



Annual Report on Knowledge Transfer for 2009-2010

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Executive Summary

This report relates to the knowledge transfer (KT) activities undertaken by CityU from July 2009 to June 2010. The past year saw CityU embark on a journey of **change**, driven by vision, determination, and enterprise. The University has recently put forward a Five-Year Strategic Plan for 2010 – 2015, following the formulation of its new vision and mission statements in early 2009. One of the changes that CityU wants to make is to **institutionalize KT as an important and integral part of the University's mission**. To achieve this goal, CityU needs to put in place a supportive institutional policy and commitment, a pragmatic strategic plan, and a dutifully followed execution plan. Though good results have yet to come, it is most gratifying to see that CityU has made a good start in the right direction and one can best describe the year 2009-2010 as a year of **strategic planning and foundation building** in KT at CityU.

In **CityU's Five-Year Strategic Plan**, “technological innovation and knowledge transfer” is identified as one of its five planning principles. Specifically, the Strategic Plan points out the urgency to strengthen the institutional infrastructure to enhance technology transfer, to nurture a culture of entrepreneurship, and to build on existing ties with mainland and international partners.

To complement the University's Five-Year Strategic Plan, **the Knowledge Transfer Office (KTO) has also drawn up its own Strategic Plan** on technology licensing, industrial liaison, and building an innovation culture.

Technology licensing as a mode of KT has gained much popularity globally, and local universities are gradually catching on with their overseas counterparts. Licensing is endorsed by the University as the **preferred mode of technology transfer** because it allows faculty members to focus on what they can excel in. Over the year past, CityU's **licensing revenue has registered a 57% increase on the targeted licensing income**, an accomplishment attributable in part to the KTO's stepped-up efforts in industrial liaison, widening of licensing channels, and pro-active marketing.

Such activities are overseen by the licensing team responsible for facilitating exchanges between academia and industry. Last year, over 200 meetings and laboratory visits were arranged with companies interested in learning more about CityU technologies. The membership of the CityU Business and Industrial Club (CUBIC) doubled from 277 to 553 in the same period, meaning that more industrial and business executives are informed closely of the KT and commercialization opportunities available at CityU. To bring CityU IPs to a wider

market, the KTO is tapping into the services provided by online IP listing, and IP marketing and management firms. During the year, we also stepped up our efforts in publications to promote CityU's technologies. Newsletters, brochures, and online magazines advertising CityU's IPs were also published for different reader groups. All this has helped to raise CityU's profile as a key player in KT and technology transfer locally and globally.

Another mode of KT that CityU promotes is **consultancy**. City University has just released a new "Outside Practice Policy" to deliver a clear message to staff that it gives strong support to high value-added consultancy. It also takes the opportunity to streamline and refine the administrative procedures governing outside practice.

On the front of business incubation of start up companies, the University will continue to take the utmost care in examining start up proposals before agreeing to the setting up of a start up company with staff. A sound business model, availability of capital, a capable management team, and preferably an external industrial partner are some of the essential ingredients that CityU looks for in a business proposal.

The opening of the **CityU Shenzhen Research Institute Building** would enable departments and colleges to conduct more executive training, collaborative research, and technology licensing in the mainland. The College of Business and the School of Continuing and Professional Education (SCOPE) are actively planning a series of professional executive training programmes in Shenzhen to be launched in the second half of 2010. The Building is also expected to raise CityU's profile in mainland China, helping CityU to reach out to other universities and corporations outside of the Pearl River Delta region.

A. Creation of a Conducive and Enabling Environment

To nurture a new culture favourable to KT, a conducive and enabling environment is a prerequisite. The paragraphs below outline the efforts taken by CityU to provide a conducive environment for supporting KT development.

1. Supportive Institutional Policy

- a. CityU put forward a new mission statement in early 2009 which stresses the “creation of applicable knowledge in support of social and economic advancement”. This mission statement lays down the strategic direction of the University and guides its development plan.
- b. In response to the new mission statement, CityU formulated a Five-Year Strategic Plan for 2010-2015 which charts out the detailed blue print for the future development of the University. “Technological innovation and knowledge transfer” is identified as one of the five planning principles governing the Strategic Plan. Goals set to foster research and KT include increasing research funding, expanding innovative research and graduate programmes, strengthening infrastructure to enhance KT and nurture a culture of entrepreneurship, and forging contract and collaborative research of potential commercial value, etc.
- c. To support the University’s KT plan at the college and departmental levels, Deans and Heads are required to incorporate KT into their college or departmental strategic plans. KT activities are required to be listed in their annual reports for submission to the senior management team.
- d. At the individual level, faculty members are required to report KT activities in addition to teaching and research in their annual activity reports. This annual activity report will form the basis for personnel decisions such as contract renewal and promotion.
- e. An Intellectual Property Policy is in place to regulate matters related to (i) copyright, (ii) patents, registered designs, circuit layout and plant variety rights, and (iii) trade and service marks.
- f. Each year, a budget of a few million dollars is set aside to finance patent applications. A dedicated administrative unit and income sharing arrangement are well in place to support this area of work.

2. Organizational Structure and Change

CityU has maintained a simple but effective organizational structure to support KT development for about two decades. New changes were introduced in 2009 to cope with the expansion of KT in the years to come. The overall organizational structure is described below.

- a. CityU has instituted a well-structured framework and model for the commercialization of home-grown technologies through spin-offs. CityU Enterprises Limited (CityUE) was established in 1991 for this purpose. It provides accounting and business development support for the start-ups. To date, there are nine economically active companies under the aegis of CityUE.
- b. CityU set up CityU Professional Services Limited (CPS), a not-for-profit company, 10 years ago to coordinate and facilitate consultancy and other professional services offered by our faculty members. A new outside practice policy reaffirming the importance of outside practice and high value-added professional services will be introduced. On average, CPS annually conducts over 400 consultancy projects or professional services for over 300 private and public organizations.
- c. CityU Research Limited (CityUR) is a wholly-owned company of CityU and is the licensing arm of the University. CityU licenses its intellectual properties (IPs) to CityUR, which then sub-licenses them to other companies. In a typical technology licensing arrangement, the sub-licensee is granted the rights to manufacture, market, and sell products or services developed from the technology.
- d. The KTO was set up in 2009 to act as a bridge between CityU and the community to promote KT. Its core services are:
 - i. technology licensing
 - ii. IP management
 - iii. promotion of KT within the University community
 - iv. promotion of CityU's research output
 - v. administration of CityU's research projects and research centres in Shenzhen
 - vi. industrial liaison and outreach
- e. To step up the promotion of KT, the following initiatives have been introduced in 2010:
 - i. A Knowledge Transfer Committee (KTC), comprising senior staff members with

profound experience in KT and prominent business leaders, was formed under the chairmanship of the Acting Vice-President (Research and Technology) to spearhead KT development in CityU. The KTC is charged to formulate institutional policies and strategies to promote and facilitate KT activities across all disciplines, and monitor the progress of KT development and measure the effectiveness of KT strategies.

- ii. At the college level, a KT champion would be appointed to support the work of KTC to promote and encourage KT activities. Preferably, this KT champion should be at the Associate Dean level such that faculty members could be mobilized more effectively.

3. Incentives

Below are some measures to reward good performance in KT and to build up KT capabilities.

- a. KT performance is one of the factors affecting personnel decisions. Due recognition will be given to faculty members who excel in teaching, research or KT in performance appraisal.
- b. CityU has an income sharing policy that governs how licensing revenue should be shared between staff, the research centre/unit responsible for the research project, and the University. This tripartite income sharing formula not only provides incentives for individual staff, but also supports the sustainable development of the research centre/unit, thereby leading to more technologies for commercialization.
- c. To encourage faculty members to bid for more research grants, the University has set up a top-up fund to reward faculties who succeed in grant applications. Upon receipt of external research grants from the government sector, the University will issue to the research team a top-up grant that is expected to give fresh impetus to CityU's research endeavours.

B. Capacity Building

This section outlines the measures taken by CityU to build capacity in KT through training, professional development, and exchanges with other organizations:

1. Fact-finding Trips to Overseas Universities

A CityU delegation led by the Acting Vice-President for Research and Technology visited three UK universities and three North American universities in March and June 2010 respectively. One of the objectives of the trips was to learn from other universities their experience in formulating and implementing KT best practices. The six universities are:

- a. University of Warwick
- b. University of York
- c. University of Manchester
- d. Georgia Institute of Technology
- e. University of Waterloo
- f. University of Toronto

The CityU representatives, met with the research and technology commercialization staff of the host universities, were given informative presentations about how technology transfer was conducted in their respective universities. Their IP policies and commercialization schemes were also studied. The information gathered from these visits proves to be very useful for the design and implementation of good KT practices at CityU.

2. Training Course for Technology Transfer Personnel

CityU's technology transfer officers were enrolled in training courses in IP and technology licensing for professional development. The courses were:

- a. FICPI South East Asian Drafting (SEAD) Training Course

The five-day patent drafting course was held in April 2010 in Cyberport Hong Kong. Students were required to attend tutorials and workshops, and to submit writing assignments. A follow-up five-day training course will be held in September 2010. The FICPI, short for Fédération Internationale des Conseils en Propriété Industrielle, is an association of IP professionals from over 80 countries.

- b. Intensive Course on Management and Commercialisation of Intellectual Property

The 10-day course was organized by the Faculty of Law of the University of Hong Kong in June 2010. The course aimed to help tech transfer professionals apply different forms of IP protection to maximize the value of IPs.

3. University Presidents' Forum

In February 2010, the Presidents of four overseas universities and one director of a national laboratory in the US were invited by President Kuo to visit CityU and to participate in a forum on teaching and learning, best practices in KT, and university development. The sharing session on the implementation of KT was chaired by Prof Horace Ip, Acting Vice-President (Research and Technology) of CityU. The four speakers were: Chancellor Robert Holub of the University of Massachusetts Amherst, USA; Professor Thomas Mason, Director of Oak Ridge National Laboratory, USA; President G P Peterson of the Georgia Institute of Technology, USA, and President Zhang Jie of the Shanghai Jiaotong University, PRC.

The seminar attracted an audience of about 100, most of whom were faculty members and university administrators. The major issues covered in the seminar were:

- a. How to bridge the gap between research and product
- b. How to measure KT
- c. How to increase incentive for KT

4. IP Training Workshop and IP Forum

a. IP Training Workshop

To raise awareness in IP management, the KTO organized a three-day workshop at the Hong Kong Productivity Council which was attended by about 35 CityU staff members and students, including the KTO's tech transfer officers. The IP course, first of its kind in CityU, is part of the KTO's strategic plan to strengthen KT and technology licensing. The workshop gave a brief walkthrough of the various means of IP protection, but more weight was given to patenting.

b. IP Forum for postgraduate students

The Chow Yei Ching School of Graduate Studies organized an IP Forum for postgraduate students. Two patent attorneys were invited to deliver lectures on IP issues. The forum will be run on a regular basis.

C. Progress of Implementation of KT Strategic Development Plan

To complement the University's long-term development in KT, the KTO promulgated its Strategic Plan for 2010 – 2015 that lays down the action plans on technology licensing, industrial liaison, IP management, and expansion into the mainland.

The gist of the KTO Strategic Plan can be summed up by the action plan “**FEEDS**”, which is the acronym for:

Firm institutional commitment (please refer to Section A on page 5)

Education program for staff (please refer to Section B on page 8)

Enhance IP licensing channels

Develop strategic collaboration & partnership

Spread out to China

(The last three items will be elaborated in this section.)

1. Technology Licensing

a. Licensing Income

The year under review recorded a total licensing income of over HK\$4.73m, representing a 57% increase over the original target.

b. Strengthening of the Licensing Team

A Senior Technology Transfer Officer with over 30 years of industrial experience joined the KTO in September 2009. He has good connections with mainland corporations and has helped extend CityU's IP licensing network to mainland China. Another Technology Transfer Officer has been assigned extra duties for exploring licensing opportunities in the international market. Besides, an executive officer joined the licensing team to support its marketing and industrial liaison activities.

c. Enhancing IP Licensing Channels

i. Direct Marketing

Relationship building forms an important part of the KTO's strategy to create more opportunities for licensing. One of the channels to reach out to relevant businesses is making

use of the networks of the KTO. Meetings and laboratory visits have been arranged for over 200 local and mainland corporations this year.

ii. IP Listing Services Providers

To broaden the channel for licensing our technologies, the KTO posted CityU's patents in web listing systems including

- the IP Net developed by the University of Manchester Intellectual Property Limited (UMIP)
- Tech Transfer Online
- Hong Kong Science and Technology Parks website

iii. IP Marketing Agencies

The KTO engages the services of IP marketing agencies which can help take CityU technologies to the international markets. Below is a brief description of the IP marketing agencies:

- A well-known online global patents and technology trading exchange service provider which specializes in attracting potential clients through online listing and company networks.
- Two UK intellectual property management companies that advertise CityU technologies to companies in Europe and beyond.

iv. IP Management Firms

Part of the reason why individual patents are difficult to license is because there is not enough value in each of them to trigger a licensing deal. To address this problem, the KTO has been working with IP management firms, whose primary function is to bundle CityU IPs with other IPs to present a comprehensive solution to clients. This is also an effective marketing strategy for IPs not suitable for the local industry and businesses.

v. Pre-licensing Efforts and Prototyping Development

Technologies invented in the lab are usually unripe for industrial application and it takes more R&D to move the technologies down the value chain. In a university setting, such R&D can take the form of industrial sponsored collaborative research or prototyping development. The

research results generated in this way are more likely to be adapted for commercial use, thus increasing their likelihood of being licensed.

vi. Publicity Through Publication

- To facilitate IP licensing, a *List of Patents* brochure is available for downloading at the KTO website. This brochure, written in laymen's terms, targets business executives and ordinary readers.
- Publication of the *KTO e-Newsletter*, a quarterly magazine.
- The production of the *IP Licensing* brochure is underway.
- The KTO regularly contributes articles to the *Graduate Studies and Research Newsletter*, a quarterly magazine published by the School of Graduate Studies.

vii. Raising Awareness in IP

To increase the University community's awareness in IP licensing, the KTO organized an IP training workshop, which shall be re-run on a regular basis.

viii. Collaboration with Other KT Players

- The Hong Kong Applied Science and Technology Research Institute (ASTRI) and the KTO are working on collaborative research projects.
- The KTO offered support to the Life Science Acceleration Programme and the University Technology Showcase Seminar hosted by the Hong Kong Science and Technology Parks Corporation (HKSTP). CityU's IPs are listed on the HKSTP website.
- The KTO has been collaborating with the Hong Kong Productivity Council (HKPC) on training workshops.
- Through the coordination of the KTO, CityU academics were arranged to speak in forums organized by the Nano and Advanced Materials Institute (NAMI).

2. Industrial Liaison and Outreach

a. Forums and Gatherings

The flagship forum series and gatherings run by the KTO are:

- i. Technology Transfer Forum: CityU's commercializable technologies are featured in these forums. Three forums were held in 2009 – 2010.

- ii. Emerging Technologies Forum: industrial and business executives are invited to impart to faculties the latest market trends and technologies. Two forums were held in the period.
- iii. Informal gatherings were arranged for CUBIC's Special Interest Groups (IT & Telecom, Consumer Electronics, Life Science, and Manufacturing). Four gatherings were held.

Each session of Technology Transfer Forum and Emerging Technologies Forum had an average attendance of about 100.

b. Exhibitions

To showcase our research achievements and to explore further licensing opportunities, the KTO participated in a number of local, national and overseas exhibitions, including:

- i. The International ICT Expo 2010
- ii. The 11th China Hi-Tech Fair in Shenzhen (CityU received the Excellent Product Award and Excellent Organizer Award)
- iii. The Korea International Women's Invention Exposition (KIWIE) 2010 (CityU won a Gold Prize and a Special Prize)

c. Expanding the Base of Industrial Partners

- i. CUBIC is the KTO's effective platform for forging links with industry and business. Regular recruitment campaigns are launched to boost CUBIC membership, which has grown from 277 to 553 over the past year. CUBIC members are regularly invited to participate in the KTO's gatherings and University events.
- ii. Through the networks of the KTO, the Office matched up about 10 private corporations with CityU researchers for the application of:
 - CityU contract research projects
 - CityU Applied Research Grants
 - Innovation and Technology Fund (ITF) grants

d. Forging Ties with Trade Associations

The Office forges close link with local and mainland trade associations such as:

- i. Hong Kong Electronics & Technologies Association (HKETA)
- ii. Chinese Manufacturers' Association of Hong Kong (CMA)

- iii. Hong Kong Chinese General Chamber of Commerce (CGCC)
- iv. Federation of Hong Kong Industries
- v. Hong Kong Critical Components Manufacturers Association (HKCCMA)
- vi. Hong Kong Medical and Healthcare Device Industries Association (HKMHDIA)
- vii. Federation of Hong Kong Machinery and Metal Industries (FMM)

3. Expansion into China

a. New Building in Shenzhen

The CityU Shenzhen Research Institute Building, set to open in late 2010, is expected to give the University a sharper edge in promoting KT. With a floor area of 12,500 sq m, the new building will provide the space and amenities necessary for delivering professional / executive education programmes, professional services and projects of commercial value.

b. Technology Licensing Personnel

The Senior Technology Transfer Officer is responsible for industrial liaison and cultivating licensing opportunities with mainland corporations. To date, two licensing deals have been clinched with two major enterprises focusing on electronics and security.

D. Benchmarking and Self Assessment

1. Benchmarking

a. Background

The purpose of benchmarking is not to identify the winners and losers; rather, it should offer insights into practices that lead to excellence in KT. With this belief in mind, we picked out three outstanding universities from the US, Canada and the UK for benchmarking. They are the Georgia Institute of Technology, the University of Waterloo, and the University of Warwick. The reasons for choosing them are:

1. They are very strong in science and engineering subjects and technology commercialization.
2. They are one of the best universities in their countries.
3. We visited them earlier this year and met their technology transfer personnel.

b. Findings

During the visit to Georgia Tech, the delegates were told that invention disclosure was a requirement for faculties taking on research projects, especially those sponsored by industries. Given Georgia Tech's huge research funding, CityU has a long way to go before its record of invention disclosures can match that of Georgia Tech. Nonetheless in terms of patent application and licensing income, CityU is comparable to those of Waterloo and Warwick.

The delegates also noticed that there were quite a number of funding programs run by the local governments in these countries to support proof-of-concept and pre-business start up endeavours. Other infrastructures such as science parks, incubators, angel and venture capitalists are also available. Together they create a conducive environment to nurturing innovation. In this respect these provisions are not so adequately provided here in Hong Kong.

2. KT Performance Targets and Measurement

Overall speaking, the KT outcomes for 2009 - 2010 experienced a steady growth as originally anticipated. The results in contract and collaborative researches and CPD courses are well ahead of targets. On the front of licensing and use of equipment and facilities by external parties, the results are even more encouraging. The licensing income registered a 57% increase over the original target as a result of increased manpower and stepped-up efforts. The

use of equipment and facilities by external parties increased by 68% in terms of number and 70% in terms of income.

There are also results that failed to make good the targets. Due to business consolidation, the number of economically active spin-offs dropped from 13 to nine, resulting in a decrease in the relevant income and job openings as compared to the original projections. We also noticed a drop in consultancy revenue, number of staff members participating in consultancy, and the number of clients served. To address this problem, the University is in the process of developing a new set of regulations governing outside practice and the scope of support provided for such activities, and we expect the performance in consultancy to improve in the next year.

In a nutshell, CityU fared well in KT activities in 2009 - 2010. The projections in KT outcomes for 2010 - 2011 will be similar to those of last year, with more promising results in licensing activities being anticipated.

E. Summary of KT Activities Undertaken by Colleges and Schools

1. College of Business

The College of Business (CB) and its member departments have been involved in a wide range of KT activities relevant to the business communities both locally and globally. These activities include collaborative research, collaborative programmes; professional development programmes, executive education programmes, internship programmes, volunteer work abroad programme, and consultancy and community services. The College partnered with world-leading accounting, financial, and banking institutions / professional bodies to deliver professional training and senior executive education programmes to their employees and members. On the front of teaching and learning, the College continued collaborating with notable universities in North America, India, and Europe to provide global EMBA modules and programmes. Good practices and strategic development of KT were discussed during the College Retreat and also at monthly lunch meetings with department heads. CB faculty members also served as members of various government advisory bodies and as directors of publicly listed companies, engaging in KT at very high levels.

2. College of Humanities and Applied Social Studies

During the report period, CHASS departments and faculty members delivered a range of KT activities that contributed to social development, good governance and the betterment of society. Examples of KT activities include collaborative research / projects, consultancy and community services for the private and public sectors, internship programmes for students, and academic exchange and collaboration programmes. CHASS faculty members served as members in governmental advisory bodies and NGOs. Certain departments have included KT in their departmental strategic plans and will devote resources to support related initiatives. Other examples are: the arrangement of seminars for sharing good practices and exchanging research ideas, the appointment of a departmental “Research and Technology/Knowledge Coordinator” to coordinate and promote KT activities, and the provision of support to colleagues who participate in KT.

3. College of Science and Engineering

The KT activities conducted by the College are essential to the wellbeing of the local community, in particular the industrial and business communities. A broad range of consultancy services, professional training programmes, and contract / collaborative research projects were undertaken during the year under review. Such activities covered areas as

diverse as applied physics, biotechnology, building safety, artificial intelligence, engineering and telecommunications. For non-commercial KT activities, the College had in place internship programmes for students, and high-quality interdisciplinary research that fostered closer links with reputed national and overseas universities. Consultancy / contract research projects had also been commissioned by the government and other public organizations.

4. School of Creative Media

Set up to promote media art in Hong Kong, the School of Creative Media has been actively involved in community services. Beneficiaries include education establishments, governmental organizations, and local media art groups. Contract research and consultancy projects commissioned by art groups, governmental bodies, and commercial firms also constituted part of the SCM's KT endeavours over the past year. The SCM staff had been invited to conduct professional development and training programmes for private and public enterprises in Hong Kong, Taiwan, and the mainland. In terms of internship and placement opportunities, students were assigned short-term duties in graphic designs, stage management, art administration, film production and teaching.

5. School of Law

As one of Hong Kong's foremost providers in legal education, the CityU School of Law boasts a comprehensive range of KT activities, including internship programmes, student exchange programmes, conferences, and lectures delivered by prominent academics and personalities. Through the School's extensive networks, students were placed with notable law firms and non-governmental and governmental legal institutions. During the year under review, eight student exchange agreements had been signed with universities in the US, Australia, Sweden, and the mainland China. The LLM and Advanced Diploma programmes for high-ranking mainland judges were a noteworthy KT activity initiated by the School.

6. School of Continuing and Professional Education

As the extension arm of CityU, SCOPE supports the core activities of the University and provides quality educational services to the community. Over the year past, the programmes offered by SCOPE covered (i) part-time continuing and professional development courses, (ii) corporate training for private and governmental organizations, (iii) courses initiated by the Yijin Project and the Employee Retraining Bureau, and (iv) courses designed for mainland universities and governments. Total student contact hours for its part-time programmes in 2009 -10 was 1.64m and that for 2010 -11 is projected to be 1.73m.

F. Notable Examples of KT

1. Setting the World's Standard for Wireless Charging

In 2006, CityU licensed a number of patents and patent applications to a start up company – Convenient Power Limited. Last year the company set up a consortium to establish a standard for wireless charging that draws heavily on the licensed technologies invented by Prof Ron Hui of the Electronic Engineering Department. The world's first international wireless battery charging standard, known as "qi", will be adopted by the Wireless Power Consortium (WPC) to develop future electronic products such as cell phones. All products developed under this standard can be charged simultaneously on the same charging platform. With the establishment of a global industrial standard, manufacturers and users of wireless charging platforms and electronic devices do not have to worry about interoperability. In April 2010, the WPC delivered the first part of the interoperability specification to its members, among them are Nokia, Samsung, ST Ericsson, Philips, and Sanyo.

2. Programmes for Judges from China

The School of Law first introduced training courses for mainland judges in 2009, as a result of an agreement signed between CityU and Columbia University School of Law. In January 2010, the School of Law graduated 30 Chinese judges enrolled in the Masters of Law (LLM) programme. Thirty-seven senior judges attended the Advanced Diploma for Chinese Senior Judges programme held from 8 to 29 January 2010.

3. Supporting Entrepreneurial Students

The KTO is currently negotiating on a licensing deal with a start-up company formed by three CityU undergraduate students from the Department of Marketing, the Department of Manufacturing Engineering and Engineering Management and the Department of Accountancy respectively who were the champion of the Hong Kong HSBC Young Entrepreneurship Award and the regional Best of the Best Award, as well as being the Second Runner-Up of the Lee Kuan Yew Global Business Plan Competition. The product proposed is a transgenic fish capable of testing the presence of estrogenic pollutants in consumer products and the marine environment. The award winners are undergraduates from the Marketing Department, the Manufacturing Engineering and Engineering Management Department, and the Accountancy Department. The KTO has offered mentorship support in terms of business plan drafting, and liaison with venture capitalists and potential clients. An international angel investor is keen on the proposal and is raising fund for the project.

G. Use of UGC Ear-marked Fund

In the financial year 2009-10, CityU was allocated HK\$6.55 million for capacity building and strengthening its effort in KT. As proposed in the Initial Statement, the bulk of the KT Fund would be used to promote technology licensing, which is a new area that has much room for expansion. Hence, the majority of the funding was spent on three main areas, namely (i) the employment of high-calibre technology licensing personnel, (ii) launch of a proof-of-concept fund for supporting pre-licensing work and prototyping development, and (iii) patent application.

1. Employment of High-calibre Technology Licensing Personnel

Technology licensing is identified as a “flagship” KT initiative in the Initial Statement. The staffing budget of the KTO’s Senior Technology Transfer Officer and Technology Transfer Officer was financed by the UGC ear-marked fund. The Senior Technology Transfer Officer is an ex-IBM licensing executive with over 30 years of industrial experience and mainland connections. He joined the KTO in September and is responsible for cracking the lucrative Mainland market. Another Technology Transfer Officer was assigned extra duties to oversee the marketing of IPs in the international market. Ten new licensing deals were concluded during the year under review, among which two are licensed to major mainland enterprises specializing in electronics and security. It is anticipated that more licensing deals with mainland enterprises will be closed in the next reporting year as much groundwork has been laid.

2. Proof-of-concept Fund

Before the introduction of the UGC KT Earmarked Fund, there was already in place an Innovation to Realization (I2R) Programme to support proof-of-concept projects. However, it was only a pilot programme financed by donation, and therefore lacked the recurrent funding to make it viable in the long term. With the UGC KT Earmarked Fund, the I2R Programme was renamed the Innovation to Realization Funding Scheme with secured funding to support regular invitation for proposals. Projects with high potential of immediate licensing will be funded and the project duration is 12 months or less. In the first round of application, three projects were approved.

3. Patent Application

It is a prudent trade practice to protect your IP before exploiting it, and hence it follows that

an increase in licensing activities usually entails an increase in IP management efforts. To cope with the growing momentum of licensing activities at CityU, more resources have been spent on IP management, in particular patent application. An amount of HK\$1 million was extracted from the KT earmarked Fund to finance patent application expenses. To boost the number of patent application, a number of measures have been taken:

- a. Patent workshops and IP forums have been organized for faculty members and students to heighten their awareness in IP
- b. Regular coverage of IP news in *KTO Newsletter* and *Graduate Studies and Research Newsletter*.
- c. The processing time for internal patent assessment has been shortened as one of the obstacles to patent application is the lengthy assessment process that may hold up faculties' publication plans.
- d. The KTO collaborates with professional IP management companies to identify patentable IPs from the research papers or publications of faculty members.

Apart from the above areas, the KT earmarked Fund also supported some exhibitions and marketing activities, while the rest of the KT activities covered in this report were funded by the University's block grant.

H. Risks and Challenges

The risks and challenges facing KT are:

1. Cultural Change

To advance KT, the University needs to embrace a culture that not only cherishes the creation of knowledge, but also the dissemination and application of knowledge. Knowledge is an asset that must be managed and deployed carefully. To implement such a change takes time and perseverance. Section A.1 outlines some of the changes the University initiated to create an enabling environment for KT, and we shall keep the momentum going.

2. Inadequate Supply of IP

Most faculty members are pre-occupied with the demands to conduct research, get published, fulfil administrative duties, and teach / supervise students. Patent application is usually given lower priority. Most IPs owned by CityU are not readily transferrable to industry, and therefore their chance to be licensed out is compromised.

3. Technology Gap

Usually, the research outputs produced by academia cannot be readily used by industry. This technology gap, sometimes being referred to as “the valley of death”, is a big hindrance to technology transfer.

4. Small Capital Market

Investors are wary of financing commercialization, especially when upstream technologies are involved. Hong Kong needs more angels and venture capitalists who are willing to take the risk to grow a concept into a product.

-The End-