



Recurrent Funding for Knowledge Transfer

Annual Report 2021/22



Community Engagement



Impact Creation



Research & Innovation

Table of Contents

Executive Summary	2
1. Research and Innovation to Provide Solutions	3
1.1 Combating COVID-19 with Collaborative Effort	3
1.2 Supporting the Community Against COVID-19	3
2. Driving Innovation and Knowledge Transfer through Institutional Support	4
2.1 Partnerships and Developments	4
2.2 Mainland China and Greater Bay Area Developments	4
2.3 InnoHK Centres	5
2.4 Updated Regulations on Outside Business Activities and Outside Practice for Knowledge Transfer Activities	5
3. Developing an Innovative and Entrepreneurial Culture at CUHK and Beyond	6
3.1 Featured Innovation and Knowledge Transfer Events	6
3.2 Entrepreneurship Education, Mentorship and Support	7
3.3 Social Entrepreneurship	13
4. Technology Transfer and Commercialization	15
4.1 Intellectual Property Management Output and Achievement Highlights	15
4.2 Technology and Business Development	16
4.3 Research Contracts and Agreements	16
4.4 Engagement and Collaboration Beyond Academia	16
4.5 Industry Liaison Activities, Exhibitions and Business Matching Meetings	17
5. Social Innovation and Community Engagement	18
5.1 Social Innovation and Impact Creation	18
5.2 Community Engagement	20
6. Impact Case Studies	21
6.1 CUHK Medical Discoveries Combat Against COVID-19	21
6.2 Innovative Gas Detection Solutions Integrate Upstream Knowledge in Downstream Applications	22
6.3 “One University One Village” – Rural Sustainable Development Assistance Programme	23
6.4 Stress Tolerant Soybeans Enable Climate-smart and Sustainable Agriculture on Marginal Lands in China	24
Looking Forward	25
Annex	
1 Financial Report on the Use of UGC KT Fund	
2 Updates on Table 4.1 of Initial Statement	
3 Updates on Table 4.2 of Initial Statement	
4 Number of Patents Filed in 2021-22 with Breakdown	
5 Number of Patents Granted in 2021-22 with Breakdown	
6 Number of Licences Granted in 2021-22 with Breakdown	
7 Contracts Executed through ORKTS 2021/22	
8 Knowledge Transfer Project Fund (KPF)	
9 Sustainable Knowledge Transfer Project Fund (S-KPF)	
10 Technology and Business Development Fund (TBF)	
11.1 Number of Spin-off Companies with Breakdown 2021-22	
11.2 Number of S-KPF Companies with Breakdown 2021-22	
11.3 Number of TSSSU Companies with Breakdown 2021-22	
12 Knowledge Transfer Seminars/Events organised by ORKTS	



EXECUTIVE SUMMARY

As articulated in the strategic plan 2021-25, CUHK is committed to integrating research, innovation and enterprise into a dynamic and productive continuum, which propels the translation of research into tangible benefits and the delivery of innovation to the world. This report summarises the development, activities and achievements of knowledge transfer in the reporting year 2021-22.

Established under the HKSAR Government's InnoHK initiative, the six InnoHK Centres led by CUHK researchers will apply the University's world-class research discoveries to generate translational impact on a local, national and global scale. This year, we also unveiled a prospective blueprint for innovation and technology developments in the Greater Bay Area (GBA) through strategic partnerships.

Backed by a reputation of ground-breaking research, an innovative spirit, together with extensive training and support for innovation and entrepreneurship on our campus, this year our researchers and students continued to triumph in various local, national and international awards and competitions. The inaugural "CUHK Innovation Day" marked an iconic event to showcase CUHK's top-notch innovation and knowledge transfer achievements. Together with the annual "CUHK Entrepreneur Day", the two events demonstrated to internal and external stakeholders the pathway from research and innovation to commercialization.

Intellectual property arising from research at the University should be exploited for the benefit of the public to the broadest extent possible. In 2021-22, our inventors completed 71 new invention disclosures - the highest annual number of inventions we had in the past five years. Meanwhile, we have filed a total of 419 patent applications worldwide and had 264 patents granted around the world. We have also granted 45 licenses to local and overseas companies, generating HK\$65 million of licensing income this year.

Turning to entrepreneurship development, we received 92 applications for our Pre-incubation programme (PI programme) and were able to support 28 teams this year (40% more than the previous year). Under the Technology Start-up Support Scheme for Universities (TSSSU), 21 technology startups were funded this year. To date, twenty companies (including PI & TSSSU) have been funded by external investors with a total amount of approximately HK\$ 1.4 billion. In addition to these programmes, we have launched the Youth Entrepreneurship Assistance Scheme under the Youth Development Fund (WeVenture – "MAKE a DASH" in CUHK) to support youth entrepreneurship in Hong Kong and the GBA markets. Forty-three applications were received and 13 teams of various business natures (technology, social and cultural) were selected. Despite being affected by the pandemic and the challenges of travelling between Hong Kong and the mainland, most startup teams successfully launched their businesses at entrepreneurship bases in the GBA this year.

In the area of social innovation, our Knowledge Transfer Project Fund (KPF) provides support for knowledge transfer activities in the community. Together with the recurrent HK\$3.2 million Social Innovation and Entrepreneurship Development Fund (SIE Fund) of the HKSAR, we were able to support 19 social innovation projects this year. We also supported 2 new social enterprises with our Sustainable Knowledge Transfer Project Fund (S-KPF) to encourage social entrepreneurship in academia.

1

RESEARCH AND INNOVATION TO PROVIDE SOLUTIONS

The recent COVID-19 crisis have illustrated the critical importance of research and innovation in providing solutions to overcome global challenges. At CUHK, we are dedicated to translate our research and knowledge into impactful outcomes in the society.

1.1 Combating COVID-19 with Collaborative Effort

In 2022, the fifth wave of COVID-19 had an enormous impact on Hong Kong. Our researchers and frontline healthcare workers devoted their effort to protecting our communities and tackling COVID-related challenges through innovative research and technology development. Collaborating with local and overseas experts, we also conducted interdisciplinary research studies on infection control, epidemiology, vaccine effectiveness and risks, clinical diagnosis and treatment, long-term post-COVID health problems and more.

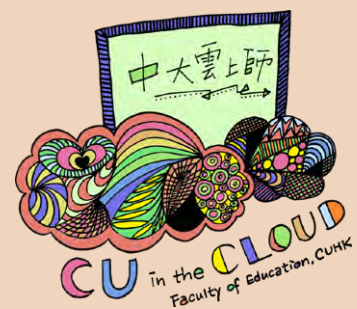
Notably, our world-leading research team from the Faculty of Medicine is the pioneer to discover the correlation between the gut microbiome, COVID-19 vaccine efficacy and “long COVID” complications. In addition, a collaboration between the CUHK Clinical Trial Centre and the CUHK Medical Centre launched Hong Kong’s first clinical trial of a new oral pipeline drug to treat COVID-19 patients with mild to moderate infection. Beyond the medical field, our researchers across several disciplines also addressed other social, behavioural and economic issues arised from the COVID-19 pandemic. Our concerted effort in multifaceted fields of research offered practical insights for policymakers to respond to the pandemic and supported the community in combating COVID-19. Please refer to the impact case stories on p.21-22 for further information on the impact of our research and innovation throughout the pandemic.

1.2 Supporting the Community Against COVID-19

When COVID-19 broke out in early 2020, we launched a designated website entitled “Act Together Against COVID-19” (<https://againstcovid19.cuhk.edu.hk/>) within a short time to provide the public with the latest epidemic information and e-learning resources. These include the latest research discoveries on COVID-19 by our researchers, medical knowledge, healthcare tips and news. Alumni doctors and students from the Faculty of Medicine also supported various community vaccination programmes and free online Chinese medicine consultations were offered to COVID-19 patients. In addition, the Integrative Medical Centre, CUHK, the CUHK – SHFA Integrative Medical Centre and The Chinese University of Hong Kong Chinese Medicine Specialty Clinic cum Clinical Teaching and Research Centre launched the “Free Telemedicine Consultation Service in COVID-19 Convalescence Care” to support recovering patients with Chinese herbal medicines and medicinal diet.

“CU in the CLOUD” Programme

While in-person classes were suspended in Hong Kong, student teachers at the Faculty of Education developed a series of free online lessons for kindergarten, primary and secondary school students. Covering various subjects and topics, the series offered over 40 interactive online classes and access to teaching videos. The lessons were specially designed to help students enhance subject knowledge and learning interests. The programme also provided live physical education lessons to help students stay healthy and active throughout the school suspension periods. Furthermore, public lectures were available to support students sitting for the public examination in 2022.



2

DRIVING INNOVATION AND KNOWLEDGE TRANSFER THROUGH INSTITUTIONAL SUPPORT

At CUHK, we foster partnerships with universities, research institutions, industries, governments and the public sector to accelerate and enhance our innovation and knowledge transfer efforts. Through institutional strategic partnerships, we aim to facilitate the transfer of knowledge, skills and expertise between our partners, our students and staff.

2.1 Partnerships and Developments

CUHK Interdisciplinary AI Research Institute (CUHK and Shanghai AI Lab)

In September 2021, we signed an agreement with the Shanghai Artificial Intelligence Laboratory to conduct various strategic cooperation projects on artificial intelligence (AI). Our partnership includes launching the CUHK Interdisciplinary Artificial Intelligence Research Institute, recruiting research talent, joint training for young people and combining research, education and knowledge transfer for innovation ecology and sharing achievements.

The institute will also develop essential and advanced educational programmes, enhance research collaboration, offer specialist training through joint platforms and develop academic research and biotechnology. Furthermore, the institute enabled our partnership to explore new long-term research areas and innovative projects in a sustainable way. We will also develop collaboration projects to foster scientific research and target innovative fields. Aligned with the National 14th Five-year Plan, these projects will allow Hong Kong to prosper as an international innovation and technology hub.



Inauguration of CUHK Interdisciplinary Artificial Intelligence Research Institute

CUHK and SINOVAC Develops P3 Laboratory

In February 2022, we signed a new Strategic Collaboration Framework Agreement with Sinovac Biotech (SINOVAC) to develop a Biosafety Level 3 Laboratory (P3 laboratory) at CUHK. The laboratory will be used to conduct research on infectious diseases, immunology, microbiology and other related study areas. The agreement marks a vital milestone in our partnership in combining our strengths in academic and industry knowledge to drive research and development collaborations in biomedicine in Hong Kong and mainland China.

2.2 Mainland China and Greater Bay Area Developments

Special Forum Unveils New Strategic Partnerships in the Greater Bay Area



Prof. Lawrence LAU Juen-Yee (left), Ralph and Claire Landau Professor of Economics, CUHK gives a talk on "Retrospect and Prospect of CUHK Development in the Greater Bay Area". (Right) Prof. Rocky S. TUAN, Vice-Chancellor and President, CUHK

In October 2021, we presented a special forum to celebrate 15 years of presence in the Greater Bay Area (GBA). At the forum, we also announced seven new strategic partnerships to reinforce Hong Kong's presence in the region's emerging innovation and technology ecosystem. The forum was presented as a hybrid event in Hong Kong and at the Shenzhen Research Institute at CUHK. Senior government leaders on both sides of the border and representatives from industry and academia with an interest in developments in GBA attended the forum.

The occasion also marked the beginning of new agreements with the Hong Kong Science and Technology Parks Corporation (HKSTP) and Cyberport. This enables sharing our expertise on GBA to help both organisations launch startups and incubate technology developments across the border. Additional agreements were also signed with the Greater Bay Area University on climate change and green energy, as well as partnerships with the Qianhai, Nanshan, Futian and Luohu authorities. These partnerships will boost our presence in innovation, entrepreneurship, business education and applied research in GBA.

Foshan Shunde District for Innovation and Entrepreneurship

In January 2022, the Center for Entrepreneurship (CfE) and the Centre for Family Business (CfB) at CUHK signed a Memorandum of Understanding (MoU) with the Foshan Shunde Office of the Leading Group for the Development of the Guangdong-Hong Kong-Macao Greater Bay Area (Shunde GBA Office) and Shunde Foundation for Innovation and Entrepreneurship (SDIEF). The MoU was made to commemorate the establishment of the GBA Innovation Cooperation Centre in “He Innovation Space” in the Shunde District.

Located in the Shunde Guangdong-Hong Kong-Macao Collaborative Development and Cooperation Zone, the GBA Innovation Cooperation Centre is a core component of “He Innovation Space”. Both CfE and CfB have 16 years of experience in introducing entrepreneurs, international resources and cross-generational entrepreneurship in GBA; the MoU will boost the new centre’s position as a sustainable platform for startups to flourish.



(From left to right) Prof. Kenneth S. LAW, Chairman, Department of Management of CUHK Business School; Prof. ZHOU Lin, Dean of CUHK Business School; Prof. Alan CHAN, Provost of CUHK; Prof. Kevin AU, Director, CfE and CfB; Prof. CHAN Wai-ye, Pro-Vice-Chancellor; Prof. YAM Yeung, Dean of Shenzhen Research Institute, CUHK; Prof. Benny ZEE, Director of ORKTS posed for a group photo at the MoU signing ceremony.

2.3 InnoHK Centres

Contributing to Hong Kong's innovation agenda, we established six InnoHK Centres to support the development of health, biomedicine, robotics and artificial intelligence (AI). Located at HKSTP and established under the Hong Kong Government's InnoHK initiative, the centres translate our leading research discoveries into impactful local, national and global benefits. By combining our expertise with resources from other global partnering universities, the centres will position Hong Kong as a global powerhouse for innovation and help the world connect with GBA and its emerging research and innovation ecosystem.

The six research centres are:

Health@InnoHK	Partnering Institutions
Centre for Neuromusculoskeletal Restorative Medicine Director: Professor Patrick YUNG Co-Director: Professor Woody CHAN	Karolinska Institutet
Centre for Novostics Scientific Director: Professor Dennis LO	University of Oxford, UCL Great Ormond Street Institute of Child Health, Great Ormond Street Hospital for Children NHS Foundation Trust, and Imperial College London
Microbiota I-Centre Director: Professor Siew NG Co-Director: Professor Francis CHAN	University of Cambridge, The University of Chicago and The University of Melbourne
AIR@InnoHK	Partnering Institutions
Centre for Perceptual and Interactive Intelligence Director: Professor Helen MENG	Massachusetts Institute of Technology and The University of Manchester
Hong Kong Centre for Logistics and Robotics Director: Professor Yunhui LIU Co-Director: Professor Masayoshi TOMIZUKA	University of California, Berkeley
Multi-scale Medical Robotics Centre Directors: Professor Philip CHIU and Professor Samuel AU	ETH Zurich, Imperial College London, and Johns Hopkins University

2.4 Updated Regulations on Outside Business Activities and Outside Practice for Knowledge Transfer Activities

At CUHK, we incorporated new “Outside Business Activities” and “Outside Practice” regulations to encourage our researchers to engage in knowledge transfer activities. Our employees can use up to 20% of their working hours and off-hours to work on startups initiated from CUHK’s research and innovation knowledge. Simultaneously, these regulations also provide more time and flexibility for employees to conduct scientific research and knowledge transfer activities in mainland China, including the development of GBA. The regulations are aligned with our mission to help our faculty and students pursue innovation and entrepreneurship.

3

DEVELOPING AN INNOVATIVE AND ENTREPRENEURIAL CULTURE AT CUHK AND BEYOND

Instilling an innovative culture and entrepreneurial spirit is vital to develop a dynamic entrepreneurship community. Our events and programmes are specially designed to inspire, challenge and empower our students and staff to create and innovate with confidence.

3.1 Featured Innovation and Knowledge Transfer Events

CUHK Innovation Day 2021

In September 2021, the inaugural CUHK Innovation Day celebrated the theme of “Innovation, Patents and Beyond”. The event was presented in a hybrid format and featured 20 projects contributed by research teams across faculties on satellite technologies, robotics, biomedicine and education. Hundreds of participants attended the event, garnering extensive media coverage from local newspapers and other notable media platforms.

During the thematic session of the event, distinguished CUHK researchers and guests from NEC Hong Kong presented and discussed their expertise in several talks and panel discussions. Exploring the theme of “Emerging Technologies at CUHK”, the session looked at satellite technology, green energy, tissue engineering, language disorder prediction and more. Held alongside the CUHK Entrepreneur Day, the event showcased our research and innovation achievements, and demonstrated the pathway from research and innovation to commercialization.



(Left) CUHK holds the Opening Ceremony of the CUHK Innovation Day and the InnoPort. The officiating guests include (from left) Prof. SHAM Mai-har, Pro-Vice-Chancellor (Research) and Vice-President, CUHK, Prof. Alan K.L. CHAN, Provost, CUHK, Mr. Alfred SIT Wing-hang, JP, the then Secretary for Innovation and Technology, HKSAR Government, Prof. Rocky S. TUAN, Vice-Chancellor and President, CUHK, and Prof. Benny ZEE, Director, Office of Research and Knowledge Transfer Services (ORKTS), CUHK. (Right) Mr. Alfred SIT, Secretary for Innovation and Technology, tours the exhibition booths hosted by CUHK at its Innovation Day.

University-wide Webinar Series to Foster Knowledge Exchange and Interdisciplinary Collaborations

We have organised various university-wide webinar series to promote interdisciplinary research collaborations on and beyond campus. Since 2021, the “**CUHK and CUHK(SZ) Joint Webinar Series**”, co-organised with CUHK (SZ), fostered intellectual exchange between the Hong Kong and Shenzhen campuses. Specially curated for all academic staff and research students on both campuses, our webinars addressed various topics, disciplines and areas of study. This year, we organised six webinars and addressed topics from structural biology, drug development, vaccinology, neurological diseases to smart energy engineering and geoinformation science and technology. Aiming to enhance the connection between both campuses, the series also served as an exchange platform for researchers to share their latest discoveries and facilitate intellectual dialogues and future collaborations.

Furthermore, the Office of University General Education and the Hong Kong Chapter of the United Nations’ Sustainable Development Solutions Network (SDSN Hong Kong) co-organised the “**SDG Forum Series**”, which employs SDGs as a framework to explore global issues such as climate change and sustainable development. Additionally, monthly webinars were organised by the newly established **Computational Social Science Laboratory** (Faculty of Social Science) to promote interdisciplinary collaboration in addressing substantive social science issues by applying computational techniques. The “**Digital Humanities Across the Faculty series**” organised by the Research Institute for the Humanities also promoted interdisciplinary research potential in literature and philosophy, as well as across arts and science. Collectively, these webinars fostered cross-disciplinary exchanges and research collaborations.

ORKTS Webinar Series

This webinar series promotes innovative and entrepreneurial culture on campus and highlights the process of translating research ideas into socially impactful solutions through commercialization and entrepreneurship. This year, 800 CUHK staff and students registered for the webinars and explored various social topics and issues through six sessions, including intellectual property (IP) licensing, research collaboration with industrial partners and social enterprises and in-depth “research-to-market” insights. Additionally, the series also introduced several key concepts and ideas for participants to generate a greater impact by commercializing their research.

The 13th Annual Intellectual Property Conference

Held online in July 2021, the two-day conference under the theme of “Innovation, Intangible Assets During and After the Global Pandemic” was co-organized by the Faculty of Law (CUHK LAW), United States-China Intellectual Property Institute (USCIP) and Asia Innovation and IP Society (AIIPS). The conference and pre-conference workshop attracted over 350 attendees, which served as an opportunity for scholars and practitioners to discuss and reflect intellectual property (IP) issues surrounding start-up companies’ IP strategies, COVID-19, artificial intelligence (AI), intangible cultural heritage, standard-essential patents (SEPs), IP licensing, new developments of IP laws in China, Europe, and the United States. During the conference, CUHK LAW Professors and students spoke respectively on AI-generated works, COVID-19 related IP issues, creative adversarial networks (CANs), antisuit injunctions relevant to SEPs, and SEP-based injunctions.

3.2 Entrepreneurship Education, Mentorship and Support

3.2.1 Nurturing a New Generation of Entrepreneurs and Innovators

Launched in 2021, the Minor Programme in Entrepreneurship and Innovation (EPIN) is designed to promote interdisciplinary entrepreneurship culture and mindset at CUHK. Focusing on developing students’ entrepreneurship skills, EPIN also helps them enhance their creativity and perseverance in a positive way. This year, the programme expanded its course offerings to include a new course on media production and presentation for students to enhance their interdisciplinary learning experience.



(Left) Karen launched *Just A Moment* to fill a crucial gap in the mental health industry. Through their social media platform, she shares essential mental health knowledge in an accessible way. (Right) Kit’s startup *PrisTea* sells self-made fresh floral and fruit teas produced regularly in her workshop. (Screen capture from *WHY EPIN?* video)

Beyond the campus, internship opportunities are offered through EPIN for students to apply their academic knowledge in real-life situations and further develop their learning and expertise. EPIN internships are offered in collaboration with the Hong Kong Cyberport Management Company, HKSTP and the CUHK Alumni Entrepreneurs Association (CUAEA). In addition, the “Why EPIN?” interview series published on EPIN’s YouTube channel highlights how the programme has empowered students from different disciplines to contribute to their internships and entrepreneurial initiatives.



Dr. TCLI (Lecturer, Department of Cultural and Religious Studies Department, CUHK) leads the *Maker Workshop Series*. His expertise as a producer has offered participants a deeper insight into video production.

Furthermore, the Guest Lecture Series and Maker Workshop Series were held for EPIN students to learn from prominent entrepreneurs and develop the latest technology skills for prototype production. We also held local community field trips to expand students’ interdisciplinary experience. We toured the 7th CUHK Entrepreneur Day 2021 (E-Day 2021) for students to network with distinguished entrepreneurs and gain valuable perspectives on the latest entrepreneurship trends. We visited Fabrica and the Centre for Heritage, Arts and Textile (CHAT) at The Mills for students to experience a unique outlook on social innovation and sustainability.

3.2.2 Entrepreneurship Funding Programmes

Our funding programmes allow entrepreneurial-minded academics, students and local youth to commercialize their ideas into socially impactful solutions. The programmes also promote various entrepreneurship activities at CUHK.

Pre-Incubation Centre

CUHK encourages students and researchers to contribute to society with the knowledge gained through their research. As a university-wide initiative since 2014, the Pre-Incubation Centre (PI Centre) stimulates creativity and entrepreneurship on campus. Managed by the Office of Research and Knowledge Transfer Services (ORKTS), the PI Centre provides key resources to foster a supportive community with our staff, faculty and student entrepreneurs. From pitching strategy, founding a team to developing corporate structure, capitalization and equity, the PI Centre covers all essential factors to build a successful startup. Additionally, training workshops, individual advising and mentorship services are provided for entrepreneurs to launch and grow their startups, allowing these startups to gain access to opportunities tailored to their venture and development stages.

This year, the PI Centre admitted 28 out of 92 applicant teams in two batches. The teams were selected by a vetting panel of internal and external professional assessors. Offered through the centre, the Pre-Incubation Funding provides more assistance by offering HK\$30K funding for outstanding PI teams to commercialize their technologies and implement innovative business models for profit and the benefit of society.



PI Team Briefing Session

Technology Start-up Support Scheme for Universities

This year, we supported 21 CUHK technology startups through the Technology Start-up Support Scheme for Universities (TSSSU) with HK\$8 million funding from the Innovation and Technology Commission. The startups covered a wide range of areas, including:

- **Advanced manufacturing/process development**
- **Biotechnology**
- **Electronics**
- **Energy**
- **Environmental protection**
- **Information and communications technology**
- **Medical robotics**
- **Nanotechnology**
- **Materials science and robotics**

These TSSSU companies undergo mentorship and startup training through our ecosystem to build their startups. Tailored guidance and assistance were provided to each. To date, 20 startups, including PI and TSSSU companies, have received HK\$1.4 billion worth of external investments.

PI and TSSSU Teams successfully admitted into External programmes

Our PI and TSSSU Teams applied to several pre-incubation and incubation programmes at HKSTP and Cyberport to secure additional funding. These programmes offer financial aid and valuable support, including mentoring services, investment and partnership opportunities, and access to a startup network. These teams would be able to leverage the Incubators' resources to make further progress in their startup journey. This year, our teams were admitted to the following programmes:

Startup Stage	Programme	Financial Aid (HKD)	Duration	No. of Teams Admitted
Pre-Incubation	HKSTP Ideation	HK\$ 100,000 (per team)	1 year	9
	HKSTP Incu-Bio	HK\$ 16,000,000 (for TSSSU teams)	4 year	5
Incubation	HKSTP Incu-Tech	HK\$ 1,290,000 (for PI and TSSSU teams)	3 year	4
	Cyberport CIP	Up to HK\$ 500,000 (per team)	2 year	1

Youth Entrepreneurship Fund (WeVenture) Supports “MAKE a DASH”

Supported by the Home Affairs Bureau (HAB), we established the “MAKE a DASH” programme under the Youth Development Fund (WeVenture) to support youth entrepreneurship in GBA. The programme was launched by the Office of Research and Knowledge Transfer Services (ORKTS) and the Center of Entrepreneurship (CfE) in early 2021 with HK\$8 million of funding.

Among 16 funded organizations, we were the first to complete the funding scheme in 2022. Our programme has supported 13 startup teams, consisting of young entrepreneurs, to establish a presence and develop their businesses in GBA. Our teams work in various areas ranging from AI, education technology and biotechnology to social innovation, and demonstrated our range and viability of innovation and entrepreneurship at CUHK. Despite travel restrictions at the time, most of our startups became incubatees at InnoHub, SZRI and GungHo Space. Additionally, five of these startups also obtained business licences and are ready to launch in GBA.



On 13 May 2022, MAKE a DASH Demo Day and Press Conference was held as a closing event to celebrate the achievements of the startup teams and to recognize the mentors and their efforts.

Furthermore, the programme provides private mentor matching to help startups transform their ideas into sustainable social or business opportunities. Our mentors also helped them seek investment and business collaboration with other industry partners and set actionable targets to optimize business growth. In addition, through seminars, networking sessions and workshops and other events, “MAKE a DASH” helped our startups gain extensive knowledge and business exposure in GBA.

3.2.3 The Entrepreneurship Ecosystem

Established in 2014 by the PI Centre, our campus-based Entrepreneurship Ecosystem leveraged the resources of the university, external partners, investors and service providers to support our startups. To facilitate communications with internal and external parties, the ecosystem are consolidated into the following 10 clusters:



Training & Workshops

By industry experts and practitioners



Fast Track

To start-up incubators, funding preparation, investors plus media strategy and exposure



Establish & Fostering CUHK Start-up Community

Graduated teams and current students



Monthly Consultancy & Mentorship

With our CUHK Entrepreneurship consultant and our approved consultants



Legal Support

With New Ventures Legal Team from CUHK legal PG & UG students



Networking Opportunities

Successful Entrepreneurs, business partners and industry experts



Service Providers

Auditors/ Banks Incubator services/ Legal firms



Investor Network



Talent Pool & Career Opportunities



Media Exposure

Investment Networks

Partnering with angel investors and venture capitalists, our investors primarily invest between the seed stage and Series B stages. Through our collaboration, our investors also provide training, guidance, mentoring and other resources to help our startups thrive. They also participated in selecting qualifying TSSSU and PI teams. Our partner investors during 2021-2022 were:

Angel Investors	Venture Capitalists
<ul style="list-style-type: none"> • InnoAngel Fund • HongKongX • AML Holdings • Lenovo Capital & Incubator Group • PENTEPEBBLE 	<ul style="list-style-type: none"> • Sequoia Ventures (IT) • Hillhouse Capital-GL Ventures, (Biotech & IT) • Qiming Ventures (Biotech) • AZ-CICC Healthcare Invest. (Biotech) • Boehringer Ingelheim Venture Fund (Biotech) • Morningside Ventures (Biotech) • AliBaba Fund (IT) • Gobi Partners (IT) • Viva Ventures (Biotech)

Training and Workshops

Through the PI Centre, we conducted workshops, seminars, networking sessions, boot camps and hackathons to help students, staff and alumni from various disciplines and the public to develop entrepreneurship skills, and enabled CUHK startups to update their skills. During the reporting year, we held over 30 events and attracted more than 850 participants consisting of our students, alumni and the public. Addressed topics explored business development, marketing, team building, management, fundraising, legal procedures for startups and essential skills, including pitching and business model development.

Additionally, other educational workshops were held in collaboration with our partners, including the Center for Entrepreneurship (CFE), the New Ventures Legal Team of the Faculty of Law (NVLTL), Cyberport, HKSTP, the Alibaba Entrepreneurs Fund (AEF), HKAI Lab and Tanner De Witt Solicitors.



(Top) The New Ventures Legal Team of the Faculty of Law Matching Session. (Bottom left) Cyberport University Partnership Programme (CUPP). (Bottom right) Alibaba Entrepreneurs Fund Pitching Session

Monthly Consultancy and Mentorship

Via our individual consultation service, we provided mentorship support to assist PI and TSSSU teams in their entrepreneurship journeys. In 2021-2022, we held over 150 meetings. These meetings discussed their progress in detail then provided assistance and guidance in their execution of their business plan. During these sessions, we also provided personalized advice and training and helped our teams establish business contacts and partnership connections for further developments

3.2.4 Innovation and Entrepreneurship Competitions

Competitions offer an invaluable platform for students to learn, flex their creative muscles and inspire each other throughout the process. Through the PI, TSSSU and other entrepreneurship programmes, we also equip students with critical skills to compete locally and globally with confidence.

The Vice-Chancellor's Cup of Student Entrepreneurship

Held in November 2021, the 15th Vice-Chancellor's Cup of Student Entrepreneurship (VCCE) gathered over 60 participants as they transformed their business ideas into reality. Co-organized with the PI Centre and the Center for Entrepreneurship (CfE), the competition also offered training workshops, site visits, networking events and consultations. Twelve finalist teams submitted their business ideas on technology, health technology and other actionable ideas. Four winning teams were chosen by a panel, all of them were teams incubated at the PI Centre.

OAO won the championship title. The winning team created an online platform that displays 3D scanned organs through augmented reality (AR), mixed reality (MR) and virtual reality (VR). First runner-up *Savvy* is an AI-powered educational platform designed to help self-learners streamline their learning experiences by organizing learning materials and recommending other highly rated resources on the same subject. The second runner-up was *itinni*, a travel-tech startup company that offers travellers a stress-free and comprehensive planning experience through its website and mobile application. *The Biscuit* - an electronic music device that double duties as an auto feeder for dogs - won the Best Presentation Award.



15th Vice-Chancellor's Cup of Student Entrepreneurship

Professor Charles K. Kao Student Creativity Award

The Professor Charles K. Kao Student Creativity Awards (PCKKSCA) is a campus-wide competition of technological innovation organised by the Centre for Innovation and Technology (CINTEC) and supported by the Charles K. Kao Scholarship Endowment Fund. Designed to promote innovation and entrepreneurship on campus and encourage cross-disciplinary collaboration, the award also empowers students to transfer their academic research knowledge into innovative applications through creative entrepreneurship. Open to all undergraduate and postgraduate students at CUHK, the award accepts individual or group projects under four categories: "Life Science", "Energy, Environmental and Chemical Engineering", "Information Technology" and "Mathematics and Physics/Mechanics and Control Systems". As a vital platform that illustrates our innovation streak, awardees will also represent CUHK at the National College Students' Extracurricular Academic Science and Technology Contest (National Challenge Cup).

The 17th National College Students' Extracurricular Academic Science and Technology Contest

This year, the territory-wide competition received over 22,000 projects from 2,500 higher education institutions in China. CUHK won five awards and became the only participating university from Hong Kong to win the most awards. This was also our first time winning the top prize at the National Challenge Cup. Furthermore, we were the only university from Hong Kong to receive top and first prizes.



(Left) Recipients of Top Prize: Miniaturised Robotic Steerable Surgical Drill for Confined-Space Bone Work; Prof. Samuel AU, supervisor (left), Mr. Hongbin LIN, Mr. Xuchen WANG (top on the screen), Mr. Yan WANG (bottom on the screen), Department of Mechanical and Automation Engineering.



(Right) Recipients of First Prize: Development of a Novel Neutrophil-based Anticancer Immunotherapy: S3KO-TAN; Prof. Patrick Ming Kuen TANG (left), supervisor, Mr. Jeff Yat Fai CHUNG (middle), Mr. Max Kam Kwan CHAN (right)

Hong Kong Techathon 2022

“Hong Kong Techathon 2022” is an inter-university platform for programmers, software developers, engineers, designers, marketers and entrepreneurs to collaborate and learn to pitch new business ideas for seed funding and incubation support. We jointly organized with HKSTP and other local universities, in which we support by providing judges and event management support including planning and coordination work. Hong Kong Techathon 2022 was divided into four categories: “AI and Fintech”, “Humanities and Healthtech”, “Social Impact and New Generation Technology” and “Smart City and Sustainability”. The virtual award presentation and closing ceremony were held in January 2022 where *READily* and *FOP* - two teams comprised of CUHK students – won championship titles in the “AI and Fintech” and “Smart City and Sustainability” categories respectively. *READily* developed an AI software that helps private English tutors create teaching materials with ease by generating English comprehension questions from any text. *FOP* developed “Polar Bear”, a wilderness expedition robot that captures enhanced images across diverse natural habitats using advanced off-road technologies. *Fleming MedLab*, another team with CUHK students, came second in the “Humanities and Healthtech” category.

3.2.5 Supporting Entrepreneurs in the Greater Bay Area and Asia

Entrepreneurship development and expansion are on the rise in mainland China and Asia. Our collaboration with several organizations in GBA and beyond assists ambitious CUHK teams to enter, expand and thrive in these markets.

Activities in the Greater Bay Area and SZRI Innohub

The national development strategy for GBA offers exciting opportunities for startups in Hong Kong to receive policy and funding support in GBA. This year, our ongoing collaboration with various partners in the region also supports PI/TSSSU teams. Our partners include the Zhuhai International Health Port (Jinwan District), the Hong Kong and Macau Science and Technology Achievement Transformation Base in the Zhuhai High-tech Zone, the Gungho Space in Foshan and the CUHK Shenzhen Research Institute (SZRI). Currently, Gungho Space and SZRI are assisting eight PI/ TSSSU teams to enter the mainland Chinese market. Due to COVID-19, regular online talks were held to enhance our teams’ understanding of GBA policy and business opportunities.

Business Development Opportunities in Asian Markets

We are exploring collaboration opportunities with incubators and accelerators for PI/TSSSU teams to expand their businesses in Asia. Currently, we are discussing potential collaborations with the Singapore Management University to support our teams.

3.2.6 Expanding the CUHK Entrepreneurship Community and Network

CUHK Entrepreneurs Alliance (CUEA)

Launched in 2020, the CUHK Entrepreneurs Alliance (CUEA) drives the growth and development of entrepreneurship at CUHK. Initiated by the CUHK Alumni Torch Fund, the alliance was formed by the Alumni Affairs Office (AAO) and:

- CUHK Convocation
- The Center for Entrepreneurship (CfE)
- The Centre for Innovation and Technology (CINTEC)
- The CUHK Shenzhen Research Institute (SZRI)
- The Entrepreneurship and Innovation Hub (InnoHub)
- The Entrepreneurship and Innovation Minor Programme (EPIN),
- The I-CARE Centre for Wholeperson Development
- The Pre-Incubation (PI) Centre
- The Office of Research and Knowledge Transfer Services (ORKTS)

CUHK Entrepreneur Day

Initiated by the CUHK Alumni Torch Fund, our annual flagship entrepreneurship event CUHK Entrepreneur Day (E-Day) provides a one-stop information and exchange platform for our students, graduates, alumni, entrepreneurs and the public to learn more about our latest startup initiatives.

Due to social distancing restrictions at the time, E-Day 2021 was held as a hybrid event in September 2021. Celebrating the theme of “Entrepreneurship · Innovation · Sharing for Good”, the event encouraged CUHK members to promote entrepreneurship and innovation for good in Hong Kong. During the event, the online section showcased 75 startup projects and featured talks and workshops led by our alumni and the CUHK Entrepreneurship Competition. In the physical section, 13 PI and six TSSSU teams exhibited their projects. Throughout the CUHK Entrepreneurship Competition, our PI team *Han-Peng Assisted Reproductive Technology* won the championship and *LaSense Technology Limited*, a TSSSU team, came second.



The winner, first runner-up and second runner-up of the 5th CUHK Entrepreneurship Competition are Han-Peng Assisted Reproductive Technology Limited, LaSense Technology Limited and BioMed Technology Holdings Limited respectively.



The interactive display zone features four advanced technology products developed by CUHK entrepreneurs for a first-hand experience.

Happy Hour Entrepreneurial Talk

Launched in 2020, the regularly held CUEA Happy Hour Entrepreneurial Talks are organized by CUEA members. The series attracted many participants from various fields and featured our alumni as they shared their entrepreneurship experiences with our community. This year, the talks explored many topics, including creative education, fintech, technology transfer, business financing, commercializing AI, social innovation, developing an entrepreneurial mindset, opportunities in GBA and women and academic entrepreneurs



Happy Hour Entrepreneurial Talk held at InnoPort featuring alumni to share their entrepreneurship experiences

3.3 Social Entrepreneurship

Engaging in social entrepreneurship is a way for CUHK members to create social impacts in a sustainable manner. Various schemes and programs are dedicated to promote social entrepreneurship among CUHK members.

Sustainable Knowledge Transfer Project Fund for CUHK Academics

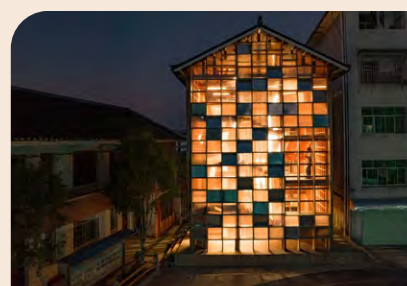
The Sustainable Knowledge Transfer Project Fund (S-KPF) is the first funding scheme of its kind to empower academics to leverage their research insights to launch social enterprises. Two-year seed funding, incubation services, training and support are provided to social enterprises under S-KPF scheme to help them evolve into self-sustaining organizations with solid revenue models, and to be supported by external investment or other funding resources. For further information on S-KPF social enterprises, please refer to Annex 9 and 11.2.

Social Enterprises Supported by Sustainable Knowledge Transfer Project Fund (S-KPF) (Highlighted Projects)

Condition_Lab

Professor Peter FERRETTO, School of Architecture

Condition_Lab is a Hong Kong-based social enterprise that helps improve peoples' well-being, preserves cultural heritage and educates the public through design and architecture. The company seeks to promote culture and heritage in rural communities by developing architectural typologies, explorer workshops and craft products. In addition to its mission of conserving local cultural heritage, Condition_Lab also promotes financial self-sufficiency among rural communities and provides Hong Kong youths with real-life experience of rural living where they can reimagine the condition of their living space. The team is working on multiple revenue streams, including running workshops, developing small furniture design and exploring opportunities to create installation artworks with several galleries and museums. The team is also enhancing their brand and public engagement through social media.



Speech and Hearing Social Enterprise

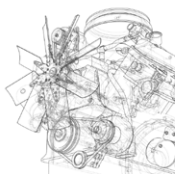
Professor Kathy LEE Yuet Sheung, Department of Otorhinolaryngology, Head and Neck Surgery

The Speech and Hearing Social Enterprise aims to improve the quality of speech therapists and organizations through continuous training and support. The team also offers in-depth evidence-based interventions related to speech therapy. With validated assessment tools, evidence-based treatment resources, consultancy services and training for frontline staff, the company aims to enhance the professional standard and capacity among speech therapists and audiologists to improve people's well-being as well as the quality of life. Together with the provision of quality services to low-income families and those from culturally and linguistically diverse backgrounds, its solutions will promote and foster social integration and inclusivity. By focusing on Cantonese-speaking regions, they are also exploring business expansion opportunities in mainland China.



Social Enterprise Startup Scheme for CUHK Students and Alumni

BUILD YOUR
INNO-ENGINE
開發社創原動力
Social Enterprise Startup Scheme
社會企業啟動計劃



Launched in 2015-16, the Social Enterprise Startup Scheme encourages students and recent graduates to establish or expand their social enterprises. Managed by the I-CARE Centre for Whole-person Development, 13 teams have received over HK\$1.1 million in seed funding from the CUSE Fund under the scheme. This year, 7 out of 13 teams entered our mentorship programme and gained valuable advice from many business elites who are also senior CUHK alumni. The teams' proposed projects covered various areas, including green economy, childhood education and the arts. In July 2022, the teams presented their finalized business plans to the scheme's panel, and an award of

HK\$100,000 was granted to each selected team. Additionally, in 2021-22, the scheme offered training sessions for students who are interested in social entrepreneurship. Due to social distancing restrictions at the time, some sessions were delivered online. Despite this, 220 students and alumni attended the sessions and gained invaluable knowledge and insights about social entrepreneurship.

Hong Kong Social Enterprise Challenge

Launched in 2007 by CUHK, the Hong Kong Social Enterprise Challenge (HKSEC) is Hong Kong's leading social enterprise startup platform for tertiary students and recent graduates. It is also one of the world's longest standing competitions of its kind, sponsored by the Home and Youth Affairs Bureau (HYAB) with the supports from partners such as United Nation Development Program (UNDP), Citi Foundation and Intellectual Property Department of HKSAR Government (IPD). By employing a structured competition model, HKSEC encourages participants to formulate practical solutions for social issues through creative entrepreneurship. Moreover, HKSEC provides seed funding, business consultations, mentorship and publicity support for award-winning teams. Through our ever-expanding network, many winning teams have received further support through our referral efforts with our partners, including the Impact Incubator funded by the Social Innovation and Entrepreneurship Development Fund (SIE Fund).

This year, 483 participants assembled 151 teams and presented over 90 social venture ideas. During the competition, 16 out of 115 participants from CUHK went through to the semi-final. The CUHK teams *Retrovert* and *Neurodysey Association* both won first runner-up titles in HKSEC 2021-22. Each team received HK\$150,000 from the Startup Award Scheme. *Neurodysey Association* also won the "Social Ambassador IP Award".

Additionally, the HKSEC Academy was launched in May 2022 to encourage young entrepreneurs to explore new topics and the latest development on important social issues, including fintech for social good, social impact measurement and climate change. This series of webinars are designed to support the growth and professional development of HKSEC alumni as well as other young social innovators. Furthermore, the academy serves as a knowledge exchange and social impact co-creation platform between CUHK professors and HKSEC participants.



Retrovert is a secondhand clothing platform that helps reduce fashion waste by recycling used clothing and redistributing it through online and physical stores. Job opportunities for underprivileged women (young mothers and teenagers who are not in employment, education or training) are provided.



Neurodysey is a social enterprise aiming to promote well-being and boost the physical, cognitive and psychosocial development of children with special educational needs.

4

TECHNOLOGY TRANSFER AND COMMERCIALIZATION

4.1 Intellectual Property Management Output and Achievement Highlights

In 2021-22, we continued enhancing our intellectual property (IP) management service to help our staff and students transform their expertise into sustainable social and market impact. During the reporting period, our inventors completed 71 new invention disclosures - the highest annual number of inventions we had in the past five years. This also indicated that more of our researchers are proactively responding to our IP policies and resources for knowledge transfer and developing impact-driven innovations. Additionally, 419 and 264 patent applications were filed and granted in different jurisdictions around the world. We have also granted 45 licenses to local and overseas companies and generated HK\$65 million of licensing income this year.

Intellectual Properties Management: Achievement Highlights

Case 1: TRILEX® Herbal Tea: The Knowledge-based Herbal Tea Preparation

Reintroducing TRILEX® Herbal Tea with Healthworks to the Hong Kong market was one of the most rewarding projects we worked on this year. The product was relaunched in good time to help people manage COVID-19 symptoms.

TRILEX® Herbal Tea is the first scientifically proven “liangcha” (Chinese herbal tea) that effectively relieves symptoms of respiratory infections, such as influenza. The formulation is based on traditional Chinese medicine, where holly leaves were traditionally used to brew herbal teas and medicine to treat respiratory infection symptoms in southern China. Developed by our researchers from the Faculty of Science in the late 1990s—before the School of Chinese Medicine (SCM) was established at CUHK—the research was funded by the Industry Department (now known as the Trade and Industry Department). Additionally, the herbal tea was scientifically verified with the strictest efficacies and safety.

For over a decade, Healthworks manufactured this ground-breaking product in the form of tea bags and sachets and benefited many Chinese communities. In 2015, sales were suspended due to the optimization of proprietary Chinese Medicine (pCm) registration under the Chinese Medicine Ordinance in Hong Kong. As the government refined the registration system over the years, we brought TRILEX® Herbal Tea back thanks to the collective effort of our Institute of Integrative Medicine, SCM and Healthworks. In February 2022, a license on the herbal formula and the TRILEX® trademark were granted to Healthworks. TRILEX® Herbal Tea is also the first “Herbal Tea Preparation” to gain a pCm registration in Hong Kong.

Case 2: Pioneering Network Coding Technology for Better Wireless Communications

Data packet loss is a challenging yet inevitable issue in the wireless communications industry. It is also one of the primary reasons why wireless networks require multiple hops, increasing the risks of data packet loss. Prof. Raymond YEUNG Wai-Ho from the Department of Information Engineering and his research team developed a new network coding technology that uses a single-hop network to solve this issue and address other surging demands and challenges in the industry. Known as “BATched Sparse codes (BATS)”, the technology can resolve the inadequacy of optical fibre and wireless communications and extend signals from locations with network coverage to those without mobile coverage.



Source: BATS: An Enabling Communication Technology for IoT and Beyond (https://n-hop.com/wp-content/uploads/2022/01/n-hop_white_paper.pdf)

The startup founded by Prof. YEUNG’s research team received an exclusive global license of their invention to commercialize the technology. This allowed the company to complete its fundraising goals earlier this year with HKSTP and other strategic investors. Currently, BATS provides WiFi services in Lantau Country Park for weather signage, emergency buttons, wildfire detection and environmental data collection as well as smart lampposts in Hong Kong.

Case 3: Enhanced Technology for Surgical Robots

Robotic surgery allows surgeons to perform complex surgeries with precision, flexibility and control. However, safety is a key concern as robotic surgery requires an exceptional level of delicacy and compliance. A Hong Kong-based startup that develops surgical robotic systems has acquired a license for one of our technologies invented by researchers from the Department of Mechanical and Automation Engineering. The cutting-edge technology can be applied to various surgical robots with the strictest safety and compliance requirements. It also offers the advantages of both existing active and passive mechanisms critical for operational precision and reliable intrinsic safety. As a key element to the company’s growth, the technology will allow them to develop new surgical solutions and enhance the safety and performance over existing technologies. This will significantly impact and generate tremendous benefits for the medical society.

4.2 Technology and Business Development

The Technology and Business Development Fund (TBF) encourages our professors to develop their innovations from research into potential commercial solutions. TBF also provides capital to transform intellectual property into impactful commercialized outputs. Every year, successful applicants can receive up to HK\$200,000 of funding per project. For successful applicants from the reporting year, please refer to Annex 10 for more details.

4.3 Research Contracts and Agreements

To support our research community, we provide professional and efficient contract support for research collaboration projects. This year, 952 research contracts of various types were concluded with a combined value of over HK\$290 million, covering research areas from across faculties at the University. The contracts covered collaboration projects with both industrial and academic partners, material transfer, collaboration research, clinical trials and research services.

4.4 Engagement and Collaboration Beyond Academia

Launching the World's First Online Sign Language Game in Hong Kong and Japan

During the International Day of Sign Language in September 2021, the Centre for Sign Linguistics and Deaf Studies (CSLDS) of the Department of Linguistics and Modern Languages announced the official launch of SignTown - the world's first online multi-language sign language game. Launched in collaboration with Google, The Nippon Foundation (Japan) and Kwansai Gakuin University, SignTown was specially developed to help improve current sign language recognition models. The game leverages on an AI-based sign language recognition and sign linguistics theoretical framework to educate users on sign language culture in Hong Kong and Japan in a fun and relaxing way. In May 2022, the beta version was released and accumulated over 8,500 users. The research team believes the game is a crucial step to further develop a sign language recognition model and help raise public awareness to promote social inclusion for the deaf community.



SignTown—the world's first online multi-language sign language game

Preserving and Reintroducing Local Heirloom Rice Varieties in Hong Kong

Rice cultivation once flourished in Hong Kong. Local heirloom rice varieties, including “Fa You Tsai” and “See Mew”, were gifted as tributes to the Qing imperial court. However, these precious varieties were lost in history due to a combination of Hong Kong's economic transformation, an increase in overseas rice imports, an exodus of indigenous inhabitants and the urbanization of rural areas. Collaborating with the Agriculture, Fisheries and Conservation Department (AFCD), the Hong Kong Seed Technology and Education Center (SeedTEC) at CUHK is supporting AFCD's initiative to reintroduce these rice varieties to Hong Kong. The initiative plays an essential conservation role in revitalizing Hong Kong's agricultural legacy and revives a crucial aspect of the city's history and culture for current and future generations. Led by Prof. LAM Hon-ming, our research team used novel genomic sequencing technology and molecular markers and identified the unique genetic codes of “Fa You Tsai” and “See Mew”. After several rounds of rigorous propagation to achieve over 98% genetic homogeneity, “Fa You Tsai” seeds were disseminated to local farmers for trial cultivation in early 2022 and were available for sale via the Vegetable Marketing Organization in July 2022.



Project leader Prof. LAM Hon-ming, Choh-Ming Li Professor of Life Sciences and Director of the State Key Laboratory of Agrobiotechnology (CUHK) (left), Ms. Mon WONG, Agricultural Officer of the AFCD (right). (Source: State Key Laboratory of Agrobiotechnology (CUHK))

4.5 Industry Liaison Activities, Exhibitions and Business Matching Meetings

Asian Summit on Global Health (ASGH)

In November 2021, we exhibited several projects in five research areas and featured four CUHK technology startups among over 150 global healthcare projects at the Annual “Asian Summit on Global Health” (ASGH). Held at the Hong Kong Convention and Exhibition Centre, ASGH was organized by the Hong Kong Trade Development Council (HKTDC) and gathered senior government officials and policymakers, investors, influential business leaders, financial and professional service providers and globally renowned researchers and academics to exchange insights on the development of global healthcare. Over 21,000 visitors from 54 countries attended the event.

International Exhibition of Inventions of Geneva 2022

This year, 17 CUHK projects were selected by an international jury of specialists to exhibit amongst 800 inventions from 25 countries and regions at the prestigious “International Exhibition of Inventions of Geneva 2022”. Our projects highlighted CUHK’s research and innovation excellence as well as our knowledge transfer efforts in translating research and innovation into tangible benefits and outcomes for society. Our projects won four gold, ten silver and three bronze medals and reflected the success of our knowledge transfer expertise. Among the 17 projects, four of them were developed under our InnoHK research centres. Ten other projects were also commercialized through university-supported startup companies led by our researchers, of which one project became a successful social enterprise to support children with special educational needs.

Local Innovation Exhibitions

Along with global exposure, our researchers and delegates participated in various innovation exhibitions to strengthen our connection with local stakeholders. Participating in exhibitions also helped us enhance our liaison with the local innovation landscape and facilitated discussions on collaboration opportunities with the government and other industry partners in the future. Throughout 2021-2022, we showcased various innovation projects for different industries at the InnoCarnival 2021, International ICT Expo 2021, Hong Kong International Medical and Healthcare Fair 2021, EMSD E&M I&T Day 2021 and EMSD Symposium 2022 – CO-Innovinity.



CUHK delegates at the InnoCarnival 2021 (Photo: CINTEC)

University-industry Engagement Events

To connect our researchers with leading industry partners, we persisted in facilitating the commercialization of our technology by coordinating various industry engagement events, meetings and laboratory visits. Most notably, we held a one-day industry engagement conference with Biel Crystal—a global cover glass manufacturer headquartered in Hong Kong—and researchers from the Faculties of Engineering and Science.

Our engagement events also offer a platform for our faculty members and industry partners to explore collaboration and commercialization opportunities. Additionally, the events enabled and stimulated knowledge exchange between academia at CUHK and the industry to spearhead various innovation and technology offerings.

CUHK-HKSTP Investment Day

In May 2022, our Office of Innovation and Enterprise (OIE) and HKSTP jointly launched the CUHK-HKSTP Investment Day. The event was specially curated to generate commercialization activities and instil an innovative culture at CUHK through a public webinar and a company pitching session. During the webinar, Ambassador George Hara and our alumnus Mr. Oscar Hui delivered keynote speeches on the investment landscape and future trends in healthcare and fundraising management, gathering over 200 participants. Meanwhile, the company pitching session saw six innovative technology CUHK and HKSTP affiliated companies pitching to a panel of 12 healthcare and technology investors for possible investment opportunities. All participating companies received invaluable advice and mentorship support.

5

SOCIAL INNOVATION AND COMMUNITY ENGAGEMENT

5.1 Social Innovation and Impact Creation

As a socially responsible public institution, we are committed to driving social innovation and impact creation in our society. Through the structured schemes of Knowledge Transfer Project Fund (KPF) and Sustainable Knowledge Transfer Project Fund (S-KPF), a series of capacity-building programmes and events have been organised to facilitate our researchers to translate academic knowledge into viable community projects, social ventures and policy advice. We also engage with the community regularly to exchange knowledge and foster a better social innovation ecosystem through our corporate engagement initiatives, partnership with industry associations as well as traditional and digital publicity efforts. Additionally, through the Hong Kong Social Enterprise Challenge (HKSEC), we enable our students and Hong Kong's youth to address social issues through creative social entrepreneurship.



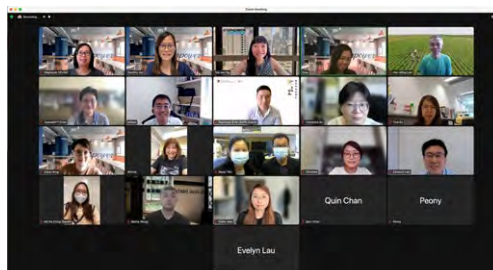
In conjunction with the Hong Kong General Chamber of Social Enterprises, a series of social enterprise skill training workshops have been organized for CUHK academics and NGO partners under "CB360" program partly held at InnoPort. This training program serves as a good platform for socially minded CUHK academics to network with other industry practitioners for knowledge exchange and potential collaboration.

Knowledge Transfer Funding Support

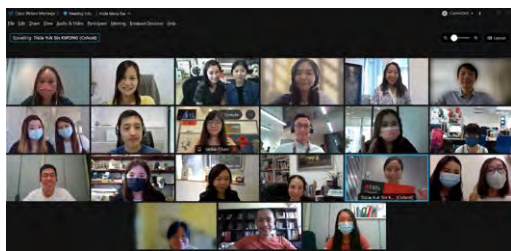
Since 2009, the Knowledge Transfer Project Fund (KPF) has supported 245 evidence-based community impact projects, impacting a total of over one million beneficiaries over the years. In 2017, we began collaborating with the Social Innovation and Entrepreneurship Development Fund (SIE Fund) and supported 40 projects since the partnership began. By 2021, our funding amount has further increased to support more projects. During 2021-2022, KPF supported 19 projects, of which 8 projects were supported by the SIE Fund and 11 by the University Grants Committee (UGC). For further information on KPF-supported projects, please refer to Annex 8.

Capacity Building and Training Programmes

Under the banner of "Social Impact Academy@ORKTS", we designed a series of inspirational webinars, capacity building workshops and coaching programmes to help our academics transfer their research knowledge into socially impactful solutions. In 2021-2022, we held the "Journey to Social Entrepreneurship - S-KPF Info Session cum Talk", as well as the "Social Impact Development and Assessment Workshop" for potential KPF and S-KPF applicants. In addition, social innovation webinar series also featured seasoned professionals to discuss topics such as the current social innovation landscape, taxation and governance issues for social enterprises and non-profit organisations in Hong Kong. For a more structured, systematic capacity building effort, a series of training are planned in conjunction with The Social Innovation Circle help CUHK social entrepreneurs gain essential social business operation skills. Partnership with "CB360 Workshop Series" (hosted by Hong Kong General Chamber of Social Enterprises) offered further opportunities for academics at CUHK to network with industry practitioners in Hong Kong for potential partnership.



Capacity building workshop "Coffee, tea or Coffee-tea" was held for participants to learn more about structuring, tax exemption status, and governance for social enterprises in Hong Kong.



The inaugural S-KPF x DBS Business Clinic Session supported social enterprises under S-KPF to improve their business capacity.

Corporate Engagement

Collaboration between corporations and social enterprises is a powerful way to exchange expertise and resources across several sectors to attain business and social impact goals. At CUHK, our corporate engagement events also help corporates and social enterprises explore new collaborative opportunities to enhance their network. Working with DBS Bank, the inaugural "S-KPF x DBS Business Clinic Session" supported social enterprises under S-KPF scheme to improve their business skills. Gathering 14 participants from five social enterprises, the session paired participants with volunteers from DBS to gain vital advice on business operational issues such as customer experience, marketing, finance and business sustainability.

Publicity

Throughout the reporting year, our publicity strategy focuses on helping CUHK impact projects and social enterprises raise awareness of their missions and impact achievements in Hong Kong and beyond. Video is a human and entertaining content format for social enterprises to attract, engage and inspire the public. This year, we presented four outstanding social enterprises supported by S-KPF in a new video series on the ORTKS website (<https://www.orkts.cuhk.edu.hk/en/quick-links/resources/success-stories>) for viewers to learn more about their goals and missions. The series featured the founders/CUHK academics of these social enterprises as they shared how S-KPF scheme impacted their growth and their personal journeys, from inspirations behind their research to achieving social impact goals. The videos are also shared with our network of potential funders and partners.

In addition, we also work with leading print media to promote different innovative knowledge transfer projects. For example, a feature article published in the *Hong Kong Economic Journal* highlighted the heartfelt story behind a ground-breaking voice technology app invented by Professor LEE Tan from the Department of Electronic Engineering and his team. This well-received story featured the AI-powered app developed to replicate Jody Poon's voice—a tongue cancer survivor who lost the ability to speak after undergoing a total glossectomy. This app reveals great potential for further development to benefit others with speech issues.

Projects Supported by Knowledge Transfer Project Fund (KPF): Achievement Highlights

EduVenture® Creates Interactive Cultural Learning Experience for Non-Chinese Speaking Students

Prof. Morris JONG Siu-Yung, Department of Curriculum and Instruction

EduVenture® is a revolutionary interactive, inquiry-based outdoor learning system tailor-made to help non-Chinese speaking (NCS) students learn about Chinese culture in Hong Kong and allow them to integrate into the city's mainstream society. Launched in 2021, the GPS-supported mobile learning system offers an enhanced outdoor education experience for over 160 NCS students to immerse in Hong Kong's unique culture while visiting designated outdoor cultural locations. The system also assists students in enhancing their Chinese language abilities. Additionally, **EduVenture®** is an effective solution for teachers to design interactive outdoor inquiry-based learning resources. The project is still ongoing, and all schools in Hong Kong can gain access to the system.



IntergenerationABILITY Helps Students with Disabilities and Older Baby Boomers in Hong Kong Enhance Physical Literacy

Prof. Raymond SUM Kim-Wai, Department of Sports Science and Physical Education



IntergenerationABILITY is a pioneering project in the world for students with disabilities and older generation (the "baby boomers") to improve their physical literacy. The project held weekly programmes during an eight-week period in 2021 to help participants strengthen cognitive functions, physical literacy and communications skills. The programme also improves their confidence, self-esteem, and fitness. Additionally, the project brought both generations together to bridge the generation gap through physical activities.

During the project period, friendships between young and old participants blossomed; many young participants reported having a better understanding and compassion for older adults. The project has proven to be a powerful tool to support secondary schools with disabled students, elderly centres and fitness trainers to implement physical activities and assess participants' physical literacy. To continue create a more significant impact on the society, Professor Sum also launched a social enterprise through S-KPF scheme in 2022 to promote physical literacy and social inclusion by empowering children from low-income families, socially vulnerable youth and ethnic minorities through sport.

5.2 Community Engagement

Community engagement is a crucial element in knowledge transfer. **CUHK in Touch** is a quarterly public newsletter that features our latest research and innovation achievements. During 2021-2022, we published four issues highlighting various innovation and research achievements by our researchers across all disciplines.

Cubic Zine is a quarterly e-newsletter published for our staff, students and external partners. Featuring latest stories and news related to social innovation at CUHK, the e-newsletter also celebrates and showcases the achievements as well as impact of our social innovators. Since its launch in 2019, we have published 20 issues to an average of over 12,000 recipients at CUHK (23%) and more than 600 external parties (31%). Currently, Cubic Zine has over 1,300 subscribers with a 30% growth since 2020. In addition, our content on Cubic Zine has generated further enquiries from other media publications and potential investors.

Additionally, there were over 1000 public lectures and cultural talks organised by our faculties and departments covering a wide range of topics. Notably, the Faculty of Science has organised a series of **“ZOOM into Science”** webinars and **“Popular Science Talks”**, in which our scientist shared their knowledge and views on forefront scientific topics with the public. Our Art Museum has also organised various cultural and humanities lectures series such as **“Artistic Confluence in Guangdong Lecture Series”** and **“Virtus et Gratia”** public seminars to actively engage with the community.



6

IMPACT CASE STUDIES

From research excellence to societal impact, CUHK strives to translate our world-class research into tangible benefits to the society by addressing global challenges towards the 17 Sustainable Development Goals adopted by the United Nations.

6.1 CUHK Medical Discoveries Combat Against COVID-19



Professor Siew NG and Professor Francis CHAN

Department of Medicine and Therapeutics, Faculty of Medicine

Hong Kong and many other communities are fatigued by the effects of COVID-19. Yet, our ground-breaking discoveries between the gut microbiota and COVID-19 give the world new hope in fighting against the pandemic. Our gut microbiota plays a crucial role in our immune system. The right combination of gut microorganisms can boost our immunity and help us prevent infections and diseases.

At the Centre for Gut Microbiota Research of the Faculty of Medicine, the research team led by Prof. Siew NG and Prof. Francis CHAN of the Department of Medicine and Therapeutics have made several impactful discoveries between the ideal group of gut microbiota and COVID-19. Their research is part of the Microbiota I-Centre, one of our six InnoHK Centres under the Hong Kong government's InnoHK initiative located at HKSTP. As the pandemic persisted, the team extended their existing research on gut microbiota and was the pioneer team to discover that the severity of COVID-19 can depend on the patient's gut microbiota composition. The research team revealed that COVID-19 patients tend to lack certain healthy bacteria in their gut. They also uncovered the correlation between COVID-19 vaccine efficacy and the unique bacterium, *Bifidobacterium Adolescentis*. People who lack this bacterium in their gut tend to have a lower antibody response to the vaccines.

This year, a new study conducted by the team established the relationship between post-acute COVID-19 syndrome (long COVID) and gut microbiota composition; patients can develop long COVID symptoms without the right composition in their gut. Leveraging big data and machine learning, the team identified the right gut microbial profile associated with COVID-19 and formulated a patented probiotic supplement. Prof. NG and the research team founded **GenieBiome Limited** through the Technology Start-up Support Scheme for Universities (TSSSU) and launched a microbiome immunity formula as a dietary supplement that is based on innovative discoveries exclusively licensed from CUHK.



Prof. Francis CHAN (left), Prof. Siew NG (right), and the research team.

6.2 Innovative Gas Detection Solutions Integrate Upstream Knowledge in Downstream Applications



Professor REN Wei

Department of Mechanical and Automation Engineering, Faculty of Engineering

Gas detection is essential to ensure the safety of our working and living environments against harmful gas. However, most solutions on the market are limited to detecting few types of gas in particular circumstances.

Through years of extensive research and development, Prof. REN Wei of the Department of Mechanical and Automation Engineering, Faculty of Engineering, and his award-winning research team revolutionized gas detection solutions through artificial intelligence (AI). Based on the original intellectual properties generated from Laser Diagnostics Laboratory at CUHK, the team innovated new laser spectroscopic techniques, allowing their solutions to maximize gas detection sensitivity and incorporate cloud-based monitoring capabilities.

Prof. Ren and his research team founded **LaSense Technology Limited** through the Technology Start-up Support Scheme for Universities (TSSSU). With six US and Chinese patented technologies under their belt, the team developed new portable gas detection systems to provide accurate and extensive data in real-time. These include the concentration, temperature and pressure of various harmful gas components. The data is further analyzed through a cloud server to monitor toxic gas emission and provide real-time measurement. What's more, the robust and informative systems are housed in easy-to-use compact devices that are also low in electricity consumption.



Prof. REN Wei (left) and Dr XU Ke (right), co-founders of LaSense Technology Limited.

In addition, Prof. Ren and his team's work has generated significant societal impact. To prevent the spread of COVID-19 and other airborne diseases, the team developed a unique laser-based gas sensor to analyze building ventilation and track the flow of aerosol molecules. Their impact on environmental and medical treatment enhanced monitoring industrial and vehicle emission as well as components of medical patients' exhaled breath. With an aim to combat the climate crisis, the team also developed a new gas detection system that measures and monitors greenhouse gas emissions in real-time. The system is capable of pinpointing building and district emission for monitoring air quality to help develop green and sustainable cities.

6.3 “One University One Village” – Rural Sustainable Development Assistance Programme



Professor Edward NG

School of Architecture, Faculty of Social Science

In mainland China, 40% of the population lives in rural areas. However, the construction and development of these communities are often slow and unsustainable. Many villages also suffered from severe earthquakes, adding to rising costs, debt and logistics challenges to restore their communities. Consequently, many rural residents moved to urban locations for better job prospects to fund the reconstruction and leave their children and elderly residents behind.

The “One University One Village” – Rural Sustainable Development Assistance Programme (1U1V) is an award-winning initiative that improves the environmental, economic and social sustainable development of poor rural areas through knowledge transfer. The programme combines academic expertise, resources and experiences from a team of passionate university professors to help improve rural residents’ livelihood in a sustainable way.

Led by Prof. Edward NG, the team innovated the “local labour, local materials, and local technology” (3L) principle as a new sustainable construction solution. Through rigorous research and development, this principle has demonstrated the success of “high-science, low-technology” strategies in rural construction and encourages endogenous development in rural communities. Research and projects include village improvement work, bridge construction and enhancing traditional rammed earth buildings for better design, comfort, safety and seismic performance.

More than just an architecture project, 1U1V is a human-centred initiative that supports rural residents, women, left-behind children and elderly residents through collaboration, training and education. In July 2021, 1U1V was awarded the **International Green Gown Awards 2021 – Benefitting Society** organized by the United Nations for its invaluable efforts in providing sustainable rural reconstruction and empowering local residents. The programme’s integrated solutions also echo the social responsibility and sustainable development objectives at CUHK. Additionally, 1U1V conducts projects in over 20 countries and areas in Asia Pacific, Africa and North and South America.



“One University One Village” – Rural Sustainable Development Assistance Programme (1U1V) – an awarding winning project led by Prof. Edward NG

6.4 Stress Tolerant Soybeans Enable Climate-smart and Sustainable Agriculture on Marginal Lands in China



Professor LAM Hon-Ming

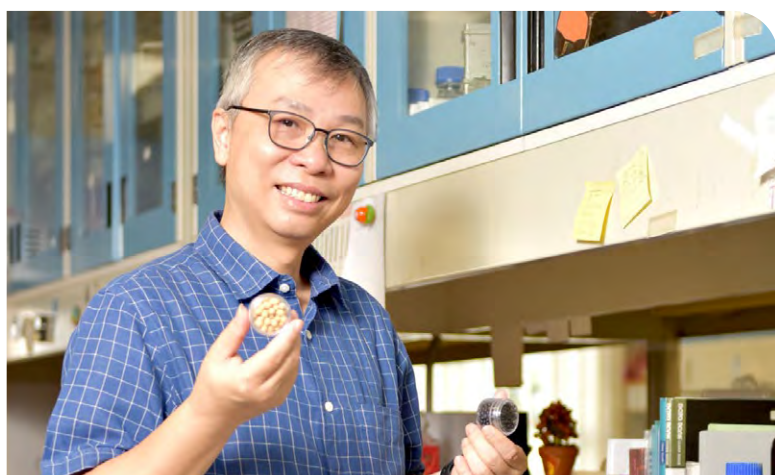
School of Life Sciences, Faculty of Science

Rich in essential nutrients, soybeans are vital cash crop as food and feed. Soybeans originate from China and have become a popular, sustainable and healthy food option among conscious consumers. However, studies revealed that the country's domestic supply struggled to meet global demand due to environmental and severe food chain issues.

In 1997, Prof. Lam began researching climate-smart soybean production on marginal land in China. His team discovered wild soybeans as a valuable genetic resource for crop improvement and developed three types of stress tolerant cultivars based on decoded genomes of wild and cultivated soybeans. Since 2016, the new cultivars have passed a three-year regional test and are currently used by farmers in Gansu Province with an accumulative acreage of over 12,400 hectares. Furthermore, Prof. Lam's team also extended their knowledge and expertise globally to help scientists in South Africa replicate a similar soybean cultivation model.

This ground-breaking work has had tremendous economic and social impact on social welfare in China and abroad. The climate-smart soybeans have supported underprivileged farming communities in remote mountainous regions and arable lands that suffered from drought, bringing additional income to the agricultural economy.

Soybeans are also known as a natural fertilizer that can restore atmospheric nitrogen to improve soil quality and crop health. The increase of soybean cultivation can help reduce the usage of fertilisers and carbon dioxide emission.



Prof LAM Hon-Ming

Additionally, Prof. Lam's research has generated waves of positive impact nationally and internationally, where he helped shape global policies on legume cultivation for both human health and sustainable food production. He also participated in community outreach and education events to help raise awareness on sustainable agriculture and the importance of STEAM education in Hong Kong. This year, Prof. Lam founded a social enterprise **Soyvestors Co. Limited** as supported by our Sustainable Knowledge Transfer Project Fund (S-KPF) with an aim to promote sustainable agriculture and preserve cultural heritage of soybean.

LOOKING FORWARD

With the funding support from the UGC, we have made significant progress in our knowledge transfer endeavours through commercialisation, entrepreneurship and social innovation. Aligning with the national strategy in developing Hong Kong into an international innovation and technology hub, we will continue to promote knowledge transfer activities across different disciplines and collaborate with external partners from academia, business, governments to community groups, for the benefit of the economy and society.

In this year's Budget Speech, the HKSAR Government has doubled the size of the Technology Start-up Support Scheme for Universities (TSSSU) subsidy to HK\$16 million for each university. This will help foster innovation and knowledge transfer at the university level and encourage an entrepreneurial spirit on and beyond the campus. At CUHK, we are devoted to nurturing entrepreneurship for the advancement of humanity and the creation of social impact.

Over the years, the University has supported the growth of CUHK startups in various ways, such as licensing our technology and innovation, providing funding support, offering space, mentorship and consulting services at Pre-Incubation Centre and InnoPort. Moving forward, the University will establish its own Investment Holding Company to support the entrepreneurial ecosystem by directly investing in CUHK startups to complement the existing funding schemes. Additionally, we will refine and broaden the scope of training to meet the needs of staff and students with the aim to establish and maintain the entrepreneurship ecosystem in CUHK. The InnoPort will continue to serve as the core hub for CUHK innovators and entrepreneurs on campus as well as the gateway for knowledge transfer at CUHK.

To facilitate and strengthen the protection of the valued ideas, technologies and inventions arising from the research at the University, we will further enhance and streamline the Intellectual Property (IP) assessment and application mechanism. We will foster business-matching opportunities to forge partnerships with business partners and investors for the commercialization of CUHK's IP. Through our strategic partnerships in the GBA, we will promote cross-border knowledge transfer and commercialization with corporate partners in GBA.

As the next triennium commences, we will leverage CUHK's strength in key areas of research and innovation, its well-established international reputation as a knowledge enterprise, and its unique role as a bridge between China and the rest of the world. By expanding and enhancing collaborations with global partners and industry, CUHK will continue to undertake research and innovation that create social impact.



Professor Sham Mai-har
Pro-Vice-Chancellor

Annex 2

Updates on Table 4.1 of Initial Statement

UGC Performance Indicators		2020-21	2021-22
1	Number of patents filed in the year (with breakdown by country and type ^[Annex 4])	386	419
2	Number of patents granted in the year (with breakdown by country and type ^[Annex 5])	226	264
3	Number of licences granted (with breakdown by type ^[Annex 6])	80	45
4	Income (on cash basis) generated from intellectual property rights	\$62,799,091	\$65,257,391
5	Expenditure involved in generating income from intellectual property rights	\$8,040,059	\$ 8,042,459
6.1	Number of economically active spin-off companies (with breakdown by type ^[Annex 11.1])	10	9
6.2	Total number of social enterprises launched under the Sustainable Knowledge Transfer Project Fund ^[Annex 11.2]	16	18
6.3	Accumulated number of active technology startups supported by the Technology Start-up Support Scheme for Universities (TSSSU) ^[Annex 11.3]	57	63
7	Net income generated (or net loss arising) from spin-off companies	Profit of \$10,458,218 ^{(a)(b)}	Profit of \$38,188,806 ^{(a)(b)}
8	Number of collaborative research projects, and income thereby generated	267 cases \$141,637,288 ^(a)	240 cases \$178,293,811 ^(a)
9	Number of contract research projects (other than those included in "collaborative research projects" above), and income thereby generated	102 cases \$80,965,669 ^(a)	104 cases \$61,775,612 ^(a)
10	Number of consultancies, and income thereby generated	266 cases \$220,560,471 ^(a)	280 cases \$191,535,817 ^(a)
Subtotal Income Item (4)+(7)+(8)+(9)+(10)		\$516,420,737	\$535,051,437
11	Income received from Continuing Professional Development (CPD) courses	\$1,179,879,184 ^{(a)(c)}	\$1,360,371,156 ^{(a)(c)}
Total Income Item (4)+(7)+(8)+(9)+(10)+(11)		\$1,696,299,922	\$1,895,422,593
12	Number of student contact hours in short courses or elearning programmes specially tailored to meet business or CPD needs	6,725,455 hours (2,490 courses with 136,515 students)	11,056,604 hours (2,286 courses with 260,241 students)
13	Number of public lectures / symposiums and speeches to a community audience	932	1002
14	Number of performances and exhibitions of creative works by staff or students	49	69
15	Number of staff engaged as members of external advisory bodies including professional, industry, government, statutory or non-statutory bodies	1318 ^(e)	1494 ^(e)

Footnote:

(a) Subject to year-end adjustments.

(b) Only wholly-owned subsidiaries or controlling companies are included.

(c) Including income from non-award bearing programmes offered by the School of Continuing and Professional Studies and the Asia-Pacific Institute of Business.

(d) Updated figure.

(e) Honorary, visiting and inactive staff are not included.

Annex 3

Updates on Table 4.2 of Initial Statement

Other Performance Indicators		2020-21	2021-22
1	Knowledge Transfer Project Fund (KPF): Projects supported by the UGC KT Fund	2020-21: 10 Total: 193	2021-22: 11 Total: 204
2	Sustainable Knowledge Transfer Project Fund (S-KPF)	4	2
3	Technology and Business Development Fund (TBF)	6	7
4	Number of other KT projects and activities not funded by the UGC KT Fund	330	346
5	Number of websites on KT activities at Faculties / Departments / Centres	180 ^(a)	187 ^(a)
6	Number of publicity or media features related to KT, including print, online and electronic media	3,145 ^(b)	2,713 ^(b)

Footnote:

(a) Including websites, mobile applications, social media channels and video-sharing platforms

(b) Including appearance on social media channels and video-sharing platforms

Annex 8

Knowledge Transfer Project Fund (KPF)

Project List

KPF - Completed Projects

No.	Project Code	Project Title
1	KPF18HLF27	An Oral Exercise Training Software for Elders in Hong Kong
2	KPF19HLF27	A Concept Musical Drama on End-of-life Care and Death Attitudes in Hong Kong
3	KPF19SEF25	"Our Everyday. Our Borders. "A study of universal accessibility in our built environment in Hong Kong
4	KPF19HLF16	Implementing a chargeable full cost-recovery HIV self-testing service model for men who have sex with men in Hong Kong
5	KPF19HLF23	Drawing Patterns Tracking with E-Pen
6	KPF19HLF33	Smartphone-based Culturally Adapted Lifestyle Medicine for Improving Mental Health
7	KPF19OTF21	STEM education in Physics for Secondary Schools
8	KPF19SCF07	Born to See: Living the Life of a Deaf Person
9	KPF20GWP01	CURe Pain: Relieve pain, Restore function, Renew hope
10	KPF20GWP18	RWHO-2025 Target to Reduce Children and Youth Physical Inactivity: Impact of Training Workshops and Evidence-based Electronic Portal for Educators (TWEET)
11	KPF20GWP23	Self-management Blood Pressure for Happier Digital Life
12	KPF20QEP15	Virtual Trainer for Improving Health & Fitness of Middle-aged adults
13	KPF21GWP13	Phone Reassurance Elderly Project (PREP) for Connecting Elders and Youth: Training, Communication, Health Knowledge Transfer
14	KPF21GWP17	IntergenerationABILITY: enhancement of Physical Literacy of Students with Disabilities and Older Baby Boomers in Hong Kong

KPF - Projects in Progress

No.	Project Code	Project Title
1	KPF19CHF05	Telling stories: A digital humanities approach to documenting linguistic diversity in Hong Kong
2	KPF20GWP02	"Strong Shoulders For Elderly" Campaign
3	KPF20GWP05	Reaching Out to the Unreached Community: Delivering Mental Health Outside the Box through Whole-of-Community Campaigns
4	KPF20GWP16	Hip Protectors to Prevent Hip Fracture of Older Adults in Hospitals and Nursing Homes
5	KPF20GWP22	Enhancing Mental Health of the Deaf Community in Hong Kong
6	KPF20QEP12	Decoding the concealed emotions of children with special educational needs
7	KPF20QEP26	Personalised Child Story Channel
8	KPF20CHP21	Living Heritage: Transforming Hong Kong's Abandoned Villages into Cultural Destinations
9	KPF20GWP08	Combating Sarcopenia in Fragility Fracture Patients in Hong Kong
10	KPF20GWP10	Youth AI Health Ambassador Training and Outreach Program for Brain Health
11	KPF20GWP23	Self-management Blood Pressure for Happier Digital Life
12	KPF20GWP27	Health is wealth, Stay active, Eat healthy
13	KPF20QEP09	Sleep to remember: Promoting early language development by making best use of sleep
14	KPF20SCP07	Visualizing the past, connecting to the present: Revitalization and sustainability of Shek-O community after natural disaster
15	KPF21CHP09	Hong Kong as an Outdoor Museum: EduVenture supports Non-Chinese Speaking Students in Learning Chinese Culture
16	KPF21GWP15	Communication Rehabilitation for Older Adults with Hearing Loss
17	KPF21GWP20	Intervention for promoting old-age preparation in the community

Annex 8

Knowledge Transfer Project Fund (KPF)

Project List

KPF - Projects in Progress		
No.	Project Code	Project Title
18	KPF21GWP36	Express Heart Check at Elderly Community Centres across 18 Districts of Hong Kong
19	KPF21QEP01	Music Playgroup to Enhance Language Development in Infants and Toddlers: A Pilot Community Program
20	KPF21GWP02	Healthy Ageing x Ageing in Place
21	KPF21GWP07	Assessing and health coaching for cardiometabolic risk in middle-aged group
22	KPF21GWP14	The Production of Hong Kong Cantonese Language Assessment test for Preschool Childre
23	KPF21GWP21	Sleep Innovation and Technology: Improving Community Access to Evidence-based, Real-time, Adaptive Intervention using Commercial Smartwatches to Improve Sleep Quality
24	KPF21GWP26	Risk screening for prodromal Parkinson's disease in elderly using smartphone
25	KPF21GWP29	Improve bowel and urinary function at home during COVID-19
26	KPF21GWP33	Augmented Reality in Orthopaedic Trauma – A New Era of Surgical Training
27	KPF21GWP34	One Size Does Not Fit All, Choice-Based Programs to Enhance Mobility in Older Adults
28	KPF21OTH08	Implicit design generation and additive manufacturing of novel personalised hip protectors in elderly care to prevent pelvis fracture
29	KPF21QEP25	An online-platform for tracking students' learning engagement and wellbeing for online and mixed-mode teaching with immediate improvement feedback
30	KPF22GWP02	Educating stay-home mothers to implement paediatric massage techniques for children with autism spectrum disorders (ASD)
31	KPF22GWP03	Capacity Building for Advance Care Planning
32	KPF22GWP19	Medical communication assistance to enhance patient engagement and health literacy
33	KPF22GWP20	A training programme for community health workers in promoting cervical cancer screening among South Asian ethnic minorities in Hong Kong
34	KPF22REP21	Promotion of palliative care and advance directives in the South Asian ethnic minority population of Hong Kong
35	KPF22REP23	Multilingual E-Resources for Vocabulary Acquisition: Enhancing Learning Cantonese as an Additional Language and Maintaining Home (Heritage) Languages
36	KPF22REP29	Modular Prosthetics with Interchanging Task-Specific Tools for Upper Limb Amputees
37	KPF22GWP34	AR-Home & AR-Centre Rehab
38	KPF22GWP01	Promoting Early Identification of Osteopenia Patients at High Risk of Fracture using 3D High-Resolution Peripheral Quantitative Computed Tomography (HR-pQCT) in Hong Kong
39	KPF22REP06	Developing teleassessment for trilingual children in Hong Kong: augmented Reality enhanced intervention
40	KPF22GWP07	Healthy knees, life is a breeze: the platform for better knees
41	KPF22GWP09	Promotion and Prevention of Overactive Bladder and Voiding Dysfunction in Community
42	KPF22GWP10	Knowledge transfer of the advanced morphokinetic analysis on embryos' developmental potential in in vitro fertilization
43	KPF22COP11	Peace In and Peace Out: Narrative Approach to Peace Education in Hong Kong
44	KPF22GWP14	An Artificial Intelligence chatbot for sleep education
45	KPF22GWP22	A screening platform for dysphonia in teachers: Early identification and prevention
46	KPF22GWP27	Improving Use of Online Resources and Enhancing Mental Health for Migrant Domestic Workers in Hong Kong
47	KPF22CHP36	Collaborative Conservation: Regenerating Mui Tsz Lam village with Participatory Rebuilding
48	KPF22CHP37	Multi-Temporal InSAR Remote Sensing for Sustainable Conservation of World Heritage

Sustainable Knowledge Transfer Project Fund (S-KPF)

Social Enterprise List

S-KPF graduates

No.	Project Code	Project Title	Website
1	SKPF21QEF10	Science and Technology for Autism Remediation (STAR) Limited	https://star-autism.com
2	SKPF21GWF11	Wellness Travellers Psychological Services Limited	https://www.wellnesstravellers.hk
3	SKPF21CHF12	One Month One Art Limited	https://1m1a.org

S-KPF teams in second funding year

No.	Project Code	Project Title	Website
1	SKPF22GHW01	HerBChain Co., Limited	http://herbchain.hk/
2	SKPF22GHW03	Happy Ageing Lab Company Limited	https://www.happyageinglab.com/
3	KPF22GHW02	Speech and Hearing Social Enterprise Limited	https://1m1a.org
4	SKPF22SCC04	Condition_Lab Limited	https://condition-lab.com/

Social Enterprise newly funded (2022-24)

Company	PI (Department)	Content
Soyvestors Co. Limited	Prof LAM Hon Ming (School of Life Sciences)	To promote sustainable agriculture, preserve cultural heritage of soybean by designing STEAM curriculum and educational service that integrates knowledges from biology, geography, liberal studies and humanities; and developing own-branded soybean-based food products for senior food market.
Physical Literacy Academy for Children and Youth (PLACY) Limited	Prof Raymond Kim-Wai SUM (Department of Sports Science and Physical Education)	To make sports accessible to children especially from low-income families; to empower socially vulnerable youth and ethnic minorities through sports (including assessments, certifications, consultations and referral services) to promote social inclusion.

Annex 12

Knowledge Transfer Seminars/Events organised by ORKTS

No.	Date (dd-mm-yyyy)	Title	Speaker(s)	No. of Participants	Mode (Online/Hybrid)	Venue
1	05/07/21	Legal Series: How to Work with Lawyers	Mr. Pádraig Walsh and Ms. Tara Chan	36	Online	zoom
2	08/07/21	MaD「調教你團隊」 Team Building Workshop	Veteran social worker Mr. Wong Kon Chi		Face-to-Face	UGA, InnoPort, CUHK
3	12/07/21	Entrepreneur Corner: HandyRehab	Mr. Alvin Cheung	33	Online	zoom
4	14/07/21	Startups Marketing Strategies in the Digital Age Series: Introduction to Market Research Methodology	Ms. Sarah Ng	49	Online	zoom
5	15/07/21	CB360 Workshop - 如何建立有效的管理觀念	Mr. Wai Shing CHUNG	52	Hybrid	
6	22/07/21	Search Marketing Strategy Basics for Startups	Ms. Gigi Wong	38	Online	zoom
7	23/07/21	MaD Mentor-Mentee Speed Dating			Face-to-Face	UGA & UGB, InnoPort, CUHK
8	23/07/21	CB360 Workshop - Management concept	Mr. Howard LING	45	Hybrid	
9	28/07/21	Startups Marketing Strategies in the Digital Age Series: Overview to Web Analytics	Ms. Sarah Ng	51	Online	zoom
10	30/07/21	CB360 Workshop - 如何有效地管理財務	Ms. Sannie CHUNG	50	Hybrid	
11	02/08/21	ORKTS Webinar Series Patents – How to Get Started as an Inventor at CUHK	Dr. Albert Chan / Partner at the Law Offices of Albert Wai-Kit Chan, PLLC Ms. Tracy Pang / Technology Development Manager at ORKTS, CUHK	168	Online	Zoom
12	02/08/21	Legal Series: Approaches to Raising Capital	Mr. Pádraig Walsh and Ms. Tara Chan	27	Hybrid	zoom
13	06/08/21	Early Stage Investors Series: Fei Zheng	Dr. Zheng Fei	21	Online	zoom
14	07/08/21	MaD Mentor Training II			Hybrid	RM 214, CYT Building, CUHK
15	09/08/21	STEM workshop 紙模電子琴	Cocorobo	10	Physical	2B@CUHK InnoPort
16	10/08/21	CB360 Workshop - Design Thinking	Dr. Elsie TSUI	28	Online	
17	16/08/21	MaD One to One Consultant about GBA			Online	Zoom
18	16/08/21	STEM workshop 烏克麗麗	Cocorobo	10	Physical	2B@CUHK InnoPort
19	18/08/21	Utilizing Design Thinking for Generating Good Ideas Part 1	Dr. Elsie Tsui	65	Online	zoom
20	19/08/21	CB360 Workshop - Marketing Concept	Ms. Amy WONG	21	Hybrid	

Annex 12

Knowledge Transfer Seminars/Events organised by ORKTS

No.	Date (dd-mm-yyyy)	Title	Speaker(s)	No. of Participants	Mode (Online/Hybrid)	Venue
21	23/08/21	CB360 Workshop - Applied Marketing	Ms. Hannah LAU	18	Hybrid	
22	23/08/21	STEM workshop 雲端監測氣象站	Cocorobo	9	Physical	2B@CUHK InnoPort
23	25/08/21	MaD Next Stop: Flag in GBA	Mr. Wiva Wei and Mr. Raymond Chau		Online	Zoom
24	25/08/21	Utilizing Design Thinking for Generating Good Ideas Part 2	Dr. Elsie Tsui	7	Physical	UGA@CUHK InnoPort
25	01/09/21	CB360 Workshop - Typology of Social Enterprise and Corporate social responsibility	Prof. Wong HUNG	22	Hybrid	
26	09/09/21	CB360 Workshop- Social Impact Measurement	Mr. Edison LAU	10	Hybrid	
27	09/09/21	How to Strike a Balance between Appealing UX and Product Timeline	Mr. Gary Lo	16	Physical	UGA@CUHK InnoPort
28	10/09/21	S-KPF x DBS Business Clinic Session	DBS volunteers	15	Online	
29	13/09/21	Social Media Trends in 2021 and Beyond: How to Get Prepared for 2022 Digital Marketing?	Ms. Rem Chiu	22	Physical	CUHK Cheng Yu Tung Bldg 202
30	13-14/09/2021	Art Fair	-	-	Physical	University Mall
31	14/09/21	PI Centre Information Session [Fall 2021]	PI Centre	14	Physical	UGA, UG/F@CUHK InnoPort
32	24/09/21	Social Impact Development & Assessment Workshop - Pathway to Social Impact (KPF Info Session cum Talk)	Ms. Jessica TAM	25	Online	
33	27/09/21	Legal Series: Term Sheet Negotiation Skills Workshop	Mr. Pádraig Walsh	18	Physical	CUHK InnoPort
34	29/09/21	CB360 Workshop- Lean start up	Mr. Yuen TAM	15	Hybrid	
35	30/09/21	ORKTS Webinar Series How To Maximize The Chances Of Success When Commercializing Your Biomedical Research	Mr. Jairo Pardey / Chief Executive Officer, Pierre Fabre Group (Hong Kong & Macau)	170	Online	Zoom
36	30/09/21	Team Formation [Fall 2021]	Mr. Anson Leung	20	Physical	UGA@CUHK InnoPort
37	07/10/21	Craft & Deliver an Outstanding Pitch	Mr. Freddy Law	13	Physical	UGA@CUHK InnoPort
38	08/10/21	CUHK and CUHK(SZ) Joint Seminar Series: How Structural Biology and Collaborative Research Environment Help Us to Understand the Molecular Mechanism of Life	Prof. Wong Kam Bo / Director of School of Life Science, CUHK	99	Online	Zoom
39	11/10/21	Legal Series: Investment Agreements and the Founder	Mr. Pádraig Walsh and Ms. Tara Chan	36	Online	zoom

Annex 12

Knowledge Transfer Seminars/Events organised by ORKTS

No.	Date (dd-mm-yyyy)	Title	Speaker(s)	No. of Participants	Mode (Online/Hybrid)	Venue
40	19/10/21	PI Centre PILOTS LITE Programme First Interview	PI Centre	75	Online	zoom
41	25/10/21	AI Technology and Career Opportunities	Mr. Timothy Leung, Mr. Wallace Chow & Mr. Tony Lam	49	Online	zoom
42	26/10/21	PI Centre PILOTS LITE Programme Final Interview	PI Centre	42	Physical	UGA@CUHK InnoPort
43	28/10/21	Journey to Social Entrepreneurship - S-KPF Info Session cum Talk	Ms. Ada YIP	25	Online	
44	29/10/21	ORKTS Webinar Series Build Research Collaborations & Manage Risks	Prof. Gladys Tang / Director, Center for Sign Linguistics and Deaf Studies Mr. Haibo Ren / Contracts Manager, ORKTS	57	Online	Zoom
45	29/10/21	MaD GBA Startup Hacks	Mr. Andy Yip, Super Connector from GungHo Space, Mr. Alex Lee, Project Consultant of GungHo Space, and Mr. Jonathan Lee, Co-founder of KeyPoints Exchange		Hybrid	UGA, InnoPort, CUHK
46	04/11/21	16th round PI Team Briefing	PI Centre	24	Physical	UGA@CUHK InnoPort
47	05/11/21	投資者角度：創業家如何裝備自己？	Mr. Emmanuel Hui	47	Hybrid	zoom;UGA, UG/F@CUHK InnoPort
48	08/11/21	Legal Series: Keep your friends close: Shareholder Agreements in Venture Capital	Mr. Pádraig Walsh	49	Online	zoom
49	17/11/21	CUPP Pre-camp Nurturing Session	Mr. Jonathan Chee and Adrian Lai	26	Physical	UGA@CUHK InnoPort
50	17/11/21	NVLT Matching Session (Online)	New Ventures Legal Team	6	Online	zoom
51	18/11/21	NVLT Matching Session (Face-to-face)	New Ventures Legal Team	12	Physical	UGA, UG/F@CUHK InnoPort
52	19/11/21	MaD Money and Fame in GBA	Mr. Chan Sing / CEO of Biden Consulting Co., Limited and Mr. Kevin On / General Manager (HK) of The Hoffman Agency		Hybrid	UGA, InnoPort, CUHK
53	22/11/21	CUHK and CUHK(SZ) Joint Seminar Series: Discovery of Disease Biomarkers and Drug Targets Based on Multi-omics Data Analysis	Professor Hsien-Da Huang / Associate Dean of School of Life and Health Sciences, CUHK(SZ) Professor Tzong-Yi Lee / Programme Coordinator of Bioinformatics, School of Life and Health Sciences, CUHK(SZ)		Online	Zoom
54	27-28/11/2021	CUHK VCCE Bootcamp 2021	CfE and PI Centre	66	Physical	CUHK Medical Centre
55	30/11/21	ORKTS Webinar Series From Bench to Bedside: My Journey of Building a Medical Robotics Company	Prof. Au, Kwok Wai Samuel	10	Physical	2B@CUHK InnoPort
56	30/11/21	From Bench to Bedside: My Journey of Building a Medical Robotics Company (ORKTS Webinar)	Prof. Samuel Au and Mr. Jonathan Chee		Online	zoom

Annex 12

Knowledge Transfer Seminars/Events organised by ORKTS

No.	Date (dd-mm-yyyy)	Title	Speaker(s)	No. of Participants	Mode (Online/Hybrid)	Venue
57	30/11/21	Alibaba Entrepreneurs Fund Venture Hours for CUHK: 1-on-1 Pitching Session (TSSSU)	Mr. Teddy Lui, Ms. Grace Tang, Ms. Vicky Wong, Mr. Danny Chong, Mr. Bohan Zheng	6	Physical	1B@CUHK InnoPort
58	06/12/21	Legal Series: Equity Incentive Plans	Mr. Pádraig Walsh	15	Physical	UGA@CUHK InnoPort
59	07/12/21	ORKTS Webinar Series Social Innovation – A Practice to Create Positive Change	Mr. Mark Cheng / Senior Advisor for Europe and Asia, Ashoka	62	Online	Zoom
60	07/12/21	ORKTS Webinar series - Social Innovation A practice to create positive change	Mr. Mark CHENG	20	Online	
61	08/12/21	CB360 Workshop - Finance Management	Mr. Bird TANG	35	Hybrid	
62	22/12/21	MAKE a DASH Networking and Exchange Event			Face-to-Face	UGA & UGB, InnoPort, CUHK
63	04/01/22	talk by Jonathan, part of Hong Kong Techathon 2022	Mr. Jonathan Chee		Online	zoom
64	3-8/01/2022	Hong Kong Techathon 2022			Hybrid	zoom; Chamber, InnoCentre, Kowloon Tong
65	17/02/22	CUHK and CUHK(SZ) Joint Seminar Series: Drug, Vaccine Testing and Development	Prof. ZUO Zhong / Joan Director and Professor, School of Pharmacy, Faculty of Medicine, CUHK Prof. WANG Haitian / Maggie Associate Professor, JC School of Public Health and Primary Care, Faculty of Medicine, CUHK	169	Online	Zoom
66	18/02/22	PI Centre Information Session [Spring 2022]	Mr. Jonathan Chee	12	Online	zoom
67	09/03/22	AI Technology and Career Opportunities	Mr. Timothy Leung, Mr. Sidhant Gupta , Co-founder & Mr. Ivan Lau	38	Online	zoom
68	24/1 - 11/3/2022	Team formation - Online Matching Session [Spring 2021]	Mr. Jonathan Chee	10	Online	zoom
69	16/03/22	Pitching Your Startup to Win Trust	Mr. Freddy Law	35	Online	zoom
70	24/03/22	PI Centre PILOTS LITE Programme First Interview	PI Centre	83	Online	zoom
71	01/04/22	PI Centre PILOTS LITE Programme Final Interview	PI Centre	38	Online	zoom
72	13/04/22	17th round PI Team Briefing*	PI Centre	32	Online	zoom
73	14/04/22	Coffee, tea or coffee-tea - Legal Structures for Social Enterprises in Hong Kong	Ms. Tze Wai NG	25	Online	
74	26/04/22	CUHK and CUHK(SZ) Joint Seminar Series: ALS & Alzheimer's — Novel Research on Neurological Diseases	Prof. Ho Yin Edwin Chan / Professor, School of Life Sciences, CUHK Prof. Kim Hei-Man Chow / Assistant Professor, School of Life Sciences, CUHK	131	Online	Zoom

Annex 12

Knowledge Transfer Seminars/Events organised by ORKTS

No.	Date (dd-mm-yyyy)	Title	Speaker(s)	No. of Participants	Mode (Online/Hybrid)	Venue
75	06/05/22	Social Impact Academy - Workshop 1: How to create a social business plan	Mr. Mark CHENG	15	Online	
76	12/05/22	NVLT Matching Session-Day 1	New Ventures Legal Team	25	Hybrid	UGA@CUHK InnoPort
77	13/05/22	MAKE a DASH Demo Day and Press Conference			Face-to-Face	UGA, InnoPort, CUHK
78	13/05/22	NVLT Matching Session-Day 2	New Ventures Legal Team	25	Physical	UGA@CUHK InnoPort
79	19/05/22	CUHK and CUHK(SZ) Joint Seminar Series: Smart Energy Engineering	Prof. Yi-Chun Lu / Associate Professor, Department of Mechanical and Automation Engineering, CUHK Prof. Junhua Zhao / Associate Professor, School of Science and Engineering, CUHK(SZ)		Online	Zoom
80	02/06/22	Six Therapeutic Areas of Interest	Mr. Jason Lo	41	Hybrid	zoom; UGA@CUHK InnoPort
81	10/06/22	Social Impact Academy - Workshop 2: How to measure and report social impact	Mr. Mark CHENG	20	Online	
82	23/6/2022	DBS x SES Social Impact Programme - Day 4: Environmental Sustainability	Dr. Elsie TSUI	25	Online	
83	24/06/22	Legal Series: Employee Stock Options For Startups	Ms Cermain Cheung	33	Physical	UGA@CUHK InnoPort
84	30/06/22	CUHK and CUHK(SZ) Joint Seminar Series: From CUHK to Space – The Use of GeoInformation Science and Technology for Interdisciplinary Research	Prof. KWAN Mei Po / Choh-Ming Li Professor of Geography and Resource Management, Director, Institute of Space and Earth Information Science, CUHK Prof. HUANG Bo / Professor, Department of Geography and Resource Management, Associate Director, Institute of Space and Earth Information Science, CUHK Prof. MA Peifeng / Research Assistant Professor, Institute of Space and Earth Information Science, CUHK		Online	Zoom



研究及知識轉移服務處
Office of Research and
Knowledge Transfer Services