

# Annual Report on Activities and Advancement of Knowledge Transfer

Supported by earmarked UGC Funding

FY2011-12

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## 1. Review of FY2011-12

FY2011-12 saw the last year of the triennium (FY2009-12) of UGC Knowledge Transfer (KT) funding programme. Throughout the triennium, PolyU had been able to prosper further KT activities with additional capacity, enhanced awareness of the University's technologies and enhanced pool of patented innovations / technologies with commercialisation potential (through proof-of-concept funding and patenting).

As one of the leading institutions in practicing KT and commercialisation, PolyU operates established KT mechanisms such as consultancy, contract / collaborative research and licensing. The UGC KT Fund has also enabled the University to develop new KT initiatives that leverage upon student / alumni innovation and entrepreneurship, integrating technologies with sound business models and entrepreneurial skills.

In FY2011-12, PolyU's researchers continued their efforts to apply their research expertise and innovations with substantial impact to industry and society, raising industrial standards and improving quality of living.

This report summarizes key KT activities and developments of PolyU in FY2011-12. Observations and comments from UGC for the previous year have also been duly considered for improving our performance, programmes and activities for the period.

## 2. Knowledge Transfer: Culture, Strategies and Practices

As an application oriented university, PolyU has a long tradition and culture to work closely with industrial partners to apply its knowledge, innovations and technologies for the benefit of the community. Echoed in the University's mission, the University strives to "advance knowledge and the frontiers of technology to meet the changing needs of society" through a well developed KT system with policies, programmes, and activities.

### Strategic Goals on KT

In addition to teaching and research, service to community by ways of KT activities has long been the "third mission" of PolyU. In 2012, PolyU has further set out its next 6-year strategic plan with knowledge transfer as one of the core components augmenting University's core activities in teaching and research. The overarching objective, in a nutshell, aims to (i) govern responsible knowledge transfer and (ii) promote entrepreneurial thinking, contributing to the sustainable development of PolyU and the community.

Throughout the next few years, PolyU aims to achieve the following:

1. To implement KT with enhanced governance, discipline and recognition, in furthering the principles of the current KT policy.
2. To leverage participation from global business and community networks in enhancing the impact of PolyU's effort.
3. To create an ambience that values innovation, entrepreneurship and community service in motivating collaboration and sharing of best practices.
4. To provide continuing and life-long learning in fulfilling the strategic needs of the community.
5. To advocate social and ethical values in delivering entrepreneurship programmes and KT.

### Rationalization of KT Structure

The Institute for Enterprise of PolyU was restructured in March 2012 to become the Institute for Entrepreneurship (IfE). Engineered to be a pivotal turning point to further the strategic transformation of the KT eco-systems of the University, the restructuring rationalized the organization structure and resources across related KT operating units, to attain synergy in both operations and areas of new development. The renaming of Institute for Enterprise to Institute for Entrepreneurship signifies its strategic positioning to foster innovative and entrepreneurial culture for KT and commercialisation.

While the IfE will focus on downstream KT and commercialisation activities, the University has recently established a new unit called "Innovation and Technology Development Office" (ITDO) to look after the upstream knowledge creation, applied collaborative research, intellectual properties (IP) protection in a

strategic manner across the University. The IjE will work closely with ITDO to pursue effective commercialisation of matured applied research outcomes / patented technologies.

### Review and Improvement on KT Practices

To improve the KT operations, the University Council established the KT Committee in 2010, to review the KT framework, policies and practices of the University. Upon thorough review and consultation, the KT Committee came up with eight recommendations on (i) positioning of KT viz recognition and work load, (ii) implementation considerations, and (iii) quality assurance. In the next triennium, the University will implement the recommendations step by step for an improved KT framework that is integrative to the key scholarly activities of the university with sound governance and value recognition.

In addition to the recommendations on overall KT framework, the KT Committee also reviewed existing policy papers and regulations related to KT for improvements. Since 2011, new or revised policies / guidelines / template were released, offering clear and transparent policies, guidelines and procedures on (i) setting up JV or spin off companies; (ii) intellectual properties protection and licensing and (iii) staff involvement in KT and outside activities.

During the reporting period, the ICAC review and studies on Management of Joint Venture Projects for corruption prevention practices and measures was completed, adopting relevant recommendations to the satisfaction of ICAC. Such improvement would further strengthen the governance and practices in setting up JV or spin-off companies by PolyU. On the other hand, as a policy guideline, PolyU shall regard licensing as a preferred means to KT instead of creating JV or Spin-off companies.

### Sharing of Best Practices

PolyU has continuously been sharing and learning about best practices in KT from its partnering organizations / institutions for continuous improvement. Sharing and exchange opportunities like KT management forums were organised (with higher education institutions in China) in which participants discussed different policies, practices and cases. In addition, the Knowledge Exchange Conferences organised in December 2011 among the local universities under the support of UGC fostered better contextual understanding of how KT could be further enhanced in the higher education sector in Hong Kong.

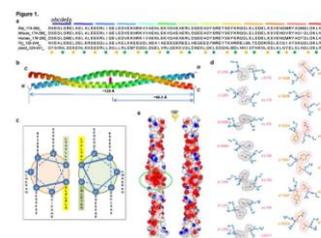
## 3. Knowledge Transfer: Focused Development and Activities

### 3.1 Advancing Technology with Impact

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.

#### Anti-Cancer Drug Research and Development

Over the years, PolyU researchers have been able to successfully discover anti-cancer drug candidates. One highlight is the discovery of BCT-100, a new drug that releases arginase that can degrade arginine (an essential element for cancer cells) and hence starves and kills cancer cells. BCT-100 is the first "Made in Hong Kong" drug approved by US Food and Drug Administration (FDA) to enter into clinical trials in US, and has been successfully transferred to a local pharmaceutical company to further develop and commercialise it. Clinical trials have been conducted in a local hospital with promising results, showing its efficacy on liver cancer without adverse side effects, providing liver cancer patients a ray of hope.



Embarking upon the early commercialisation success of BCT-100, the PolyU researchers continue to pursue a second generation drug based on the naturally occurring thermostable Bacillus arginase (BCA) for treating various types of cancers. The drug will arguably be more stable with lesser side effect than the first generation. A patent application has been filed for this novel invention.

### Hand of Hope

As the name has suggested, the “Hand of Hope” is a remarkable breakthrough in stroke patient recovery by assisting stroke patients to regain their hand movements. Driven by the stroke patients’ own intention to move, the robotic hand enables the patients to move around their paralyzed hands at will, by detecting and amplifying electrical muscle activity through electromyography (EMG) signal that set the robotic hand in motion, which moves the stiff hand along with the patients’ will and intention. As a result, patients are able to train their muscle and hand movement with their will using this robotic hand.

The robotic hand, which was already licensed to a local company for commercial exploitation worldwide, went on to win the Grand Prize in the acclaimed Geneva Invention Exhibition in 2012.



### Torque-free Single Yarn

In textile industry there is a long problem – residual torque. Residual torque will cause fibers to twist together, affecting the smoothness and quality of yarns. Supported by Innovation and Technology Fund of Hong Kong Government, PolyU researchers have successfully developed a breakthrough technology, trademarked as “Nu-torque”, that can resolve this problem - a problem that has never been resolved for many years.

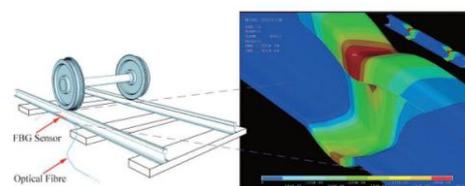
Adopting the Nu-Torque technology, the industry can produce yarns with good quality, low twist but high strength and extra-soft hand feel fabric using simple retrofitting device on existing machines. The technology has been proven to be industrially practicable. It not only can save the energy for spinning, but is also environmentally friendly.

Through non-exclusive licensing, this breakthrough technology has been transferred and applied to companies in Hong Kong, Mainland, Australia, Thailand and Malaysia, with more are yet to come. The technology is sweeping the industry like wild fire, comprehensively enhances industrial standard and competitiveness.

### Railway Monitoring

High Speed Rail (HSR) is rapidly developing in China along its economic development. Yet, the safety of HSR is a concern especially after the incident happened in Wenzhou in July 2011. Long before the development of HSR in China, PolyU had developed “Advanced Fibre Bragg Grating (FBG) Railway Monitoring System” that had been successfully installed in Hong Kong MTR rails. Thousands of optical sensors installed provide information on vibration, acceleration and temperature change for engineering staff, helping them to monitor the health condition of tracks and railcars as well as structural health of the rail foundation.

Not just in Hong Kong, PolyU had installed the system in several sections of the HSR across the country. By providing information crucial to the safety of HSR, the system not only benefits the overall HSR development in China, but also contributes to further research in this area. It is expected that the developed monitoring system will become a core reference for the new national standard for railway safety monitoring in China. PolyU has been making further contribution to HSR development through a strategic partnership with Southwest Jiaotong University in 2012 to bring together the expertise of both institutions for long-term collaboration on national rail projects.



With the success of this FBG sensing system, along with other novel technologies in railway monitoring being developed by PolyU’s inter-disciplinary research teams, PolyU will continue to develop cost-effectiveness and reliable monitoring system, helping to uphold the safety of railway systems.

### Mega Structure Monitoring

PolyU’s inter-disciplinary research teams have developed a system that can provide real time information on structural health conditions throughout the whole life cycle of mega-structures like bridges, high-rises and towers. Through the system, the owner can assess structural health condition immediately after any major hazardous event and decide whether evacuation of the occupants is necessary.

In recent years, PolyU has been implementing this system in many projects like the Sutong Bridge crossing the Yangtze River, Canton Tower, the new Shenzhen Stock Exchange building, Stonecutter Bridge in Hong Kong, etc. Beyond mega-structures, the research team is exploring with industry partners to apply the system in other areas like water pipes, wind turbine, etc. The system has also been applied to monitor the safety of the hanging DC-3 plane in the Hong Kong Science Museum, offering safe environment for visitors.



### Space Programmes

PolyU's KT endeavours create impact not just on earth but into space as well. The signing of an agreement between PolyU and China Academy of Space Technology has brought together expertise from both sides to develop sophisticated space tool for collecting sample of lunar rock in the third phase of China's lunar exploration programme.

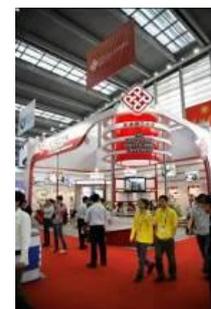
In the three-phased lunar exploration programme, PolyU was engaged in the R&D of a "Camera Pointing System" in the second phase. PolyU will further collaborate with mainland experts to develop a "Surface Sampling and Packing System" for the third phase of the lunar exploration programme. It just demonstrates the contribution from PolyU and hence Hong Kong on the nation's strategic and significant space exploration programme through our research capability and knowledge transfer efforts.

## 3.2 Showcasing our Technology Value for Industry Partnership

In pursuit of KT, PolyU has been actively promoting its research output and expertise through various technology marketing and outreaching events and channels, both physically and online (Appendix). The aim is to enhance the awareness of PolyU's applied research outcome, technologies and innovations to targeted group of companies for potential KT and commercialisation. In planning of marketing activities, in addition to commonly accepted KPIs (number of events, number of outreach, and leads generation etc.), KT-specific measures (e.g., number of technologies promoted and how they are promoted) will also be considered for target-specific promotion of technologies.

### Theme-based Exhibitions and Targeted Tradeshows

During the reporting period, PolyU has participated in 10 major local, national and overseas exhibitions and tradeshows spanning various disciplines. Such participation opened up KT opportunities, with many SMEs approached PolyU for use of our technologies and services. In Chinese mainland, PolyU exhibited at key exhibitions such as the "China High Tech Fair". Such participation, while enhancing publicity on PolyU's research results, also benefited the academic staff in updating their understanding of industrial needs and market trend for improving both their scholarly and KT undertakings.



One highlight is the participation of the world-renowned "International Exhibition of Inventions of Geneva". The 7 breakthrough technologies showcased in the exhibition brought home record number of awards - 5 Gold and 2 Silver Awards along with 4 Special Prizes. Among the 7 projects, 3 of which have already been commercialised. In addition, the robotic hand - "Hand of Hope" jointly developed by PolyU and its licensee was awarded the Grand Prix Du Salon International Des Invention De Genève, making it the first Hong Kong invention to receive the grand prize in the 40-year history of the event.



### Technology and Networking Seminars for Industry and Trade

Technology-specific seminars were organised regularly with the trade associations targeting industry audience, to provide a platform for technology dissemination thus facilitating commercialisation. On the non-technology front, a series of seminars were

organised for the CEO Club, a PolyU affiliated business association, for better understanding of the KT process for potential collaboration.

### PR and Marketing for Technology Promotion

Major publicity events were organised to showcase the successful commercialisation of PolyU's technologies, such as "PolyU's green tech powering the city's transport press briefing", "Joint press briefing with the Hong Kong Science and Technology Parks Corporation (HKSTPC) for the 40th International Exhibition of Inventions of Geneva", and "Collaboration signing ceremony with the German industry giant E-T-A", to name a few.



### Technology Publications

A brand new publication titled "Indistinguishable from Magic" incorporating more than 75 outstanding PolyU innovations and technology / service achievements was published to exemplify the University's efforts and achievement in knowledge transfer.



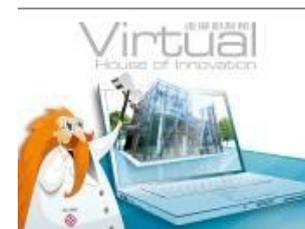
To keep the industry abreast with PolyU's latest breakthroughs, a monthly e-newsletter called "Technology Frontier" is circulated to nearly 3,500 business executives. Technology-specific articles were written regularly in trade magazines to promote PolyU's research outputs to targeted readers. During the reporting period, over 15 articles were published in prominent trade magazines such as The Chinese Manufacturers' Association monthly bulletin 《企業雄才》 and The Yellow Page.

### Online and Physical Infrastructure for Technology Promotion

Benefiting from a major overhaul recently, the House of Innovation (HoI), being the showroom of PolyU's innovative technologies and products, houses the epitomes of the University's R&D accomplishment. Thousands of visitors have visited the HoI, helping PolyU to promote its innovative technologies to potential users and commercialisation partners. In addition, a branch HoI is now opened at the new premises of the PolyU Shenzhen Base to showcase PolyU's KT capability and achievement to visitors from all over the region.



To enhance global outreach, PolyU has created a technology showroom on the cyberspace called the "Virtual House of Innovation" for viewing around the world. Potential partners worldwide can look up PolyU's technologies listed in its patent database for licensing and other forms of collaboration.



## 3.3 Knowledge Dissemination & Exchange for Community

During the reporting period, PolyU had organised over 400 activities on knowledge dissemination and exchange including public lectures, symposia, exhibitions and speeches to a rich community audience. To promote the value of KT among academics, business executives as well as students, a number of major conferences were organised, emphasizing on cooperation among industry and other UGC institutions. Selected examples are highlighted below.



### Knowledge Exchange Conference cum "3+3+4" Symposium on Knowledge Transfer

Building on the success of the "Knowledge Transfer Conference 2010", the "Knowledge Exchange (KE) Conference: Knowledge Transforming Society" was jointly organised again by the 8 UGC-funded universities in Hong Kong. PolyU also hosted the "3+3+4" Symposium on Knowledge Transfer as an integral part of the KE Conference to promote exchange among participants on KT-related issues and practice in light of the "3+3+4" reform. Over 550 local and overseas academics and business executives showed up for the 2-day

event, discussing issues relating to work-integrated education, experiential learning and entrepreneurship programmes.

### InnoAsia 2011

PolyU partnered with HKSTPC again to organize “InnoAsia”. Featuring the theme “Energy Efficiency, Sustainable Future”, InnoAsia provided a platform for stakeholders from all walks of life to exchange and share latest updates and insights on sustainable development and green technologies, thereby exploring technology innovation and commercialisation opportunities for Hong Kong and the Pearl River Delta region. The 3-day event attracted over 1,300 targeted participants with a main conference, a chairman’s forum, other technical forums and investor workshops.



### Forum on Creating Synergy in Innovation and Technology – Shenzhen / Hong Kong Cooperation

Organised by PolyU and supported by the Innovation and Technology Commission together with the Science, Industry, Trade and Information Technology Commission of Shenzhen Municipality, the “Forum on Creating Synergy in Innovation and Technology – Shenzhen / Hong Kong Cooperation” organised aimed to promote the “Shenzhen-Hong Kong Innovation Circle” as the hub for sustainable innovation and technology collaboration for enhancing growth and competitiveness of the region. More than 200 selected guests attended the event, including top executives, business leaders, Consul Generals in Hong Kong and Guangzhou, senior government officials, and university presidents and vice-presidents.



### International Workshop on High-speed and Intercity Railways

PolyU hosted the first “International Workshop on High-Speed and Intercity Railways” in July 2011 and received enthusiastic response. The 4-day workshop was jointly-organised by PolyU’s long-term partners including Southwest Jiaotong University, Beijing Jiaotong University, Dalian Jiaotong University, China Engineering Consultants, Inc. (Taiwan), Zhejiang University and Tsinghua University. To facilitate further exchange in this strategic area, PolyU is now working with Southwest Jiaotong University for the second workshop.

### Other Knowledge Dissemination Endeavours

In addition to the conferences, workshops, symposiums, etc., a variety of different events and activities were organised to facilitate knowledge transfer and dissemination to a wider audience in the community. To name a few: the Annual Graduate Fashion Show by PolyU’s Institute of Textile and Clothing and a month-long show by the School of Design, etc. On top of that, PolyU has been promoting lifelong learning through various units, offering continual professional development training and learning opportunities to disseminate knowledge to various targets. For example, PolyU’s Institute of Active Aging offers credit bearing courses and “Mini-U for Third Age” Programme to the elderly and retired.



## 3.4 Innovation and Entrepreneurship Development

Enabled by the earmarked KT Fund, PolyU has been exploring and developing a platform to foster innovation and entrepreneurial culture and practices as a new model to achieve KT. Through seed funding to support startup ventures, not only hardcore technology can be commercialised, but also soft skills and tacit knowledge, entrepreneurial practice and experience will be fostered among students, alumni and staff. The integrated knowledge base with both hard and soft skill sets is essential for sustainable development of our knowledge economy.

### PolyU Micro Fund

Since the pilot launch in 2011, the PolyU Micro Fund Scheme has been gaining momentum and popularity in building an innovative and “Do-Well Do-Good” entrepreneurial



community of practice. Riding on the initial success of the Scheme, the Scheme attracted over 200 applications from more than 400 students and alumni again in 2012. Upon rigorous assessment by independent judging panels, 16 entrepreneurial teams became recipients of the \$100,000 seed fund to put their proposals into reality. In addition, 11 other student innovative projects won awards for their creative action plans on social sustainability.



Meanwhile, the 2011 batch of funded ventures continue to do well after a year of operation, with 5 of them securing further funding and incubation support in an aggregate of around \$2 million from other programme operators like Cyberport, and HKSTPC. Products and services are also hitting the market as well.

### **Cultivating Innovation and Entrepreneurship Ambiance**

With the emphasis on “out-of-the-classroom” learning experience, PolyU has, through the Institute for Entrepreneurship, organised study mission, conferences, workshops and visits for the PolyU community to expand their view and understanding on entrepreneurship with both local and international engagements, addressing relevant topics and issues on entrepreneurship, sustainability, social responsibility and social good.

#### Study Mission

A 5-day study mission visiting Shanghai and Suzhou was organised in August 2011. 27 Micro Fund recipients visited university science parks, incubation centres and creative industry communities in the Yangtze River Delta area. The visit provided the participants invaluable experience and exposure by meeting and interacting with their counterparts at both organizational and individual level. It also deepened their understanding on the entrepreneurial eco-system in China.



#### Beyond Entrepreneurship Forum

“Beyond Entrepreneurship Forum” was organised in October 2011, bringing together more than 280 entrepreneur elites from Asia and a group of entrepreneurs from the Silicon Valley, famously known as “Geeks on a Plane” (GOAP), for sharing and exchange. The Forum aimed to encourage young entrepreneurs in setting up innovative ventures with high economic, social and environmental values. An interactive co-creation session was conducted with participants actively discussed how to build a more vibrant entrepreneurial eco-system in Hong Kong.



#### Entrepreneurial Workshops, Seminars and Visits

A series of entrepreneurship enrichment workshops were held for students and alumni to equip them with practical knowledge and skills in operating a business. Sector-focused seminars (ICT, social entrepreneurship) have also been organised to provide sector-specific knowledge. Well established entrepreneurs in town were invited to share their entrepreneurial experience and insights for enrichment and inspiration to an aggregate attendance of over 800. Visits to local incubators (Cyberport, HKSTPC and HK Design Centre) were arranged to let the participants appreciate first hand local incubation support.



#### Poly-Preneur – Community of Alumni Entrepreneurs

In 2012, PolyU re-positioned the strategic community of entrepreneurs who are PolyU alumni. Recognized as “Poly-preneurs”, many enthusiastic alumni are supportive of their alma mater’s KT initiatives, some of them have been instrumental in commercializing PolyU technologies, such as the “Hand of Hope”, Energy-saving LED Driver System and Fabric Sensor. As the University produces more and more aspiring entrepreneurs and expands the Poly-preneur family, the community and its good practice in KT will continue to grow.



### Strategic Partnerships

PolyU has been actively pursuing partnerships with like-minded organizations to instigate innovation and entrepreneurial thinking and culture for youngsters. As an example, PolyU is supporting Cyberport for its Hong Kong-Shenzhen Cyberport Creative Micro Fund Young Entrepreneurship Programme 2012, providing over 150 participants with entrepreneurial training and coaching. Our partnership also goes beyond border, with exploratory discussion with municipal governments, universities, and foundations like the Shanghai Technology Entrepreneurship Fund for Graduates (STEF), for joint programmes such as a Hong Kong-Shanghai entrepreneurial boot-camp.

At individual level, PolyU students have been actively participating in different entrepreneurial competitions to develop their innovative and entrepreneurial potential. A team of 3 young people, one of them a student from the PolyU-owned Hong Kong Community College, won the Startup Weekend Hong Kong and Global Startup Battle in November 2011, earning a fast in-road to pitch their business idea to investors in Singapore and Silicon Valley. The team was subsequently awarded PolyU Micro Fund in May 2012 and Cyberport Creative Micro Fund. The story is not unique, another 2 PolyU teams also won the Hong Kong Social Enterprise Challenges in 2012. More success cases will emerge, all of them will be entrepreneurial and some of them connected with the use of PolyU technologies and know-how.

As a new initiative to promote KT practice via entrepreneurship, new KPIs are set up in terms of the number of participants, startup ventures created, subsequent funding secured, and most importantly, how KT can be fostered through such endeavours (for both hardcore technologies or soft skills / knowledge). In addition, the University will remain in regular contact with the startup ventures to offer guidance and assistance for their development at the infant stage.

## 4. Performance Measurement – Key Performance Indicators

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

Performance Indicators	2011/12 Target	2011/12 Actual	2012/13 Target	Note
<b>Patenting &amp; Licensing</b>				
No. of patents filed	65	68	66	7 patent countries
No. of patents granted	55	52	50	6 patent countries
No. of license granted	57	55	60	
Income generated from IPR	\$4,000,000	\$5,013,096	\$5,000,000	
Expenditure involved in generating income from IPR <sup>1</sup>	\$200,000	\$5,529,664	\$5,806,000	
<b>Consultancy, Collaborative / Contract Research &amp; Spin-off / JV</b>				
No. of collaborative researches and income generated <sup>2</sup>	55 \$70,000,000	98 \$209,922,025	100 \$215,000,000	
No. of consultancy projects and income generated <sup>3</sup>	750 \$98,000,000	1,006 \$75,348,000	1,050 \$78,000,000	
Number of economically active spin-off companies (with breakdown by type)	25	5	4	
Net income generated (or net loss arising) from spin-off companies	\$500,000	\$6,916,000	\$15,950,000	

<sup>1</sup> The definition of the "Expenditure involved in generation income from IP rights" has been looked into and re-aligned to include all the patent filing and maintenance costs.

<sup>2</sup> The actual figure for FY2011/12 and FY2012/13 target include collaborative research projects funded by government that involve private enterprises

<sup>3</sup> The actual consultancy income for FY11-12 stated here and FY12-13 target exclude contract research income whereas the target for FY11-12 (estimated in 2009 in the Initial Statement for Triennium 2009-12) included both consultancy and contract research income.

Performance Indicators	2011/12 Target	2011/12 Actual	2012/13 Target	Note
<b>Marketing &amp; Outreaching</b>				
No. of high impact research & KT projects / areas	-	6	6	<ul style="list-style-type: none"> <li>• Hand of Hope</li> <li>• Second generation of cancer drug (BCT-100)</li> <li>• Nu-torque Single Yarn Technology</li> <li>• Space Programmes</li> <li>• High Speed Rail Project</li> <li>• Structural Health Monitoring Projects</li> </ul>
Outreaching to industry -	-	33	35	Events to promote PolyU innovations and technologies
<ul style="list-style-type: none"> <li>• No. of Exhibitions / Conference and Forum attended</li> <li>• No. of people reached</li> </ul>	-	962,660	962,800	
<b>Innovation and Entrepreneurial Activities Enabling KT</b>				
No. of students & alumni reached out for all Micro Fund and Entrepreneurial activities	-	2,585	3,000	Participants of Micro Fund Programme and Entrepreneurial activities
No. of PolyU innovations / technologies / knowledge transferred through startups by students / alumni / staff	-	3	6	
<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>	-	208 412 16	210 500 15	113 entrepreneurial applications and 95 student innovative project applications submitted
<b>Other Knowledge Transfer / Dissemination Activities</b>				
No. of equipment and facility service agreement and income	339 \$3,420,000	904 \$8,657,000	820 \$7,500,000	
No. of student contact hours for business or CPD needs <sup>4</sup>	466,000	20,036	21,000	

## 5. Closing Remarks and The Way Forward

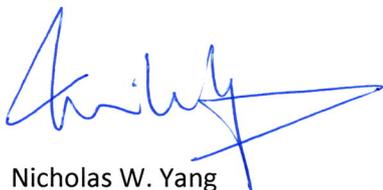
In the triennium 2009-2012, PolyU has taken fundamental steps to critically review its KT operation to position the institution for integrative development of KT programmes and activities in a sustainable manner in university context. With a holistic view towards KT practice as a key component to university operations and advancement, relevant policies, regulations and practices are being put in place to foster KT culture and activities under good governance with proper recognition.

The process in future will focus more on culture building instead of capacity building, with equal attention to the quality of the output as well as the quantitative measures of activity levels. In the past three years, the KT Fund has signified UGC attention and endorsement to related activities, and has in particular encouraged the PolyU to envision the building up of a KT eco-system so that related activities and outputs do not just aim at creating application and impact, but also can be considered as developmental tools for the University itself. In this connection, focused attention and effort on technology transfer of niched strategic areas of applied R&D will certainly reap substantial benefit for both the University and the collaborative partners to advance knowledge through high impact applications.

<sup>4</sup> The "Number of Student Contact Hours" has been re-defined to reflect the "Total Course Hours" for all courses / programmes offered, without multiplying the number of students attended.

transfer of knowledge would be best accomplished through motivated carriers in an innovative and entrepreneurial ambiance. PolyU will continue to explore various means and channels to engage the support of these stakeholders to pursue better KT practice for the benefit of all. Effective leverage of resources such as the KT Fund will help the University to explore innovative ways to create collaborative synergy with different parties along the KT process.

Being able to engage stakeholders in a developmental and organic way, PolyU is committed to its "third mission" to bring its KT system and practice to new heights in the next triennium.



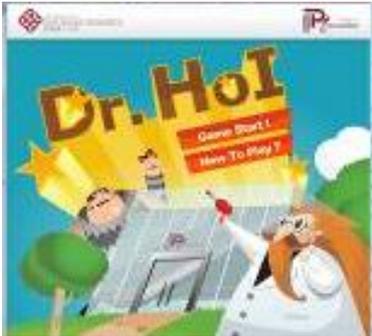
Nicholas W. Yang  
Executive Vice President

## Appendix – Technology Marketing and Networking Activities

### (a) Highlights of Special Publicity Events

Event & Date	Technologies promoted	Partners	Remarks
Collaboration Signing Ceremony (July 2011) 	Self-sustainable Magnetolectric Smart Sensor Technology	E-T-A Elektrotechnische Apparate GmbH	The German industry leader offered EUR 500,000 funding support to develop and commercialise the technology
Press Briefing (September 2011) 	Solar-powered Air-conditioning System for Vehicles	Green Power Industrial Ltd. (Licensee)  Swire Coca Cola Hong Kong (Collaborator)	Successful licensing and application of the technology to power up air-conditioning system of vehicles after shutting down engines.
Press Briefing cum Award Presentation Ceremony (April 2012) 	7 Technologies showcased in Geneva International Invention Expo	Hong Kong Science & Technology Parks	The 7 showcased technologies brought home 5 Gold and 2 Silver Awards, as well as 4 Special Prizes  The Hand of Hope awarded the Grand Prix Du Salon International Des Invention De Geneva.

**(b) Technology Showcases / Channels**

Format / Channels	Marketing Tools	Remarks
Publications	1. KT Book – “Indistinguishable from Magic” (May 2012) 2. Monthly e-Newsletters – “Technology Frontier”	The technology publications help to disseminate news on PolyU’s latest technology and research outcomes.
Physical Infrastructure	House of Innovation (Hol) at PolyU campus  House of Innovation at PolyU  Shenzhen Base	The 2 Hols are showrooms within PolyU campus and PolyU Shenzhen Base that showcase various technologies and research achievements of PolyU through innovative displays and exhibits. Through scheduled visits and regular opening to visitors, guests and general public, the Hols are able to facilitate and promote PolyU’s technology for potential KT and research collaborations.
Electronic Media / Internet	Virtual Hol  Online Patent Listing  Online Technology Database	Officially launched in November 2011 during the InnoCarnival, Virtual Hol is a technology showroom on the cyberspace which gathers PolyU’s wide range of expertise and cutting-edge technology breakthroughs. PolyU is the first local educational institution with such a virtual technology gallery.  “Patent Listing” on the IfE Website is a platform to facilitate KT. Potential partners or the public can search for PolyU’s technologies that are available for commercialisation. This database is also available on the website of Hong Kong Science & Technology Parks Corporation under its “IP Listing Platform” ( <a href="http://www.hkstp.org/HKSTPC/IPPatent.jsp">http://www.hkstp.org/HKSTPC/IPPatent.jsp</a> ), as well as HKTDC Intellectual Property Portal ( <a href="http://www.hktdc.com/ipportal">http://www.hktdc.com/ipportal</a> ).  “Technology Database” is an online database available for public access on the Institute for Entrepreneurship (IfE) website with a collection of close to 200 technologies developed by PolyU.

**(c) Technology & Networking Seminars**

Seminar	Focus / Disciplines	Partnering Organisation(s)
1. Low Carbon Technology and Sustainable Seminar	Green and Sustainable Technology	--
2. Construction Contracts Seminar	Construction Industry	Chartered Institution of Civil Engineering Surveyors and The Lighthouse Club
3. Dispute Resolution for Construction Projects Seminar	Construction Industry	Chartered Institution of Civil Engineering Surveyors
4. Next Generation Cloud Technology Seminar	Information Communication Technology (ICT)	--
5. PolyU-HKSTPC Knowledge Exchange Seminar on RFID, LED and Green Tech Innovation	ICT and Green Technology	Hong Kong Science and Technology Park Corporation
6. Latest Trends of Global Intellectual Property Trading – Mr. Peter Cheung (Director, Intellectual Property Department, Hong Kong SAR Government)	Intellectual Property Protection	CEO Club
7. CEO vs CEO Dialogues – Mr. Barry Cheung (Chairman of the Hong Kong Mercantile Exchange (HKMEx) and Chairman of the Board of Hong Kong's Urban Renewal Authority)	Business Strategy	CEO Club

**(d) Exhibitions and Tradeshows Participated**

Exhibitions / tradeshows participated	Location	Disciplines/items promoted
1. International Conference & Exhibition of the Modernization of Chinese Medicine & Health Products 2011	Hong Kong	PolyU Institute of Modern Chinese Medicine
2. Natural Products Expo 2011	Hong Kong	Chinese medicine and health food, and Osteoporosis study
3. Hong Kong Electronics Fair (Autumn Edition) 2011	Hong Kong	RFID systems and devices
4. Eco Expo Asia 2011	Hong Kong	Ecodesign tool box and conformity assessment methodologies
5. InnoCarnival 2011	Hong Kong	Virtual Hol
6. China High Tech Fair 2011	Shenzhen	PolyU Shenzhen Base and its 12 research centers
7. International ICT Expo 2012	Hong Kong	RFID systems and devices
8. Hong Kong Electronics Fair (Spring Edition) 2012	Hong Kong	RFID systems and devices
9. 40th International Exhibition of Inventions of Geneva	Geneva	Biomedical and healthcare, textile, engineering
10. Hong Kong International Medical Devices and Supplies Fair	Hong Kong	Biomedical ultrasound and elderly monitoring technologies

(e) Major Conference / Events Organized

Conferences / Events	Partners	Remarks / Highlights
<p>1. Forum on Creating Synergy in Innovation and Technology – Shenzhen-Hong Kong Cooperation (July 2011)</p> 	<ul style="list-style-type: none"> <li>• Innovation and Technology Commission, Hong Kong SAR Government</li> <li>• Science, Industry, Trade and Information Technology Commission of Shenzhen Municipality</li> </ul>	<p>The forum aimed to promote “Shenzhen-Hong Kong Innovation Circle” as a hub for sustainable innovation and technology collaboration, and to reinforce the advantages of the Circle as a collaboration platform to venture into the Chinese mainland. 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 highlights of the event were the two panel discussions by four Consuls General and CEOs with business across the border.</p>
<p>2. “Managing Technology Transfer – a University’s Perspective” Forum (October 2011)</p> 	<ul style="list-style-type: none"> <li>• International Strategic Technology Alliance (ISTA)</li> <li>• The China Association for Management of Technology (CAMOT)</li> <li>• Zhejiang University (ZJU)</li> </ul>	<p>Initiated and organized by PolyU and ISTA, and supported by CAMOT and ZJU, the half-day forum was well attended by more than 50 senior management executives of member universities of ISTA and Australian Technology Network. The forum featured presentations on International Technology Transfer, IP Strategy, Technology Transfer Case Study on Taiwan IC Industry, etc., followed by a panel discussion among the speakers and vice presidents of the attending universities to share best practices on KT among institutions.</p>
<p>3. Beyond Entrepreneurship Forum (October 2011)</p> 	<ul style="list-style-type: none"> <li>• Geeks on a Plane (GOAP) from Silicon Valley</li> <li>• Startup HK (a local Hong Kong entrepreneurial community)</li> </ul>	<p>Featuring keynote speeches, panel discussions and co-creation session, the “Beyond Entrepreneurship Forum: How to develop an innovation-driven venture” attracted nearly 300 aspiring young entrepreneurs and founders of start-up companies, including, a group of over 40 investors and entrepreneurs (GOAP) from Silicon Valley. The Forum was one of the major initiatives of PolyU to cultivate “Do well, Do good” entrepreneurship culture among PolyU community and to nurture socially responsible entrepreneurs and leaders of tomorrow.</p>

Conferences / Events	Partners	Remarks / Highlights
<p>4. InnoAsia 2011 (November 2011)</p>  	<p>Hong Kong Science and Technology Park Corporation</p>	<p>With the theme “Energy Efficiency, Sustainable Future” InnoAsia 2011 served as a platform for industry, academia and the business community to exchange their insights on sustainable development and to create synergies that promote innovative technologies and creation of new markets.</p> <p>In addition to the main conference, and Chairmen’s forum, a series of Technology Forums were also held for senior technology and management executives to explore energy technologies and market opportunities. The InnoAsia also featured a SPARC Forum, Entrepreneurship Workshop and Venture Capital / Angel Conference which were designed for entrepreneurs, financiers and investors, focusing on new technology business opportunities and providing key insights into hot technology investment trends and IPO practices.</p>
<p>5. Knowledge Exchange Conference cum “3+3+4” Symposium on Knowledge Transfer (December 2011)</p> 	<p>UGC and UGC funded higher education institutions</p>	<p>Sponsored by UGC, this event was participated by more than 550 academics and business executives from around the world. The Conference provided new insights on how higher education institutions and different sectors to work together through knowledge partnerships.</p> <p>The “3+3+4” Symposium on Knowledge Transfer, hosted by PolyU, featured three main themes - “Work-Integrated Education”, “Experiential Learning” and “Entrepreneurship Programme”. The Symposium provided a platform for professionals and academics to share their views on how KT can enrich students’ learning experience and their whole person development.</p>