and Technology, the Ministry of Commerce, the Ministry of Education, the Ministry of Industry and Information Technology, China Council for the Promotion of International Trade (CCPIT), State-owned Assets Supervision and Administration Commission of the State Council, State Intellectual Property Office, and Beijing Municipal Government. The exhibition with over 1,800 exhibitors and 300,000 participants is the largest one of its kind held in Beijing.



### China International Industry Fair 2010 (Shanghai)

PolyU exhibited 12 applied technologies including the Intelligent Building Life-cycle Diagnosis and Optimization Technology developed by Professor Sheng-wei Wang that won an Innovation Award. The technology has been used for advanced energy saving in a number of landmark buildings, including the International Commerce Centre (ICC) located in West Kowloon. The Advanced Railway Monitoring System featured by PolyU also won the Second Prize among higher education exhibits.



## **Appendix 6 –Technology and Networking Seminars for Industry and Trade**

### **Seminar on Ecodesign Requirement for Electrical and Electronic Products and the Impacts of EU Directives on Energy-using Products (EuPs) for SMEs"**

CEO Club and ISE jointly organized a seminar on "Ecodesign Requirement for Electrical and Electronic Products and the Impacts of EU Directives on Energy-using Products (EuPs) for SMEs" on 24 February 2011. EuPs Directive and Implementation Measures (IM) and current status of IM for Electrical Industry and local SMEs were addressed during the seminar. It was attended by 100 participants from the industrial sector.

### **Seminar on Low Carbon Economy**

On 8 April 2011, Institute for Enterprise (IfE), CEO Club, The Professional Validation Council of Hong Kong Industries, and The Professional Validation Centre of Hong Kong Business Sector jointly organized a seminar, themed "Low Carbon Economy – Implications and Business Opportunities for Enterprises". Six speakers, including key government officials, prominent industrialists and PolyU academics, were invited to speak on topics ranging from megatrends on regulations development, latest solar energy technology development to green purchasing policies in the global supply chain. The purpose is to provide latest information to the business communities on how regulatory requirements, green technologies, and voluntary actions from private sector and NGOs were framing the market and shaping it towards a low carbon economy. The seminar was welcomed by the business sector. It attracted over 200 participants, among which over 70% were CEOs, senior executives and industry professionals.

### **Knowledge Transfer Matching Luncheons**

- a) CEO Club organized two round table sharing on "Eco Product Design and Development" and "Future Development of Renewable Energy and Its Applications" in January and June 2011 respectively. Five PolyU academics were invited to present their research output in the areas of green product design and manufacturing, nanotechnologies, and the application of solar energy and wind power to 50 CEOs in HK.
- b) An experience sharing luncheon "深港企業交流千午宴" was jointly organized with CMAO on 11 January 2011. PolyU representatives were invited to share with over 70 CEOs from Hong Kong and Shenzhen on research development and commercialization.



## Appendix 7 - Launch of Solar-Powered Air Conditioning System for commercial vehicles

Working in collaboration with industry partners, researchers of PolyU have successfully developed a Solar-powered Air-conditioning System for vehicles and completed a series of testing on the road.

The innovative system is developed by Professor Eric Cheng, PolyU's Department of Electrical Engineering together with Green Power Industrial Ltd. With the support of Swire Coca-Cola Hong Kong, the system has been installed on the top of a truck for carrying beverages and proved to work on the road.



Swire Coca-Cola Hong Kong advocated their support to this solar energy system research project as a prime example of their commitment to a sustainable future.

The truck installed with Solar-Powered Air-conditioning System differentiates itself from other vehicles with a solar energy panel made up of photovoltaic modules on the top of it. As the truck moves along roadside, it will automatically collect solar energy for storage in a specially made battery system supported by an optimized control system.



The power collected will support a stand-alone electric air-conditioner which can be switched on when the car engine is not running. The sophisticated system can also operate during cloudy or rainy days because solar energy is automatically stored in the battery during sunny weather.

## Appendix 8 - Knowledge Transfer Conference

Knowledge Transfer Conference, in its first year of running, was supported by the Innovation and Technology Fund and the University Grants Committee of the Hong Kong Special Administrative Region. Led by PolyU, the Conference was jointly organized by Hong Kong Baptist University, The Chinese University of Hong Kong, City University of Hong Kong, The Hong Kong Institute of Education, Lingnan University, The Hong Kong Science and Technology University, The University of Hong Kong, and Hong Kong Science and Technology Parks Corporation. The Conference was a two-day event consisting of a main conference, business matching forums and non-technology sessions on knowledge transfer.



Themed on "Partnering for Success: Mastering Innovation, Leveraging Opportunities, Engaging Community", the Conference also aims to promote Hong Kong as the regional hub for innovation, knowledge transfer and entrepreneurship, hence building Hong Kong's leadership role in knowledge transfer, creating impact to the overall economic development.



More than 400 academics, business executives and policy makers from around the world were gathering in Hong Kong to participate in this conference. Senior management representatives from all the eight universities and the Hong Kong Science and Technology Parks Corporation together with the Guests-of-Honor, Dr Ronan Stephan, General-Director for Research and Innovation of the French Ministry of Higher Education and Research; Dr Zhang Jing'an, Chief of Science and Technology Daily and Member of the Leading Party Group of Ministry of Science and Technology; Miss Janet Wong, Commissioner for Innovation and Technology of the HKSAR Government; and Mr Michael Stone, Secretary-General of UGC, officiated at the Opening Ceremony.



Prominent international and local business leaders and scholars were invited to deliver speeches at the Conference, including Dr Wang Jianzhou, Chairman of China Mobile Communications; Dr Richard Jennings, Deputy Director of Cambridge Enterprise Ltd; Mr Tom Hockaday, Managing Director of Isis Innovation Ltd, the Technology Transfer Company of the University of Oxford; and Dr Klaus Moertl, Executive Vice President of EPCOS (Zhuhai FTZ) Co Ltd, A TDK Group

Company.

As a prelude to the Conference, AIESEC in PolyU and the Cambridge University Education Without Borders co-organized an International Entrepreneurship Forum for Students on 6 December 2010 at Chiang Chen Studio Theatre to encourage university students in Hong Kong to embrace innovation, technology transfer, and entrepreneurship as a driving force for future economic development. Five renowned speakers shared with students their views and experience in business life.



The event has concluded with great success. More than 400 participants attended the Conference and we received many positive feedbacks from both the audience and the speakers.

## Appendix 9 - InnoAsia 2010

The 3-day programme was comprised of conferences, knowledge transfer forums, business match and workshops, as well as a networking dinner. Major speakers included:

- Mr Raymond Gastil, former director of City Planning Department, Seattle, Washington, USA
- Dr David Fisher, Architect of Dynamic Architecture Group
- Mr Michael Ng, Partner of Foster + Partners
- Professor Hon Patrick Lau, Legislative Councillor (Architectural, Surveying and Planning FC) of the HKSAR Government
- And speakers from MoveAbout, BMW, Fuji Electric Systems, Honda R&D Co., etc



The Networking Dinner was successfully held in a relaxing environment at the lakeside of Hong Kong Science Park. It served the purpose of providing a networking platform for speakers, sponsors, supporting organizations and top executives of major companies and organizations.

## Appendix 10 - Forum on Creating Synergy in Innovation and Technology

With the support of the Innovation and Technology Commission of the HKSAR Government and the Science, Industry, Trade and Information Technology Commission of Shenzhen Municipality (SZSITIC), PolyU organized the "Forum on Creating Synergy in Innovation and Technology – Shenzhen/Hong Kong Cooperation", the first of its kind in the region, on the morning on 8 July 2011 at the Hotel ICON, Hong Kong. It has attracted more than 200 participants, including business leaders, Consuls General in Hong Kong and Guangzhou, senior government officials and university presidents and vice presidents.



The forum aims to spread out the message locally and aboard about the Shenzhen-Hong Kong Innovation Circle collaboration model, in particular the power of joint collaboration and synergies between the Government, industry, academic and research sectors of the two places. It was officiated by Guests-of-Honour, The Honourable



John Tsang, Financial Secretary of the HKSAR Government; Mr Gong Guoping, Deputy Director General of the Guangdong Provincial Department of Science and Technology; and Mr Yuan Baocheng, Vice Mayor of Shenzhen Municipal People's Government and Chairman of Shenzhen side of the Steering Group on Shenzhen/Hong Kong Cooperation in Innovation and Technology.



The forum began with two keynote addresses by Ms Qiu Xuan, Vice Director of SZSITIC and Miss Janet Wong, Commissioner for Innovation and Technology. It was followed by a plenary session in which Mr Nicholas Brooke, Chairman of Hong Kong Science and Technology Parks Corporation; Mr Wang Chuanfu, President and Chairman of BYD Co., Ltd; Mr Zheng Hongjie, Director General of Authority of Qianhai Shenzhen-Hong Kong Modern Service Industry Cooperation Zone of Shenzhen talked about the cooperation and development of R&D in Hong Kong and Shenzhen; and Mr Mark McCombe, Group General Manager and Chief Executive Officer, Hong Kong of The Hongkong and Shanghai Banking Corporation Limited shed light on the current development of innovation and technology from financial perspectives.



The highlights of the event were the “Consuls General Forum” and “Business Forum” in which four Consuls General and CEOs were invited to sharing their insights and experience. The first panel discussion focused on the role of Hong Kong as a link between the East and the West for the development of Innovation and Technology, with insightful sharing by the Consuls General of the UK, Israel, the US and Germany. The second panel discussion involved the active participation of many CEOs sharing their precious experience on cross-border collaboration, including Dr David Chu, CEO of DuPont Apollo Limited; Mr Bernd Haertlein, Member of the Board of Directors of E-T-A Elektrotechnische Apparate GmbH; Mr Henry Leung, Chief Operating Officer and Executive Officer of GP Batteries International Limited; Dr Humphrey Leung, Group Chief Executive Officer of Solomon Systech Limited and Dr Raymond Leung, Chairman and Chief Executive Officer of TDK China Co Limited.



## Appendix 11 - PolyU Micro Fund for Innovation and Entrepreneurship (Pilot)

PolyU Micro Fund for Innovation and Entrepreneurship is a new knowledge transfer initiative aiming to (1) cultivate innovative and entrepreneurial ambiance in the PolyU community, (2) nurture socially responsible young people with the “do well and do good” philosophy through actual hands-on entrepreneurial endeavours, and (3) facilitate knowledge transfer of PolyU technologies.

The Scheme was set up to stimulate and unleash students’ creative potential and to create opportunity for their practical entrepreneurial learning. By rewarding innovative project ideas (for campus life enhancement\*) and good business/entrepreneurial propositions, the Scheme also provides opportunities for awardees to have real-life experience in either participating in the actual campus life enhancement projects or running their own business operations with mentorship and other infrastructural support. The entire program is designed with experiential learning components that are lacking in conventional classroom-based curricula.



The Scheme received a total of 205 applications within the 3-month application period, engaging more than 260 students and 80 alumni. A total of 53 PolyU staff were also materially involved as advisors to applicants or assessors in the vetting process.



After rigorous assessment, 20 innovation projects received grant prize and merit awards, and 9 business ideas received the \$100,000 micro fund. Among the awarded business propositions, 6 new companies will be created (plus 3 existing companies by alumni), with more than 20 new employments expected to be created.

All awardees will be further engaged for their involvement in actual implementation of the projects, with particular mentoring and networking support given to the Micro Fund awardees.

\* Theme for FY2010-11

## Appendix 12 – Entrepreneur Parade

### Entrepreneurship Workshop Series

Date	Theme	Speaker	No. of Participants
7 April 2011	What entrepreneurship is – A Story from a Trend Setter	Mr Douglas Young, Founder & CEO of G.O.D. – Goods of Desire	249
28 April 2011	Right vision brings big business – Strategic planning for start-up	Mr Jacky Cheung, Chairman and CEO of Shinhint Acoustic Link Holdings Limited	189
10 June 2011	How to pitch your ideas – structured business planning vs. spontaneous approach – Business plan preparation and presentation	Mr Lam Chi Sing, Founder of Laputa Eco-Construction Material Co. Ltd.	166
13 June 2011	Realize your dream & reality bites – Running a business	Ms Karen Chan, Vice President, German Pool (Hong Kong) Ltd. and Director, German Pool Group Co. Ltd.	188
20 June 2011	Web 2.0 The New Paradigm – Business opportunities brought by digital technologies	Mr Cheung To, General Manager, Commercial Radio Interactive	170
28 June 2011	Finding your angel – Solicitation of venture capital	Dr James Fok, Executive Director of Group Sense (International) Limited	165

### Study Mission

China runs an orchestrated regional innovation system with key science & technology and education & research policies to encourage knowledge transfer from higher education sectors to the industry. Supported by encouraging policies and the resources they bring about, related KT activities flourish with participants at all levels of entry. The way the more successful regions are conducting such activities carry a richness in knowledge and practice that both practitioners and participants from Hong Kong can benefit from.

In this context a 5-day study mission is organized in August 2011 for a group of more than 30 participants (the Micro Fund awardees and PolyU staff) to visit relevant organizations with more focus in university incubation and KT in Shanghai and Suzhou.



The 30 plus participants will gain understanding and appreciation on overall landscape and system supporting knowledge transfer, innovation and entrepreneurial activities in the thriving Eastern China region, considered to be a head-to-head contender to the Pearl River Delta in regional innovation. The first-person encounter and exposure will give the mission participants another dimension to entrepreneurial venturing, as well as a deeper understanding of relevant KT models and practices of the more successful universities in the area (e.g. Fudan, Tongji University).

**Polypreneur (www.polypreneur.net)**

Just like "Info-preneur" is defined as an entrepreneur in information technology and "technopreneur" is originated from "technology" and "entrepreneur", a new term "Poly-preneur" is defined to represent a group of PolyU's venturesome graduates who assume the risk and establish their own companies.

To celebrate the entrepreneurship spirit of PolyU graduates, the company logos will be grouped together to create a magnificent piece of art – the biggest collaged PolyU logo which will be featured in a prominent area in the campus for the celebration of PolyU's 75th Anniversary next year.

While showcasing to the community the cohesive and concerted efforts of our strong alumni force, this will also be a great opportunity for us to pay tributes to you all, the venturesome group who have followed PolyU's vision and have brought economic benefits to society at large.

## Appendix 13 - Space Program for Tertiary Student

Thirty-four students of eight local tertiary institutions have paid a visit to the China Astronaut Research and Training Centre (CARTC) in Beijing organized by PolyU this summer. During the study trip, the participants were given the opportunity to experience the training of Chinese astronauts on site and met with three national astronauts in person.



The first ever Study Tour on Space Technology for University Students was jointly organized by PolyU, CARTC and Beijing Institute of Technology. The objective of this study tour was to help university students deepen their knowledge of national developments, especially in the field of the space technology. Participants were given the opportunity to experience the training of Chinese astronauts on site, understand the latest development of the country's space technology, and thereby cultivating their interests in space science.



Led by Professor Alex Wai, Vice President (Research Development) of PolyU, the six-day study tour included an open dialogue with mainland aerospace experts during which student participants could gain a better understanding of the development of national space technology, training principles and programme of astronauts, and issues related to space bio-medicine.

In addition, student participants could get a taste of space food and have a try of the escape chute used for training at CARTC. Fei Junlong, Nie Haisheng and Liu Boming, astronauts of Shenzhou-6 and Shenzhou-7 Manned Space Flight Missions, also shared their flight experience with the students in an exchange session.

Upon their return, all participants took part in the project-based learning exercise so as to deepen their knowledge of national space technology.

Over the years, PolyU has built up a strong credential for active participation in space research and is proud to have made a contribution to national space projects. The good relationship between PolyU and mainland space authorities gave rise to this study tour.



## Appendix 14 – Entrepreneurship Development Programme

Organized and facilitated by Student Affairs Office, the Entrepreneurship Development Programme (EDP) aims to provide training and implementation opportunities to assist students in developing their entrepreneurial skills and spirit. The programme helps participating students to:

- Identify market opportunities and take considerable risk for new prospects
- Consider issues and solve problems from different perspectives
- Learn how to co-operate effectively with team members
- Gain opportunities for implementation and prepare for business plan competitions

The EDP includes the following entrepreneurial focused activities for students:

- Residential Training Camp (January and March 2011)  
Through 2-day-1-night camp events, including experiential games and simulation activities, students will be able to develop their entrepreneurial attributes and spirit, creative thinking, problem solving, leadership, teamwork, and communication skills.
- Workshops (February 2011)  
Two workshops namely "Running Lunar Year Fair Stalls" and "Making Money from the Web" are offered. Students will participate in role play activities that will stimulate their entrepreneurship and problem solving skills.

Students are encouraged to transform their knowledge into action by participating in different business plan competition and PolyU Micro Fund Scheme upon completion of the camp/workshop.

## Appendix 15 - Global Student Challenge

### GSC: PolyU Pre-Challenge

The GSC: PolyU Pre-Challenge, an annual programme launched since 2001, is a business/development plan competition which aims to stimulate PolyU students' innovation potential and provide them with a platform to translate their creative ideas into sound business ventures.

In FY2010-11, 30 multi-disciplinary teams comprising a total of 103 students participated in the first round competition, devising innovative ideas on products, management and/or services. 18 teams had been shortlisted for Round II, from which three teams had been identified for joining the Final Round. They presented their business proposals in detail to the panel of judges, comprising Mr Tony Choi, Executive



Director of Hong Kong Garment Manufacturing Company Ltd; Mr Albert Ip, Managing Director of Investments, Asia Pacific, Private Banking and Investment Group of Merrill Lynch (Asia Pacific) Ltd; Mr Anthony Wong, Group Chief Technology Officer of Integrated Display Technology Ltd; and Mr Andrew Young, Director of Partnership Development of PolyU.

The contestants were required to formulate their business plans under the guidance of an academic advisor and professional trainers. Training workshops and coaching sessions on relevant topics such as "Business Plan Writing Skills" and "Financial Planning for Business Plan" were provided to the contesting students free of charge.



Diamond, Platinum and Gold prizes were awarded basing on the following five judging criteria: innovation and creative concept, commercial viability and market potential, technology novelty and uniqueness, soundness of business/development plan and presentation skills. The team with the Diamond Award will be representing Hong Kong to join the GSC Final.

### GSC 2011

PolyU Innovation and Entrepreneurship Global Student Challenge (GSC) is a unique event launched by PolyU in 2010 as a major initiative to embrace internationalization, innovation and entrepreneurship. This year's GSC has attracted more than 190 teams from secondary schools and universities from 27 countries and territories and the 12 finalist teams have risen to the top amidst fierce competition at the Semi-Final which took place three days ago (13 June 2011). And for the very first time, three outstanding Hong Kong teams have advanced to the GSC Final.

Presentations of the University Division at the Final Competition were adjudicated by a judging panel chaired by Mr James E. Thompson, Chairman & Chief Executive of Crown Worldwide Group, Hong Kong. Other judges included: Mr. Chan Tze-ching of Senior Advisor of The Bank of East Asia, Limited, Hong Kong; Mr Nixon Chan, Head of Corporate and Commercial Banking of Hang Seng Bank Limited, Hong Kong; Mrs

Fanny Law Fan Chiu-fun, Hong Kong Deputy of The 11th National People's Congress of the People's Republic of China, P. R. China; and Mr John Yip, Executive Director of Henderson Land Development Company Limited, Hong Kong.

As for the Secondary School Division, the judging panel was chaired by Dr Kelvin Wong, Executive Director and Deputy Managing Director of COSCO Pacific Limited, Hong Kong. Other members included: Professor Alan Barrell, Entrepreneur in Residence of Centre for Entrepreneurial Learning, Judge Business School, University of Cambridge, UK; Professor Ir Daan van Eijk, Vice Dean and Director of Education of Faculty of Industrial Design Engineering, Delft University of Technology, The Netherlands; Mrs Stella Lau, Headmistress of Diocesan Girls' School, Hong Kong; and Mr Joseph YW Pang, Senior Advisor of The Bank of East Asia, Limited, Hong Kong.

The judging panel of GSC 2011 was composed of a total of 60 Shortlisting, 31 Semi-Final and 10 Final judges with diverse experience coming from all over the world, all of them being renowned academics and senior executives in their respective fields. In addition, five overseas academics have been invited to play the role of international advisors as well as judges to contribute and add international dimensions to the judging mechanism of the competition. They are: Professor Alan Barrell from University of Cambridge, UK; Professor Arthur Boni from Carnegie Mellon University, US; Dr Ken Coates from University of Waterloo, Canada; Professor Ir Daan van Eijk from Delft University of Technology, The Netherlands, and Professor Raymond Vito from Georgia Institute of Technology, US.

The business proposals were grouped by the sub-themes of Health and Wellness, Lifestyle, Environment and Sustainability, Corporate Social Responsibility/Social Enterprise, and others. Winners of Gold, Silver, Bronze, Commendation Awards as well as the Theme Awards and Best of the Best Commercial Award for each Division were selected and announced last night at the Gala Dinner cum Presentation Ceremony at The Mira Hong Kong. The awardees each received a cash prize, a trophy and a certificate.

During their stay in Hong Kong, GSC participants have had ample opportunities interacting with their peers through an array of activities supported by PolyU Student Ambassadors. The comprehensive excursion programme ranged from educational visits to the Hong Kong Science Park and Cyberport to fun occasions such as Ocean Park visit, Harbour Cruise and Tai-chi experience.

In addition, two inspirational seminars were organized exclusively for the participants with overwhelming responses. The first seminar titled "Some Heroes of Entrepreneurs" was given by Professor Alan Barrell on his over 30 years of remarkable experience in nurturing entrepreneurs worldwide. Miss Vivian Lee, Marketing Director of Ocean Park, also shared with the participants the Park's strategy in competing with other theme parks.

## Appendix 16 – Use of KT Fund

The use of KT Fund is in accordance with planned schedule with the approved fund committed for planned projects/actions. The schedule of the planned activities may not tie to the school fiscal year, thus certain committed expenditure items will only be spent in the next few months of 2011. They are:

- Proof of Concept Projects: \$0.67m (executed over next few months)
- PolyU Micro Fund Scheme: \$0.9m (committed to fund business propositions approved in July 2011) and \$0.7m (for related PR and marketing expenditure to be spent within the next few months)
- Polypreneur project: \$0.16m (to be spent progressively over the 3rd and 4th quarters of 2011)
- Entrepreneur Forum for students: \$0.5m (to be held in September 2011)
- Fit out and equipment for the House of Innovation at PolyU: \$1m (for implementation in August/September 2011)