

2018-19 ANNUAL REPORT



SUBMITTED TO UNIVERSITY GRANTS COMMITTEE



RECURRENT FUNDING
FOR KNOWLEDGE TRANSFER

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1. Executive Summary

CUHK has continued to excel in research, as well as driving Knowledge Transfer (KT) activities to support innovation development both internally and externally. Here we report another successful year in knowledge transfer and promotion to enhance awareness of our innovation for social benefits.

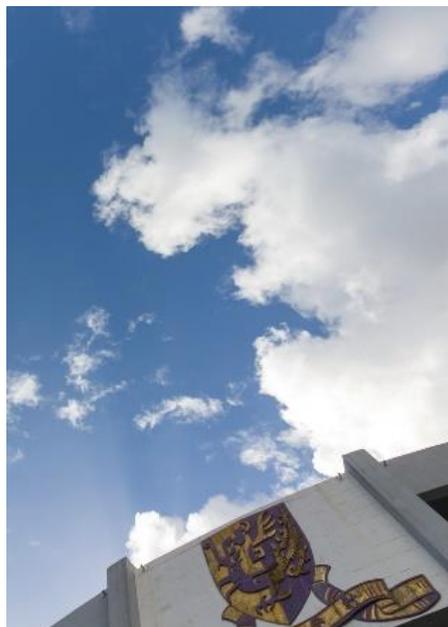
In 2018-2019, through the Office of Research and Knowledge Transfer Services (ORKTS), 429 contracts and research agreements were executed that enabled over \$219 million of research and consultancy activities with parties outside CUHK. In parallel, 65 new inventions were disclosed, 315 patent applications were filed, and 202 patent applications were granted. We granted 91 licences in 2018-19 to local and overseas companies, and generated licencing income of \$53.7 million, representing an increase of 8% over that of the previous year. For the fourth consecutive year, CUHK was ranked as the most innovative university in Hong Kong by “Reuters Top 75: Asia’s Most Innovative Universities”.

In addition to the Technology Support Scheme for Universities (TSSSU) by the Innovation and Technology Commission (ITC) for staff and students, we also used part of our UGC KT fund to support student-initiated startup projects or (as we call them) Pre-incubation teams (Pi teams). These two programmes have attracted steady interest since their introduction in 2014, and have received around 45 Pi and 25 TSSSU applications each year. This year, we were able to fund 17 TSSSU companies and 16 Pi teams.



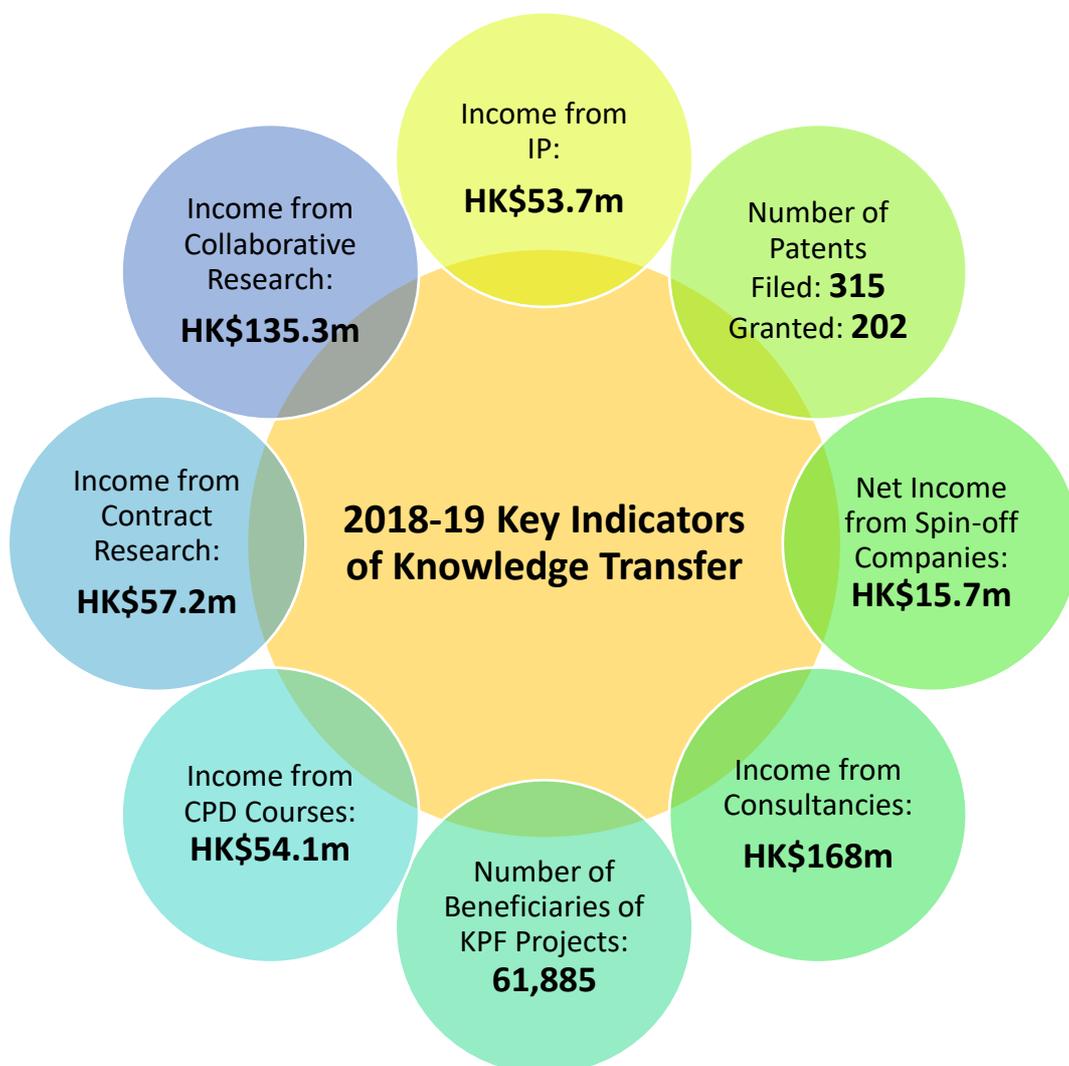
Sign bilingual reading class, organized by SLCO Community Resources Limited, one of the social enterprises supported by CUHK

In the area of social innovation, our Knowledge Transfer Project Fund (KPF) provides support for knowledge transfer activities into the community such as setting up community services, ecological tours, and programmes for the children and elderly. Together with the recurrent HK\$3 million Social Innovation and Entrepreneurship Development Fund (SIE Fund) of the HKSAR, we



were able to support 16 social innovation projects this year. Furthermore, with an overwhelming demand for seed funding from high quality applications, we have decided for the first time in supporting 3 additional social enterprises with our Sustainable Knowledge Transfer Project Fund (S-KPF), to ensure the necessary social support is maintained in the community.

During the report period, we continued to strengthen our interactions with regional and international industrial partners and investment communities, and stepped up our research collaboration in both technology and social innovations. We will continue to enhance our infrastructure and operational efficiency through ORKTS to accelerate the knowledge transfer process at CUHK for the advancement of social benefits and knowledge-based economy in Hong Kong.



2. Strategic Role of Knowledge Transfer for Technology and Social Innovations

CUHK is a centre of excellence for knowledge creation and has generated many innovative ideas and upstream technologies since its establishment in 1963. CUHK has been consistently ranked as the most innovative University in Hong Kong by “Reuters Top 75: Asia’s Most Innovative Universities” in the four years since 2016. The SenseTime and Cirina (now merged with Grail), two “unicorns” founded by CUHK Faculty members, testify to our innovative research and development culture. During the report period 13 projects led by researchers from CUHK received 14 awards, including two Gold Medal with Congratulations of the Jury, one Gold Medal, eight Silver Medals at the 47th International Exhibition of Inventions of Geneva.



CUHK Teams in the 47th International Exhibition of Inventions of Geneva

Leveraging on the recent initiatives by the HKSAR Government in innovation technology development and re-industrialization, ORKTS is taking on the strategic role in supporting translational research and entrepreneurship development. We are further strengthening KT services to support translational research in all Faculties aimed not only at commercialization through science and technology but also at driving social innovation for community benefits. These enabling KT services include industry liaison, establishing research collaboration agreements, Intellectual Property Rights (IPR) and licensing services.

In entrepreneurship development, a standalone building located in a popular location in CUHK campus will be commissioned as an Innovation Hub (InnoHub) by the first quarter of 2020. With an area of over 1,500 square meters, the InnoHub will incorporate internal stakeholders such as the Entrepreneurship and Innovation Minor Programme (EPIN)

and the Pre-Incubation Centre (Pi Centre), and will provide facilities for technology and social startups and social innovation developments. It will also facilitate seminars, innovation exhibitions, incubators, Entrepreneurship-In-Residences to expand engagements with all CUHK members and external stakeholders. The InnoHub will provide a

vibrant co-creating environment that facilitates a unique community establishment. As well as encouraging entrepreneurs, the community spirit will deepen CUHK's relationship with its industry and community partners to create more translational research opportunities, and subsequently our delivery of greater societal impacts.

3. Entrepreneurship Development

3.1. Interdisciplinary Entrepreneurship Education

To promote an entrepreneurial culture and mindset in the University, CUHK launched a new Entrepreneurship and Innovation (EPIN) minor programme in 2017. It adopts an interdisciplinary approach and is open to all undergraduate students. It aims at cultivating entrepreneurship among students through events that enrich their understanding of entrepreneurship and challenge their creativity and perseverance.



A bootcamp for CUHK students in Fudan University covered seminars on topics of entrepreneurship, the Mainland China's policy on entrepreneurship and innovation

Its curriculum mimics the process of creating a new venture and passes through the Ideation, Realisation and Commercialisation stages and helps the students to develop the relevant mindset (including social responsibilities and proper conduct in research and development) and skill sets (such as problem solving, project management and business planning). Students are required to complete a minimum of 18 units of courses in three key areas, namely Mindset and Values, Knowledge and Skills, and Practices. To enhance the effectiveness of the EPIN minor programme, it is complemented by appropriate internship programmes and startup services.

Several new EPIN courses were offered by EPIN in 2017-18 and 2018-19. They covered different topics related to entrepreneurship and innovation and have successfully attracted



Series of skill training workshops offered by EPIN, including video and VR shooting

more than 300 enrolment rates from different faculties. Below is the list of the EPIN courses launched:

- EPIN1010 Anatomy of an Entrepreneur
- EPIN1020 Design Thinking and Practice
- EPIN1030 The Psychology of Creativity and Innovation
- EPIN2010 Toolkit for Entrepreneurs
- EPIN3010 Business Models of Startups

3.2. Pre-incubation Centre (Pi Centre)

We used part of our UGC KT fund to support the running of the Pi Centre, which is dedicated to conducting workshops, seminars, networking sessions, bootcamps and hackathons to foster entrepreneurship among students from different disciplines, as well as mentoring and incubating undergraduate and post-graduate initiated startup projects since 2014.

In this year, the Pi Centre has admitted two batches of 16 teams out of 45 applications that were selected by a vetting panel formed with both internal and external professional assessors. The Pi Centre has organized more than 33 activities, including Entrepreneur Corner, talks, workshops and bootcamps. These activities were organized either by the Pi Centre alone or in partnership with other internal and external units such as Cyberport, Hong Kong Science and Technology Parks Corporation (HKSTP), South China Morning Post (SCMP), Hong Kong Institute of Directors (HKIoD) and New World Development Company Ltd. We have gained a reputation in the community and gradually inspired the formation of a startup community in CUHK.



Entrepreneurship sharing at the Pi Centre

The principal achievements of the Pi Centre during the report period are highlighted below.

3.2.1. CUHK Business Connection Day

The 1st CUHK Business Connection Day was successfully held on 9 May 2019. New World Development (NWD) Group attended this event as our guest. Three TSSSU teams (Dragon



Student pitching to business partners

Way, Intelligent Sensing and GemVCare) and three Pi teams (Jobegin, Zen Food and Bulb Inno) pitched their business ideas to NWD Group. The representatives from NWD showed great interest in their products and were enthusiastic to explore collaborations with our teams.

3.2.2. HKSTP Science and Technology Entrepreneur Programme (STEP)

We have encouraged the teams to apply to the HKSTP STEP for seed funding of up to HK\$100,000 and the opportunity to learn essential skills from HKSTP mentors. Five teams entered STEP this year.

3.3. CUHK Alumni Torch Fund and Entrepreneur Day

Initiated by the CUHK Alumni Torch Fund, CUHK Entrepreneur Day is an annual two-day event aimed at spreading entrepreneurial spirit, sharing innovative ideas and connecting budding CUHK entrepreneurs with alumni representatives. Held this year on 10-11 May 2019, the event featured exhibition of different start-ups and entrepreneurial ideas, talks and workshops, as well as pitching opportunities and a networking platform. Over 80 innovative projects (including eight Pi teams projects) launched by CUHK students, teachers and alumni covering themes such as AI and big data, financial technology and e-commerce, biotechnology and healthcare, STEM, and art and culture.



Mr. Paul Chan Mo Po (2nd right), Financial Secretary of the HKSAR Government; Prof. Rocky S. Tuan (3rd left), Vice-Chancellor and President of CUHK; Mr. Stephen Liang (2nd left), Assistant Executive Director of the Hong Kong Trade Development Council attend the CUHK Entrepreneur Day

A definite highlight was the finale of the 3rd CUHK Entrepreneur Competition, where five selected startup teams competed for the grand prize, including a Pi team, Bulb Inno, an IT company which develops creative ideas and smart solutions for daily life. There was also a dedicated area showcasing CUHK awarded projects at the 47th International Exhibitions of Inventions of Geneva, and nine startup



Prof Catherine So Wing Chee introduces her massage programme for preschool children with Autism Spectrum Disorders

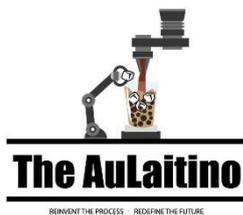
teams are currently under incubation at the Entrepreneurship and Innovation Hub (InnoHub) of the CUHK Shenzhen Research Institute (SZRI). The Entrepreneur Day launched for the first time a track focusing on CUHK's endeavour in social innovation. Social entrepreneurs from within and outside the University shared their experiences and aspirations in putting social innovation into practice to address social needs.

3.4. Student Competitions

We provide not just opportunities but training beforehand to students to compete in local and international competitions. Through these competitions and training, we are able to identify good teams to further nurture them into real entrepreneurs via our other programmes such as Pi and TSSSU.

3.4.1. The Vice-Chancellor's Cup of Student Entrepreneurship (VCCE) Bootcamp

The bootcamp was held from 17-18 May 2019. It attracted 10 teams to present their business ideas. The participants demonstrated how their innovative ideas would give their product or service an edge over competitors while allowing investors enjoy attractive and sustainable returns.



This year's winning team was AuLaitino, a fully automated Taiwanese beverage solution which can increase production efficiency by reducing waste, labour costs and rent and improving accuracy, customization and inventory management. Design 4 Gold was the first runner-up which is an online platform to help cultivating designers by commoditizing their designs into products (e.g. t-shirts) for sales with no upfront cost. Designers simply need to upload their design, and Design 4 Gold will handle all the complex administrative and logistical work from production, marketing to delivery.

The second runner-up was Gabi, a high-tech and interactive language learning application which provides a systematic Chinese learning experience to non-Chinese speaking children aged 5 to 10.

3.4.2. Chuang Qing Chun Competition & World's Challenge Challenge

Mushroom-X was awarded the Gold Award in China College Students' Entrepreneurship Competition "Chuang Qing Chun" (創青春全國大學生創業大賽) in November 2018 at Hangzhou. Chuang Qing Chun National Entrepreneurship Competition is a biennial competition attracted 2,000 projects from 197 higher education institutes in Mainland. The team also joined the World's Challenge Challenge at Western University in Canada. Challenge Challenge encourages students to think more about global issues and propose appropriate solutions.

Mushroom-X demonstrated the possibility of reducing our carbon footprint by cultivating more than 800 mushroom bottles with upcycling food.



Mushroom-X team led by Prof Kwan Hoi Shan (front row, left)

3.4.3. Professor Charles K. Kao Student Creativity Awards (PCKKSCA)

Formerly the Vice Chancellor's Cup of Student Innovation, PCKKSCA is a biennial competition supported by the Charles K. Kao Scholarship Endowment Fund to

promote innovation and entrepreneurship on campus and to encourage cross-disciplinary collaboration. CUHK students are invited to demonstrate their innovativeness in subjects related to engineering, medicine, science and social science. Winning teams are awarded prize money and opportunities to compete at prestigious national or international competitions.



Awarded team: Wireless Real-time Microscope

This year, both Champions for postgraduate individual entries and group entries worked on real-time microscopes. The “Wireless Real-time Microscope in Ultracentrifuge” realised real-time observation inside ultracentrifuges at a low cost, while the “Digital Holography (DH)-based Two-photon Excitation (TPE) Microscope” enables ultrafast 3D imaging to be deployed in in-vivo biological studies, such as neuronal signalling processes and cell trafficking events, and is already being

used for glaucoma research in Hong Kong Eye Hospital.



Awarded team: Digital Holography

3.4.4. 5th University Student Innovation and Entrepreneurship Competition

This territory-wide competition saw over 200 projects this year vying to represent Hong Kong at the biennial “Challenge Cup” National College Students’ Extracurricular Academic Science and Technology Contest, the China College Students’ “Internet Plus” Innovation and Entrepreneurship Competition and the Beijing-Hong Kong Youth Innovation and Entrepreneurship Cup. CUHK is proud to have taken home the most awards among all institutions, the Outstanding Institution Award. We also made a clean sweep of all 10 Mathematics and Physics / Mechanics and Control Systems awards under the Innovation category, in a satisfying testimony to CUHK’s research and innovation excellence in these areas.



Students from the Department of Mechanical and Automation Engineering won the Innovation First-class Award with their project “Multi-modality Digital Holography-based Two-photon Excitation Microscope”. The system realises new functionalities that no current commercial solutions can

provide, especially in terms of optical imaging. The team is now working with the Hong Kong Eye Hospital, which is using their invention to uncover molecular mechanisms of optic nerve diseases and degeneration.

A team of students from the Department of Orthopaedics and Traumatology and the School of Biomedical Sciences was awarded the Entrepreneurship First-class Award. To cater to the

growing local elderly population, they have designed a smart medical device for the prevention and treatment of knee-related degenerative diseases. Equipped with AI and big data systems, the invention enables customised treatment to be provided for individual users, and relieves pain, speeds up metabolism and accelerates tissue regeneration.

4. Development in Technology and Social Innovation

While CUHK regards social innovation as the foundation of its efforts to promote social development, it is also keen to build on this foundation by supporting entrepreneurship with technology and social enterprises.

4.1. Technology Innovation

4.1.1. TSSSU

Thanks to a doubling in funding from the ITC, successful TSSSU teams this year received more financial support than in previous years. We are delighted at the expanded range in focuses from the 17 CUHK technology startups supported this year, including biotechnology, AI and robotics, telecommunications, manufacturing and materials science.

For instance, Prof WU Ke Li's (Department of Electronic Engineering) Mechawaves Manufacturing Ltd offers filter tuning services for the mobile communications industry. With the advent of the 5G network, microwave filters in base stations are now needed in unprecedented quantities. Given the currently slow manual tuning process and scarcity of experienced technicians, Prof WU developed a robotic system capable of automatically tuning filters two to five times faster, as well as diagnosing each filter simultaneously to give explicit instructions for resolving any problems.

4.1.2. 47th International Exhibition of Inventions of Geneva

To encourage international exposure of our technologies and researchers, the University supported projects with the potential to be included in the prominent International Exhibition of Inventions of Geneva in April 2019. The Exhibition is one of the biggest and most important exhibitions of innovations in the world, and is supported by the World Intellectual Property Organization and the Swiss Federal Government. CUHK delegates not only competed keenly with hundreds of exhibitors, but also promoted their research outputs to overseas academics, investors, business and public visitors alike.

CUHK received 14 awards in total, including two Gold Medals with Congratulations of the Jury, one Gold Medal, eight Silver Medals, two Bronze Medals and the Prize of the Ministry of Scientific Research and Innovation – Romania. In particular, n-hop technologies Limited, one of the Gold Medal (with Congratulations of the Jury) winners, is our newly funded TSSSU company founded by Prof YEUNG Wai Ho Raymond of the Institute of Network Coding. His invention, Batched Sparse (BATS) Code, is a revolutionary technology that allows multi-hop wireless network connections. One of the most readily available applications of this technology is in the construction of smart cities. Easy to deploy without a need to lay optical fibres, it offers a city-friendly and economical solution for the mass deployment of smart lampposts, which form the backbone of smart cities. Pilot deployment of BATS for smart lampposts by the HKSAR Government commenced in mid-2019.



(From left to right) Dr Lau Ka Chun, Prof Raymond Yeung, Prof Wong Kam Fai and Dr Gabriel Fung are among the awarded teams in the 47th International Exhibition of Inventions of Geneva

The other Gold Medal (with Congratulations of the Jury) project, an endoscopic surgical robot, is a system for digestive diseases developed by Prof CHIU Wai Yan Philip from the Department of Surgery, and Prof YAM Yeung, Prof AU Kwok Wai Samuel and Dr LAU Ka Chun from the Department of Mechanical and Automation Engineering. The surgical robot's two flexible arms can overcome the lack of manoeuvrability in current tools, boosting safety, reducing post-surgery pain and speeding up recovery. The prototype has already been tested in animals, and has achieved a remarkable two-thirds reduction in operation time.

4.1.3. Technology Transfer Exhibitions



We have also been actively making our presence felt in exhibitions. This year, we moved beyond China onto the international stage. Besides being represented at Geneva, CUHK sent four project teams, three TSSSU companies and two Pi teams to take part in the Singapore Week of Innovation and Technology 2018. CUHK members displayed their technologies and products at the exhibitions, as well as connecting

with government and business representatives to discuss potential collaboration opportunities. It was also an excellent occasion to explore the local startup environment and learn from fellow experts at talks and pitching sessions.

4.2. Social Innovation

4.2.1. Partnership with the SIE Fund

CUHK was the first university to establish a regular funding arrangement with the SIE Fund in driving social innovation from academia. Since 2017, the Fund has been taking advantage of the KPF scheme to introduce applied research projects that answer the objectives of poverty relief, social inclusion and well-being promotion. With the successful partnership, this funding became recurrent starting in 2019. Seven projects were supported in this round:

Project Title	Project Leader
Telling Stories: A Digital Humanities Approach to Documenting Linguistic Diversity in Hong Kong	Prof Jette HANSEN EDWARDS (Department of English)
Early Identification Of Hearing Loss in Aging Community through Hearing Screening App	Prof NG Hoi Yee Iris (Department of Otorhinolaryngology, Head and Neck Surgery)
Promotion of a Strength-Based Approach in Understanding and Helping Children with Attention Deficit Hyperactivity Disorders (ADHD)	Prof MA Lai Chong Joyce (Department of Social Work)
“Our Everyday. Our Borders.” A Study of Universal Accessibility in Our Built Environment in Hong Kong	Prof Jean WOO (Department of Medicine and Therapeutics)
AI-Based Colour Blindness Correction App	Prof WONG Tien Tsin (Department of Computer Science and Engineering)

A Concept Musical Drama on End-Of-Life Care and Death Attitudes in Hong Kong	Prof CHUNG Yat Nork Roger (The Jockey Club School of Public Health and Primary Care)
Virtual Reality Simulation of Real-World Activities to Identify Glaucoma Patients with Visual Disability for Visual Rehabilitation and Patient Education	Prof LEUNG Kai Shun Christopher (Department of Ophthalmology and Visual Sciences)

The publicity and marketing support from the SIE Fund boosted exposure of our projects, bridging them with partners and even attracting subsequent scale-up funding.

4.2.2. Capacity Building and Support Services

Besides providing regular training sessions and workshops that equip CUHK professors and students with the relevant skills to embark on social innovation projects, we attached great emphasis this year on spreading the concept of Social Impact Assessment (SIA). In line with the Research Assessment Exercise (RAE) 2020’s emphasis on impact from research, we held the “Introduction of SIA Workshop” for interested KPF teams to familiarise them with the assessment and its purpose. We further engaged SIA consultancy services for interested teams. Assessment frameworks are customised for each project and the data collected are professionally analysed, so that teams may

better communicate their project outcomes with potential partners, funders and investors. Our staff members were also sent for external training on social return on investment (SROI), a tool in evaluating social impact, to better coach our funded teams.



Prof Wong Hung, an expert in SIA, delivering a workshop on the topic to project teams

4.2.3. KPF Projects

Conventional technology transfer endeavours usually involve a heavy focus on patents and commercialisation, but the KPF scheme has kick-started community-based efforts from all academic disciplines since 2009. CUHK researchers are invited to test the waters with their social innovations before they are scaled up for amplified impact.

In addition to the seven projects supported by the SIE Fund as mentioned above, nine other projects have been funded this year under the scheme. This testimony to the innovativeness of our applications is an encouraging trend that our professors are thinking creatively in applying their research outputs to tackle social issues. For example, based on her years of

research on sign linguistics, Prof TANG Wai Lan Gladys of the Department of Linguistics and Modern Languages has been putting forward programmes to raise awareness of the needs of the deaf and hard-of-hearing. This year, their funded project targets the business sector with an experiential learning programme of deaf tours, interactive workshops and informative seminars. Engaging with deaf signers on the spot should spark awareness that frustrations created by conventional speech can be resolved through interactions in sign language and body gestures. Ultimately, this could mean better accommodations for deaf customers and colleagues in the workplace for an inclusive society.



Sign bilingual class for parents and children, organised by Prof Gladys Tang's team

4.2.4. Social Enterprises funded under S-KPF

To further promote our social innovation endeavours, S-KPF was launched in 2015 for CUHK researchers to mature their projects into social enterprises that deliver enduring impact, so that they can finance themselves eventually through income and external sponsorship.



Team of StoryTaler led by Prof Winnie Mak (2nd left) receives media interview

This year five companies were funded, bringing the total number of companies enabled by the scheme thus far to nine. The three new teams are working on mental health, digital diseases screening and language learning respectively, developing relevant products and services to serve the wider community. We are especially keen to see Prof MAK Wing Sze Winnie's (Department of Psychology) StoryTaler, a KPF project funded in 2015-16, now establishing itself as an organisation. It provides systematic

training and courses in promoting mental wellbeing, besides its well-received anti-stigma campaigns and storytelling workshops that empower individuals with mental health struggles to speak up and connect with one another.

4.3. Guangdong-Hong Kong-Macao Greater Bay Area (GHM-GBA)

The national strategy for the development of the Greater Bay Area (GBA) provides great opportunities for startups to receive policy support and funding in the GBA. The existing cooperative partners in the GBA for delivering support and services to Pi and TSSSU teams including Gungho Space in Foshan and SZRI in Shenzhen. To receive more support from GBA, we organised a field trip for TSSSU companies to Yantian District, Shenzhen on 21 May 2019 to explore policy support from its local government and potential collaboration with healthcare related companies there. We are currently exploring the possibility of a partnership network in the Yantian district with the local government.

Apart from the Yantian field trip, the Pi Centre organized an Entrepreneur Bootcamp in Zhuhai supported by Zhuhai Government during 13-14 June 2019 to enhance the understandings of CUHK students on GBA policies and provide entrepreneurial trainings to participants including students, Pi and TSSSU teams. A pitching session was arranged for Pi teams (Strive APP, Husky Project and Gabi) and TSSSU teams (Shape Driven and Bay Jay Ray) to present their business ideas to Zhuhai governors and investors with a view to exploring potential areas of collaboration.



Entrepreneur Bootcamp in Zhuhai

4.4. SZRI InnoHub

To expand the impact of CUHK research and KT activities in mainland China in general and the GBA in particular, InnoHub was set up at SZRI in 2018. Serving as an essential part of the University's innovation and entrepreneurship facility, InnoHub is a focal point for CUHK entrepreneurs seeking to test the mainland market. The space incubates startups by combining the industrial advantages of Shenzhen with CUHK's excellent research record, and



InnoHub in SZRI

by promoting in-depth cooperation between Shenzhen and Hong Kong in industrialisation, education, and academic research. A total of 27 startups presently inhabit the hub, serving a diverse range of fields such as biomedical engineering, AI and robotics, travel technology, education and culture.

5. Facilitating Knowledge Transfer and Commercialisation

5.1. Update of University Intellectual Property (IP) Policy

A task force including researchers and inventors from different Faculties has consolidated all the proposed changes to the new policy on intellectual property (“New IP Policy”). The changes cover a wide range of areas, including assigning copyright ownership of scholarly works to authors, allowing staff to use teaching materials for non-commercial teaching and research purpose, recognising the moral right of staff in copyrighted works, and releasing software under open source licence or for non-commercial use.

The New IP Policy aims to strike a balance between safeguarding the University’s interests in intellectual property rights and encouraging knowledge transfer activities, innovation and entrepreneurship.

The New IP Policy has received positive feedback from the management of the University. We are now putting it in place for consultation.

5.2. Efficient Management of IP and Research Contracts and Agreements

We have continued to protect our IPs in technological areas and territories of strategic importance. We filed 315 patents this year, granted 91 licenses to local and overseas companies, and received a total of HK\$53.7 million in licensing income.

To support our growth in IP protection, and our research collaboration both locally, in the Greater Bay Area and internationally, we have recently expanded our Legal and Contracts Team. This will enable us to deal with the increasing workload and complexity in legal and contracts issues. Furthermore, we will also strengthen our IP and Technology Licensing Team to promote IP protection and licensing activities among University researchers and to provide tools and training for the IP team to handle new IP domains such as blockchain, fintech, open source software and eLearning.

5.3. Strengthening Academic-Industry Collaboration / Reaching out to External Partners to Support Knowledge Transfer and Impact Development

We continue to encourage CUHK’s researchers to engage in productive academic-industry collaboration to foster successful translational development. During the report period we consolidated and enhanced our presence both locally, in Mainland China, and internationally. In particular, we showcased our innovative technologies, participated in related networking events, and took part in more than 60 one-on-one partnering meetings with high profile technology companies and investors.

5.3.1. Maximising the exposure of our innovations in Hong Kong

In line with the increasing support from the Hong Kong Government to promote and support the innovation and technology industry, CUHK continues to strive to position itself as the most innovative local University. University representatives have attended various local industrial conferences during the report period to showcase technologies, to network and to explore collaboration opportunities. These events included the Business of Intellectual Property Asia Forum, Hong Kong FinTech Week, Hong Kong Biotech Horizons, Healthtech O2O Summit, Smart Airport – Technovation Conference & Exhibition, KPMG Capital Markets – Life Sciences Forum and EmTech Hong Kong (2018). With the provision of our Professional Enhancement Fund (PEF), we have supported CUHK members to attend

professional trainings to further equip our researchers with essential knowledge in technology development. These included a three-day workshop on “Aseptic Processing for Sterile Products” of biopharmaceutical industry (six CUHK members attended), and a Hong Kong GMP (Good Manufacturing Practice) Seminar (four CUHK members attended).



Workshop on “Aseptic Processing for Sterile Products”

5.3.2. Activities to strengthen our collaboration with Mainland China

As new opportunities beckon in the Guangdong-Hong Kong-Macau Greater Bay Area and in many major cities in Mainland China, we continued to extend our presence in China. To this end, we have attended the Nanjing Science and Technology Innovation Industry Promotion Seminar in Hong Kong, and the National Training Course on Human Genetic Resources' Management held in Sichuan. We also received a delegation led by the Hebei Provincial Department of Science and Technology and the Shijiazhuang Municipal People's Government, as well as delegations from several prestigious pharmaceutical companies from Mainland China.

5.3.3. Our global vision at the forefront of world-class innovation

Looking ahead, we are determined to pursue our initiatives in Greater China and to realise our global vision to strive to be at the forefront of innovation in other parts of the world. Our Faculty Impact Coordinators, who are responsible for driving impact development in their respective faculties, travelled together with our teams in the ORKTS to San Diego in June to attend a workshop on training in Good Practices in Knowledge Transfer. During the trip we

visited the Johnson & Johnson Innovation JLABS, a startup biotech company focusing on dermatological therapeutics, and the Scripps Institute of Oceanography in San Diego. Earlier this year we also visited a life science venture capital firm in Singapore to discuss collaboration opportunities.



CUHK members in BIO International Convention (Philadelphia, USA)

Other CUHK delegates also attended various international industrial conferences (partly supported by our PEF). These included EmTech Asia Conference (Singapore), AUTM (Association of University Technology Managers) Annual Meeting (Texas, USA), The Road of Talents Workshop (Saint Etienne / Lyon, France), American Society of Clinical Oncology Annual Meeting (Chicago, USA), BIO International Convention (Philadelphia, USA), RARE Drug Development Symposium (Philadelphia, USA), and TechConnect World Innovation Conference & Expo (Boston, USA). The focus of these events ranged from Physical Science / Engineering to Biomedical Science, Clinical Research and Architecture.

In continuing our endeavors to strengthen collaboration with the industry, we have been continuously working with a top-tier multinational pharmaceutical company from the US. This year, we further assisted this company to establish a research and development network with CUHK scientists. At least eight research units of CUHK participated, and five of them held further private meetings with the company to discuss potential collaborations.



RARE Drug Development Symposium (Philadelphia, USA)

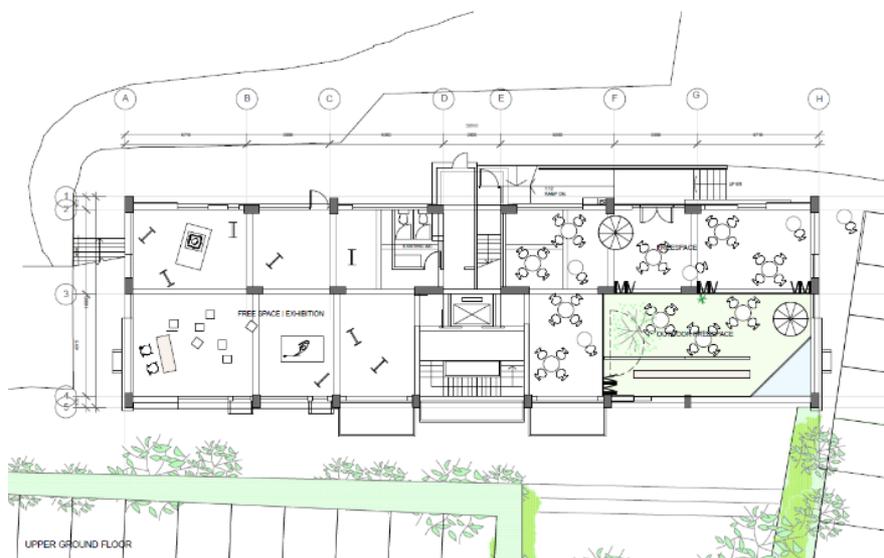
We also received a delegation from a public university in Southern Thailand, where a good exchange of experience in innovation and knowledge transfer between this region and Hong Kong was conducted.



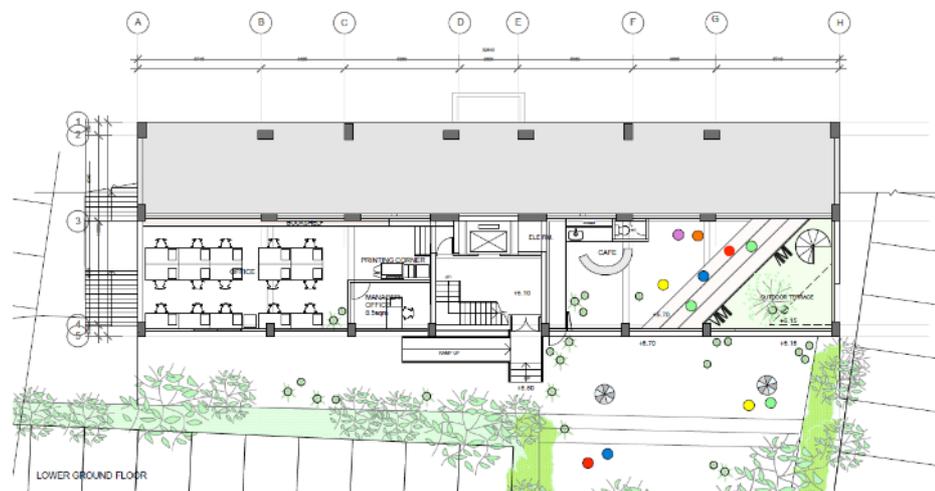
A delegation from a university in Southern Thailand received at CUHK

5.4. New Building for Entrepreneurship Ecosystem Development at CUHK

We have reached the final stage in converting and designing a standalone building, with an area of over 1,500 square meters, next to University MTR Station on CUHK's main campus as a central hub (InnoHub) to drive entrepreneurship development in CUHK. It is targeted to open in the first quarter of 2020. This building will enable concentration of entrepreneurship activities and supports, including the relocation of the Pi Centre, startup incubation, EPIN, and the running of relevant competitions and exhibitions. It will act as a focus for entrepreneurship development and facilitate relevant engagements, internal and external promotions. By creating a more central and vibrant entrepreneurial community on campus, we will be able to connect with our industry and community partners more closely to create more translational opportunities.



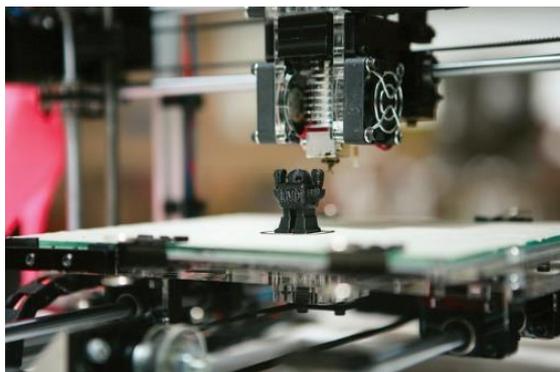
CUHK InnoHub design plan



6. Impact on Society

There exists a gap between research in universities and its commercialisation. In CUHK, we are committed to assist in the application of innovative technologies, solutions, services or products from academia to create a tangible social impact on the community.

6.1. Impact of Technology Licensing on Society



An efficient energy storage system is a crucial means for the full usage of intermittent renewable energy sources such as solar or wind energy. Redox flow batteries (RFBs) are one of the most promising technologies available for this purpose, given their design flexibility in decoupling energy and power. However, a broader application for these batteries has been limited by the low energy density and the use of

corrosive electrolytes associated with conventional technologies. A research team in the Faculty of Engineering's Department of Mechanical and Automation Engineering has developed a solution as one of the highest energy density aqueous flow batteries to date. The technology will allow reduced floor space of a system and numerous advantages for stationary or movable stations and transport. More importantly, the technology has the potential to be generalized to non-aqueous iodide-based batteries, thereby offering new opportunities to improve existing high-energy iodide-based energy storage systems. A license for the technology has been granted to a company based in China which intends to develop high efficiency car batteries and other energy storage systems once the technology has been validated.

A technology which can process photographs and videos to enhance their visual quality and experiences for all users developed by a group of researchers at our Department of Computer Science and Engineering has been recently licensed to a technology startup. The startup's core business is to develop binocular video tone mapping software, which can help people with color blindness (which presently affects 250 million individuals worldwide) to distinguish and perceive colors previously beyond their capability. With the licensed technology, the company team is currently fine-tuning the algorithm and will conduct extensive tests with the local community to improve the accuracy and efficiency of the software. Once optimized, the software can be adopted by many industries, including film-making, gaming, and display manufacturers.

6.2. Impact of Social Innovation on Society

6.2.1. Good Impact Assessment Institute: Measuring, managing and maximising social impact

Social enterprises and corporate social responsibility are among the many buzzwords in recent years, and many have enthusiastically dipped their toes in “doing good deeds”. However, merely feeling good is not enough. Companies and institutions are increasingly held accountable for ensuring that their targeted impacts are delivered effectively. Social Impact Assessment (SIA) as an independent evidence-providing tool not only facilitates reporting to stakeholders the tangible benefits achieved, but also helps to



Team of Good Impact Assessment Institute led by Prof Wong Hung (middle)

reflect on how their products or services could be improved. Nevertheless, the field of SIA is relatively underdeveloped in Hong Kong. There are limited practitioners experienced enough to develop assessment framework for corporates, government bodies and even small and medium enterprises (SMEs) that wish to pursue social objectives and promote social change.

With the support of S-KPF, Prof WONG Hung of the Department of Social Work set up Good Impact Assessment Institute Limited (GIA) in 2018 in response to such need. The company offers high-quality research services, including face-to-face surveys, focus group discussions and SIA. It supports social enterprises and NGOs, which typically lack the expertise to systematically evaluate their impact, with affordable services that encourage their continuous development. Consultancy services are also available for governmental bodies and corporate clients for programme and policy evaluation.

GIA has been positively acclaimed since its establishment, and now serves a range of clients from startups to public organisations. We have received feedback that the service inspired new ideas for better plans and programmes. The team is formalising SIA as a universal language which builds social capital and trustworthy relations in the working process, and of course, objectively assesses whether resources are appropriately allocated to produce the impact as promised.

6.2.2. ARIA: Peeping through the window to the soul, and sickness

Cardiovascular diseases, diabetes and stroke are only three of the many public health concerns that threaten our ageing population. The world is calling for effective health screening and monitoring to provide timely information concerning our health risks so that

we can make the necessary lifestyle changes for better health. Nevertheless, current screening tools, such as drawing blood samples or collecting body fluids, may be cumbersome and time-consuming. Some of these tools are expensive, while others require specialised personnel that cannot easily be found.



Optical screening services organized by Prof Benny Zee's team

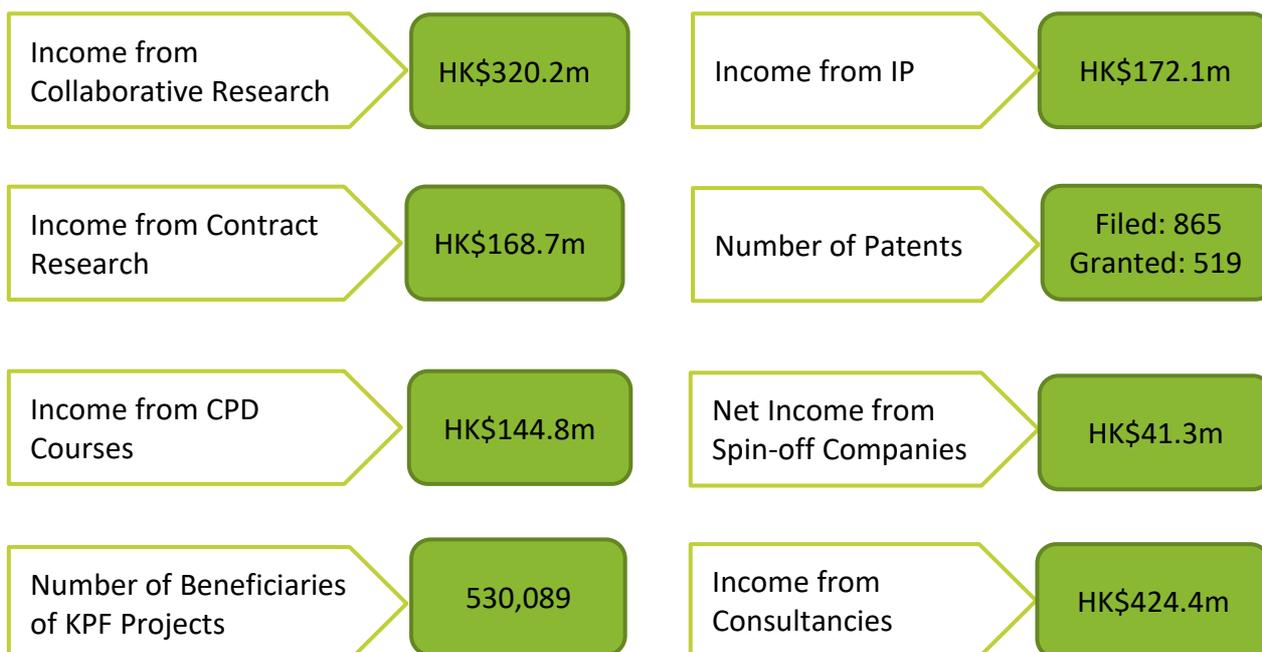
Prof ZEE Chung Ying Benny of The Jockey Club School of Public Health and Primary Care has developed a risk assessment tool – automatic retinal imaging analysis (ARIA) – with an algorithm that does the job of the expert eye. Fully automatic, non-invasive and simple to use, the tool generates risk estimates on stroke and other blood vessel related diseases by taking retinal images with a fundus camera. Analysis against their existing

clinical database could be done in two to three minutes.

Initiated by TSSSU in 2015, Prof ZEE's startup Health View Bioanalytic Limited aims at commercialising the technology in the optics market. His community outreach efforts were supported by KPF in the past year. The team offered free-of-charge screening services with the ARIA tool as well as health talks in community and elderly centres, serving over 3,000 individuals. Nearly all participants agreed that they were now more aware of their health risks and were consequently more willing to take concrete action to prevent chronic diseases, such as making changes in their diet and lifestyle. The project demonstrates how technology and social innovation can work together.

7. 2016-19 Triennium Review

This year concludes the third triennium of the Recurrent Funding for Knowledge Transfer. Our Initial Statement for 2016-19 echoes the CUHK Strategic Plan 2016-2020 to “achieve enduring excellence in teaching, research, and knowledge transfer”. Building upon our endeavours in the first six years, we witnessed an evolution of CUHK KT initiatives in driving the translation of staff and students’ “research and knowledge into sustainable social impact”. The following highlights key areas of our performance in this period.



Cumulative Statistics of KT Performance for 2016 – 2019

We attached paramount importance to education and training, grooming entrepreneurial mindsets and laying the foundation for student-initiated ventures. Since its inception in 2017, EPIN has expanded not only its curriculum, but also the range of its out-of-classroom activities, which now include a workshop series, bootcamps, overseas study tours and a newly launched internship programme. We are excited to welcome our first batch of EPIN graduates this year, and feedback has been exceptional regarding their interdisciplinary exposure and hands-on learning experience.

CUHK has spared no efforts to consolidate and develop its spectrum of KT services. We are happy to report that development exceeding expectations has been made. On the organisational level, ORKTS has settled into the strategic position of overseeing university-wide KT programmes. Its Entrepreneurship and Social Innovation (EASI) Team, set up in 2016, expanded its capacity from funding scheme administration to active outreach, partner engagement, business development and publicity. Staff members of the Pi Centre were

officially incorporated within ORKTS as the Entrepreneurship (Practice) and Venture Acceleration Team, and are working hand in hand with EASI to support staff and students with incubation services. As a commitment to promoting translational research, the University's New IP Policy has been proposed and is on track to being formalised.



CUHK has been ranked the most innovative university in Hong Kong by "Reuters Top 75: Asia's Most Innovative Universities" for the fourth consecutive year

Leveraging our comprehensive range of disciplines, we have emerged as one of the leading forces in driving social innovation. Our pioneering S-KPF scheme demonstrated how our research efforts could have a sustained impact on the community, while our solid track record realised a unique partnership with the SIE Fund, enabling more KPF projects that are reinforced with community connections and publicity. Efforts have been equally focused on capitalising our core biomedical and AI competence.

Hong Kong Institute of Biotechnology strengthened its status in furthering translational development in Traditional Chinese Medicine. We also celebrated remarkable achievements in the licensing of medicinal technologies and raised funds to introduce promising start-ups in the fields of biotechnology, AI and robotics.

This triennium further features concerted efforts across internal units that extended CUHK's presence in and beyond Asia. Collaboration among ORKTS, the Office of Academic Links (China) and SZRI bore fruit in 2018, when SZRI InnoHub took shape as our basecamp for KT and entrepreneurial activities in mainland China. ORKTS and the Centre for Innovation and Technology (CINTEC) have been working out an overall plan for technology transfer events, paving the way for our scientific and engineering innovations to make a global impact.



Prof Li Zheng from Department of Surgery introduces his team's soft robotic hand at the 47th International Exhibition of Inventions of Geneva

We also took a proactive stance in reaching out to local, regional and overseas governments and investors, lining up appropriate resources to accelerate the business ventures of CUHK members towards maturity. Our staff members also paid visits around the globe to absorb good practices from our counterparts.

8. Forward Looking



With the support of the KT fund from the UGC, we have made significant progress in our knowledge transfer activities. These were achieved through continuous improvements and expansion of our KT services which facilitate increasing translational research collaboration with industry and community, and the management of IP and technology licensing services is effective for technology commercialization. The dedicated Technology Liaison Team helped to bring CUHK's research achievements to market with the University's industrial partners. The team will be repositioned as the Knowledge Liaison Team in the coming year, but will continue building a translational development platform not only in biomedicine and pharmaceuticals, but also in engineering and interdisciplinary sociocultural studies.

We are delighted to report that our standalone building for the Innovation Hub in CUHK's main campus will be launched in 2020. Together with our diverse funding and support schemes, we trust this InnoHub will be an iconic venue to showcase CUHK technology startups and social innovation, as well as to engage external industry and community partners to establish translational research for the benefits of economic prosperity and society.

As the next triennium commences, we look forward to nurturing in CUHK an ecosystem that facilitates the cross-over of technology and social innovation, enhancing exposure of its research prominence, as well as taking collaborations with our partners to the next level. The most innovative University in the territory will continue to play to the fullest its role in supporting Hong Kong's continuing social development.

Professor Fanny CHEUNG
Pro-Vice-Chancellor
31 July 2019

Updates on Table 4.1 of Initial Statement

(1 July 2018 – 30 June 2019)

UGC Performance Indicators		<i>Last year</i> 2017-18	<i>Current year</i> 2018-19
1	Number of patents filed in the year (with breakdown [Annex 4] by country and type)	327	315
2	Number of patents granted in the year (with breakdown [Annex 5] by country and type)	185	202
3	Number of licences granted (with breakdown [Annex 6] by type)	78	91
4	Income (on cash basis) generated from intellectual property rights	\$49,584,467	\$53,656,423
5	Expenditure involved in generating income from intellectual property rights	\$7,816,468	\$7,500,702
6	Number of economically active spin-off companies (with breakdown [Annex 11] by type)	13	10
7	Net income generated (or net loss arising) from spin-off companies	\$15,585,610 (b)	\$15,751,326 (a)(b)
8	Number of collaborative research projects, and income thereby generated	216 cases \$100,066,013	237 cases \$135,293,113 (a)
9	Number of contract research projects (other than those included in “collaborative research projects” above), and income thereby generated	66 cases \$81,965,174	69 cases \$57,167,163 (a)
10	Number of consultancies, and income thereby generated	363 cases \$137,975,630	384 cases \$168,019,850 (a)
Subtotal Income Item (4)+(7)+(8)+(9)+(10)		\$385,176,894	\$429,887,875
11	Number of equipment and facilities service agreements, and income thereby generated	Nil	Nil
12	Income received from Continuing Professional Development (CPD) courses	\$50,109,629 (c)	\$54,146,760 (a)(c)
Total Income Item (4)+(7)+(8)+(9)+(10)+(11)+(12)		\$435,286,523	\$484,034,635

13	Number of student contact hours in short courses or e-learning programmes specially tailored to meet business or CPD needs	1,542,399* hours (2,292* courses with 43,652* students)	1,027,125 hours (1,968 courses with 85,975 students)
14	Number of public lectures / symposiums / exhibitions and speeches to a community audience	835	1,150
15	Number of performances and exhibitions of creative works by staff or students	92	74
16	Number of staff engaged as members of external advisory bodies including professional, industry, government, statutory or non-statutory bodies	456	1,753

Footnotes

- (a) Subject to year-end adjustments.
- (b) Only wholly-owned subsidiaries or controlling companies are included.
- (c) Including income from non-award bearing programmes offered by the School of Continuing and Professional Studies and the Asia-Pacific Institute of Business.

* Updated figure

Updates on Table 4.2 of Initial Statement

(1 July 2018 – 30 June 2019)

Other Performance Indicators		<i>Last year</i> 2017-18	<i>Current year</i> 2018-19
1	Knowledge Transfer Project Fund (KPF): Projects supported by the UGC KT Fund	2017-18: 7 Total: 164 Beneficiaries: 220,743 for 2017-18	2018-19: 9 Total: 173 Beneficiaries: 61,885 for 2018-19
2	Sustainable Knowledge Transfer Project Fund (S-KPF)	2	3
3	Technology and Business Development Fund (TBF)	8	6
4	Number of other KT projects and activities not funded by the UGC KT Fund	390 Beneficiaries: 86,449	539 Beneficiaries: 212,831
5	Number of websites on KT activities at Faculties / Departments / Centres	7	5
6	Number of publicity or media features related to KT, including print, online and electronic media	2,669	2,546

Knowledge Transfer Project Fund (KPF) Project List

Project completed (details in Annex 8.1)

1	KPF16ICF14	Mindfulness For Children With Attention Deficit Hyperactivity Disorder (ADHD) And Their Parents: An Education And Practice Programme In The Community
2	KPF17ICF01	A Real-Time Chinese Sentence Learning Platform For Ethnic Minority Students
3	KPF17ICF06	Development Of Chronic Disease Self-Management Program To Community-Dwelling People With Mild Neurocognitive Disorder
4	KPF17ICF07	Robot Drama Therapy For Promoting Social Competence Of Children With Autism Spectrum Disorders
5	KPF17ICF10	Pursuing Meaningful Goals As Intervention To Reduce Loneliness Among Hong Kong Elders
6	KPF17ICF11	UNEMIA- Business For Social Cohesion And Understanding
7	KPF17ICF18	Hong Kong Sign Language Fundamental Medical Knowledge Databank
8	KPF17ICF22	The CUHK Eye SMART (Screening Of Macular And Retinal Diseases For Knowledge Transfer) Campaign
9	KPF17ICF25	Development Of A Culturally Sensitive Website To Promote Healthy Lifestyles And The Prevention Of Chronic Illness Among South Asians In Hong Kong
10	KPF17ICF28	What Does Sexual Orientation And Gender Identity Equality Mean For Policy Makers, Service Providers And Legal And Business Communities? Using Diverse Ways To Disseminate Research Findings To Stakeholders And Creating An Interactive Database And A Knowledge Hub On LGBT Issues In Hong Kong
11	KPF17ICF30	Supporting Family Carers Of People Living With Dementia With An Interactive Mobile Application
12	KPF18HLF05	BASIC (Broad Antimicrobial-Resistance Service-Learning & Intervention In The Community)
13	KPF18HLF29	Innovative Healthy Lifestyle Promotion Program With ARIA

Project in progress

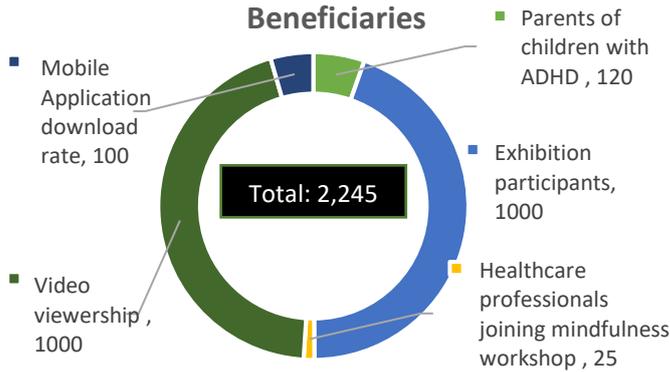
1	KPF18SCF01	Promote Psychological And Behavioural Well-Beings Of Preschool Children With Autism Spectrum Disorders By Implementing A TCM Paediatric Massage Program
2	KPF18CHF04	Realizing Children's Potential In Language Development: Input And Intervention
3	KPF18CHF10	Intercultural Education In The Neighborhood: Sustainable Community Innovation And Women's Empowerment From The Ground Up
4	KPF18HLF12	3D-Printed Soft Robotic Hand For Stroke Rehabilitation And Elderly Healthcare
5	KPF18HLF17	Online Parenting Programme For Families Of Children Born Preterm
6	KPF18HLF20	Young Onset Diabetes Care Community Campaign
7	KPF18HLF22	An Evidence-Based Knowledge Transfer Program Promoting HPV Vaccination Among Men Who Have Sex With Men In Hong Kong
8	KPF18HLF26	Speech Therapy Services For Children With Motor Speech Disorders

9	KPF18HLF27	An Oral Exercise Training Software For Elders In Hong Kong
10	KPF18HLF28	Enhance Frontline Social Workers And Caregivers' Knowledge In Dementia Screening
11	KPF18SCF30	Train The Trainers: Minority Girls And Gender Justice
12	KPF18HLF34	Improving Access To Psychological Interventions: Developing And Disseminating An E- Mental Health Portal In Hong Kong
13	KPF19CHF05	Telling Stories: A Digital Humanities Approach To Documenting Linguistic Diversity In Hong Kong
14	KPF19SCF07	Born To See: Living The Life Of A Deaf Person
15	KPF19HLF09	Early Identification Of Hearing Loss In Aging Community Through Hearing Screening App
16	KPF19SCF12	Promotion Of A Strength-Based Approach In Understanding And Helping Children With Attention Deficit Hyperactivity Disorders (ADHD)
17	KPF19HLF14	Prevention Of Imminent Fragility Fractures: A Call To Action In Hong Kong
18	KPF19HLF15	Happy Muscle Happy Knees
19	KPF19HLF16	Implementing A Chargeable Full Cost-Recovery HIV Self-Testing Service Model For Men Who Have Sex With Men In Hong Kong
20	KPF19SCF17	Evaluating The Effectiveness Of A Psychoeducation Programme For Asylum Seekers And Refugees In Hong Kong
21	KPF19CHF20	Using Virtual Reality (VR) Technology To Enhance Students' Understanding Of Colonial Architecture In Hong Kong
22	KPF19OTF21	STEM Education In Physics For Secondary Schools
23	KPF19HLF23	Pen Holding Adjustment And Character Recognition With 3D Motion Sensing E-Pen
24	KPF19SEF25	"Our Everyday. Our Borders." A Study Of Universal Accessibility In Our Built Environment In Hong Kong
25	KPF19HLF26	Ai Based Colour Blindness Correction App
26	KPF19HLF27	A Concept Musical Drama On End-Of-Life Care And Death Attitudes In Hong Kong
27	KPF19HLF32	Virtual Reality Simulation Of Real-World Activities To Identify Glaucoma Patients With Visual Disability For Visual Rehabilitation And Patient Education
28	KPF19HLF33	Smartphone-Based Culturally Adapted Lifestyle Medicine For Improving Mental Health

Knowledge Transfer Project Fund (KPF) Projects completed

KPF16ICF14

Mindfulness for Children with Attention Deficit Hyperactivity Disorder (ADHD) and Their Parents: An Education and Practice Programme in the Community
Prof WONG Yeung Shan, Samuel (The Jockey Club School of Public Health and Primary Care)



PARTNERS
3 Heep Hong Society centers

TRAINING
1 training workshop organised.



SEMINARS
3 parent seminars held, 156 attendees

MOBILE APP
1 Mobile Application created, "MindYourMind"

VIDEOS
2 videos created to raise awareness on mindfulness and ADHD
<https://www.youtube.com/watch?v=AFPCMRtcmCw&t=83s>
https://www.youtube.com/watch?v=YAVK_v33qxw

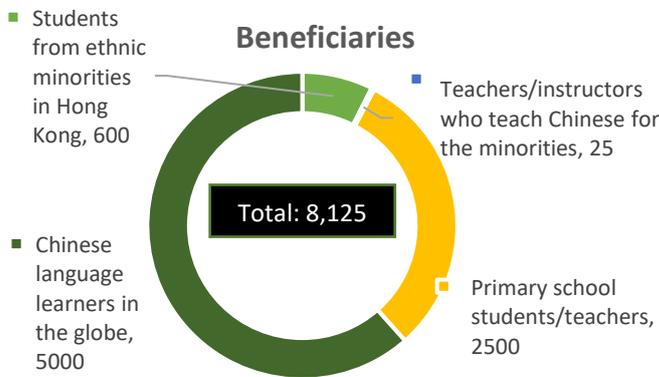
ASSESSMENT
37-53% parents rated 5 (extremely satisfied) out of 5, and the average satisfaction scores were from 4.2 to 4.5 out of 5.



KPF17ICF01

A Real-time Chinese Sentence Learning Platform for Ethnic Minority Students (SIE funded)

Prof CHAN Wai Kwong, Samuel (Department of Decision Sciences and Managerial Economics)



PARTNERS

3 social service units
4 primary schools

LEARNING PLATFORM

<http://hm-learn.baf.cuhk.edu.hk/>

Providing more than 12,000 most common Chinese words and Chinese-to-English word-to-word translations.

WORKSHOPS

350 attended

VIDEOS

4 demo videos to explain the basic functionality of the learning site.



INTERVIEWS

2 interviews conducted.

ASSESSMENT

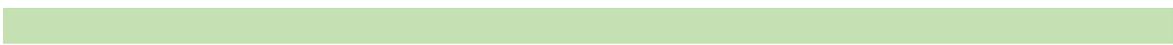
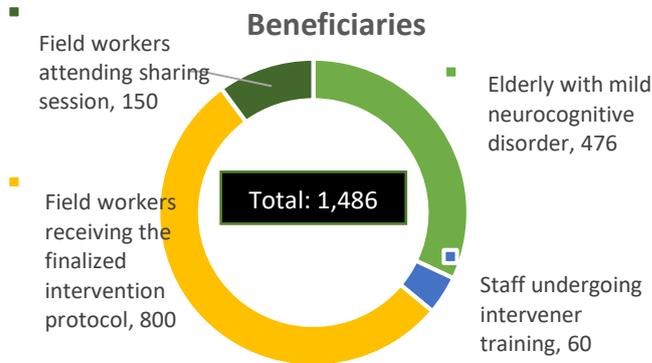
37-53% parents rated 5 (extremely satisfied) out of 5, and the average satisfaction scores were from 4.2 to 4.5 out of 5.



KPF17ICF06

Development of Chronic Disease Self-management Program to Community-dwelling People with Mild Neurocognitive Disorder (SIE funded)

Prof KWOK Chi Yui, Timothy (Department of Medicine and Therapeutics)



PARTNERS

Jockey Club Centre for Positive Ageing

IMPACT

Participants from 13 centres had improved cognitive functioning, mental wellbeing, and self-perceived social support after intervention.



INTERVENTION

A chronic disease self-management programme for local community-dwelling people with mild neurocognitive disorder



BOOKLETS

800 social welfare units in Hong Kong received a booklet introducing the programme

FEEDBACK

"A action plan motivates me to exercise and make it a habit."

ASSESSMENT

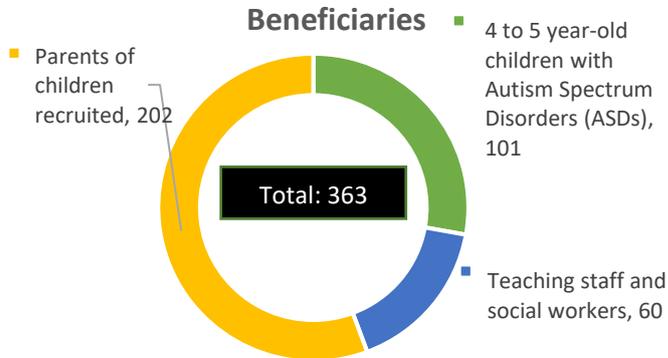
Satisfaction rate from participating social service staff is 72 %. Average attendance rate was 85%, showing that the elderly participants welcomed the workshops.



KPF17ICF07

Robot Drama Therapy for Promoting Social Competence of Children with Autism Spectrum Disorders (SIE funded)

Prof SO Wing Chee, Catherine (Department of Education Psychology)



PARTNERS

Heep Hong Society, SAHK, HK Christian Service, HK Sheng Kung Hui Welfare Council Limited, RABI programme housed at CUHK

IMPACT

Targeted children received significant improvements in various narrative measures, including narrative length, syntactic complexity, narrative structure and cognitive inferences.

PROGRAMME

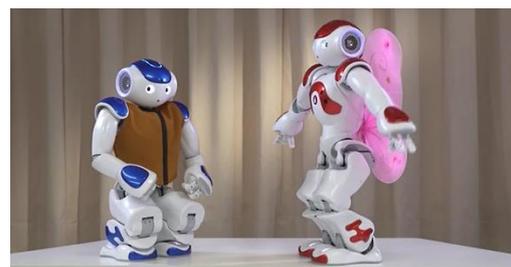
Drama therapy was used to teach targeted children different aspects of social skills using four different stories.

PUBLICITY

Covered in many major media (newspaper, radio, TV) for more than 30 times.

ASSESSMENT

Parents rated effectiveness of the programme 4.1 out of 5.



KPF17ICF10

Pursuing Meaningful Goals as Intervention to Reduce Loneliness among Hong Kong Elders

Prof Fung Hoi Lam Helene (Department of Psychology)



PARTNERS

3 Neighbourhood Elderly Centres,
The Christian & Missionary Alliance Church
Union of Hong Kong (Taipo),
Mutual aid committee of the Fu Shin Estate
(Taipo)

VIDEOS

1 video is created to address the elderly loneliness problem and recommended solutions.

<http://www.ioa.cuhk.edu.hk/images/content/others/research/1018ioavid.mp4>

PROGRAMME

500 older adults were screened and 175 lonely older adults were invited to join the 11-week program.

ASSESSMENT

More than half of the beneficiaries showed reduced loneliness and increased meaning in life.

WORKSHOPS

1 workshop provided to working professionals in elderly services and students studying relevant subjects.

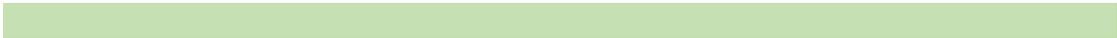
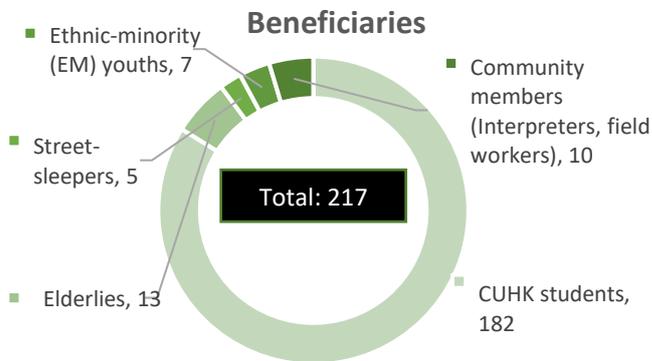
FEEDBACK

"The visit to Sam Mun Tsai reminded me of songs sang in childhood."



KPF17ICF11

**UNEMIA- Business for Social Cohesion and Understanding
Prof WONG Hung (Department of Social Work)**



PARTNERS

Sham Shui Po District Council,
2 Neighbourhood Elderly Centers,
5 NGOs serving street-sleepers,
8 NGOs serving EM youths,
9 Secondary schools with EM students)

TRAINING

3 sessions of interviewer training were held.
Over 300 questionnaires were conducted by trained interviewers.

SURVEYS

Completed 6 surveys, including life of low income families, wet market food recycling procedures, elderly asset mapping, sustainability study and ethnic cultural citizenship.

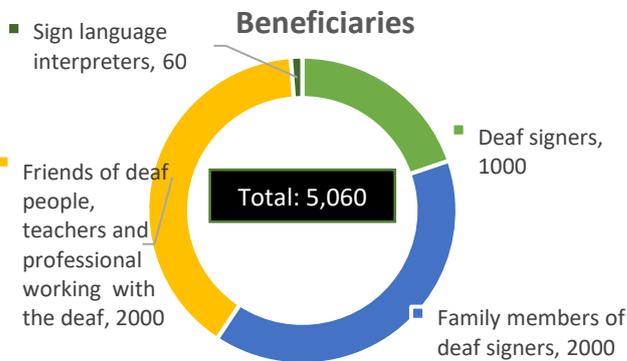
FEEDBACK

“Acceptance by others is one of the vital elements to live happily as a citizen in the society.”



KPF17ICF18

**Hong Kong Sign Language Fundamental Medical Knowledge Databank (SIE funded)
Prof SZE Yim Binh, Felix (Department of Linguistics and Modern Language)**



PARTNERS

13 Deaf organizations in Hong Kong,
4 schools with deaf signers

WORKSHOPS

132 attended 2 sessions of promotional workshop, more workshops will be held.

ONLINE DATA BANK

Video recording of 100 basic medical concepts explaining in sign language, 504 visits
http://cslds.org/medical_databank/index.php

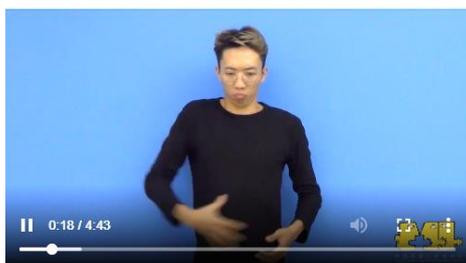
FEEDBACK

Deaf users were consulted to improve the content and functions. The webpage was designed by a deaf colleague in order to cater the need of deaf users.



PUBLICITY

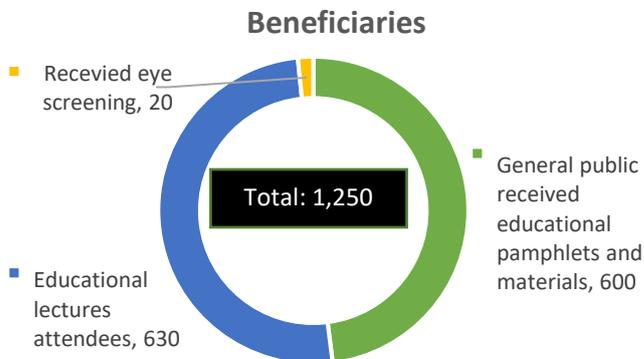
50 Posters, 2000 leaflets and 4000 folders delivered to different deaf associations, hospitals and clinics in HK



KPF17ICF22

The CUHK Eye SMART (Screening of Macular and Retinal diseases for knowledge Transfer) Campaign

Prof NG Siu Chun, Danny (Department of Ophthalmology and Visual Sciences)



PARTNERS

2 elderly centres,
3 local universities,
Hang Lung Properties Ltd,
HK Institute of Human Resource Management,
HK Former Senior Civil Servants Association Ltd,
Schenker International (HK) Ltd

VIDEOS

5 videos about eye related diseases and treatment produced.

https://www.youtube.com/channel/UCDoRQgiJpf_cnJ0rWA1eDkw/videos

LECTURES

630 general public attend educational lectures with nine partners.

WEB APPLICATION

"Progressive Web Application (or PWA) " is created for users to seek for easy-to-understand eye health information.

PAMPHLETS

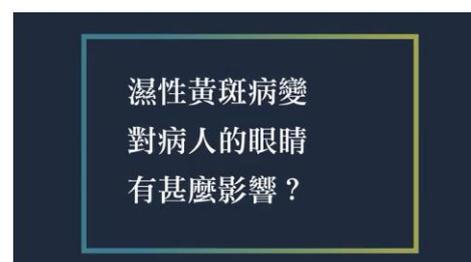
600 pamphlets were distributed.

ARTICLES

Over 100 articles of expert content related to both common and rare eye conditions were uploaded.



中大吳光毅醫生分析濕性老年黃斑病變治療方案



KPF17ICF25

Development of a Culturally Sensitive Website to Promote Healthy Lifestyles and the Prevention of Chronic Illness among South Asians in Hong Kong

Prof SO Kwok Wei, Winnie (The Nethersole School of Nursing)



PARTNERS

- 11 Local NGOs,
- 3 Nepali organizations,
- 2 Religious organizations,
- 1 Pakistani organization,
- 2 Other organizations

WEBSITE

“Say No to Chronic Diseases”
<http://minorityhealth.nur.cuhk.edu.hk/>

LECTURES

630 general public attended educational lectures with nine partners.

PROMOTION

Promotional cards, posters and leaflets in 4 languages (English, Nepali, Urdu and Punjabi)

SOCIAL MEDIA

<https://www.facebook.com/Say-NO-To-Chronic-Diseases-315108882351738/>

<https://www.instagram.com/saynotochronicdiseases/>



Culturally health sensitive website in 4 languages: English, Nepali, Urdu, Punjabi

Say “No” to Chronic Diseases

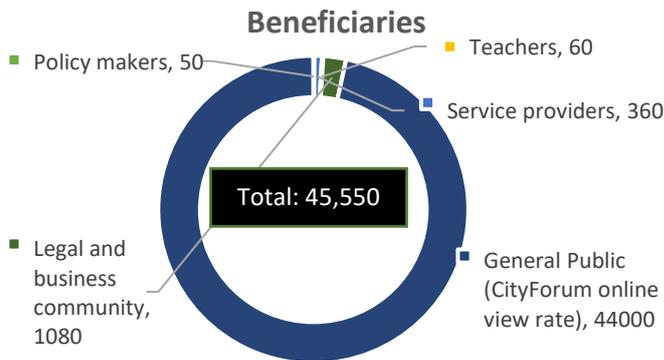
Include detail about Common Chronic Diseases:

- Cancer
- Diabetes Mellitus
- Hypertension
- Stroke
- Heart Attack
- Osteoarthritis

Diagrams include: Atherosclerosis Stage, Normal Functions, Endothelial Dysfunction, Plaque Formation, Plaque Rupture Thrombosis, Stomach, Heart, Large intestine (Colon), and a diagram of the human body with various organs highlighted.

KPF17ICF28

What Does Sexual Orientation and Gender Identity Equality Mean for Policy Makers, Service Providers and Legal and Business Communities? Using Diverse Ways to Disseminate Research Findings to Stakeholders and Creating an Interactive Database and a Knowledge Hub on LGBT Issues in Hong Kong
Prof SUEN Yiu Tung (Gender Studies Programme)



PARTNERS

50 NGOs,
20 corporates

TRAINING

More than a dozen talks and trainings were given in different sectors, on the topic of the inclusion of gender and sexual minorities in Asia.

WEBSITE

“The Sexualities Research Programme”

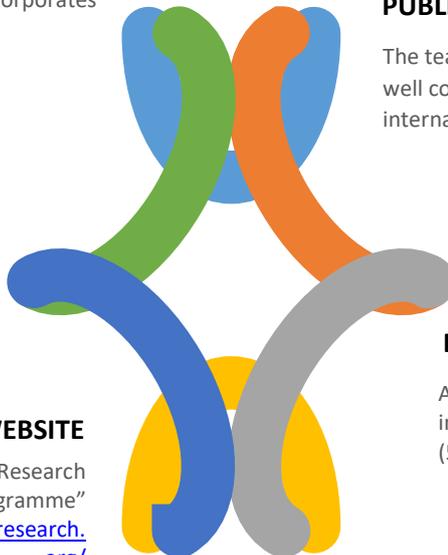
<https://www.sexualitiesresearch.org/>

PUBLICITY

The team’s research has been well covered in both international and local media.

ENGAGEMENT

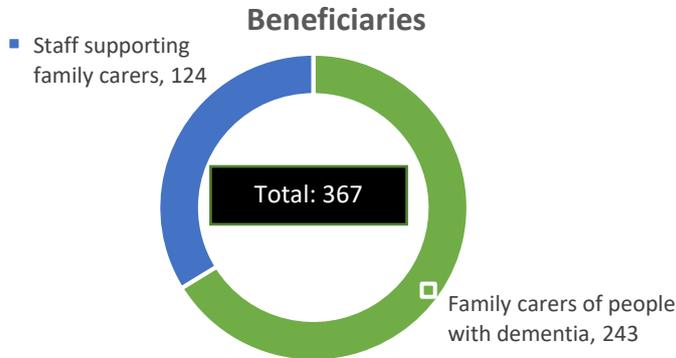
An relevant presentation was given in Legislative Council panel meetings (5 Feb 2018).



KPF17ICF30

Supporting Family Carers of People Living with Dementia with an Interactive Mobile Application

Prof CHAN Yue Lai (The Nethersole School of Nursing)



PARTNERS

Jockey Club Centre for Positive Ageing,
Tai Po Dementia Care Link,
Salvation ArmySchenker International (HK) Ltd

INTERVENTION

The mean scores of CES-D was significantly reduced , from 9.9 to 8.8 three months after the intervention (p=0.037), meaning that the level of depressive symptoms among family carers have been alleviated.

VIDEOS

8 videos on how to take care people with dementia are produced.

WEBSITE

<http://www.nur.cuhk.edu.hk/cgv/>
The website is now included as one of the resources reference by Social Welfare Department.

RECOGNITION

The project team has been selected by the Food and Health Bureau to provide staff training for the regularisation Dementia Community Support Scheme (DCSS) .

PUBLICITY

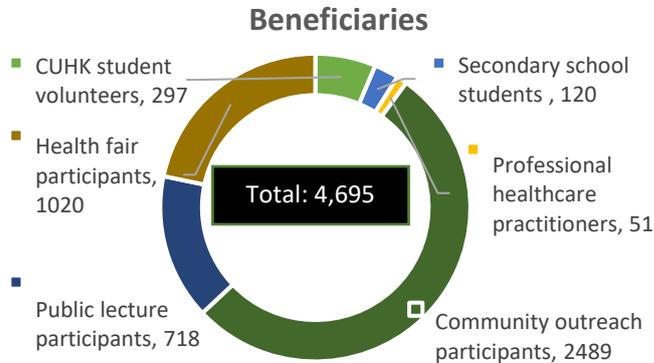
This project has been introduced in a local newspaper column (Hong Kong Economic Journal).



KPF18HLF05

BASIC (Broad Antimicrobial-resistance Service-learning and Intervention in the Community)

Prof LEE Wing Yan, Vivian (School of Pharmacy)



PARTNERS

7 secondary schools,
52 district elderly centres,
8 Others

RESIDUAL DRUGS

103 types , 40kg of drugs collected

PROGRAMME

48 community outreach services,
16 public lectures,
2 health fairs

TRAINING

5 training workshops for
secondary school students,
4 sessions for CUHK students

WEBSITE

「針藥」諮詢系統

<http://www.ampoule.org.hk>



VIDEOS

Antimicrobial resistance (AMR)

<https://youtu.be/CCHGbxv4Uro>

Hypertension

<https://youtu.be/FIukQbbHWYM>

Diabetes

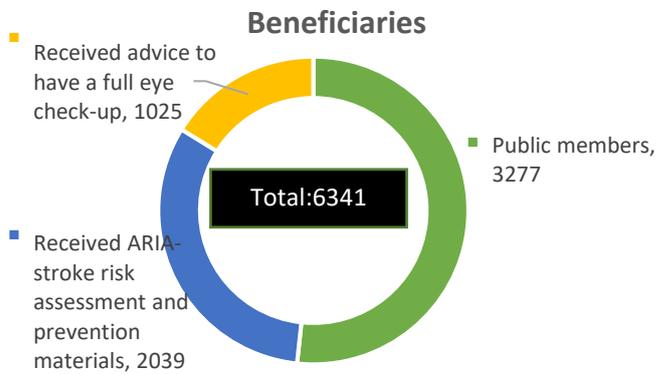
<https://youtu.be/hBEIIP1sgxQ>



KPF18HLF29

Innovative Healthy Lifestyle Promotion Program with ARIA

Prof ZEE Chung Ying, Benny (The Jockey Club School of Public Health and Primary Care)



PARTNERS

35 community/elderly centres,
Hong Kong Professional, Teachers' Union,
2 primary schools



PROGRAMME

Providing real time ARIA-stroke risk assessments and health talks



WEBSITE

"Windows of Health 健康之窗"
http://www2.ccrb.cuhk.edu.hk/web/?page_id=2193

SURVEY

Out of 295 valid responses, 87% stated that it is good to know the stroke risk. 98% claimed with increased understanding; 97% would consider adopting a healthier lifestyle.

PUBLICITY

6 exhibitions (with real time demonstration for free)



Sustainable Knowledge Transfer Fund (S-KPF) Social Enterprise List

S-KPF graduates		
1	SKPF18SSC01	Mars Media Academy Limited
2	SKPF18SSC02	Institute for User Participation Limited
S-KPF social enterprises		
1	SKPF19SSC01	Cayan Education Design Limited
2	SKPF19SSC04	Storytaler Hong Kong Co Limited
3	SKPF19MED07	DeepHealth Limited

Social enterprises newly funded (2018-19)

SKPF19SSC01 – Cayan Educational Design Limited

Prof Catherine Alexandra MCBRIDE (Department of Psychology)

Cayan Educational Design Limited aims to promote bilingual learning in a fun, relaxed and creative way – Bumper Cards. This is based on Prof MCBRIDE's 15 years of research which proved compounding skill (i.e. the ability in forming compound words) to be fundamental in learning to read and developing vocabulary in Chinese and English. Each card has a Chinese character or English word; players group together two or more cards each time to form actual compound words, or non-existent words for which they can come up with an explanation. The card game would be introduced to schools, learning centres and NGOs as an affordable alternative in early childhood education.

This interactive language learning via a fun and economical game is especially for disadvantaged children. Children should not be afraid of mistakes when playing Bumper Cards. The peculiar vocabulary they come up with is a showcase of their creativity and imagination – valuable qualities that are hard to come by via conventional education.

SKPF19SSC04 – StoryTaler Hong Kong Co Limited

Prof MAK Wing Sze Winnie (Department of Psychology)

Prompted into action by the recurrent youth suicide incidents, Prof Winnie MAK formed the social action group StoryTaler in 2015, telling mental illness stories and share educational articles on social media platforms with a fresh and clean format. StoryTaler stands out among mental health awareness groups with its strong research basis, and the spirit of co-production among its members – regardless of your walk of life, you can freely write and even create graphic content to share your lived experiences, without having to worry being discriminated. The anti-stigma campaigns, well-being courses and storytelling workshops, celebrate diversity while spreading the power of compassionate listening.

StoryTaler has now ripen into a social enterprise to provide systematic training and community events, gradually building a natural support network where all of us can be each other's supporter, the need for professional intervention is minimal.

Prof TSOI Kam Fai Kelvin (The Jockey Club School of Public Health and Primary Care)

Use of the digital health technology and big data, DeepHealth has developed their first software solution – a digital screening platform that identifies several symptoms for dementia, including memory, orientation, attention, and calculation as well as comprehension and abstraction. Users need only to answer a few questions or draw something on their mobile devices, and the whole process will be real-time captured for further analysis, completely free of supervision from healthcare professionals. The platform then matches users with non-pharmacological interventions and activities according to their assessment results. The team has also put together an app for blood pressure data recording and analysis.

Riding on the advancement of smartphones and wearable gadgets, DeepHealth is empowering people to make sense of their digital health data, while taking proactive actions and making lifestyle changes in maintaining their health. DeepHealth is also transforming the traditional disease curing model into a proactive prevention approach in promoting public health.

Knowledge Transfer Seminar Series

Number of seminars participants
in 2018-19



10 July 2018

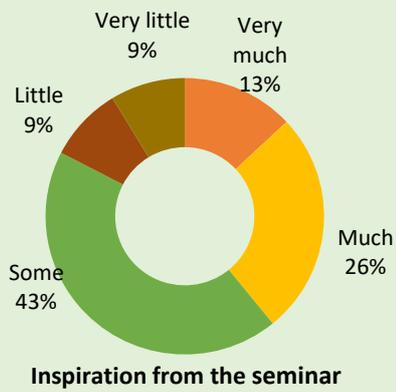
Knowledge Transfer Seminar Series: The Entrepreneurial Scientist

Participants

29

Dr Philip MENDES

Participant feedback: Have a better understanding of how research is connected to entrepreneurship.



1 August 2018

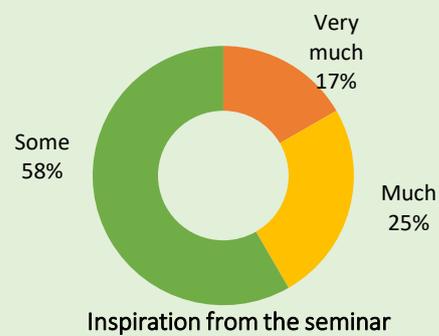
Knowledge Transfer Seminar Series: Navigating Intellectual Property in the Context of Blockchain, Artificial Intelligence and 3D-Printing

Participants

23

Dr Albert Wai-Kit CHAN, Mr Al KWOK, Prof Angela DALY

Participant feedback: The legal issues of 3D-printing are useful.



8 October 2018

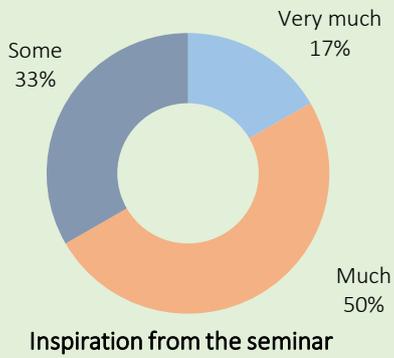
Technology Start-up Support Scheme for Universities (TSSSU) Information Session

Participants

57

Mr Jonathan CHEE, Mr Perkins HO

Participant feedback: Pitching tips are very useful.



7 November 2018

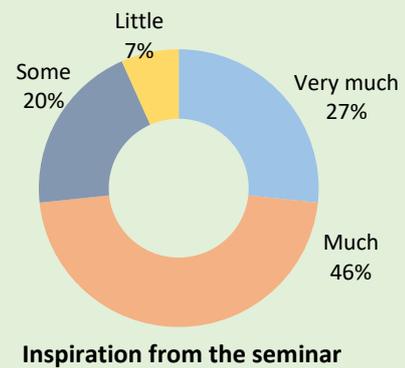
Sustainable Knowledge Project Fund (S-KPF) Information Session

Participants

16

Mr Perkins HO, Prof KWAN Hoi Shan, Ms Beatrice HO, Prof Elsie TSUI and Prof WONG Hung

Participant feedback: The nature of SKPF and experience sharing is very helpful.



9 November 2018

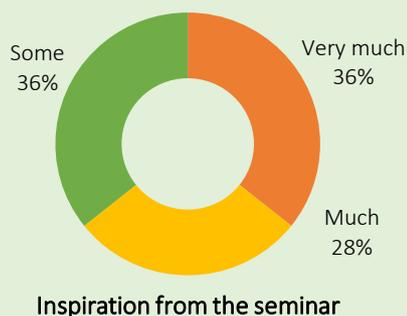
Knowledge Transfer Seminar Series: Is Your Invention Inventive? –What Is Obvious Is Not Obvious

Participants

19

Dr GAO Chuan

Participant feedback: It is an informative seminar. The examples of patent application are helpful.



Networking Building: Activities Conducted or Participated by ORKTS 2018-19

Promoting KT within and beyond campus (Part of events only)	
1	粵港澳大灣區科技創新規劃座談會, by Innovation and Technology Commission, HKSAR Government, July 2018
2	Orientation for New Teachers 2018, by the Centre for Learning Enhancement And Research (CLEAR), August 2018
3	特區駐粵辦酒會, August 2018
4	AVPN Impact Assessment Roundtable, August 2018
5	Engineering Medical Innovation Summit: Medicine for the Future (EMedI Summit) 2018, August 2018
6	Seminar on Research and Development of Chinese Medicines, by Committee on Research and Development of Chinese Medicines, Innovation and Technology Commission, HKSAR Government, 19 September 2018
7	Hong Kong Biotech Horizons, by Hong Kong Biotechnology Organization, 20-23 September 2018
8	KPMG's Life Sciences Forum, by KPMG Hong Kong, 28 September 2018
9	Hong Kong Biotech Horizons 2018 Annual Global Biotech Summit, by Hong Kong Biotechnology Organization, September 2018
10	Singapore TechInnovation, by Intellectual Property Intermediary (IPI) , Singapore's Ministry of Trade and Industry, September 2018
11	InnoTech Expo, by Our Hong Kong Foundation , September 2018
12	Big Data for Business (B4B) Challenge Briefing Session at CUHK, by B4B Limited, 24 October 2018
13	Hong Kong FinTech Week, by Invest Hong Kong, 29 October - 02 Nov 2018
14	2018 CUHK Conference on Financial Technology: When Wall Street Met Main Street – The Human & AI Brainwave Resonance, 30 October 2018
15	HKTDC Hong Kong Electronics Fair Autumn Edition, October 2018
16	2018 年粵港服務貿易自由化推介會：《建設世界一流灣區的一流服貿平台》，by The Trade and Industry Department, HKSAR Government, October 2018
17	Cyberport University Partnership Programme 2018 Demo Day, by Hong Kong Cyberport Management Company Limited, October 2018
18	全國人類遺傳資源管理工作培訓班（四川），by 中華人民共和國科學技術部, 21 - 23 November 2018
19	Smart Airport – Technovation Conference & Exhibition, by Airport Authority Hong Kong, 28 - 29 Nov 2018
20	Angel x Angel Conference-The Road to IPO in the Greater Bay Area, by Hong Kong Science and Technology Parks Corporation, November 2018
21	International Tech Transfer Forum at Southern University of Science and Technology, November 2018
22	2018 深港科技界交流年會暨成獸之路論壇, November 2018
23	InnoCarnival, by Innovation and Technology Commission, HKSAR Government, November 2018

24	Business of IP Asia Forum, by The Hong Kong Trade Development Council, 06-07 December 2018
25	Biotechnology Innovation Get Together Dinner, by Hong Kong Polytechnic University, Nan Fung Life Sciences and Avalon Biomedical Management, 10 December 2018
26	粵港澳大灣區生物科技創新高峰研討會, by The Hong Kong Polytechnic University, December 2018
27	2018 中國高校創新創業教育聯盟年會, December 2018
28	1st Asia Exhibition of Inventions of Hong Kong, by The Hong Kong Exporters' Association, December 2018
29	Advancing Your Innovation Strategy with Derwent Innovation, December 2018
30	CoCoon Pitch Night Finals x Christmas Party, December 2018
31	Healthtech O2O Summit, by NexChange Group, 21 January 2019
32	Business Sustainability Conference 2019 and the 4th Hong Kong Business Sustainability Index Recognition Ceremony, January 2019
33	British Council BRICKS Debate at SPARK Hub, January 2019
34	Opening Ceremony of Oasis, an Incubator under Tung Wah Group, February 2019
35	Asia Business Leaders Advisory Council 2019 Annual Meeting Dinner, by Asia Pacific Foundation of Canada, February 2019
36	HKSEC Final and Award Ceremony, March 2019
37	KPMG Capital Markets – Life Sciences Forum, by KPMG Hong Kong, 08 April 2019
38	第十一屆港深合作論壇「粵港澳大灣區：港深人工智能與生物科技合作」, by The Policy Innovation and Co-ordination Office, HKSAR Government, April 2019
39	48th International Exhibition Of Inventions Geneva, April 2019
40	HKTDC International ICT Expo, April 2019
41	American Society of Clinical Oncology Annual Meeting, Chicago, IL, USA, 31 May - 3 June 2019
42	Commission on Poverty Summit 2019, by Commission on Poverty, HKSAR Government, May 2019
43	CUHK Entrepreneur Day, May 2019
44	Hong Kong International Medical Devices and Supplies Fair, by The Hong Kong Trade Development Council, May 2019
45	HKTDC Entrepreneur Day, May 2019
46	BIO International Convention, Philadelphia, PA, USA, 03-06 June 2019
47	RARE Drug Development Symposium, Philadelphia, PA, USA, 06-07 June 2019
48	Concepts and Best Practices for Knowledge Translation and Commercialization, by Rady School of Management, University of California, San Diego, CA, USA, 25-28 June 2019
49	第十二屆中國生物產業大會（廣州）, June 2019
50	HSBC Innovation Summit, June 2019
51	說書人新書發佈會：成為彼此的聆聽者, by StoryTaler, June 2019
Presentations to International Delegations (Part of events only)	
1	肇慶市政府, July 2018

2	珠海市政府, July 2018
3	清華珠三角研究院, July 2018
4	深圳市委政策研究室, July 2018
5	Delegation from a top-tier mainland Chinese pharma company, July 2018
6	內地高校行政管理暑期學院, August 2018
7	國家科學技術部, September 2018
8	廣州開發區及科技局代表團, September 2018
9	湖南省知識產權局, October 2018
10	廣州市代表團, October 2018
11	中國人民大學科研處, November 2018
12	Nanjing Finance, Science & Technology delegation to Hong Kong, November 2018
13	深圳市福田區人民政府, December 2018
14	深圳市高層次人才聯誼會, January 2019
15	深圳光明科學城戰略發展研討, January 2019
16	清華大學國際化管理與服務能力提升研修班, February 2019
17	佛山市南海區人民政府代表團, March 2019
18	湖南省科學技術廳, March 2019
19	佛山市人民政府, March 2019
20	河北省訪港代表團, April 2019
21	國家自然科學基金委員會, April 2019
22	南方醫科大學, April 2019
23	煙台高新技術產業開發區, April 2019
24	Delegation from a top-tier US Multinational Pharma Corporation, May 2019
25	Prince of Songkla University, Thailand, May 2019
26	深圳市福田區政府部門, May 2019
27	復旦大學, May 2019
28	King's College London, May 2019
29	揚州市人才工作訪問團, May 2019
30	廣州市天河區人民政府, May 2019
31	粵港澳高校聯盟高層領導交流團, June 2019