ANNUAL REPORT 2017/18

Recurrent Funding for Knowledge Transfer for the 2016-19 Triennium

submitted to

University Grants Committee

香 港 大 學
THE UNIVERSITY OF HONG KONG

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CONTENTS

EXECUTIVE SUMMARY

With support from the UGC's earmarked funding for Knowledge Transfer, the Knowledge Exchange Office (KEO) continues to support the impact agenda for the University. In the reporting year, KEO conducted a special funding round to support projects designed to collect evidence for corroboration and evaluation of impacts arising from previous research or KE projects. This exercise has prompted Faculties and departments to look deeply into past and ongoing research projects of broader social relevance and benefits with a view to identifying potential impact case studies for the new Impact requirement in the UGC's Research Assessment Exercise 2020.

KEO spearheaded the proposal to make Knowledge Exchange (KE) explicit and articulate the KE elements, including impact beyond academia, technology transfer, and community engagement, in the promotion and tenure criteria for professoriate staff, which has been implemented from the Spring Review 2017/18 onward. Essentially, this further advancement in the University's human resource policy is part and parcel of the institutional reward and recognition system for KE that KEO has been building up over the past eight years.

The Technology Transfer Office (TTO) has actively engaged in technology transfer activities and participated in international technology exhibitions. At the 46th International Exhibition of Inventions of Geneva (IEIG) in 2018, TTO showcased seven HKU inventions, which were conferred a total of eight awards and prizes. At the TechConnect World Innovation Conference & Expo held in the US, seven HKU inventions with their prototypes and working demonstration units were showcased. Two of the HKU inventions, being ranked at the top 15% of the submitted technologies, received the TechConnect Innovation Awards.

The collaborations with Guangdong Pharmaceutical University (GDPU) in establishing the GDPU-HKU Innovation Platform in Zhongshan, with Hong Kong Cyberport to set up the HKU x Cyberport Digital Tech Entrepreneurship Platform and HKU x Cyberport FinTech Nucleus, and with Microsoft Hong Kong Limited on AI Support for HKU research projects marked the successful steps of strategic partnerships with institutions in mainland China and industry.

iDendron, the HKU innovation and entrepreneurship hub, was established in October 2017. For the first nine months, iDendron is hosting over 35 HKU students and alumni start-up teams. DreamCatchers is now the signature programme under iDendron, covering a series of programmes including Seed Fund Competition (DreamCatchers 100K), MedTech Hackathon, Entrepreneurship Academy and other events for our students, staff and alumni.

KEO launched the new KE website (www.ke.hku.hk) in October 2017, which has been the first, and is still the only, HKU website that is organised along the strategic themes stated in the University's strategic document, *HKU Vision 2016-2025*, and showcases the KE success stories of our researchers under 'Impact', 'Innovation', 'Partnership', 'Global', and 'Engagement'.

Community engagement is fully embedded in all Faculties' core activities. The extent of public engagement in some events aiming to share knowledge on challenging social issues has been impressive.

1. DEEPENING INSTITUTIONAL CAPACITY FOR REALISING AND CORROBORATING IMPACTFUL RESEARCH

As stated in the University's strategic document, *HKU Vision 2016-2025*, 'Making a positive impact on society is central to our mission, as is our commitment to knowledge exchange', and 'creating social, cultural and economic impact will be the goals driving everything we do'. The Knowledge Exchange Office (KEO) is supporting the impact agenda for the University through multiple parallel activities.

1.1 Funding Support for Impact Evidence Collection

In the reporting year, KEO conducted a special funding round to support projects designed to collect evidence for corroboration and evaluation of impacts arising from previous research or KE projects. A total of 19 proposals from across all Faculties were supported. This exercise has prompted Faculties and departments to look deeply into past and ongoing research projects of broader social relevance and benefits with a view to identifying potential impact case studies, and facilitated an internal learning platform in respect of analysing outcomes, impact and the evidence to be collected, yielding support to them to prepare for the new Impact requirement in the UGC's Research Assessment Exercise (RAE) 2020.

1.2 Knowledge Exchange (KE) in Promotion and Tenure Criteria

As described in our KE annual report last year, KE has been added as an assessment element in the yearly Performance Review and Development (PRD) process of professoriate and academic-related staff from 2016/17 onward, alongside Teaching, Research, and Service/Administration. Making persistent efforts, KEO spearheaded the proposal and obtained the University's approval to make KE explicit and articulate the KE elements, including impact beyond academia, technology transfer, and community engagement, in the promotion and tenure criteria for professoriate staff, which has been implemented from the Spring Review 2017/18 onward.

Essentially, this further advancement in the University's human resource policy is part and parcel of the institutional reward and recognition system for KE that KEO has been building up over the past eight years. It provides clear guidance to professoriate staff members in their career development, encourages more societal engagement by our researchers through KE, and facilitates Faculties to recognise non-academic impact, which may in turn become valuable to Faculties for preparation for impact assessment in the future. This is another significant milestone in the University's strategic development of KE as its third pillar, reinforcing our strategic vision since 2009/10 that KE should be embedded as a core business of HKU, not as an add-on activity.

1.3 Impact Workshops

KEO has been organising impact workshops since 2013/14, mostly delivered by experts from the UK who were involved in the Research Excellence Framework (REF) 2014. The UGC's RAE 2020 will be the first time that the RAE includes research impact as part of the assessment. The framework is very close to that of REF 2014 in the UK. KEO's efforts in promoting the importance of impact beyond academia among our faculty members in the past five years are in full alignment with this development in the UGC sector. In the

reporting year, five impact workshops were organised by KEO in collaboration with the Faculties concerned as follows:

- 'How to Write Great Impact Case Studies' (November 8, 2017)
  Mr Barry Taylor, former Director of Communications and Marketing, University of Bristol

- 'Understanding and Describing Research Impact' (December 7, 2017)
  Professor Robin Wallace, College of Science and Engineering, The University of Edinburgh

- 'Preparing for Impact: Learning from Experience' (January 16, 2018)
  Professor Eamonn Carrabine, Department of Sociology, University of Essex

- 'Comparing Impact Case Studies' (February 12, 2018)
  Dr Jennifer Hendry, School of Law, University of Leeds

- 'How research4impact builds relationships between scholars and practitioners' (March 22, 2018)
  Dr Adam Seth Levine, Department of Government, Cornell University

Most speakers in our impact workshop series are invited to give another seminar to share their experience on how to identify potential impact from the conception of a research project and how to build impact pathways into the research design. It is encouraging to see an increase in awareness to this best practice among our researchers, contributing to an evolving culture of embedding non-academic impact consideration in research project planning. Such a development coincides with the UGC's direction to introduce the Research Impact Fund (RIF) in January 2018 by the Research Grants Council (RGC) on a pilot basis, which aims to encourage more impactful research and foster more collaborative efforts with stakeholders beyond academia. The University has submitted 46 proposals from across all ten Faculties to RIF.

1.4 Impact Case Histories

The five examples described below are among those recognised in our KE Award schemes this year.

Public Health Approach to Suicide Prevention

Led by Professor Paul Siu Fai Yip, the Hong Kong Jockey Club Centre for Suicide Research and Prevention uses a public health approach advocated by the World Health Organisation for suicide prevention that involves multi-layer intervention: indicated, selective and universal. They have worked with community stakeholders to launch community based suicide prevention programmes. With support of the Coroner's Court, they

have developed the most comprehensive surveillance and monitoring system of suicides using Coroner's court data. They have done vigorous psycho-autopsy research in identifying risk and protective factors for suicidal risks. With the support of donors and government funding, they have been testing good practice models including positive mental work for school children, restriction of means of suicide, social media engagement with vulnerable youth, and knowledge exchange with and for the community.

All the suicide prevention work of the Centre is evidence-based and empirically validated, and the Centre has become a knowledge hub for suicide prevention locally and internationally. Their work has reduced the myth of suicide and improved awareness of mental health in the community. The quality of suicide news reporting has significantly been changed to avoid copycat effect. Combined with the concerted effort in the community, the suicide rate of Hong Kong has gone down from its historical high 18.8 per 100,000 in 2003 to estimated 12.6 per 100,000 in 2016, which is an impressive 36.9% reduction.

Professor Yip and his team received the University's KE Excellence Award 2017 for this project. More details are at Annex I-A.

Improving Livability in Ageing Hong Kong

The research projects, collectively titled 'Improving Livability in Ageing Hong Kong', were carried out by Professor Rebecca Lai Har Chiu and her team in the Department of Urban Planning and Design and the Department of Social Work and Social Administration. The recommendations of their study were adopted by the Hong Kong Housing Society (HKHS) to formulate its Medium-term Development Strategy. Three housing schemes had been subsequently implemented by October 2017: (a) enhancement of elderly service provision at neighbourhood level through an estate redevelopment project; (b) a mixed housing pilot scheme to promote cross-generation support; (c) a mortgage reverse scheme for HKHS's old age owners, with repayment of housing subsidy to government waived. The study findings were also used by the Government's Planning Department to formulate a long-term planning strategy to provide a livable environment for the aged community, and by a study commissioned by the Labour and Welfare Bureau on enhancing elderly services provision.

Professor Chiu's team received the Faculty KE Award 2017 of the Faculty of Architecture. More details are at Annex I-B.

The Great Kantō Earthquake and a New Understanding of Responses to Natural Disasters

The research of Professor Charles Schencking of the School of Humanities has revolutionized and made widely accessible a new understanding of how the Japanese have experienced, responded to, and recovered from catastrophic natural disasters over the past 100 years. While his scholarly book provided historical perspective, he has also built an interactive website to engage the public to promote broader understanding. He has uploaded images of his

own materials, including more than 500 photographs, artefacts and maps from the 1923 earthquake, to the website. The site has received more than 250,000 visits since its launch in December 2013. Following on from that, a public exhibition of the artefacts and images was held at the University of Melbourne. He was also involved in a Discovery Channel TV documentary on disaster preparedness in Japan, introducing to millions of people on how the Japanese have interpreted, constructed, and learned from natural calamities and become world leaders in disaster response, recovery, and resilience.

Professor Schencking received the Faculty KE Award 2017 of the Faculty of Arts. More details are at Annex I-C.

High-strength Lightweight Steels for Low Emission Automobiles

Dr Mingxin Huang of the Department of Mechanical Engineering has modified a known but previously-unworkable method for making strong thin steel into an application that was ready to use with existing production lines and reduced the weight of the steel by 20 per cent. The research was carried out in collaboration with Baosteel Group, one of the largest steel providers in the world, and General Motors, and the findings were published in a top journal in 2013. Baosteel began to produce steel using this method almost immediately and has seen sales rise exponentially from 414 tons in 2014 to 10,000–15,000 tons in 2017. The new quenched and partitioned steels have better mechanical properties, and have been used by major car manufacturers worldwide including General Motors, Nissan and several Chinese car makers. For example, the new Chevrolet LOVA RV launched in 2015 by General Motors used this new steel for producing critical crash resistance parts, resulting in the weight reduction of these parts by approximately 20%.

Dr Huang received the Faculty KE Award 2017 of the Faculty of Engineering. More details are at Annex I-D.

Plugging the Justice Gap for Minorities under the Law: Applied Intersectionality Research and Substantive Equality

Associate Professor Puja Kapai Paryani of the Department of Law has pioneered an intersectional and comprehensive approach to examine how legislation and policy frameworks ignore, discriminate against or exclude ethnic minorities, sexual minorities, children, migrant workers, and victims of human trafficking and gender based violence from equal protection. Her research findings initiated a call for a public policy and service reform and set a best practice benchmark in this area adopted by the Government and non-governmental organisations. The Legislative Council's Subcommittee on Strategy and Measures to Tackle Domestic Violence and Sexual Violence drew extensively from the recommendations in her research to direct the future course of government actions across various government departments. Her oral submissions contributed to the remarks made in the Concluding Observations, issued by the United Nations' Human Rights Committee and Committee on the Rights of the Child in 2013, on Hong Kong's international human rights obligations. Following the local and international level advocacy, the Government abolished the designated schools policy that segregated ethnic minority students from Chinese students in public sector schools.

Ms Paryani received the Faculty KE Award 2017 of the Faculty of Law. More details are at Annex I-E.

1.5   Impact Project Funding Scheme

Our Impact Project Funding Scheme continues to support academic staff to undertake KE projects that are underpinned by their research or expertise to bring benefits to the wider community. Supported by the UGC's Knowledge Transfer (KT) funding over the years, it has encouraged our researchers to proactively consider different non-academic sectors, both locally and overseas, which may be engaged as potential KE partners or beneficiaries in their work. In the reporting year, 77 proposals were received, of which 52 were supported (Annex II). Two completed projects are highlighted below.

Commemorating the Centenary of Tai Tam Tuk Reservoir Dam on the Hong Kong Island – A Showcase of Interdisciplinary Archaeological Evidence

The Tai Tam Reservoir Scheme led to the construction of the largest group of reservoirs on Hong Kong Island between 1883 and 1918. The year 2017 marked the centenary of the construction completion of the Tai Tam Tuk Reservoir Dam. The research team led by Dr Sun Wah Poon and Dr Katherine Y Deng of the Department of Real Estate and Construction has discovered an interdisciplinary array of archaeological evidence that could re-establish the missing link between the submerged village and the Tai Tam Reservoir Scheme. With KE funding support, they organised a themed exhibition titled 'Commemorating the Centenary Tai Tam Tuk Reservoir (TTTR) – The Great Dam, the Great People' from February 1 to March 14, 2018 in the HKU Main Library. The exhibition attracted extensive media coverage and over 1,000 visitors. The display of the construction remains and cultural heritage has provided effective visuals for the public to appreciate the century-old Dam and other waterworks as a unique type of living heritage. Public lectures and guided tours at TTTR were also organised for professional groups, NGOs, secondary school teachers and students, and the general public, raising their interest in the history of heritage construction works. The Water Supplies Department and the Antiquities and Monuments Office have been able to enrich the exhibits of the Tai Tam Waterworks Heritage Trail. The exhibition and the HKU team's discoveries were also mentioned in *My Blog* of the Secretary for Development, with the title 'Exploring Tai Tam: a hundred years of waterworks history', on April 15, 2018.

Messiah Community Sing-Along Project

Led by Professor Daniel Chua of the Department of Music, the 'Messiah Sing-Along' was a large-scale choral production that engaged over 1,000 professional musicians, students, and sing-along audience members. The project brought together guests soloists, SingFest Choral Academy, the HKU Chamber Singers, and HKU Cultural Management Office to collaborate on a series of workshops and rehearsals, culminating in a full-house concert in the Grand Hall, Lee Shau Kee Lecture Centre, on December 17, 2017. This sing-along concert encouraged everyone to take part – this 'sharing the stage' experience has created a positive bond with the community, strengthened the choral culture in Hong Kong, and raised the cultural profile of the University.

This project has also created a unique knowledge exchange experience for the general public through in-depth engagement with professional musicians in the 'Music in Words' choral rehearsal session on November 29, 2017. This session was open to all registrants who would be attending the finale concert a month later. Four sing-along pieces were selected and rehearsed, and participants were provided with free copies of the music scores for reference. With the conductor's explanation and the chorus's demonstrations, the participants projected their voices with higher music awareness. This kind of public rehearsal session is rarely held in Hong Kong. On the concert day, the majority of the audience brought their own copies of music scores (some were even with hand-written notes and markings). It was evident that the 'Music in Words' rehearsal session had raised their music interests.

2. TECHNOLOGY TRANSFER AND PARTNERSHIPS WITH INDUSTRY

The Technology Transfer Office (TTO) has actively engaged in technology transfer activities and participated in international technology exhibitions. The collaborations with Guangdong Pharmaceutical University, Cyberport, and Microsoft marked the successful steps of strategic partnerships with institutions in mainland China and industry.
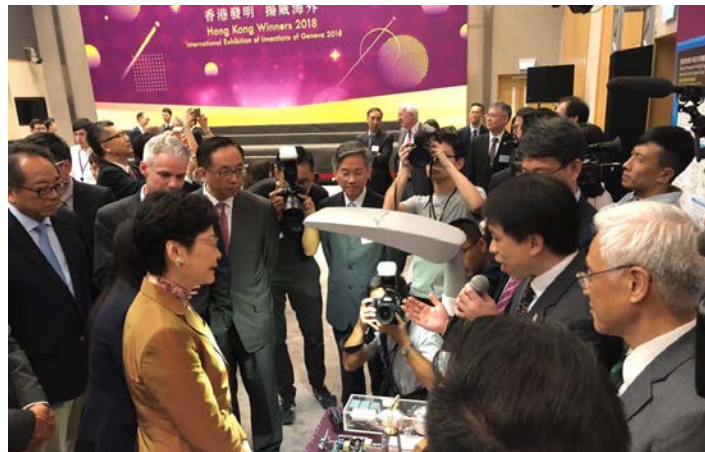
2.1 HKU LED Power Driver Technology for Outdoor Lighting Applications Won Geneva's Innovation Award

The International Exhibition of Inventions of Geneva (IEIG) held annually in Switzerland is recognised as one of the most prestigious innovation exhibitions and technology competitions. With the objectives of publicising HKU's achievements in translational research and marketing its inventions and innovations, TTO participated in IEIG for the first time in 2018 and showcased seven HKU inventions at the event.

The seven HKU inventions were conferred a total of eight awards and prizes amid the keen competition among all the inventions exhibited at the 46th IEIG. In particular, the invention developed by Professor Ron S Y Hui of the Department of Electrical and Electronic Engineering on a new LED driver technology for outdoor lighting applications was conferred the Prize of Patent Office of Cooperation Council for the Arab States of the Gulf – GCCPO and also Gold Medal with Special Recognition by the International Jury of Experts. This award winning technology can endure extreme outdoor conditions like wide temperature variation, high humidity and lightning strikes, and the LED driver technology provides an operation lifetime of over 10 years, which is three times of that of a conventional active LED driver. This invention was commercialised by Federal Group Global Limited. The first installation was successfully deployed in Guangdong's Heshan City in 2015 and so far for three years there has not been a single case of failure reported. Currently, patent protection for this invention is being sought in 27 countries around the world.

Shortly after the IEIG event, a reception was hosted by the Chief Executive of the HKSAR on June 4, 2018 at the Central Government Offices for celebrating the achievements made by the Hong Kong universities, R&D corporations and companies from the Hong Kong Science Park at the 46th IEIG. The seven winning research teams that represented HKU at IEIG also joined the occasion and showcased their award-winning projects to the participating guests and media. In particular, with the support from Federal Group Global Limited, licensee of the winning LED driver technology, a full-scale street lighting demo unit was set up at the reception to demonstrate its capabilities and benefits. Mrs Carrie Lam, Chief Executive of the HKSAR, expressed her interest in the winning LED driver technology and how to make use of such technology for the benefit of the public.

2.2   Strategic Partnerships

HKU and Guangdong Pharmaceutical University Innovation Platform

The 'Healthy China 2030' blueprint and other national strategic documents delineate the development plan of bio-medicine in China, which will capacitate the growth of its medical health industry to RMB 8 trillion by 2020 and RMB 16 trillion by 2030. To take part in such development, HKU and Guangdong Pharmaceutical University (GDPU) have recently jointly launched the GDPU-HKU Innovation Platform in Zhongshan to collaborate on bio- and health technology and translational medical research and development in Guangdong-Zhuhai-Macau Greater Bay Area. The launch of the Platform is a significant step to mark the University's presence and contribution to development in the Greater Bay Area. A satellite branch of HKU's Partner State Key Laboratory of Pharmaceutical Biotechnology at GDPU was also launched at the same time.

The potential collaboration was identified by the two universities back in 2016. TTO took the lead to work with GDPU's counterpart and relevant parties to finalise the plans of construction and operation. The Innovation Platform leverages HKU's technological innovations and cutting-edge research, GDPU's expertise in translational medicine development and operating incubation facility, and Zhongshan Municipal People's Government's commitment and undertaking to grow its national medical base and bio-medical industry in Zhongshan City.

The Innovation Platform consists of an incubator for new technological start-up companies, a joint laboratory for researchers from HKU and GDPU to conduct joint research projects and a technology transfer unit that can facilitate technology transfer and commercialisation of HKU's IPs as well as GPDU's translational research to industrial enterprises and technology companies in Zhongshan City. The Innovation Platform is also expected to bring in additional research funding and collaboration opportunities for HKU researchers on bio-medicine research.

HKU x Cyberport FinTech Nucleus

A Memorandum of Understanding (MoU) signing ceremony between HKU and Hong Kong Cyberport (Cyberport) was held in August 2017 to set up the HKU x Cyberport Digital Tech Entrepreneurship Platform. The Platform is the first-of-its-kind collaboration between HKU and Cyberport aiming to form a closer partnership to build a unique digital tech ecosystem for Hong Kong covering aspects of human capital, innovation and technologies, entrepreneurship, and legal and business expertise.

HKU will provide support to digital tech start-ups at Cyberport by hosting legal and business clinics covering legal advice, business plan consultancy and internal valuation practices to help them accelerate growth. Through this Platform, the 'HKU x Cyberport FinTech Nucleus' was also set up in Smart-Space FinTech at Cyberport to introduce more creativity and innovations to the Cyberport Centre of Global FinTech Innovation, which is an important avenue where FinTech solutions will be spotlighted to stimulate exchange and adoption.

Collaboration with Microsoft on AI Support for HKU Research Projects

TTO has joined hands with Microsoft Hong Kong Limited to provide support to HKU researchers to tap into the vast resources and AI related technologies to be offered by Microsoft. Under the collaboration programme, Microsoft Research Lab – Asia (MSRA) will collaborate and work closely with selected HKU faculty members and researchers on their R&D projects. Moreover, HKU researchers will be provided with an enhanced version of Microsoft Academic Graphic Services whereby they can get access to scientific publication records, citation relationships between those publications, as well as authors, institutions, journals, conferences, and fields of study, etc.

Apart from research support, it is equally important to provide training to HKU researchers on the latest AI technologies and to enhance their knowledge in AI so that they may make effective use of AI to support their next research projects. Microsoft will assist HKU researchers and their teams to join the Microsoft Professional Programme to receive training on subjects like Data Science, Machine Learning, etc. Furthermore, technical workshops on Microsoft's Azure and AI computing platform will be organised for the HKU community to get them ready for applying these technologies to their research projects.

HKU-Zhejiang Institute of Research and Innovation

The HKU-Zhejiang Institute of Research and Innovation (HKU-ZIRI) provides a platform for translational research and collaboration with industry in five strategic themes, namely, smart materials, alternative energy, sustainable energy, biomedical interfaces, and advanced manufacturing. Apart from the above-mentioned partnerships, the HKU-ZIRI, which is supported by the Mainland Research Projects Office, signed a collaboration agreement with Juhua Group Corporation in August 2017 for IoT based Juhua logistics park cloud parking management system.

2.3   Technology Transfer Promotion

TechConnect 2018

TechConnect World Innovation Conference & Expo is an annual event held in the US that is participated not only by technology innovators but also by industry end-users. TechConnect is designed to accelerate the commercialisation of applied research and innovations out of laboratories and into industry.

Seven HKU inventions with their prototypes and working demonstration units were showcased at the HKU exhibition area at TechConnect from May 13-16, 2018. Two of the HKU inventions – 'Super Steel - A method for the fabrication of a super-strong and ductile multi-phase steel' and 'Omniphobic porous membrane and methods for preparing the same' – received the TechConnect Innovation Awards. The Awards recognise the top 15% of the submitted technologies as ranked by the TechConnect Corporate & Investment Partner Committee. These two HKU innovations were particularly well received by visitors during the exhibition period.

HKU FinTech Day 2017

In the past year, FinTech has been changing the world of finance at a very fast pace, impacting start-ups, financial institutions, regulators, and more recently, technology companies. As the kick-start event of the Hong Kong FinTech Education Week organised by Invest Hong Kong, the first HKU FinTech Day was launched on October 30, 2017 jointly by TTO, Faculty of Law and SuperCharger, the leading FinTech Accelerator in Asia.

The event highlighted the work of leading academics at HKU as well as a range of new educational initiatives to support human capital development in Hong Kong and around the world.   Asia's first FinTech MOOC that was developed by HKU jointly with collaborators from SuperCharger, Cyberport, CFTE, UNSW Sydney, Microsoft and ACMI, was also announced at the event. In addition to presentations and panels, the HKU FinTech Day also featured a student start-up competition as well as information for students considering studying FinTech at HKU.

China High-Tech Fair

HKU showcased innovations and technologies developed at HKU in the Hong Kong Pavilion of the 2017 China High-Tech Fair (CHTF) from November 16-21, 2017 at the Shenzhen Convention & Exhibition Centre. Highlights include: 'Super Steel, a new generation of steel with outstanding tensile properties and yield strength' developed by Dr Mingxin Huang of the Department of Mechanical Engineering; and 'New generation luminescent gold-based emitter for organic light emitting devices (OLEDs)' developed by Professor Vivian Yam, Philip Wong Wilson Wong Professor in Chemistry and Energy, Department of Chemistry. The exhibition attracted more than 500,000 visitors from 97 countries around the world.

InnoCarnival 2017

HKU exhibited five research projects to illustrate how innovative research can contribute to smart living under the theme of 'Innovation for a Better Future' for the InnoCarnival

2017, which was held at the Hong Kong Science Park from October 21-29, 2017. These projects, which are related to health technology and information technology, are as follows:

- Solution-Processable Gold(III) Light-Emitting Materials and Their Applications
  (Inventor: Professor Vivian Wing Wah Yam, Department of Chemistry)

- 10,000,000 per second! Laser Cellular Analyzing Technology
  (Inventor: Dr Kevin Kin Man Tsia, Department of Electrical and Electronic Engineering)

- Safer Bone Surgery for the Elderly using Computer Simulation
  (Inventors: Mr Sloan Austin Kulper, Dr Christian Xinshuo Fang, Miss Margaret Guo, Professor William Weijia Lu and Professor Frankie Ka Li Leung, Department of Orthopaedics and Traumatology
  Professor Alfonso Hing Wan Ngan, Department of Mechanical Engineering)

- New Ideas in Endodontics
  (Inventor: Dr James Kit Hon Tsoi, Faculty of Dentistry)

- Digital Endodontics for the Next Century
  (Inventor: Dr Tze Chuen Ng, Faculty of Dentistry)

An Inventor's Guide to Technology Transfer

With KE funding support, TTO has published a guide book for HKU's researchers and staff as well as those interested individuals from other research institutions and industry to enhance their understanding of the technology transfer processes in HKU. The 72-page guide (in both English and Chinese versions) covers invention disclosure, IP ownership and patent protection, technology marketing, start-up company, conflict of interests, revenue sharing and available funding sources. Copies were distributed in June.

2.4   Public Seminars and Professional Development Workshops

The following experts in technology transfer a n d entrepreneurship were invited to share with students and academics their experience in driving innovation and commercialisation:

- 'Sharing session by Co-founder & Partner of Successful Digital Transformation and Data Science Consulting Company – Altitude Labs' (November 16, 2017)
  Miss Jaclyn Tsui, Co-founder & Partner, Altitude Labs

- 'Sharing Session by Co-Founder & CEO of a Successful Mobile Game Start-up Company – Twitchy Finger Ltd' (November 23, 2017)
  Mr Edward Li, Co-Founder & CEO, Twitchy Finger Ltd

- 'Blossom innovations: my experience in translational medicine' (November 24, 2017)
  Professor Henry H L Chan, Honorary Clinical Professor, HKU

- 'AI Workshop: Biomedical Research & Applications' (April 4, 2018)
  Mr Angus Tong, Account Technology Strategist, Microsoft

- 'AI Workshop: Smart City' (April 9, 2018)
  Mr Ray Liew, Solution Specialist - Data and AI, Microsoft

- 'Business Planning Workshop' (April 17 – 20, 2018)
  Mr Douglas Abrams, Founder and CEO of Expara and Expara IDM Ventures

- 'Industry talk: Introduction of Boehringer Ingelheim and Research Beyond Borders' (April 23, 2018)
  Dr Henri Doods, Global Head, Research Beyond Borders of Boehringer Ingelheim

- 'Machine Learning with MATLAB & Teaching with MATLAB' (May 11, 2018)
  Mr Stefano Olivieri, Customer Success Engineer, and Mr Gerardo Hernández, Manager, Mathworks

3. FOSTERING INNOVATION AND ENTREPRENEURSHIP

3.1 iDendron and DreamCatchers

iDendron, the HKU innovation and entrepreneurship hub located at 1/F., Knowles Building, was established in October 2017, with the aim to nurture entrepreneurial and innovative spirit on campus. It provides support for HKU's early-stage start-ups and establishing interdisciplinary cooperation, and funding for HKU start-ups through the DreamCatchers programme.

For the first nine months, iDendron is hosting over 35 HKU students and alumni start-up teams and organised more than 40 events, workshops, sharing by founders with partners in innovation, technology and entrepreneurship sectors including Facebook, Google, Startup Weekend, Cocoon, etc.

As the signature programme under iDendron, DreamCatchers covers a series of programmes including Seed Fund Competition (DreamCatchers 100K), Hackathon, Entrepreneurship Academy and other events for our students, staff and alumni.

- Entrepreneurship Academy (October – December 2017): Over 300 students, alumni, staff and friends participated in the 10-week Entrepreneurship courses, covering topics at the core of entrepreneurship, with a focus on integrating information and ideas from multiple perspectives in order to help participants recognise and gauge the critical factors in the commercialisation process of innovation.

- 2018 DreamCatchers 100K (December 2017 – April 2018): To enhance diversity of applications, four tracks were established this year: (1) E-commerce, FinTech, Big Data, AI; (2) Healthcare, Healthy ageing; (3) Social Innovation, Creative Industry, Education Tech; (4) Engineering, Robotics, Wearables, Internet of Things. There

were 85 applications involving 286 students and young alumni this year, and 18 finalists joined the final pitch held on April 15, 2018.

- DreamCatchers MedTech Hackathon (June 2018): 55 students from local universities, Shanghai Jiaotong University, Stanford University and young professionals from Hong Kong Science Park with background in medicine, biomedicine, engineering, science and business joined the one-week hackathon to experience Stanford Biodesign methodologies, design thinking, business model canvas, to visit real clinical setting, and to work in interdisciplinary teams to come up with prototypes of sustainable healthcare solutions with the help of mentors.

3.2 Technology Start-ups

The Technology Start-up Support Scheme for Universities at HKU (TSSSU@HKU), which is supported by the Innovation and Technology Commission, has entered into its fifth round of application. A total of 25 applications were received in November 2017, and 16 start-up companies were awarded funding, totaling $4 million. Of these 16 TSSSU@HKU awardees, 12 are commercialising HKU technologies. As of June 30, 2018, the TSSSU@HKU programme has supported 30 new technology start-up companies in total. Six of them were admitted to Cyberport's Incubation Programme and another eight of them have been admitted to the corresponding programme at the Hong Kong Science and Technology Park. So far, at least nine of them have already secured angel and/or institutional investments. Two start-ups funded by TSSSU@HKU are highlighted below.

Flectrode Technology Limited

Dr Wen-Di Li of the Department of Mechanical Engineering had developed a new metal-mesh transparent conductive film (TCF), which attracted keen interest from leading firms that want to use it in the next generation of displays. Dr Li partnered with his colleague, Dr Tony Shien-Ping Feng, to apply TCF to dye-sensitised and perovskite solar cell technologies, which makes the solar cells more flexible and efficient.

They set up a start-up, Flectrode Technology Ltd, to market the flexible solar cell devices for use in consumer electronic products. In addition to solar cells, Flectrode actively explores a broad range of end products, among which the first target is the display market.

Flectrode's new TCF has been found to be more effective than the current TCFs used in displays. It is cheaper to produce and has 100 times better conductivity than the existing technology. The new TCF also can improve the photovoltaic efficiency in solar cells, so more electricity is produced from light, including general lighting. Flectrode is currently doing prototypes for major display manufacturers in mainland China and has been singled

out as one of the major technology companies in Xiamen, where its factory is based.

ImmunoDiagnostics Ltd

ImmunoDiagnostics Ltd is a start-up founded by Professor Aimin Xu of the Li Ka Shing Faculty of Medicine who has been investigating biomarkers to detect diabetes, cardiovascular diseases, kidney diseases and autoimmune diseases at a very early stage. The biomarker discoveries have been developed into diagnostic assays for testing patients, several of which have already undergone successful clinical trials in Hong Kong, Mainland China and Australia and been patented.

ImmunoDiagnostics Ltd was formed to facilitate the licensing and commercialisation of the discoveries, particularly in meeting the different requirements of different jurisdictions. Professor Xu and his research team have developed a wide range of immunoassay kits for early diagnosis of major chronic diseases, especially for cardio-metabolic disorders and autoimmune diseases, based on their biomarker discoveries. Some of them can be directly applied to automatic chemistry analyzer for high-throughput clinical diagnosis, which is very rapid and can provide results within one hour or less. They will continue to work on these immunoassay kits with the target of developing clinical applications for the public sector, and private screening for high-risk patients in community.

3.3   Innovation Competitions

Challenge Cup National Competition

The Graduate School encourages research postgraduate (RPg) students to develop thinking skills in the emerging world of open innovation.   For example, in the 'Challenge Cup' National Competition – Hong Kong Regional Final 2018, HKU won the Outstanding Organisation Award and our RPg students won a total of six awards as follows:

- Targeting Ovarian Cancer Stemness and Metastasis with Dendrimer Nanovector-mediated siRNA Delivery – Second Prize in Innovation (Life Sciences)

- Neuroplasticity of Visual Perception in Balance Control of Spinal Cord Dysfunction Patients – Third Prize in Innovation (Life Sciences)

- A Low-cost Portable Cotton-based Aluminium-air Battery with High Energy Density – Third Prize in Innovation (Energy, Environmental and Chemical Engineering)

- Anti-interference Technology: On-Demand and Tunable Band-Rejected UWB Antenna Based on Peelable Resonator Membrane – Second Prize in Innovation (Information Technology)

- Digital Electro-microfluidics Platform for Manipulating Liquid Marbles and its Applications – Second Prize in Innovation (Mathematics and Physics / Mechanics and Control Systems)

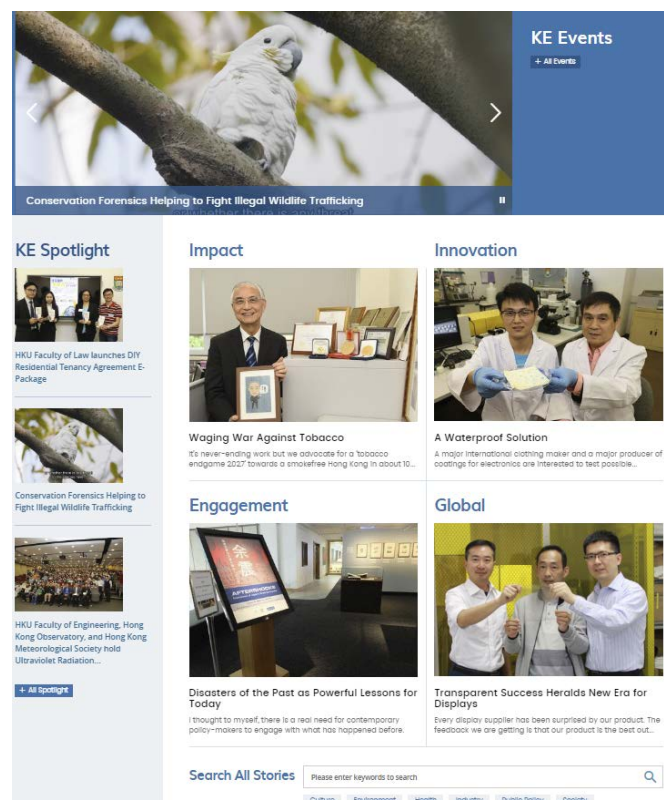- Project ADEN – Merit in Entrepreneurship (Start-up)

Global Legal Hackathon

A Hong Kong team, 'Decoding Law', won in Hong Kong's very first LegalTech and RegTech Hackathon held on February 23-25, 2018, and won again at the first ever Global Legal Hackathon held in New York City on April 21, 2018. The Global Legal Hackathon is a legal tech development competition that attracted participants from across five continents and over 40 cities. From among the 14 finalists, who had to present live prototypes of their solution to the event's judges, four winning teams were selected, two of which developed solutions to serve the private sector, and two for the public sector. The Hong Kong team comprises three HKU undergraduate law students, two CUHK law students and four software developers / data scientists. They won in the public service category for their innovative project that uses machine learning and AI technologies to make reading legislation easier. It finds people the relevant section(s) of legislation by identifying keywords in their questions; explains defined terms for easier navigation; and breaks down complex legislative drafting into simple language, which is particularly useful to unrepresented litigants. The other three winners were from the United States and Hungary.

4.   COMMITMENT TO KNOWLEDGE ACCESS AND COMMUNITY ENGAGEMENT

4.1   KE Website Revamp

KEO launched the new KE website (www.ke.hku.hk) in October 2017. It has been the first, and is still the only, HKU website that is organised along the strategic themes stated in the University's strategic document, *HKU Vision 2016-2025*, and showcases the KE success stories of our researchers under 'Impact', 'Innovation', 'Partnership', 'Global', and 'Engagement'.   To facilitate users to search for information, the stories are searchable not only under the aforementioned headings, but also by the benefits brought to 'Culture', 'Environment', 'Health', 'Industry', 'Public Policy' and 'Society', and by Faculty, etc. This new website serves the dual purposes of sharing HKU knowledge with the general public and publicising the KE contributions and achievements of our faculty members.

4.2   Faculties' Core Activity

All Faculties are committed to public engagement to share knowledge and raise awareness on important issues facing society. For example, the Faculty of Education organised a series of events for the Centenary Celebration of Teacher Education at HKU, which

provided many opportunities for our faculty members, alumni, primary and secondary school principals and teachers, parents, students, and members of the public to exchange ideas and views in different aspects in education. The reporting year also saw the Faculty of Social Sciences celebrating its 50th Anniversary. The Faculty has produced 50 videos to capture the tremendous achievements of 50 projects/programmes with real community impact in its history and shared them as a gift with alumni and the public.

The extent of public engagement in some events aiming to share knowledge on challenging social issues has been impressive. For example, over 1,000 participants from the healthcare, social welfare, and education fields and the general public participated in the Gala Premiere: 'My Little Story with Mom' and End-of-Life Care Public Seminar on

November 1, 2017, which was organised by the Jockey Club End-of-Life Community Care (JCECC) project funded by The Hong Kong Jockey Club Charities Trust and co-organised by the Faculty of Social Sciences. Through the mini-movie and interactive discussions at the seminar, the public gained a better understanding about the

choices of end-of-life care in the community and how to achieve a peaceful and precious moment at the last journey of life. The Faculty of Social Sciences also jointly initiated the Water Fun Fest with the Hong Kong Science Museum under the HK SciFest 2018 to integrate the knowledge of water conservation and appreciation of the multiple values of rivers into infotainment carnival through innovative and most up-to-date IT technology. The two-day Fun Fest successfully attracted over 10,000 people with publicity materials reaching out to the entire Hong Kong population.

Another example is the public lecture organised by the Faculty of Law on 'Special Needs Trust Fund' held on May 29, 2018, which attracted over 500 attendees who wanted to learn about an asset management mechanism recommended by our legal researchers, which could provide trust services to parents of children with special needs.

4.3   Student KE Projects

The KT funding was used to support 33 student KE projects in the reporting year. In particular, our dental students are passionate about applying their skills learned at the top dental school in the world to serve different disadvantageous groups in society. Their KE projects this year included services to patients with Angelman syndrome, elderly people living alone, students with special educational needs, mentally-handicapped persons, their families and caregivers, and children and villagers in Cambodia and Sri Lanka. The student teams will also have the opportunity to share their project experience with faculty members, fellow students and dental professionals at the Faculty of Dentistry's Faculty KE award ceremony.

The University also makes use of other funds to encourage students to undertake community projects, for example, the Service 100 Fund and the We Are With You Project Scheme that are administered by the Centre of Development and Resources for Students. For example, in a project titled 'Mutual Understanding' under the University YMCA (HKU) Monthly Service Series, 15 HKU students delivered a lip balm making workshop to 13 members of the Down Syndrome Association with either Down Syndrome or intellectual disabilities; in return, these members also taught HKU students how to make handicrafts.

5.   QUANTITATIVE INDICATORS

Given the broad definition of KE of the University, our performance indicators are not limited to the UGC required metrics, but also other indicators that are highly relevant to the University's KE efforts. Two tables on the UGC and HKU performance indicators respectively are at Annex III.

6.   LOOKING AHEAD

The University welcomes the launch of RIF by the RGC and the introduction of the Impact element in RAE 2020 by the UGC, which are expected to help foster our institutional strategy to encourage greater societal engagement by researchers and act as a further impetus to the evolving culture of wider engagement. The University will also continue its efforts to support the Government's policy of promoting innovations in order to bring new economic drive and to improve people's daily lives; strengthen entrepreneurship among researchers, students and alumni; and leverage the huge potential in technology transfer, industry partnership and spin-off in mainland China, with HKU-ZIRI and the HKU-Shenzhen Institute of Research and Innovation (HKU-SIRI) as ready platforms.

Knowledge Exchange Office
The University of Hong Kong
July 31, 2018

University: The University of Hong Kong (HKU)
Faculty: Faculty of Social Science Hong Kong Jockey Club Centre for Suicide Research and Prevention (CSRP)
Title of case study: Public Health Approach to Suicide Prevention
1. Summary of the impact (indicative maximum 100 words)   CSRP has developed the most comprehensive surveillance and monitoring system using Coroner's court data, identifying risk and protective factors, testing good practice models and knowledge exchange with and for the community. The work has reduced myth of suicide and improved awareness of mental health in the community. The suicide news reporting has significantly been changed to avoid copycat effect. The suicide rate of Hong Kong has reduced from its historical high 18.8 per 100,000 in 2003 to estimated 12.6 per 100,000 in 2016, which is an impressive 36.9% reduction. All the suicide prevention work are evidence-based and empirically validated.

2. Underpinning research (indicative maximum 500 words)
   CSRP has advocated the use of the public health approach for suicide prevention as it involves a multi-layer intervention. More specifically:
   i. *Leadership and Long-term commitment:* CSRP is led by its founding director Prof. Yip, Dr. Frances Law (Associate Director) and Dr. Cheng (Research Assistant Professor). The team has conducted vigorous research to identify risk and protective factors of suicide prevention since its establishment in 2002. We collaborate with various stakeholders and continuously conduct knowledge exchange with and for the community. CSRP is only one of this kind in this region which conducts research, training and public engagement.
   ii. *Evidence-based suicide prevention:* We are promoting evidence-based suicide prevention efforts [R4R5R6]. We aim to publish our work in high impact journals and then translate the research findings for and with the community. Our study has made reference to international good practices and guideline. We also aim at publishing our work in many prestigious academic journals, in Lancet, BMJ and British Journal of Psychiatry such that a wider community can be benefited.
   iii. *Community involvement*: We believe in community-based suicide prevention program as it is important to work with the local community to increase the feeling of ownership and partnership for the work to sustain in the community. At the same time, we have enhanced the capacity in the community for promoting mental wellbeing work.
   iv. *International and local Collaboration:* We have actively participated in many international scientific bodies, World Health Organization (WHO) and International Association of Suicide Prevention (IASP) and local NGOs to benefit from the exchange. Prof. Yip has served as vice president of IASP, a consultant to WHO and many Government for suicide prevention in this region. The Center's proposal on restriction of mean of charcoal sales has been adopted by Taiwanese Government which has led to very encouraging results. We hosted the Asian Suicide Prevention Conference in Hong Kong 2009 and World Suicide Prevention conference in Beijing 2011. We also serve in board of directors in local suicide prevention bodies.
   iv. *Education and Training:* Knowing the importance of capacity building and suicide prevention at the upstream level, we have established a long working partnership with the Education Bureau to promote wellbeing in schools. We have also organized mental health trainings to professionals so as to empower them with the best practices guidelines and skills for effective suicide prevention in their positions.
   v. *Media engagement:* Media is a double-edged sword. It can be a good tool for suicide prevention but it can also leads to copycat effect due to sensational reporting [R1R2R3]. To promote good practices of reporting suicide news, we published an updated version of the localized guidelines in 2015 based on the WHO guidelines. Our qualitative study revealed that the local media professionals were willing to support suicide prevention but continuous engagement with various levels of media professionals was required in order to change their suicide news reporting practices. Hence, a long-term knowledge exchange project to engage the

local media in 2014 was initiated.

3. References to the research (indicative maximum of six references)

R1 Cheng, Q., Chang, S. S., & Yip, P. S. (2012). Opportunities and challenges of online data collection for suicide prevention. *The Lancet* (London, England), *379*(9830), e53-e54. https://doi.org/10.1016/S0140-6736(12)60856-3

R2 Cheng, Q., Fu, K. W., Caine, E., & Yip, P. S. (2014). Why do we report suicides and how can we facilitate suicide prevention efforts? Perspectives of Hong Kong media professionals. *Crisis, 35*(2), 74–81. https://doi.org/10.1027/0227-5910/a000241

R3 Cheng, Q., & Yip, P. S. (2012). Suicide news reporting accuracy and stereotyping in Hong Kong. *Journal of affective disorders*, *141*(2-3), 270-275. https://doi.org/10.1016/j.jad.2012.03.036

R4 Law, C. K., Yip, P. S. F., Chan, W. S. C., Fu, K.-W., Wong, P. W. C., & Law, Y. W. (2009). Evaluating the effectiveness of barrier installation for preventing railway suicides in Hong Kong. *Journal of affective disorders*, 114(1-3), 254–262

R5 Liu, P. M., Chan, W. S., Law, Y. W., Law, S. C., Fu, K. W., Li, H. S., ... & Yip, P. S. (2009). An integrative suicide prevention program for visitor charcoal burning suicide and suicide pact. *Suicide and life-threatening behavior*, *39*(1), 82-90. http://onlinelibrary.wiley.com/doi/10.1521/suli.2009.39.1.82/full

R6 Yip, P. S. F., Caine, E., Yousuf, S., Chang, S.-S., Wu, K. C.-C., & Chen, Y.-Y. (2012). Means restriction for suicide prevention. *Lancet* (London, England), 379(9834), 2393–2399. https://doi.org/10.1016/S0140-6736(12)60521-2

Period of the grant (with dates): 1/7/2014-30/6/2017

Amount awarded: HK$10,000,000

4. Details of the impact (indicative maximum 750 words)

Suicide Means Restriction

By enlisting the help of all supermarkets to restrict the access of charcoal packs in Tuen Mun, the promising results showed a 53.8% reduction whereas the overall drop of 5.7% in Hong Kong's suicide rate during the same period [S1]. Findings were reported in major local and international newspapers and the British Journal of Psychiatry and the Lancet.

We have also made a persistent effort to advocate for the construction of platform gates across all above ground stations of the MTR since 2007. Our active voice gave pressure to the MTR Corporation to expedite their timeline on constructing platform gates. The former MTR Corporation Chief Executive Jay Walder promised to speed up instalment of platform gates from 2018 to 2017 on the Ma On Shan line [S2].

The success of our community based suicide prevention project in Cheung Chau project led to opportunities to extend to other community-based projects in the Eastern and North Districts which have been funded by the Government (HK$5 million). CSRP's program and research are instrumental to create a sustainable impact on reducing the suicide rate in these areas.

E-engagements

In order to reach out to people who hesitate to seek help or those who want to learn more about suicide prevention over the Internet, CSRP has created several e-platforms: MindMap (www.MindMap.hk), Little Prince is Depressed (LPD) (www.depression.edu.hk) and the CSRP website (www.hku.hk/csrp), to engage them and deliver high quality information and research findings. The WeCare website (https://wecare.csrp.hku.hk/) supported by a private donor (Azare foundation and MW Lau Fund) has been built to provide online support for youth in crisis and information for stakeholders to access. With substantial support from the Quality Education Fund (HK$10 million), CSRP developed an online e-learning program, "Professor Gooley and The Flame of Mind" (www.gooley.edu.hk), to provide an engaging mental health-learning experience to teenagers and their parents. These online and interactive efforts not only are held in high regard locally by the public [S3], with LPD winning the top ten awards in the Meritorious Websites Contest for six years in a row (2006-2011) [S4], but have also received accolades from mental health professionals abroad. The e-engagement has also attracted continuous funding from HKJC in the next five years with the budget (HK$70 million).

Media

Our work on suicide prevention through media has several impacts. First, with our engagement of restricting the spread of helium suicide in 2014, many newspaper editors accepted our recommendation to remove contents that described the method of suicide involving gas and to prevent detailed descriptions of it in subsequent news reporting [S5 S6]. We examine news reporting suicide cases on a day-to-day basis and proactively approach newspaper offices when any inappropriate or sensational reporting was noticed. We also respond to media enquiry on a regular basis. Due to our engagement, titles, photos and content of reports were less sensational and with less personal information of the deceased. The intensity of media reporting on helium suicide cases has reduced sharply in comparing to charcoal burning [S7].

Following media practice changes, intensity of student suicide incidents dropped in 2016. Our effort has also gained recognition from the HKSAR government and the international. Prof. Yip was appointed as the chairman of the Committee on Prevention of Student Suicides in 2016, and its report has become the blueprint for suicide prevention for students [S8].

Social Media

We worked with Facebook, Google and Baidu to provide helpline messages to people

who search suicide-related information using the two search engines [S9ab]. Our collaboration with Hong Kong YouTuber Auman in producing the suicide prevention short film "The Last Day" in 2017 received positive feedbacks from the public. We are also preparing a research paper based this collaboration, documenting the impact and how to engage YouTubers successfully for suicide prevention. We are now working with several other Hong Kong YouTubers with the support of HSBC to promote mental wellbeing and suicide prevention in social media [S10].

Funding and Awards

We have been receiving continuous funding for suicide prevention throughout the years. It is acknowledgement of our work for the community. In 2017, Prof. Yip was awarded a medal of Honour by The HKSAR Government for his dedicated public and community service, particularly his contributions to the prevention of student suicide. The IASP has awarded the most prestigious Stengel Award in suicide prevention to Prof. Yip's contribution in 2012. Prof. Yip and Dr. Cheng have been awarded the Faculty Knowledge Exchange award in 2012 and 2017 respectively.

5. Sources to corroborate the impact (indicative maximum of 10 references)

S1 Yip, P. S., Law, C. K., Fu, K. W., Law, Y. W., Wong, P. W., & Xu, Y. (2010). Restricting the means of suicide by charcoal burning. *The British Journal of Psychiatry*, *196*(3), 241-242. https://doi.org/10.1192/bjp.bp.109.065185

S2 星島日報 A05 港聞《馬鐵線裝幕門 提前2017完成》2012-03-20

S3 Statement of Support from the Committee on Home-school Cooperation is available for corroboration purpose.

S4 Awards received:
- Asia Wall Street Journal and the Singapore Economic Development Board
  Silver Asian Innovation Award 2005
- Hong Kong SAR Television and Entertainment Licensing Authority
  Meritorious Websites Contest Award 2006-2011
  *(*http://www.merit.gov.hk/eng/info/result.php)
- International Association of Suicide Prevention (IASP) 2011
  The Lee Award for Good Suicide Prevention Measures / Practices for means restriction

S5 Email conversation with the Chief Editor of Apple Daily Hong Kong showing appreciation, '*I am glad to meet you all yesterday. Thanks a lot to share with us your concerns which are valid. We will take your views in serious considerations when coming across the same kind of news in the future. Please feel free to tell us if you think what we did may cause problem. It is always not our commission but omission. If you have an article to be published in our Forum, please send directly to me.*'

S6 Cheung, K. H. (2014, September 22). 沙膽虹手記：最緊要溝通. *Apple Daily*. Retrieved from http://hk.apple.nextmedia.com/news/art/20140922/18874748

S7 Yip, P. S., Cheng, Q., Chang, S. S., Lee, E. S. T., Lai, C. S. C., Chen, F., ... & Cheung, K. W. R. (2017). A Public Health Approach in Responding to the Spread of Helium Suicide in Hong Kong. *Crisis*. 1-9. https://doi.org/10.1027/0227-5910/a000449

S8 Committee on Prevention of Student Suicides. (2016). Final Report. Retrieved from http://www.edb.gov.hk/attachment/en/student-parents/crisis-management/about-crisis-management/CPSS_final_report_en.pdf

S9ab Email conversations with the representatives of the Google Inc and Baidu, giving advice for them to provide helpline messages for suicide-related searches.

S10 Email conversation with the representative of the Google Inc. regarding the collaborative project on suicide prevention with Hong Kong YouTubers

Living Longer and Better

Recommendations based on two research projects by the Faculty of Architecture are contributing to the development and provision of housing for the elderly. The report, which won the Faculty Knowledge Exchange Award 2017 of the Faculty of Architecture, is already making an impact.

The research projects, collectively entitled 'Improving Livability in Ageing Hong Kong', were carried out by Professor Rebecca Lai Har Chiu and her team in the Department of Urban Planning and Design and the Department of Social Work and Social Administration. The first, 'A Comprehensive Study on Housing in an Ageing Community', was commissioned by the Hong Kong Housing Society (HKHS), Hong Kong's housing laboratory and foremost non-government organisation in subsidised housing provision. It comprised a questionnaire survey of 5,000 individuals, aged between 34 and 75, 20 focus group meetings, and interviews with senior professionals and former senior government officials.

"With the proportion of elderly people in the population increasing due to longer life spans, the aim was to investigate housing trends in overseas ageing communities and the possibility of similar trends happening in Hong Kong; to define future housing demands from households of different life stages; to study the current living arrangements of the elderly, especially those in co-residence with the younger generations; and to assess policies such as ageing in place, elderly housing schemes and holistic solutions to enable active and healthy ageing," Professor Chiu said.

The second study, 'Social Sustainability of Gated Communities in a High Density City: The Case of Hong Kong', involved a questionnaire of 900 samples and looked into the evolution of housing estates in Hong Kong as semi-gated communities; social sustainability considerations in planning and design and social sustainability performance from the perceptions of internal and external residents; and socio-spatial performance among different types of existing housing estates.

In Asian society, respect for elderly relatives is strong and the principle of ageing in place – that is remaining in your own home environment while you age – is upheld. However, this traditional Chinese normative order is facing challenges from rapid social and economic changes.

"85 per cent of the people surveyed, aged 50 and above, said they would prefer ageing in place when they got older," said Professor Chiu. "The question is how can we make the living environment surrounding them more supportive? Approximately 70 per cent of Hongkongers live in housing estates, and my recommendation on neighbourhood planning is to use our existing estate network to increase the density of elderly-related service provision, such as medical clinics and daycare centres, so that ageing in place is possible.

Psychological and social well-being

"Estates must have adequate services and facilities to enhance the elderly's psychological

and social well-being. Public space must be accessible and usable and there should be adequate circulation routes such as covered walkways and a social community environment where they can interact within the neighbourhood. Most public housing estates in Hong Kong have this as a planning principle – but we want to ensure that it is not just a principle but is actually happening." Jolly Place, a purpose-designed housing estate of HKHS, is located on flat ground with a variety of facilities and shopping centres in the neighbourhood within easy access. "Residents interviewed were very happy there," she said. "Based on the recommendations of the report, HKHS and the Government are looking into developing a more basic version of Jolly Place for the lower-income home owners."

Studies into how to reduce degeneration of cognitive processes in the elderly show that living within a mixed community, well served with facilities helps significantly. "While elderly homes can be good at first because the residents feel safe surrounded by people of the same age, there is no stimulation for the brain, so in the long term they are not beneficial. For the elderly, the most stimulating environment comes from living in what we term 'Mixed Developments'," said Professor Chiu. "Mixed in terms of age range and activities, so they are living within a normal and vibrant neighbourhood, and preferably within reasonable proximity to their children – while not actually living together. This is why ageing in well-equipped neighbourhoods such as our public and private housing estates makes so much sense."

To ensure the focus remains on this subject, Professor Chiu also recommended the formation of an integrated Elderly Policy and Elderly Affairs Office at bureau level in order to develop policy for the future developments. This would include land use zoning, and coordinating services which need to be coordinated across all government units.

The report, which won an HKU Faculty Knowledge Exchange Award in 2017, is already making an impact. HKHS used the recommendations when devising its Medium-Term Development Strategy. The Government's Planning Department also referred to the findings in formulating its long-term development strategy beyond 2030, specifically to develop inclusive and supportive housing for all ages in the context of a livable high-density city. In addition, the recommendations have been taken up by the Elderly Services Programme Plan commissioned by the Labour and Welfare Bureau with the aim of enhancing the provision of elderly services and facilities.

For the next stage of the livability research, Professor Chiu is looking into housing standards for the elderly in other Asian countries, to see if Hong Kong's experience can be applied there. Professor Chiu said: "We are studying South and South-Eastern Asian cities in the Belt and Road Region, such as Dhaka (Bangladesh) and this research is also expected to generate local impacts to help in tackling livability issues in ageing cities."

Professor Rebecca Lai Har Chiu of the Department of Urban Planning and Design and her team members, Professor Bo Sin Tang of Department of Urban Planning and Design, Professor Terry Yat Sang Lum and Dr Ernest Wing Tak Chui of the Department of Social Work and Social Administration, received the Faculty Knowledge Exchange Award 2017 of the Faculty of Architecture for the project 'Improving Livability in Ageing Hong Kong'.

Disasters of the Past as Powerful Lessons for Today

There is a real need for contemporary policy-makers to engage with what has happened before.

The adage that the past informs the present came to life for historian Professor J. Charles Schencking on March 11, 2011. At that time he was putting finishing touches to his highly-regarded study of the 1923 Great Kantō Earthquake for Columbia University Press. On that day, Japan was struck by a 9.0 magnitude earthquake and tsunami. Historical issues he had been writing about suddenly became current again.

As the disaster unfolded, people wondered what it would mean for Japan's future. "People asked, 'should we rebuild destroyed communities? If so, how should we rebuild them? Should it be a government-led, top-down exercise or a series of bottom-up community inspired initiatives?' Officials also debated how best to deploy humanitarian assistance," he said. These questions were not unique to 2011. Many similar questions had been asked in 1923. "I thought to myself, there is a real need for contemporary policy-makers to engage with what has happened before."

While his scholarly book provided historical perspective, he was also aware of the need to engage with people in other ways to promote broader understanding.

His first step in that direction was to upload images of his own materials, including more than 500 photographs, artefacts and maps from the 1923 earthquake, to a specially-created website that was accessible to the public.

"Disasters," he said, "generate powerful and emotive images and that really motivated me to build the website." The site has received more than 250,000 visits since its launch in December 2013. Following on from that, a public exhibition of the artefacts and images was held at the University of Melbourne, where Professor Schencking worked before coming to HKU. It garnered English and Japanese-language press coverage and attracted thousands of visitors. He gave a keynote address at the opening.

After a 7.0 magnitude earthquake struck Kumamoto Prefecture in April 2016, the Discovery Channel contacted Professor Schencking and Dr Janet Borland, an HKU assistant professor in Japanese Studies researching the impact of disasters on children and local communities. They were asked to assist with a documentary on disaster preparedness in Japan. Its initial broadcast attracted more than 2.5 million viewers.

"Japan today is one of the great leaders in disaster mitigation and preparedness," he said. "It wasn't always the case, but from 1923 the government began taking clear policy decisions to make society better prepared for the next earthquake. We can learn a lot by looking at the long history of disaster preparedness measures, both successes and failures."

Professor Schencking said his research has been positively affected by his engagement work on the Kantō earthquake because he now always thinks of how to reach a wider audience. "The humanities can have real life impact today, as well as contribute to understanding the past," he added.

Professor John Charles Schencking of the School of Humanities (History) received the Faculty Knowledge Exchange Award 2017 of the Faculty of Arts for the project 'The Great Kantō Earthquake and a new understanding of responses to natural disasters'.

A Light-Weight Achievement

It's the same cost, same production line, but better performance. The goal is to develop lightweight automotive steel that has much better properties and is easy to use in industrial production.

Carmakers around the world are trying to reduce the weight of their vehicles to help offset environmental and fuel usage impacts. Work by Dr Mingxin Huang of the Department of Mechanical Engineering has helped to move them towards that goal.

Working with Baosteel Group, one of the largest steel providers in the world, and General Motors, he modified a known but previously-unworkable method for making strong thin steel into an application that was ready to use with existing production lines and reduced the weight of the steel by 20 per cent.

"It's the same cost, same production line, but better performance," he said. "Using existing production lines makes it easier for quicker application. Otherwise it costs billions of dollars in investment to change lines."

Dr Huang got involved in this project after being approached by Baosteel. The firm had encountered difficulty in adopting a steel-making process invented in the US in 2003 that heats the steel to 900 degrees Celsius then quickly cools it to 180 degrees Celsius to create a single crystal structure. While the process worked well in the laboratory, it was not working in the steel plant where steel sheets are hundreds of metres long.

Dr Huang pinpointed the problem to the cooling process and tried heating the steel to a lower temperature and cooling it more slowly. This produced two crystal structures, but the steel was still thinner and as strong as conventionally-produced steel – meaning it could withstand crashes and compressions (the steel in question is used to build the skeleton of the car body). The findings were published in 2013.

Baosteel began to produce steel using this method almost immediately and has seen output rise exponentially from 414 tons in 2014 to 10,000 - 15,000 tons this year. The steel is mostly used by carmakers in Mainland China and Japan.

General Motors was also involved in the study and in 2015 rolled out the first car using the steel, the Chevrolet LOVA RV.

Dr Huang is continuing to work with Baosteel and has just started a major project looking at "Q&P" (for quenching and partitioning) steel, which has higher strength meaning thinner parts can be used. He has been investigating this steel for more than a decade, including doing projects with another major steel maker, Ansteel Group. "The goal is to develop steel that has much better properties and is easy to use in industrial production," he said.

Dr Mingxin Huang of the Department of Mechanical Engineering received the Faculty Knowledge Exchange Award 2017 of the Faculty of Engineering for the project 'High-strength Lightweight Steels for Low Emission Automobiles'.

Speaking Up for Women and Ethnic Minorities

People talk about gender-based discrimination or violence, or racial discrimination, but what my work highlights is that people are more than just a single identity holder. I want to raise awareness that we inhabit multiple identities and when you locate and recognise the multifaceted identities all together in one person, that creates distinct vulnerability and disadvantage, which needs to be understood.

Fair and equal treatment of women and ethnic minorities is too frequently unrealised in Hong Kong, but work by Associate Professor Puja Kapai Paryani in the Faculty of Law is helping to shed light on some of the ways in which society can redress the balance.

Since 2012, Ms Paryani has compiled strong evidence on the extent of discrimination, unconscious bias and unfair practices in Hong Kong, which she has presented to the government and international organisations. She has also conducted training sessions for non-governmental organisations, corporations and the Equal Opportunities Commission on these issues, and brought together a wide range of stakeholders for roundtable discussions on the plight of domestic workers, ethnic minority children and the victims of sexual violence.

These efforts have produced tangible improvements, such as a pledge by the government to officially disband the designated schools policy, improve school admission policies, and provide additional resources for Chinese language education for ethnic minorities after Ms Paryani's research showed they were marginalised in education at every stage and effectively segregated from ethnic Chinese students in public schools; and a decision by the Department of Justice to install screens in court from behind which victims of sexual violence can testify, following lobbying by Ms Paryani and RainLily, a centre for victims.

Her work has also promoted discussion on issues that previously were ignored. After she produced a report on the status of ethnic minorities from 1997-2014, the Legislative Council set up a special sub-committee on the rights of ethnic minorities. Her research on sexual and domestic violence against ethnic minority women also led to a special sub-committee to receive input from various stakeholders on this problem.

Her oral submissions contributed to the remarks made in the Concluding Observations, issued by the United Nations' Human Rights Committee and Committee on the Rights of the Child in 2013 on Hong Kong's international human rights obligations.

"People talk about gender-based discrimination or violence, or racial discrimination, but what my work highlights is that people are more than just a single identity holder. We inhabit multiple identities and when you locate and recognise the multifaceted identities all together in one person, that creates distinct vulnerability and disadvantage, which needs to be understood. We cannot develop effective laws or policies unless we can understand the populations we serve. I want to raise awareness about this across the societal, professional, governmental and non-governmental sectors," she said.

Ms Paryani has also encouraged sensitivity training for social workers, NGOs, healthcare workers and the police so they can deal more sensitively with situations involving ethnic

minorities and women – for instance, by highlighting the importance of making use of translation services, which are often bypassed to save time. She also played an instrumental role in helping HKU identify more gender-friendly policies in her work as Chair of the Equal Opportunity Unit's Working Group on Race, Family Status and Gender Identity.

"I'm gratified that there has been a change in culture," she said. "The government moved from saying there was no race discrimination problem in Hong Kong, to allocating resources to remedy what they now acknowledge as unacceptable patterns of racial marginalisation. NGOs are also now inspired to do their own research in this neglected area, monitor policies and call on the government to do better."

Ms Puja Kapai Paryani of the Department of Law received the Faculty Knowledge Exchange Award 2017 of the Faculty of Law for the project 'Plugging the Justice Gap for Minorities under the Law: Applied Intersectionality Research and Substantive Equality'.

KNOWLEDGE EXCHANGE FUNDING EXERCISE 2017/18: SUMMARY OF IMPACT PROJECTS

Faculty / Unit	Project Co-ordinator	Post Title, Department	Project Title	Summary Description
Architecture	Dr Cecilia L. CHU	Assistant Professor, Department of Architecture	Infrastructure Imagination: Hong Kong City Futures, 1972-1988	This project aims to disseminate knowledge of Hong Kong's infrastructure developments through a public exhibition focusing on construction schemes completed between 1972 and 1988. Through the presentation of photographs, models and oral histories as well as organization of a symposium, public forums and school visits, this project will prompt wider discussions and debates about urban changes in the past and imagination of a more sustainable urban future.
Architecture	Professor Weijen WANG	Professor, Department of Architecture	Historical Architecture and Social Catalyst: Conservation of Urban Space, Landscape and Community for Village Fabric of Jieshou	Developed from the historical trading route along Songyin Creek, Jieshou is a village in Songyang with lots of historical heritage buildings. This project aims to provide strategic planning and designs to adapt these public buildings as social catalyst for communal and culture events. It is also hoped that, with the acute-puncture mode of design strategy, it can bring together villagers and visitors, activating cultural and ecological tourism and reshaping the cultural landscape and daily-life spatial narratives of the village.
Architecture	Professor Weijen WANG	Professor, Department of Architecture	Design Improvement of Communal Farmland and Public Spaces for Tsoi Yuen Ecological Village	This project aims to improve the public spaces and the landscape environment of Tsoi Yuen Village by designing the village's communal farmland as well as its adjacent public facilities. The project team has been working with the villagers to formulate the planning strategies and has identified clear targets. They will coordinate the sub-division of farmland and help construct an irrigation system, create public seating and build walkways.
Architecture	Dr Katherine Ying DENG	Lecturer, Department of Real Estate and Construction	Commemorating the Centenary of Tai Tam Tuk Reservoir Dam on the Hong Kong Island – A Showcase of Interdisciplinary Archeological Evidence	This project aims to commemorate the Centennial of Tai Tam Tuk Reservoir Dam (1917) as part of the well-travelled Tai Tam Waterworks Heritage Trail by showcasing and interpreting a new collection of interdisciplinary archeological evidence which tells the stories behind the making of the century-old Dam. A series of public events including a themed exhibition, a mini-documentary, public talks and guided tours will be produced/organized for 1) secondary school teachers and students, 2) waterworks and built heritage professionals, historians and lovers, 3) public policy makers and practitioners and 4) eco or heritage tourists.

Faculty / Unit	Project Co-ordinator	Post Title, Department	Project Title	Summary Description
Arts	Professor John CARROLL	Associate Dean (Outreach), Faculty of Arts	Establishing a Library of Arts Impact Case Studies	This project aims to collect evidence of impact and establish a library of impact case studies for the Faculty of Arts in preparation for the Research Assessment Exercise (RAE) in 2020.
Arts	Dr Olga ZAYTS	Assistant Professor, School of English	Expanding Mind HK: Widening Access to an Online Information Resource on Mental Health in Hong Kong	This project aims to extend the reach of the Mind HK website to the vulnerable and less educated populations by developing multimedia videos and providing a wider range of written resources specific to the Hong Kong context. It is hoped that the website will give them access to resources about mental health and rights of individuals facing mental health problems, as well as medical and social sources of support available to them in Hong Kong.
Arts	Professor Daniel CHUA	Professor, School of Humanities and Chair of Department of Music	'Messiah Community Sing-Along' Project	This is a large-scale community learning project that brings together HKU student performers, professional musicians, and the general public with partners, SingFest and HKU Cultural Management Office. There will be a series of workshops, rehearsals, and talks, culminating in a 'community sing-along' concert in the Grand Hall, Lee Shau Kee Lecture Centre in December 2017.
Business and Economics	Mr David L. BISHOP	Principal Lecturer, Faculty of Business and Economics	Soap Recycling Across Asia	Over the past three years, Mr Bishop and students from HKU School of Business started Asia's first and largest soap recycling initiative. As that initiative has grown, Soap Cycling has become a thought leader in the field. This project aims to inform interested actors about the benefits and impact of recycling soap, and empowering them to act accordingly. The project team hopes to facilitate soap recycling efforts throughout Asia by presenting possible social venture models under which soap can be collected, processed, and distributed to underprivileged communities.

Faculty / Unit	Project Co-ordinator	Post Title, Department	Project Title	Summary Description
Dentistry	Professor Michael M. BORNSTEIN	Clinical Professor in Oral and Maxillofacial Radiology	Facts and Fallacies of Radiation Risks in Dental Radiology	Novel radiological technologies such as 3D imaging have resulted in improved diagnostic possibilities in dento-maxillofacial radiology, but the radiation doses have also increased significantly. This project aims to increase knowledge and awareness on radiation exposure and associated risks from dental radiology for the general public by producing an information booklet, and by holding discussion forums and sharing sessions so that people (lay people, health care professionals in dentistry & medicine) can help spread the correct information to the broader community and help allay misplaced concerns about the risks involved.
Dentistry	Dr Michael George BOTELHO	Clinical Associate Professor in Prosthodontics	Empowering an NGO to deliver tobacco cessation and oral cancer awareness as part of a general oral health program awareness among factory workers in Tamil Nadu, India	India continues to report the highest prevalence of oral cancers globally with 75,000 to 80,000 new cases of such cancers reported every year. This can be attributed mainly to the use of tobacco. This project aims to empower a local NGO to effectively deliver tobacco cessation and oral cancer awareness, which include diet and dental hygiene awareness, as part of a general oral health program to factory workers in Chennai.
Dentistry	Professor Chun Hung CHU	Clinical Professor in Family Dentistry	Collecting evidence of the impact of HKU preschool oral health program by measuring the children's oral health related quality of life and improvement of oral health	This project aims to evaluate and collect the evidence of impact arising from the 'HKU Preschool Oral Health Program' on children's oral health-related quality of life. The Program includes a school-based, comprehensive caries management program with annual dental check-up and the use of silver diamine fluoride to slow down the progression of tooth decay in Hong Kong preschool children. Results of this evaluation project can be used to strengthen the implementation of the oral health program, and ultimately, to influence health or education-related public laws, guidelines or policy.
Dentistry	Professor Han Sung JUNG	Professor in Oral Biosciences	Empowering school teachers to enhance awareness of areca nut/smokeless tobacco related oral cancer among school children in Sri Lanka	Sri Lanka is one of the countries in the world with the highest incidence of oral cancer, and the highest incidence of mortality from oral cancer in Sri Lankan population is reported among the adults who are continuous users of betel nuts. It is also reported the habits of chewing betel nut/smokeless tobacco are picked up at young age. Therefore, this project aims to enhance the knowledge and awareness among school children to prevent addiction to areca nut/smokeless tobacco, and to eventually reduce the incidence of oral cancer.

Faculty / Unit	Project Co-ordinator	Post Title, Department	Project Title	Summary Description
Dentistry	Dr Mike Yiu Yan LEUNG	Clinical Associate Professor in Oral and Maxillofacial Surgery	Partnering a non-governmental organization to sustain outreach dental service to the communities by mobile dental clinics	This project aims to evaluate the 'Smiley Action Days' program which was initiated since 2014 to enhance oral health, dental knowledge and self-care ability of Hong Kong citizens, and to expand the coverage of the program to more districts. This project will 1) empower the mobile dental clinics of Project Concern Hong Kong to provide basic and preventive dental care, 2) provide further training for the dental care team of Project Concern, and 3) evaluate the effects on participants who have received treatments so as to improve the program quality, effectiveness, sustainability and scalability.
Dentistry	Professor Edward Chin Man LO	Tam Wah-Ching Professor in Dental Science, and Chair Professor of Dental Public Health	Empowering a non-governmental non-profit organization to deliver cost-effective evidence based outreach dental care to institutionalized elderly care centers	This project aims to empower a non-governmental non-profit organization (Dental care service of the Chi Lin Nunnery Medical Service) to deliver evidence-based cost-effective outreach dental service to more than 3,000 elderly patients from more than 60 institutionalized elderly care centers. The outreach dentists will be trained to deliver evidence based dental services, and promote awareness of dementia and oral home care in elderly care centers.
Dentistry	Dr Prasanna NEELAKANTAN	Clinical Assistant Professor in Endodontology	Empowering a non-governmental organization to improve the oral health status of Non-Ethnic Chinese (ethnic minorities and migrant workers) in Hong Kong	This project aims to create an avenue the ethnic minorities and migrant workers in Hong Kong to determine their oral health status and to improve their dental health, oral health knowledge and self-care capacity, by 1) empowering the dental affiliates of a non-Government organization, Health In Action, to provide primary oral health care, and 2) strengthening the cooperation with Health in Action, The Indian Association Hong Kong, The Pakistan Association of Hong Kong and Nepali Social Service Hong Kong by further collaborating and organizing public events to promote oral health and encourage maintenance and preventive care.
Education	Professor Mark BRAY	UNESCO Chair Professor in Comparative Education	Public-Private Partnerships in Supplementary Education: Sharing Experiences in East Asian Contexts	This project aims to bring together personnel from companies, non-profit organizations, governments, schools and research bodies to learn from each others' experiences and to generate new insights on models of public-private partnerships in the domain of supplementary education. A two-day Policy Forum focusing on models and lessons from experiences in China, Hong Kong, Japan and South Korea will be organized.

Faculty / Unit	Project Co-ordinator	Post Title, Department	Project Title	Summary Description
Education	Dr Samuel K.W. CHU	Associate Professor, Division of Information and Technology Studies	Fostering future authors: co-authoring children's literature with high performers in a gamified e-quiz platform and a children literature course	This project aims to address the increasing demand for creative and interesting bilingual children stories by selecting around 20-40 high-performing students from a completed QEF project (a gamified e-quiz platform) as well as top-achievers from a Master's degree course teaching children literature writing, to co-author stories with the project team. These stories will be published as e-books for kindergarteners and primary students and made available on an e-quiz platform, and may also be published in print if they garner interest and popularity among the target audience.
Education	Dr Magda Nutsa KOBAKHIDZE	Assistant Professor. Division of Policy, Administration and Social Sciences Education	Supplementary Tutoring and the Roles of Teachers in Myanmar	Collaborating with local partners at UNESCO Yangon Office and Yangon University of Education, this project aims to collect evidence of impact from HKU's ongoing research project on private supplementary tutoring in Myanmar. The project is designed to raise awareness of critical issues related to private tutoring and to inform non-academic communities including teachers, school principals, parents, policy-makers, the Myanmar Teachers' Federation and civil society organizations through school-based workshops and feedback sessions.
Engineering	Professor Francis Chi Moon LAU	Professor, Department of Computer Science and Associate Dean of Engineering	The invisible ultra-violet (UV) radiation	By organizing an "Ultra-Violet (UV) Radiation Meter Design Competition", this project aims to 1) strengthen students' ability to integrate and apply knowledge and skills in engineering and meteorology; 2) nurture their creativity, teamwork and problem solving skills, and spark their interest in engineering; and 3) increase public awareness and understanding of UV radiation and its effects on health and promote correct attitudes towards UV protection.
Engineering	Dr Wilton FOK	Principal Lecturer, Assistant Dean (External Relations and Knowledge Exchange), and Director of e-Learning Development Lab	Impact studies of the KE and R&D projects conducted by the e-Learning Development Laboratory	This project aim to collect evidence of impacts of the series of knowledge exchange and development projects conducted by the e-Learning Development Laboratory since 2010. The impacts on e-learning technology development, pedagogy innovation and formation of community of practice in Hong Kong, Mainland China and overseas will be studied.

KNOWLEDGE EXCHANGE FUNDING EXERCISE 2017/18: SUMMARY OF IMPACT PROJECTS

Faculty / Unit	Project Co-ordinator	Post Title, Department	Project Title	Summary Description
Law	Ms Dora Shuk Yee CHAN	Principal Lecturer, Department of Law	E-package of DIY Residential Tenancy Agreement	This project aims to provide the public community with a template of residential tenancy agreement, which is an important document that has a significant impact on their daily lives, and a set of useful guidelines (including stamping and registration procedures) on how to enter into a valid residential tenancy agreement. Members of the public can then use and adapt the template to independently enter into a tenancy agreement for their residential homes, without the costs and trouble of engaging a lawyer. The main objective is to provide free legal support to the community and to encourage knowledge exchange on tenancy matters.
Law	Professor Anne S.Y. CHEUNG	Professor, Department of Law	Hong Kong SAR Treaties e-Library	This project aims to provide free access to legal information for the public in Hong Kong by building a one-stop comprehensive and electronically searchable database of treaties and international agreements applied to the Hong Kong SAR available in the database of Hong Kong Legal Information Institute. The key objective is to support the community and engage in knowledge exchange.
Law	Ms Katherine LYNCH	Associate Professor, Department of Law	Evaluation of the Children's Issues Forums & Legal Reform of Child and Family Law & Policy in Hong Kong	This project aims to collect evidence for corroboration and evaluation of impacts arising from the research and knowledge exchange project, "Children's Issues Forums & Legal Reform of Child and Family Law in Hong Kong", which created a multidisciplinary forum enhancing policy and legal reform for children's issues in Hong Kong. The project team will evaluate, through quantitative and qualitative measures, the impact of the project on increasing public awareness of children's issues as well as changing legal policy on and creating pressure for law reform in Hong Kong's child and family justice system.
Law	Dr Richard Wai Sang WU	Associate Professor, Department of Professional Legal Education	Engaging Local School Teachers with Common Law Concepts and Values Through Experiential Learning	This project is a pioneering interdisciplinary collaboration in common law education for local school teachers between academics from HKU Law and Social Science Faculties and academics from two other local universities. This project will engage local school teachers with common law concepts and values through experiential learning such as case discussion, personal sharing by senior lawyers, and visual media. It aims to promote teachers' understanding of the common law system in Hong Kong and enhance their awareness of general common law concepts and specific common law values like justice and equality.

Faculty / Unit	Project Co-ordinator	Post Title, Department	Project Title	Summary Description
Medicine	Professor Patrick C.Y. WOO	Clinical Professor, and Head of Department Microbiology	Learn it the HKU way: Early diagnosis of Middle East respiratory syndrome	This project aims to introduce to secondary school students a rapid method for early diagnosis of Middle East respiratory syndrome and arouse their interests on scientific research through presentations, laboratory tours and highly interactive discussions.
Medicine	Dr Jason Pui Yin CHEUNG	Clinical Assistant Professor, Department of Orthopaedics and Traumatology	Enriching patients' knowledge of cervical spondylotic myelopathy	This project aims to improve patients' knowledge of cervical spondylotic myelopathy and to standardize the information patients need to know prior to treatment decision-making. The information will be distributed via media/pamphlets to patients and families.
Medicine	Dr Patsy Pui Hing CHAU	Assistant Professor, School of Nursing	Raising the knowledge level on heart attack symptoms and appropriate health seeking behavior among the elderly	This project aims to raise the knowledge level of the elderly in Hong Kong on heart attack symptoms and appropriate health seeking behavior by disseminating a health education video. It is expected to reduce pre-hospital delay as and when they encounter heart attack in future.
Medicine	Dr Jay Jung Jae LEE	Research Assistant Professor, School of Nursing	Using YouTube videos for health education on emerging alternative tobacco products in Hong Kong	This project aims to utilise YouTube videos as a medium to educate and raise awareness amongst young people about alternative cigarettes, including waterpipe-smoking and e-cigarettes, and their negative impact on health.
Medicine	Dr Jessie Jingxia LIN	Research Assistant Professor, School of Nursing	Mindfulness for Psychosis and Caregivers	This project aims to help psychosis patients and their caregivers adjust stress and depression by teaching them some basic mindfulness skills through workshops. This will facilitate them to deal with negative emotions properly and improve their social functioning and quality of life.

Faculty / Unit	Project Co-ordinator	Post Title, Department	Project Title	Summary Description
Medicine	Dr Shirley Siu Ming FONG	Assistant Professor, School of Public Health	Children on the Move: A Therapeutic Exercise Program to Promote Health and Fitness for Children at risk of Developmental Coordination Disorder	This project aims is to raise awareness of exercise and health among children at risk of developmental coordination disorder and their parents through a training workshop, a smartphone application and a YouTube video and engage them in the novel evidence-based exercise regime.
Medicine	Dr Wendy Wing Tak LAM	Associate Professor, School of Public Health	Web-based patient decision aid for women choosing breast cancer surgery	Surgical treatment of breast cancer presents different surgical options to women, and this may result in decisional conflicts that cause distress and regret which can persist for years. This project aims to help prevent these problems and reduce both suffering and costs associated with cancer survivorship by adapting the decision-support booklet established by the project team into a web-based application so that it can be widely available to women with breast cancer.
Science	Dr Jason C.S. PUN	Principal Lecturer, Department of Physics	Focusing on the cause and impacts of light pollution	This project aims to 1) promote good lighting practice by creating an online public directory of good and poor lighting installment in the communities; 2) promote and establish the impact of the project in the local astronomy community; and 3) continue the successful international knowledge exchange effort through the Globe at Night – Sky Brightness Monitoring Network project which adopt the HKU-developed standardized method of quantifying the extent of light pollution.
Science	Professor Maohai XIE	Professor, Department of Physics	Building New Impact Cases in the Department of Physics	This project aims to build new impact cases within the Department of Physics on lead-absorptive materials, LED device and nuclear safety and policy.
Science	Professor Billy Kwok Chong CHOW	Professor, School of Biological Sciences	Building Impact Cases in the School of Biological Sciences	This project aims to collect evidence of impacts and to build impact case studies for projects under the School of Biological Sciences.

KNOWLEDGE EXCHANGE FUNDING EXERCISE 2017/18: SUMMARY OF IMPACT PROJECTS

Faculty / Unit	Project Co-ordinator	Post Title, Department	Project Title	Summary Description
Social Sciences	Professor Cecilia CHENG	Professor, Department of Psychology	Understanding and Prevention of Cybercrime Victimization in Vulnerable Groups in Hong Kong	This project aims to unveil the prevalence of cybercrime victimization and increase public awareness of the types of frequently unreported cybercrimes for vulnerable groups in Hong Kong by launching a population survey and designing evidence-based programs for cybercrime prevention.
Social Sciences	Dr Xiaoqing HU	Assistant Professor, Department of Psychology	Controlling unwanted memories and distracting thoughts to Enhance learning efficiency among secondary school students	This project aims to improve the skills of secondary school students to control unwanted memories and distracting thoughts. The project will provide both students and parents with knowledge of attention, memory and cognitive control, and organize workshops to teach students relevant cognitive skills to control unwanted memories and distracting thoughts.
Social Sciences	Dr Shirley Xin LI	Assistant Professor, Department of Psychology	Sleep for Health – A Community-based Sleep Health Promotion Programme	This project aims to 1) disseminate sleep-related health knowledge, 2) raise the public awareness on the importance of sleep health, and 3) promote good sleep practice in the community by developing educational booklets and a website, as well as delivering public talks in the community and local schools.
Social Sciences	Dr Siu Man NG	Associate Professor, Department of Social Work and Social Administration	Regular Qigong practice to reduce fatigue: train the trainers to help the persons with chronic fatigue build up healthy lifestyle of Qigong practice and self-health management	This project aims to promote Qigong practice and provide a useful online self-health management to persons with chronic fatigue by conducting a series of Qigong training courses to train the trainers in The Hong Kong Society for Rehabilitation. Subsequently these trainers will coach other staff to help service users with chronic fatigue to adopt healthy lifestyle practice.
Social Sciences	Dr Julie HAM	Assistant Professor, Department of Sociology	Sustainable Sunday Couture: Domestic Workers and Upcycling Designers	This project will showcase costumes made of upcycled materials (e.g. soda can tabs, coffee filters) that are designed and created by Elpie A. Malicsi, a domestic worker based in Hong Kong. An exhibition of these costumes will be the foundation for public engagement activities on (1) sustainability, (2) art and fashion, (3) cultural production by domestic workers in Hong Kong and (4) gender and migration.

Faculty / Unit	Project Co-ordinator	Post Title, Department	Project Title	Summary Description
Social Sciences	Dr Tom McDonald	Assistant Professor, Department of Sociology	Production of quality teaching materials on globalisation and social media for secondary education teachers and students in Hong Kong and UK	This project will create an innovative set of teaching and learning resources for pre-university students in the UK and Hong Kong, through which they can explore the role of social media within and beyond their own social worlds. This project aims to address the lack of well-designed teaching and learning resources for HKDSE Liberal Studies (HK), and enhance the existing provision of materials for A-Level Sociology (UK), by providing free-to-access teaching materials that partially fulfil curricula criteria, while also using social media to create opportunities for information exchange between schools in Hong Kong and the UK.
Social Sciences	Dr Tommy TSE	Assistant Professor, Department of Sociology	Green a Difference – Reduction of Animal Consumption in Hong Kong	This project aims to reduce the animal consumption of local students by organizing vegetarian lunches, seminars and cooking classes. Participating teachers, students and parents will learn the reasons and practices to go green for their health, for animal rights and for a sustainable environment.
Social Sciences	Dr Vivian W.Q. LOU	Associate Professor, and Director of Sau Po Centre on Ageing	Developing Package plus toolkits for capacity building in execution of Volunteer-assisted spiritual well-being enhancement for older adults (VASI) by train the trainer model	This project aims to develop a toolkit package for capacity building for health care or social services related staff to execute Volunteer-Assisted Self-help Intervention (VASI) in enhancing the spiritual well-being of elders.
Social Sciences	Professor John BACON-SHONE	Professor, and Director of Social Sciences Research Centre	"Open Data Institute Hong Kong" Pilot Project	This project will pilot an "Open Data Institute - Hong Kong" (ODI-HK) to assist the HKSAR Government to become more open and transparent, and to support the specific policy measure of opening more government data for public participation in policy formulation and development of more evidence-based social policy.

KNOWLEDGE EXCHANGE FUNDING EXERCISE 2017/18: SUMMARY OF IMPACT PROJECTS

Faculty / Unit	Project Co-ordinator	Post Title, Department	Project Title	Summary Description
Social Sciences	Professor Paul Siu Fai YIP and Dr Qijin CHENG	Professor, and Director of Hong Kong Jockey Club Centre for Suicide Research and Prevention (CSRP) // Research Assistant Professor, CSRP	*Helppiness* – To Share the Joy of Helping to Hong Kong Society	The project team has developed a mobile app named Helppiness under the study 'Longitudinal study on Altruism and Well-being Project'. Since the app was originally designed for research purpose, this project aims to reform the app so as to make it friendlier for the use in general public and extend it to a platform for sharing research findings with the public. In addition, the project will build up a Facebook public page for this app to continuously engage more people to use it.
Centre for the Enhancement of Teaching and Learning (CETL)	Dr Cecilia Ka Yuk CHAN	Associate Professor, and Head of Professional Development of CETL	Promoting and Developing Holistic Competencies of Students in Hong Kong	This project aims to support schools in developing the holistic competencies of their students through the production and subsequent sharing of videos to a) be used in programmes that target and facilitate the competencies development of students, and b) raise students' awareness of such competencies.
Communications and Public Affairs Office	Ms Katherine Ma	Director of Communications	Measurement of positive media impact related to HKU Knowledge Exchange	Since 2009-10, an online news platform has been set up for pooling of daily local news reports concerning HKU and for measurement. The platform and statistics generated provide major reference to the University Management, Faculties and their members of their KE performance.
Development & Alumni Affairs Office (DAAO)	Ms Monica Wong	Assistant Director (Alumni Affairs), DAAO	DreamCatchers 100K Seed Fund Programme & DreamCathcers Entrepreneurship Academy	HKU DreamCatchers is the university's flagship entrepreneurship initiative with a vibrant network of 3,000 students, alumni, friends and collaborators. It is proposed that the DreamCatchers 100K, HKU's first Entrepreneurship Seed Fund, and Entrepreneurship Academy be organised throughout the academy year of 2017/18, so as to continue to build HKU's image of creativity and entrepreneurship, contributing to the University's Vision of "Innovation, Interdisciplinary, Internationalisation – Impact".

Faculty / Unit	Project Co-ordinator	Post Title, Department	Project Title	Summary Description
General Education Unit	Dr Chi Chung WONG	Assistant Director of General Education	HK20+1	This project aims to create additional pathways for members of the public in Hong Kong to revisit the city's history and discuss on the social, economic, cultural aspects of Hong Kong, and enhance documentary understanding and appreciation, through screening of documentary films which illustrate the post-handover Hong Kong and in-depth conversations with filmmakers and critics. It also aims to document the current Hong Kong from the eyes of the young generation by a documentary mentorship programme.
Technology Transfer Office (TTO)	Dr Shin Cheul KIM	Director of TTO	Building business plan templates and training for business development	This project aims to enhance the business planning process of technology transfer activities and start-up companies by providing standardized guidelines and planning tools for them.
University Museum and Art Gallery (UMAG)	Dr Florian KNOTHE	Director of UMAG	Myanmar Arches	This project will build upon the existing Asian Arches Consortium to develop a more comprehensive database of cultural heritage resources within Myanmar, with a primary focus on Yangon and Bagan. The database will be used by professional researchers, on-site historians and conservation specialists, as well as students at HKU.
University Museum and Art Gallery (UMAG)	Dr Florian KNOTHE	Director of UMAG	Public Education Workshops	This project will offer insights into materials, techniques and artists' creative processes in 2-3 hour lessons conducted in three languages to members of the general public. Fundamental artistic skills and art appreciation will be taught.

Quantitative Indicators

Table 1

Performance Indicators Laid Down by UGC	2017/18
Number of patents filed in the year [Note 1]	132 [Note 2]
Number of patents granted in the year [Note 1]	67 [Note 3]
Number of licenses granted	114
Income (on cash basis) generated from intellectual property rights	$8.72M
Expenditure involved in generating income from intellectual property rights [Note 4]	$6.81M
Number of economically active spin-off companies [Note 5]	20
Net income generated (or net loss arising) from spin-off companies [Note 6]	$1.11M
Number of collaborative researches, and income thereby generated [Note 7] - no. of projects - income generated	 24 $32.56M
Number of contract researches (other than those included in "collaborative researches" above), and income thereby generated [Note 8] - no. of projects - income generated	 876 $257.92M
Number of consultancies, and income thereby generated [Note 9] - no. of projects - income generated	 1,042 $75.58M
Total of collaborative researches, contract researches and consultancies [Note 10] - no. of projects - income generated	 1,942 $366.06M
Number of student contact hours in short courses or e-learning programmes specially tailored to meet business or continuing professional development (CPD) needs [Note 11]	102,203
Income received from CPD courses [Note 12]	$6.16M

Performance Indicators Laid Down by UGC	2017/18
Number of equipment and facilities service agreements, and income thereby generated - no. of agreements - income generated	39 $0.91M
Number of public lectures/symposiums and speeches to a community audience Note 13	1,688
Number of performances and exhibitions of creative works by staff or students Note 13	128
Number of staff engaged as members of external advisory bodies including professional, industry, government, statutory or non-statutory bodies	608

(Data as of early July)

Notes:

1. The number of patents granted is unrelated to the number of applications in a particular year.
2. The number of inventions involved is 98.
3. The number of inventions involved is 46.
4. The costs incurred in protecting all IPR in the reporting year are reported, without limiting only to those patents that were successful in generating income.
5. For commercialisation, the University through Versitech takes a dual approach of spin-off and licensing. In addition to spin-off companies, start-ups that are commercialising HKU technologies and funded by the Technology Start-up Support Scheme for Universities at HKU (TSSSU@HKU) have been included.
6. Versitech, HKU's wholly owned technology transfer company, is a minority shareholder in the spin-off companies. It is difficult to predict the companies' sales/turnover due to the volatile business environment. Only the net income (or net loss) of those companies with equity held by Versitech was reported because being the equity holder Versitech could obtain the financial information from those companies.
7. ITF projects with industrial sponsorship and other collaborative projects with at least two partners (one of which being a government or public body) were included.
8. Contract research projects commissioned by external organizations, and projects supported by funding schemes that allow non-higher education institutions to apply, including ITF projects without industrial sponsorship, Public Policy Research projects, and projects funded by the Food and Health Bureau, the SK Yee Foundation, Construction Industry Council, and Standing Committee on Language Education and Research (SCOLAR), were included. NIH projects have been classified as Contract Research since 2016/17.
9. Consultancy and service projects for KE commissioned by external organizations to the University or Versitech were also included.
10. It is considered more appropriate to group collaborative researches, contract researches and consultancies together because it is sometimes not easy to classify projects into these categories.
11. Taught postgraduate programmes were not included.
12. Expenditures including overheads were deducted. Net income from taught postgraduate programmes was not included.
13. Community, cultural and KE-related events organised by the University and those delivered by academic staff at the invitation of external organisations were included.

Table 2

Other Performance Indicators of HKU	2017/18
Number of external advisory bodies membership held by HKU staff	2,946
Number of knowledge transfer websites [Note 1]	275
Number of postgraduate theses on open access [Note 1]	26,137
Download count of postgraduate theses to addresses outside HKU [Note 1]	111,241
Number of publications on open access [Note 1]	25,815
Download count of publications to addresses outside HKU [Note 1]	858,333
View count of HKU Researcher Pages from outside HKU [Note 1]	5,187,086
View count of HKU Research Postgraduate Student Pages from outside HKU [Note 1]	78,815
Number of staff available for media contact	655
Number of positive media impact related to knowledge transfer coverage, including print, on-line and electronic media [Note 2]	15,950
Number of placement/internships [Note 3]	3,355
Number of mentors from outside HKU for HKU students [Note 3]	1,090
Number of appointments of external members to HKU advisory boards, committees or panels [Note 3]	433
Number of students (headcount) in non-UGC-funded taught postgraduate programmes [Note 4]	7,831

(Data as of early July)

Notes:
1. These seven indicators refer to the University's efforts in making knowledge accessible to society.
2. The number was obtained through the media impact project using an online news platform covering mainly local newspapers and magazines, and some multimedia outlets and websites to pool daily news reports concerning HKU that are KE-related.
3. As HKU sees KE as a two-way process, these three indicators refer to the University's efforts to learn from the community.
4. The non-UGC-funded TPg programmes generally respond to community needs for broadening/upgrading skills or life-long learning.

July 31, 2018