HKUST Annual Report 2019-2020

HKUST'S
5 CORE VALUES

- Excellence, Integrity, and Academic Freedom
- Global Vision and Local Commitment
- Can-do Spirit
- Inclusiveness, Diversity, and Respect
- 1-HKUST

THE MISSION
OF THE UNIVERSITY

a To advance learning and knowledge through teaching and research, particularly

   i. in science, technology, engineering, management and business studies; and

   ii. at the postgraduate level; and

b To assist in the economic and social development of Hong Kong.
(The Laws of Hong Kong: Chapter 1141)

STATEMENT OF
VISION

To be a leading University with significant international impact and strong local commitment.

Global To be a world-class university at the cutting edge internationally in all targeted fields of pursuit.

National To contribute to the economic and social development of the nation as a leading university in China.

Local To play a key role, in partnership with government, business, and industry, in the development of Hong Kong as a knowledge-based society.

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CHAIRMAN'S **FOREWORD**

With our 30th anniversary approaching in 2021, HKUST can take pride in the University's remarkable achievements over the past three decades. In line with our mission, HKUST has been successful in attracting, recruiting, and nurturing top talents from around the world while creating opportunities for education, research, innovation, entrepreneurship, and knowledge transfer, resulting in significant impact on the economic and social development of Hong Kong and beyond.

As a forward-looking University, we are fully conscious of the paramount importance of continuing to seek growth by seizing every opportunity to explore and network with the outside world. The signing of a framework agreement between the National Development and Reform Commission and the governments of Guangdong, Hong Kong, and Macao on deepening Guangdong-Hong Kong-Macao cooperation has provided an opportune time for HKUST to establish a new campus in Guangzhou. The great opportunities and tremendous potential of the Greater Bay Area will open the way for the University's further advancement. With a state-of-the-art campus and a unique cross-disciplinary approach to education and research in place, HKUST(GZ) will embrace a diversity of talents, bringing remarkable vitality to the development of the University, and boosting academic exchange and communication between Hong Kong and other cities in the region. By adopting synergistic academic and organizational frameworks across HKUST and HKUST(GZ), the disciplinary and cross-disciplinary activities of our Clear Water Bay and Guangzhou campuses can both be capitalized upon and resources would be more effectively used to promote synergy and collaborations in education and research activities.

While ready to venture out to explore all the new opportunities resulting from the new campus, the University will continue to fully pursue endeavors in Clear Water Bay, where our foundation lies and our core values are embedded, with every effort made to fulfill our mission. As an indication of this, and despite the challenges posed by the pandemic, HKUST has maintained its leading position in a range of areas. Our frontier research and innovation work, such as those developed to fight against coronavirus and transform the world through science and technology, are having great local and international impact in their contribution to improving the wellbeing of mankind. In addition, the joint Executive MBA (EMBA) program delivered by Kellogg School of Management at Northwestern University and HKUST Business School remained among the top in the global Financial Times EMBA Ranking for the tenth time. All these achievements are testimony to the dedication hard work of the University's faculty, staff, and students.

Amid the fast-changing world that we live in and HKUST is helping to transform, the Council, as the supreme governing body of the University, remains committed to steering HKUST's overall strategic direction. Through the strategic planning and risk assessment processes, the University's performance has been reviewed, taking into consideration the external environment as well as our stakeholders' aspirations and expectations. To further enhance university governance and accountability, the Council took the initiative to revise the *Guidelines and Code of Practice for Council Members* which outline the code of conduct and responsibilities of Council Members in our conduct of Council businesses. In addition, considering the importance to ensure proper governance of the Guangzhou campus, the Council has formulated a governance framework that outlines the duties and responsibilities of respective parties in managing HKUST(GZ). A designated Committee has also been set up for the Council to oversee matters related to the establishment and operation of the new campus.

In closing, I would like to thank my fellow Members of the Council and Court, the University Administration, faculty, students, and alumni for their ardent support over the years, and their commitment to move HKUST further forward. I would also like to express my gratitude to our donors for their generosity in reinforcing our efforts to advance the University's development to our next stage. With your support, we will strive with our utmost steadfastness to sharpen our vision, to attract more and more leading academics from around the world, and to educate the next generation of creative thinkers and innovators, and continue to move energetically toward our mission.

Chairman, University Council
MR. ANDREW LIAO CHEUNG-SING
GBS, SC, JP

PRESIDENT'S **REPORT**

Following a year of unprecedented events and challenges in Hong Kong, it is an opportune time to take stock of our community that we all care so deeply for, and look into the future, from the perspective of our shared beliefs and values.

Since mid-2019, societal development within Hong Kong has caused deep divisions across the entire city. Following multiple episodes and vandalism on campus, we introduced measures to enhance campus security to protect the well-being of individual members as well as to maintain the proper operation of facilities and laboratories. Now, with the COVID-19 pandemic sweeping across the world, affecting many millions of lives, health authorities, policy-makers, scientists and innovators around the world have been racing to curtail the spread of the virus. Members of HKUST have stepped up and made noteworthy contributions to help find solutions. In this Annual Report, we dedicate space to highlight the University's efforts in this area.

Dedication, Support and Appreciation: Indeed, many colleagues have been working literally around the clock in the past year to coordinate and support campus-wide challenges in health, safety, education, research, physical and mental well-being, career opportunities, operations, services, in-person assistance in Hong Kong and Mainland, and much more. They deserve appreciation and gratitude from us all.

Faced with all these issues and needs, there has been additional demand on resources, both human and financial. Supported by generous donations received recently, and further matched by a government grant last year, HKUST has been able to weather the financial challenges so far. Even though some of our facilities have had to close for certain periods, we have continued to fully maintain them so that the campus will be in good shape when the situation permits all members to return. In order to offer direct assistance to students facing personal difficulties, a COVID-19 Student Hardship Relief Fund has been set up with donations made by faculty, staff, students, alumni, and supporters, here and overseas. Thanks to this support and these caring efforts, dozens of students have been offered financial assistance. I take this opportunity to thank members of the HKUST community for coming together to help each other.

Academic and Beyond: Meanwhile, our activities in academic endeavors, including teaching, learning, research, and knowledge transfer, have continued, though some have to be adjusted in major ways. For example, international exchanges between faculty and between students have been severely affected, and can only be resumed when the worldwide pandemic has stabilized. We are continuing to adapt and optimize teaching arrangements, based on the valuable input from our colleagues and students, through technological support and multiple innovative arrangements. Many research projects, ongoing and new, are being proactively supported and facilitated, with our faculty earning support in multiple major government-sponsored programs, including InnoHK and the Theme-Based Research Scheme. A growing number of private enterprises are also seeking and supporting close collaboration with HKUST in multiple areas, motivated by mutual interest in advancing frontiers of science and technology, which will help propel Hong Kong and the region to innovate and to transform its societal and economic landscape.

Strategic Positioning: In addition to these ongoing activities, major development is taking shape as we draft the new Strategic Plan for HKUST's future. Leading universities promote cross-disciplinary research directions in part because of their implications on addressing major societal challenges. As both scope and integration of our research and educational endeavors evolve, we naturally expect a broadened range of activities that include not only the blue sky, curiosity-driven efforts that have formed the core of our program, but also more mission-encouraged research spurred by the grand challenges facing humanity. Nurturing both curiosity-driven and mission-encouraged pursuits is critical for the future of the University and the development of academia as a whole.

HKUST is well-positioned to fulfill our institutional ambition by leading efforts to both: (1) pursue curiosity-driven investigations on topics in any discipline, whose ultimate impact may not be initially apparent (e.g., discovery of black holes, the double helix, fractals and strange attractors, the invention of the transistor), and (2) mount mission-encouraged, multi-faceted responses in systematic ways to identified challenges of great magnitude (e.g., space exploration, human/machine coexistence, public health, and global warming), whose success requires expertise from various disciplines. However, these two conceptual frameworks lead naturally to different degree programs and underlying academic structures.

Our Guangzhou campus, HKUST(GZ), due to be operational in 2022, creates an exceptional opportunity for such efforts to be systematically developed, with new physical space, financial support, and more faculty and students engaged in a number of cross-disciplinary thrusts. The "Unified HKUST, Complementary Campuses" framework that we advocate places emphasis on our expansion in both physical and conceptual domains. It is our expectation that academic breakthroughs will arise while collaboration and integration will be promoted between campuses, including facilities and services, policies and mechanisms, and professional standards. We envision a Unified System that supports complementary academic structures and non-overlapping degree programs and promotes a healthy mix of curiosity-driven and mission-encouraged academic and related activities. Most importantly, the individual campuses in Clear Water Bay and Guangzhou will enable faculty and students to find the best atmosphere in which to follow their passions and fully develop their interests.

Our Living Lab: The year also brought the conclusion of the HKUST 2020 Sustainability Challenge, a self-initiated eco-masterplan. This has led to notable campus-wide waste reduction, energy-saving initiatives, and sustainable approaches. Further efforts through the "Sustainable Smart Campus as a Living Lab" and its dedicated University funding have elevated and encouraged many students, faculty, staff and alumni to join together to turn ideas into action and implement them on our beautiful campus. Ideas and efforts will be expanded to cover both campuses in Clear Water Bay and Guangzhou under the "Unified HKUST, Complementary Campuses" vision.

Self-Expectation: The entire world has been challenged by increasingly intense debates and disagreement on matters of critical importance to the future. Even though information can travel at the speed of light without barriers, countries and regions are struggling with growing disparities in lifestyle, belief, culture, socio-economic development and political inclination. While the environment around us is evolving, our commitment to support an open, understanding, and intellectually stimulating campus remains unwavering. We must identify and uphold shared principles and values, by exercising individual and institutional integrity, by respecting diverse views and opinions, by promoting our international standards, and by forging a positive spirit. We are determined to contribute our utmost efforts to the future of Hong Kong and beyond.

President
PROF. WEI SHYY
JP

UNIVERSITY **MANAGEMENT**

Prof. Wei SHYY
President

Prof. Lionel M. NI
Provost

Mr. Mark HODGSON
Vice-President for
Administration and Business

Prof. Nancy Y. IP
Vice-President for
Research and Development

LEARNING FOR LIFE

2019-20 was a year that highlighted the University's adaptability and dynamism as it pressed ahead, amid unforeseen events, in advancing its student learning experience across all fronts and especially online

INNOVATIVE CURRICULUM

Establishing the Next-Generation of Sustainability Innovators

To address the critical issue of sustainability of the marine world, the School of Science introduced the BSc in Ocean Science and Technology, the first degree program of its kind in Hong Kong. The program provides cross-disciplinary knowledge and first-hand experience of issues and developments related to conservation and management of ocean resources and will help to answer the need for professionals in areas ranging from marine biotechnology and ocean exploration to environmental consultancies.

Seeking to further increase future sustainability talents and awareness in the community, the Interdisciplinary Programs Office's Minor Program in Sustainability was approved to start from Fall 2020. The program will give more students the chance to gain eco-insights across disciplines and broaden problem-solving approaches.

Bringing Big Data Insights to Science

Boosting the use of big data beyond computer science, planning for the School of Science's BSc in Data Analytics in Science moved ahead over the year. With growing demand for capabilities to draw insights from the deluge of information now becoming available to scientists, this joint endeavor involving the School's five Division/Departments aims to equip students with the skills to apply practical mathematical and data analytical techniques to apply these techniques to a scientific area. Science students of 2020-21 intake can opt for this new major program in their year 2 in 2021-22.

Deepening Understanding of Human Nature

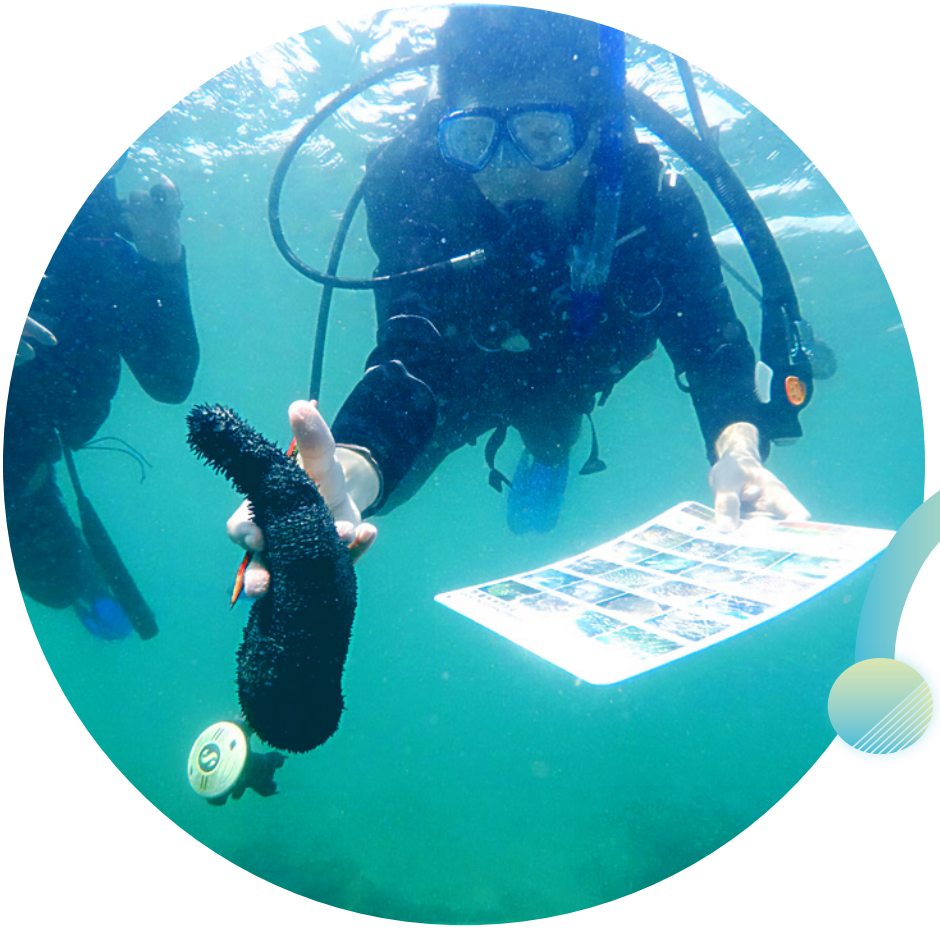
A Minor Program in Psychological and Behavioral Science was launched over the year, jointly offered by the Division of Social Science under the School of Humanities and Social Science and Departments of Marketing and Management under the School of Business and Management. The program, developed in response to students' feedback and requests, enables learners to apply the principles of psychological and behavioral science in their personal, professional, and civic lives.

Research Beyond Traditional Boundaries

The first cohort of creative minds whose areas of exploration do not fall into established research postgraduate degree offerings were admitted to the MPhil/PhD in Individualized Interdisciplinary Program (Research Area). The programs, offered by Interdisciplinary Programs Office, will involve students working with a minimum of two co-supervisors from different areas. In other PhD joint supervisions, arrangements with Guangzhou Metro Group Co. Ltd, Shenzhen Bay Lab, and Southern Marine Science and Engineering Guangdong Laboratories in Zhuhai and Guangzhou will allow doctoral students to widen their research perspectives.

Building Up Skills and Mindsets for Society's Emerging Needs

The University's taught postgraduate studies enable professionals to upgrade their skills, or develop new ones, with the start of two interdisciplinary programs indicating the increasing need for skills that span more than one field in today's market. The MSc in Data-Driven Modeling, jointly



offered by the Department of Physics and Department of Mathematics, equips students with modeling skills essential in the information technology sector to facilitate smart decision-making for businesses and services. The MSc in Financial Technology, the first of its kind in Hong Kong and Mainland China, develops the fintech capabilities needed to use novel technologies and financial innovations to improve traditional financial services. The program is jointly run by the Schools of Science, Engineering, and Business and Management.

The University also approved two more taught postgraduate programs to be launched in 2020-21. The MSc in Technology Leadership and Entrepreneurship is a unique program jointly offered by the Schools of Engineering and Business and Management to enable entrepreneurs or those with an entrepreneurial idea in mind to build a strategic technical advantage into their product and gain access to advanced facilities and skills for prototyping and launching their product. The MSc in Finance integrates the previous MSc in Financial Analysis and MSc in Investment Management into a new program covering all the critical areas in investment management and financial analysis to prepare students for new challenges in the financial sector.

A Doctor of Business Administration program was also approved for launch in 2021-22 to develop the research capabilities of senior practicing executives and assist them in applying research methodologies and business theories to important issues they face in their business settings.

HKUST(GZ) PILOT SCHEME

The Pilot Scheme was rolled out in preparation for the Hong Kong University of Science and Technology (Guangzhou) (HKUST(GZ)) campus in Nansha, due in mid-2022. The scheme enrolls research postgraduate students at the Clear Water Bay campus to start conducting the cross-disciplinary research that will be the hallmark of the new campus (see P.34). The first cohort of 109 students joined in 2019-20.

The Senate approved postgraduate research programs developed in 15 thrust research areas for HKUST(GZ)'s four Academic Hubs. The programs will adopt an innovative approach through cross-disciplinary education and research, with an individualized curriculum design that can respond more quickly to the world's fast-changing developments and social and economic needs. Students will study at the Clear Water Bay campus under the Pilot Scheme while the Guangzhou campus is under construction.

Four core courses on research methods and design thinking were also developed under a cross-disciplinary active learning pedagogy to be adopted at the future campus.

SCHOLARSHIPS AND AWARDS

Scholarships are a way of the University to diversify its educational reach by recognizing students' academic and non-academic achievements across numerous different areas. Total funding for scholarships awarded to all undergraduate and postgraduate students was around $95 million, an increase of 9% compared with the previous year.

Non-academic scholarship programs launched over 2019-20 included recognitions for arts, music, and more, students in financial need or facing obstacles in chasing their dreams, and for those taking actions to serve for social good. In addition, 28 elite student athletes received Alumni Endowment Fund Athletic Awards. Overall, 355 non-academic awards, collectively worth $4.9 million, were offered.

In tertiary-wide competitive scholarships, the University once again drew keen interest from international students. Under the Hong Kong government's Belt and Road Scholarship scheme, 15 awardees (20%) joined HKUST from Vietnam, New Zealand, Turkey, Bangladesh, and Myanmar, among others. In locally focused schemes, 10 HKUST students were recognized under the Hong Kong government's Innovation & Technology Scholarship scheme and through D. H. Chen Foundation Scholarship, which aims to nurture insightful leaders.

The University introduced the HKUST RedBird PhD Scholarship Program to recognize the academic performance and research capacity of outstanding PhD candidates. Externally, HKUST continued to secure the highest number of awardees in the prestigious Hong Kong PhD Fellowship Scheme among the UGC-funded universities, attracting 64 out of 250 (26%) awardees for 2020-21 admission. These Fellowship students hail from 16 countries and regions and will add considerably to the internationalization of the University's research student community.

In addition, HKUST was awarded 81 (16%) fellowship places in six taught postgraduate programs in the first cohort of the University Grants Committee's Targeted Taught Postgraduate Programmes Fellowships Scheme in 2020-21. The scheme was introduced to encourage local students to pursue further studies in priority areas for the development of Hong Kong.

Scholarships

$95 million

▲ 9%YoY

awarded to both undergraduate and postgraduate students

Awards

355

Non-Academic Awards

worth

$4.9 million

were offered

DEVELOPING A GLOBAL MINDSET

Despite the COVID-19 crisis impacting regular student exchange arrangements from late January 2020 onward, around 890 students studied at partner institutions in our extensive global exchange network in 2019-20 overall, helping them to develop multicultural perspectives and broaden understanding. In addition, the Office of Global Learning worked with university partners to provide virtual courses to replace the University's credit-bearing summer study abroad experience in non-traditional destinations, such as Czech Republic, Estonia, Germany, Poland, and Russia, benefiting a total of 100 students.

TWENTY-FIRST CENTURY EDUCATION

AR/VR and Gamification

HKUST's technology and innovation strengths enable the University to adapt the latest hi-tech trends into its active learning strategies, as well as to respond to novel circumstances, such as the COVID-19 outbreak. Over 2019-20, Teaching Development Grants administered by the Center for Education Innovation supported four projects focused on the theme of augmented reality (AR)/ virtual reality (VR) and gamification (activities that solve problems by applying game principles and elements). All will use different modes in adopting these approaches. Among them is a proposal to use a digital gaming platform to enliven the learning of probability and statistics in civil engineering. In response to the rising demand for virtual laboratories for online learning, another project aims to use virtual reality to develop such a lab for mechanical engineering undergraduates in the second half year of 2020.

Life Cycle Thinking

Over the year, the Division of Environment and Sustainability launched its Life Cycle Thinking workshops to equip students with the mindset to assess the environmental performance, cost, and trade-offs of products and systems. Such thinking and assessment tools are already used by many multinational corporations. With smart and sustainable designs almost a must for new technical solutions and innovations, the ability to evaluate and quantify whether a novel design idea is genuinely more sustainable than pre-existing solutions has become a significant capability for students to develop (see P42).

Practitioner Input

The University incorporated further real-world insights from industry into students' learning over the year to broaden perspectives and add greater social relevance. Among these courses, a collaboration between the School of Business and Management and Microsoft in Spring 2020 resulted in Hong Kong's first artificial intelligence (AI)-centric MBA elective. The course featured Microsoft guest speakers from various operational departments, who shared their experience of how AI can transform business in areas ranging from financial services and human resources management to customer service, and others.

HOLISTIC LEARNING

Sports Development

The Sports Teams Assistance Scheme, under the Dean of Students' Office (DSTO), provides teams with funding and opportunities to represent HKUST in local and international inter-varsity competitions and elite student athletes with financial support to represent Hong Kong in international competitions. The Scheme supported more than 600 local and non-local students in 66 sports teams and 35 sports in 2019-20. Two elite student athletes were also admitted to HKUST via the newly launched Student Athletes Admission Scheme.

In a significant addition to the water sports center, the University's new boathouse was prepared for use as a central storage area for boats and equipment, as well as a backup base camp for training and practice, and an avenue to build cooperation between the University and water sports organizations in the community. The boathouse is expected to open in the third quarter of 2020.

Student Life and Wellbeing

To continue to develop students' full potential amid challenging times, a co-creating program #U2.0 Journey was rolled out in Spring 2020 by DSTO, bringing together students, faculty, and staff members to reimagine the future role of education and drive sustainable transformation under the new normal. Twenty faculty and staff members teamed up with 32 students to co-create the blueprint for #UniLifeLAB (University Life: Learn Apply Build-on). Guided by a facilitated design thinking process, the teams reframed and redesigned DSTO programs and faculty projects in eight different work areas, including community engagement, leadership development, career education, preventive and emotion first aid, intercultural understanding, interactive e-visuals, sustainable consumption, and business ethics. The process generated 16 new project ideas, with some individual ideas to be implemented in stages in 2020-21. Programs redesigned by the participating teams seek to provide opportunities for students to discover themselves, chart their career paths, and cultivate a positive mindset.

In 2019-20, a total of $6.4 million in financial aid was offered to 212 students experiencing financial difficulties due to prolonged hardship and/or unforeseen events, with an average amount of around $30,000 per student.

PREPARING STUDENTS FOR THE WORKFORCE

Leadership Training and Career Education

Over 2019-20, 96 members received training and coaching to learn how to lead themselves and others as members of the Redbird Leadership Community. Given the unprecedented events of the year and the limitations placed on experiential learning opportunities, participants demonstrated resilience in continuing their learning through training and coaching online. One gold award, four silver awards, and 69 certificates of completion were earned, recognizing students' achievements, service, and dedication.

In Spring 2020, all career development programs and consultation sessions moved online due to COVID-19. Online program offerings were increased and made available to students located in different time zones. A total of 81 online programs were conducted and more than 3,000 students took part.

Employability and Internships

HKUST continued to rank highly in the Emerging/Trendence annual Global University Employability Ranking, being placed at No.10 (No.1 in Greater China) in 2019. It also remained a popular campus for employers to search for potential recruits and interns. Despite challenging situations, both of the biannual Career Mosaic job fairs, organized by the University Career Center, took place. The first was held on campus in October 2019 and the second online in May 2020.

To assist students gain early work experience, the Career Center's Internship Network (iNet) connected potential participants with programs in Hong Kong and worldwide, while individual companies and organizations also offered placements. In response to the COVID-19 pandemic, the iNet Team additionally promoted a virtual internship program, comprising over 40 start-ups and run by a Singapore consulting firm. More than 900 undergraduates are expected to secure internships via iNet over the reporting year. In May 2020, the Innovation and Technology Commission launched a Science Technology Engineering Mathematics (STEM) Internship Scheme, with a total of $8 million allocated to HKUST. By the end of June 2020, close to $6 million had been successfully earmarked, with more than 230 students successfully landing internships through the scheme.

Internships undertaken in Hong Kong over 2019-20 involved a wide range of organizations. For example, biological science students worked with Hong Kong Wetland Park and The Green Earth, an NGO, while physics students interned at two spin-off hi-tech companies, Light Innovation Technology and Acoustic Metamaterials Group, involving the department's faculty members and graduates.

Meanwhile, new internships partners for humanities and social science students include Tai Kwun and the Hong Kong Heritage Project, Hutchison Telecommunications Hong Kong Holdings Limited, and Champion REIT.

STUDENT ENTREPRENEURSHIP

Entrepreneurial Moves and Mindset

As an indication of the University's entrepreneurial enthusiasm, over 3,340 participants engaged in Entrepreneurship Center seminars and workshops in 2019-20, an increase of 6% over the previous year.

Among many innovative initiatives, the Technopreneurship (Tech-Ship) Program was introduced by the University's Entrepreneurship Center and Technology Transfer Center in 2020 as a platform to bring together student entrepreneurship development with faculty technologies. The program's goal is to facilitate partnerships for technopreneurship – an emerging type of entrepreneurship where the use of technology is an integral element of an innovation or solution for any sector. Showing the dynamic nature of the HKUST community, 162 students and alumni became involved, and 14 faculty technologies/research outcomes were put forward in just three months, from April to June 2020, resulting in over 30 technopreneur partnerships.

Regarding on-going opportunities, the Leapfrog Program engaged over 60 students in experiential learning, along with ideas and cultural exchange with overseas students and entrepreneurs over the year. Activities included an exchange learning program in Sydney, Australia, with Macquarie University students, an outreach program also to Australia, where students from HKUST and other local universities visited hi-tech start-ups and explored leading technologies, such as satellite internet of things and quantum computing, and an overseas entrepreneurship program in Bangkok, Thailand.

Competitive Opportunities

In November 2019, the School of Business and Management organized Bizkathon@HKUST, Hong Kong's first virtual banking hackathon for tertiary students and alumni. The event helped those taking part to prepare for the arrival of virtual banking services in Hong Kong, with alumni mentors and practitioners providing advice to participating teams. In addition, the novel online H^2 Innovation Challenge, a gerontechnology hackathon co-hosted with New World Development, replaced the University's signature Hackathon@HKUST software and hardware competitions. This year's Hackathon@HKUST was cancelled due to the COVID-19 outbreak. The H^2 event attracted 86 entries from student teams at universities in the Greater Bay Area, along with a host of smart aging ideas.

The flagship HKUST-Sino One Million Dollar Entrepreneurship Competition, now expanded to eight regions across China, serves as an energizing platform for young entrepreneurs to demonstrate their creative ideas for new businesses. In Hong Kong, the 2020 regional contest went ahead in digital form, with its Elevator Pitch and Business Plan Presentation held online in April 2020 and June 2020 respectively. More than 150 teams still participated, nearly 30% more than the previous year, with most teams comprising HKUST students, alumni, faculty, and staff from the Schools of Science, Engineering, and Business Management. The President's Award, the main prize, went to biotechnology start-up SPES Tech (see P.21) for its cutting-edge hydrogel solutions to advance 3D and organoid culture in biomedical research and assist scientists to better understand the pathology of diseases.

FIGHTING **COVID-19**

Interactive Real-Time Teaching and Learning

Responding rapidly to the new teaching and learning needs are required as COVID-19 restrictions widened, HKUST became one of the first to switch from traditional in-class teaching to interactive real-time online teaching mode in Spring 2020, meaning teachers taught and learners took their courses via Zoom as scheduled in real time. The move enabled students to continue their studies no matter where they were while safeguarding the health and safety of the University community. In preparation, training sessions took place at the beginning of the Spring Term to introduce faculty members and teaching assistants to video conferencing tools for remote teaching. Advanced features, such as group chat, polling, and breakout groups, helped faculty to enhance interaction with students. This wholesale approach to real-time online classes also helped to break down any psychological barriers among faculty about using technology to enhance teaching and learning, laying a robust foundation to add other advanced technologies to the University's educational approach.

Student Housing

Hall places were reserved in Summer 2020 in coordination with the Office of the Vice-President for Administration and Business to allow undergraduate and postgraduate students without a home base in Hong Kong with hall offers for 2020-21 to undergo 14 days' mandatory quarantine on and off campus (see P.39) to allow them to seamlessly transition.

Easing Anxiety

2019-20 brought two new co-curricular, namely Managing Conflict: for Healthy Relationships and Positive Psychology: The Science of Well-Being to help students cope with the added stress they faced during the time of social incidents and the pandemic. Students were given a safe and intimate environment over Zoom to reflect on how to manage conflict, and to stay positive despite many of their plans and expectations being disrupted.

Strengthening Social Bonds

An "On-Air Café", organized by Dean of Students' Office via Zoom in April and May 2020, kept HKUST students in touch with each around the world. Nine online sessions hosted by undergraduate and postgraduate students from different cultural backgrounds took place, with the occasions memorably captured by a master of graphic recordings. Additional online activities, such as a K-pop dance class and online games provided further social and mental support under the overall theme of "Together in Distance, Together We Stand".

Career Opportunities for Fresh Graduates

With the pandemic creating an unprecedented challenge for graduates, the University's alumni groups came together to launch the HKUST United program, with over 580 alumni around the world delivering support to over 560 students, with more than 250 jobs and internships referred to students and graduates through our alumni.

LAB TO MARKET

The University's research endeavors, partnerships, and development of facilities continued to extend its capabilities for discovery and innovation during challenging times

RESEARCH FUNDING TO ADVANCE UNDERSTANDING

Despite the challenges of the year, HKUST boosted its research endeavors to deliver novel knowledge and technology by gaining cumulative external funding of $ 1.1 billion for 1,469 new and on-going projects in 2019-20.

RGC Funding Schemes

Hong Kong's Research Grants Council (RGC) and its wide-ranging funding schemes provided an overall total of $197.6 million for 233 new projects. The General Research Fund and Early Career Scheme attracted the most proposals from HKUST faculty and researchers, with 357 and 38 applications respectively. The University's success rates for the two schemes were 45% and 58%, remaining the highest among all local institutions.

Under the RGC's prestigious Theme-based Research Scheme, Prof. CHEN Guanghao (Civil and Environmental Engineering) and his interdisciplinary team gained approval for total funding of $30 million over five years for a paradigm-shifting, fully integrated, compact wastewater-to-resource facility. The Collaborative Research Fund exercise saw five University group proposals and two equipment proposals approved for a total of $35.5 million. The group grants will drive life science, chemistry, and physics research spanning muscle stem cells, Alzheimer's disease, organic solar cells, antibiotics, and superconductors. The equipment grants will enable Prof. QU Jianan (Electronic and Computer Engineering) to build a high-resolution two-photon microscope with adaptive optics for in vivo imaging of brain structures in animals, and Prof. HUANG Xuhui (Chemistry, Chemical and Biological Engineering) to set up a cluster of over 460 state-of-the-art Graphics Processing Units (GPUs) or molecular dynamics simulations, whole-genome sequencing analyses, and other applications requiring single-precision calculations. Meanwhile, Prof. CHEN Lei (Computer Science and Engineering) received $5.6 million under the Research Impact Fund to develop a product-oriented, domain-specific knowledge base from which both e-commerce firms and customers can benefit.

InnoHK Research Scheme

Through the InnoHK research scheme, a major initiative of the Hong Kong government to turn the city into a hub for global research collaboration, HKUST proposals for two research centers were awarded a total of $805 million. Within the scheme's Health@InnoHK research cluster, Prof. Nancy IP (Life Science) is set to receive $503.5 million over five years to jointly establish the Center for Neurodegenerative Diseases in Hong Kong with top-notch institutions including Stanford University of Medicine and University College London. The center will focus on Alzheimer's disease, a prevalent form of dementia affecting almost 47 million people worldwide. Under AIR@InnoHK, Prof. LI Zexiang (Electronic and Computer Engineering) will be awarded $301.5 million for his five-year project to set up the Hong Kong Center of AI, Robotics, and Electronics (HK CARE) for Prefabricated Construction with University of California, Berkeley and Tsinghua University.

$ 1.1 billion

of external funding granted to

1,496 projects

Innovation and Technology Fund

Showing significant strides made by faculty in advancing their creativity and enterprise, HKUST submitted 139 proposals to the Hong Kong government's Innovation and Technology Fund. One third of them, 44 proposals received funding, totaling $ 194.5 million. Among these, Prof. Nancy IP (Life Science) was awarded $12.4 million to comprehensively analyze biomarkers for Alzheimer's disease in the Chinese population and Prof. FU Kit-Yu (Life Science) attracted $9 million to explore the inhibition of EphA4 signaling for the prevention and treatment of neurological disorders. Prof. YU Weichuan (Electronic and Computer Engineering) will receive $9.5 million to investigate the use of imaging and genomic data to predict metastasis of breast cancer after treatment.

Hong Kong Public Policy Research Funding Scheme

Among HKUST proposals supported by the Hong Kong Public Policy Research Funding Scheme were two topical projects on Hong Kong society and social media, respectively. Prof. Jean HONG (Social Science) received $0.39 million to examine the origins of distrust in a study looking at Hong Kong citizens with different experiences of violence related to the city's social incidents while Prof. Franziska Barbara KELLER (Social Science) was awarded $0.44 million to study information sharing on social media platforms.

Outside Hong Kong

Funding from beyond Hong Kong was also obtained for individual projects, with Prof. CHEN Yu (Life Science) being awarded $12.3 million from the Ministry of Science and Technology to perform multidimensional analysis of biomarkers for Alzheimer's disease in the Chinese population. On a collective basis, the University's established mainland research platforms in Nansha and Shenzhen secured numerous projects. HKUST Shenzhen Research Institute (SRI) was awarded 28 projects, with total funding of RMB68.4 million. Fok Ying Tung Research Institute (FYTRI) in Nansha received funding for 38 government projects and 39 commercial research projects, with a total contract value of RMB57.8 million and RMB44.5 million, respectively.

PARTNERSHIPS THAT FOSTER DISCOVERY AND APPLICATIONS

HKUST added to its research institutes, centers, and laboratories in 2019-20, building greater capacity to advance emerging areas in biotechnology as well as pressing global issues such as sustainability and aging through an expanding range of partnerships and joint endeavors. To broaden the University's knowledge transfer capabilities, a number of collaborative innovation platforms were established and agreements drawn up with mainland cities in the Greater Bay Area and other parts of the country (see P.35).

In August 2019, the University announced the establishment of The Li Ka Shing Institute of Synthetic Biology, the first of its kind in Hong Kong. The cross-disciplinary field uses big data from genetics and related fields to explore interactions between biological and non-biological disciplines, including physics, computer science and math, chemistry and engineering. The Institute, supported by a $500 million donation from the Li Ka Shing Foundation, will seek research breakthroughs ranging from biomolecules to cells, and applications that can be turned into products promoting public health and environmental sustainability.

Recognition of the University's pioneering work in ocean science led to two major strategic partnerships with mainland institutions. The University was identified by the Qingdao National Lab for Marine Science and Technology to jointly organize the interdisciplinary Center for Ocean Research in Hong Kong and Macau. The Center will seek to tackle challenges in ocean science technology linked to regional and global issues, with sustainable development of the ocean economy, ecosystem, and environment in the Greater Bay Area forming a key priority.

Southern Marine Science and Engineering Guangdong Lab (Guangzhou) also invited HKUST to establish a Hong Kong Branch, which will focus on interdisciplinary marine scientific research into the health and safety of marine ecosystems in the Greater Bay Area and South China Sea.

Moving from sea to sky, HKUST's significant contribution to air quality improvements, locally and regionally, received a boost with the setting up of the Guangdong-Hong Kong-Macau Joint Laboratory of Collaborative Innovation for Environmental Quality, led by Jinan University and HKUST and funded by Guangdong Province's Department of Science and Technology. A major component is a world-leading Volatile Organic Compounds (VOC) Analytics Laboratory at HKUST, expected to be operational in 2021. This will have trace-level analytical capability to narrow down contributing sources and enable better control and reduction of ozone and particulate matter pollution.

On the healthcare front, the Greater Bay Area Joint Laboratory of Infectious Diseases of the Respiratory System was established with members of the Division of Environment and Sustainability as co-principal investigators, along with other Hong Kong, Macau and Guangzhou institutions and a private diagnostics laboratory. The Joint Lab will provide a regional platform to address basic and clinical research on infectious diseases, to create better diagnostic tools and treatments, prevention and control strategies. HKUST Shenzhen Research Institute participated in the establishment of the Shenzhen-Hong Kong Innovation Research Institute of Brain Science, which is shaped around a collaborative partnership of the region's premier biomedical institutes. Meanwhile, longstanding collaboration between University faculty and a major mainland hospital in Shanghai resulted in the HKUST-Shanghai Sixth People's Hospital Joint Research Center for Brain Science to deepen existing research and develop novel therapies that can halt or reverse the effects of Alzheimer's disease.

Widening scope more generally, HKUST signed a Memorandum of Understanding (MoU) with Guangzhou University to establish a Joint Research Collaboration Fund Scheme, with each university providing $500,000 per year, initially for three years, to support joint research initiatives.

Regarding social development, research centers directed by School of Humanities and Social Science faculty brought the launch of the Global China Center, seeking to unpack the complexities of China in a global context through multidisciplinary research, and the interdisciplinary Center for Aging Science, focused on understanding health aging and technology-based solutions. The School was also chosen to host the French Centre for Research on Contemporary China's Hong Kong branch to build collaborations.

FROM PATENTS TO PRODUCTS

When research leads to knowledge and technologies with potential for commercialization, it is then the turn of the University's knowledge transfer unit to provide valuable assistance in protecting and promoting HKUST intellectual property (IP), transferring knowledge and technologies to industry, and fueling entrepreneurship among the University community.

April 2020 brought the launch of the $5 million Bridge Gap Fund, formerly the Proof-of-Concept Fund, to facilitate technology validation at the pre-commercialization stage through funding support. The fund received 34 applications and supported 11 of the projects up to $500,000 each. Generating further opportunities, the Technology Start-up Support Scheme for Universities (TSSSU), launched by the Hong Kong government's Innovation and Technology Commission (ITC), attracted 43 applications from HKUST in the funding exercise in the reporting year, bringing the total number of applications for TSSSU funding in the last seven years to 270. With 14 start-ups recommended to the ITC by the HKUST vetting committee, this brings the total number of HKUST affiliated TSSSU start-ups to 62. Around 70% of the TSSSU start-ups are using HKUST technology, and about 58% of these start-ups have joined incubation programs organized by the Hong Kong Science and Technology Parks Corporation and Hong Kong Cyberport Management Company Limited. Majority of the TSSSU start-ups, around 76%, received external funding.

HKUST's own Entrepreneurship Program for promising early-stage technology start-ups had led to 39 active firms by 2019-20. The year also brought the launch of the HKUST Entrepreneurship Fund with $50 million funding to support early-stage University start-ups. The fund operates a co-investment model and invited venture capital funds, incubators/accelerators, and family offices to participate. Twelve private matching partners are now fully engaged and 12 international advisors are on board. The fund has currently invested in three University start-ups: Dayta AI, D-Engraver Ltd., and SPES Tech (see box below).

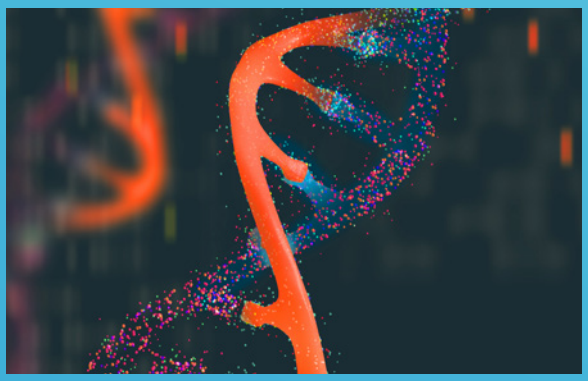
Meanwhile, the HKUST Futian Base in Shenzhen was readied for use for R&D activities, entrepreneurship, incubation, and professional training programs. Incubator Blue Bay X got underway on one of the floors and five start-up companies founded by HKUST academics or alumni have moved in.

Birth of a Start-up

HKUST biotechnology start-up SPES Tech, which is dedicated to developing next-generation hydrogel solutions for life science, bioprocess and regenerative medicine, demonstrates how the University's innovation pathway provides valuable step-by-step support to its budding entrepreneurs. Starting from IP protection and receiving the Yeung Wing Yee Entrepreneur Fund and HKUST's Proof-of-Concept Fund (later repositioned as Bridge Gap Fund), the student team behind the company was accepted for the University's U*STAR Award, the Technology Start-up Support Scheme for Universities, and most recently the HKUST Entrepreneurship Fund. Through these different schemes, the students gained access to funding, lab resources and equipment, and the highly important impetus of encouragement. SPES Tech has now been offered a place on Hong Kong Science and Technology Parks Corporation's Incu-Bio Programme.

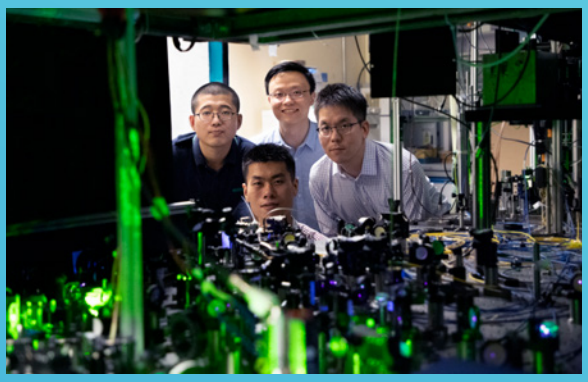
RESEARCH **HIGHLIGHTS**

Statistical Genomics Insights



Prof. YANG Can (Mathematics) deepened understanding of the architecture of complex traits and diseases in the human genome by developing statistical methods to quantify the regulatory role of genetic variants, identify cell type-specific risk-CpG sites in epigenome-wide association studies, and predict disease risks to stratify high-risk individuals. The methods effectively accounted for confounding factors in biomedical data analysis, greatly improving statistical power in detecting biological signals of interest, and established rigorous theories to guarantee model identifiability and algorithm convergence. These studies have been published in *Nature Communications, Proceedings of the National Academy of Science (PNAS), NAR Genomics and Bioinformatics, and Annals of Statistics*.

3D Topological Matter Simulation with Ultracold Atoms



Prof. JO Gyu-Boong (Physics) and his group unveiled the world's first quantum simulation of 3D topological matter with ultracold atoms, a breakthrough that may eventually lead to the development of less noisy and more robust quantum devices. The team realized a 3D spin–orbit coupled semimetal in an engineered optical lattice filled with ultracold fermions, and observed a collection of singular points (also known as a nodal-line) in the band structure. The topological semimetal with emergent symmetry allows us to detect nodal lines by effectively reconstructing the 3D topological band from a series of measurements of integrated spin textures. The novel detection technique can be applied generally to explore 3D topological states of similar symmetries. The research was published in *Nature Physics*.

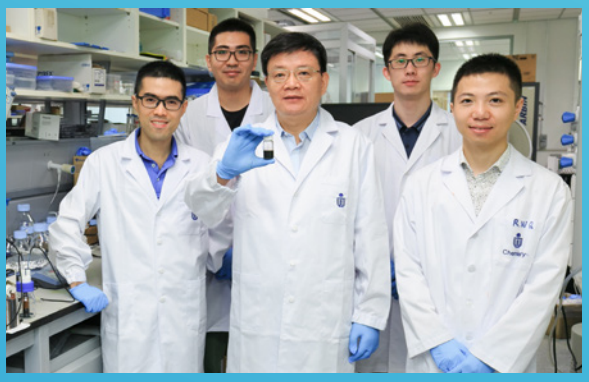
Green Oxidation

The research group of Prof. TONG Rongbiao (Chemistry) reported a unified, efficient halide catalysis for three oxidation reactions of indoles using oxone as the terminal oxidant, namely oxidative rearrangement of tetrahydro-β-carbolines, indole oxidation to 2-oxindoles, and Witkop oxidation. The halide catalysis protocol represented a general, green oxidation method and is expected to be used widely due to advantages including waste prevention, less hazardous chemical synthesis, and sustainable halide catalysis. The work appeared in *Nature Communications*.

Artificial Eye on the Future

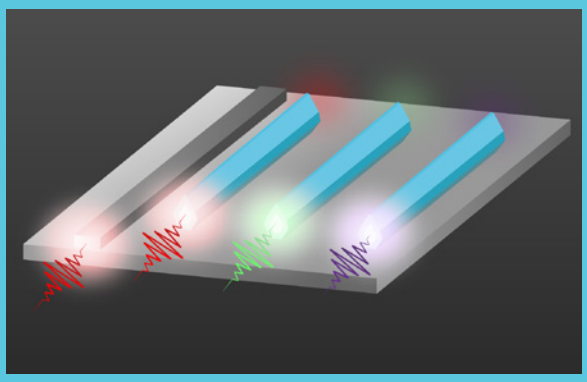
Prof. FAN Zhiyong (Electronic and Computer Engineering) created the first spherical artificial eye with 3D retina, bringing fresh hope to the visually impaired and the potential for humanoid robots to see. The Electrochemical Eye replicates the structure of a natural eye using nanowires and external electronic circuitry to enable high-density sensors on a curved surface. The resulting biomimetic eye prototype has 30 times more sensors on the artificial retina than the human eye and may thus offer sharper vision in the future, along with extra functions such as the ability to detect infrared radiation in darkness. The research was published in *Nature*.

Rechargeable Liquid Fuels



Prof. ZHAO Tianshou (Mechanical and Aerospace Engineering) and his team developed an environmentally friendly rechargeable liquid fuel to power electric vehicles in minutes, a substantial enhancement on existing battery technology that usually takes hours. The "e-fuel" is carbon neutral if charged with solar or wind energy and can be readily dispatched to the power grid in addition to recharging vehicles. One of the approaches in cross-university research, led by HKUST, is based around the development of a stable lithium-sulfur battery and its transformation to a flow system (e-fuel). Work is on-going, with selected results already published in *Nature Communications*.

III-V Semiconductor Laser Advance



Prof. Kei May LAU (Electronic and Computer Engineering) and her team achieved a significant global optoelectronic advance by developing the first bufferless telecommunication wavelength (1.5 micro-meter) III-V semiconductor lasers grown directly on industry-standard 220-nanometer silicon-on-insulator (SOI) wafers. The breakthrough heralds the way to the long-sought goal of fully integrated silicon (Si)-based photonic integrated circuits with on-chip laser sources, and brings major improvements to the infrastructure of high-speed network communications in data centers a step closer. The findings were published in *Optica*.

Satellite Estimate Effectiveness

A team comprising Prof. Abhiroop MUKHERJEE, Prof. George PANAYOTOV, and PhD student SHON Janghoon (Finance) measured the extent to which commercial satellite-based estimates affected the value of a government macro announcement, using asset price impact. Their identification relied on cloud cover that prevented satellites from observing economic activity at a few key hubs. The researchers found that some satellite estimates are now so effective that markets are no longer surprised by government announcements, pointing to a future in which the resolution of macro uncertainty is smoother, and governments have less control over macro information. The study won Best Paper Award from the CFA Institute's Asia-Pacific Research Exchange and CFA Society Melbourne. An article in the *Journal of Financial Economics* is forthcoming.

RESEARCH **HIGHLIGHTS**

(CONT.)

Supply Chain Networks and Sustainability

Prof. KIM Yong Hyun (Management) investigated how firms can make their value chain more sustainable and accountable. The study followed on from his prior research on lack of supply chain visibility, particularly companies' inability to completely trace their production process which is the main culprit behind firms' inability to promote sustainability practices along their supply chains. In this subsequent study, he looked at when firms disengaged from controversial suppliers and how a high level of supply chain visibility could help firms design a robust and resilient global value chain.

Recommendation Systems in Retail Channels

Prof. LEE Dongwon (Information Systems, Business Statistics and Operations Management) explored how online retailers have chosen to extend the use of recommendation systems from PC-based sites to the mobile channel and whether they provide the same functionality and efficacy. Through randomized field experiments, Prof. Lee showed recommendation systems are more effective in mobile settings, suggesting the higher search cost imposed by the mobile device's physical constraints could be offset by the recommendation system, which allows users to explore related products in an interactive manner. The study was published in *Information Systems Research*.

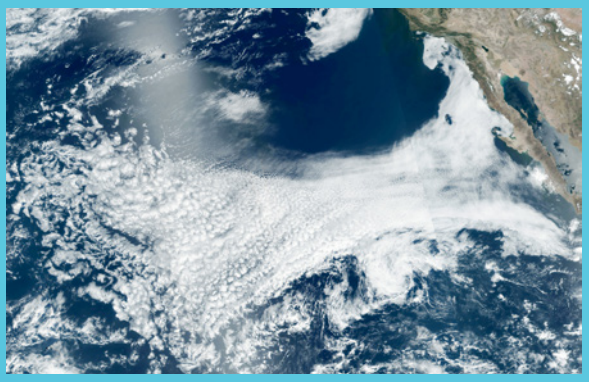
Social Movement and Identity Change

The year brought the completion of the Community and Population Aging in Hong Kong: An Extension of the Hong Kong Panel Study of Social Dynamics (HKPSSD) collaborative study, led by Prof. WU Xiaogang (Social Science, Public Policy). This fourth wave of the HKPSSD survey encompassed 2,000 households, 3,407 adults and 412 children, together with a refresher sample survey of 850 households and 1,140 adults. The team analyzed the panel data to explore the social and political consequences of housing ownership, impact of Occupy Central on subjective well-being, and the impact of changing identities and the social movement in Hong Kong over the past decade. Prof. Wu presented findings related to the analysis at Columbia University, New York University, Princeton University, and Haverford College in Fall 2019.

Analyzing Disasters

Prof. Jenny Leigh SMITH (Humanities) co-edited a special "Focus" section on disasters in the history of science journal, *Isis* (March 2020). The section examined five natural and human-created disasters and ways that science and technology have been used to describe and quantify the scope and scale of these events over the past two centuries. The interpretive analysis by the co-editors focused on the long legacy of contesting science and technology as ways of understanding crises, and the enduring problems of poverty and racial prejudice in the history of disaster mitigation.

Turbulence Model for Weather Simulation



Turbulence parameterization plays a critical role in the simulation of many weather regimes. Prof. SHI Xiaoming (Environment and Sustainability, Civil and Environmental Engineering), together with collaborators from the University of California, Berkeley, Stanford University, and the National Center for Atmospheric Research in the US, developed an advanced implicit algebraic model of turbulence to improve the simulation of clouds and atmospheric boundary layer in numerical weather forecast. The research was published in the *Journal of the Atmospheric Sciences*.

Nitrogen Oxides and Haze

Prof. YU Jianzhen (Environment and Sustainability, Chemistry) led research into the role of nitrogen oxides (NOx) in the rise and fall of airborne sulfates in hazy air pollution, providing the first study examining the multiple roles of nitrogen oxides in affecting oxidants that enable this set of chemical reactions. The team developed a conceptual framework to delineate the relationship between sulfate and, nitrogen oxides and revealed three formation mechanism regimes corresponding to the three distinct roles that nitrogen oxides play in sulfate production depending on the chemical surroundings. The work, published in *Nature Geoscience*, offers policymakers new insights into ways to tackle sulfate pollution that lead to improved air quality.

Green Finance Center

Prof. QI Ye (Public Policy) has set out to compare Hong Kong with other green finance centers and identify unique pathways to quality green financial services in the city. Deliverables include policy briefs and recommendation reports, a green finance policy framework, and a road map to guide Hong Kong's transformation into a green finance center. It also seeks to support green development in the Greater Bay Area. The project is being carried out in collaboration with multiple institutions in Hong Kong and Mainland China and is funded by the Hong Kong government's Policy and Innovation Coordination Office.

FIGHTING **COVID-19**

HKUST faculty members race against time to deliver multiple technologies and give insights to address COVID-19's impact as the crisis has evolved, and proactively assist prevention, mitigation, and protection to people in Hong Kong and globally.

2020
FEB

TEST

Portable diagnostic device: using the latest microfluidic chip technology, Prof. WEN Weijia (Physics) built the world's fastest portable COVID-19 detector by the time it was launched, reducing the time needed to reliably detect carriers to 40 minutes. It was deployed in Hong Kong, Mainland China, and overseas.

2020
MAR

CHECK

Smart fever screening system: Prof. Richard SO (Industrial Engineering and Decision Analytics) combined artificial intelligence, real-time tracking of faces, and decision analytics to detect virus carriers at Hong Kong International Airport and other major border points.

TRACK

Quarantine compliance: Prof. Gary CHAN (Computer Science and Engineering) developed an automated geo-fencing technology which, when turned into a mobile app and paired with an electronic Bluetooth wristband worn by a quarantined person, could tell whether the quarantine order was being adhered to and alert the authorities if not.

MITIGATE

Driverless vehicles: autonomous vehicles designed by Prof. LIU Ming (Electronic and Computer Engineering) and equipped with all-terrain 3D mapping and large-scale visual and sensor navigation reduced human exposure by delivering food and supplies during lockdowns in Mainland China.

DISINFECT

Super-effective sanitizer: Prof. YEUNG King-Lun (Chemical and Biological Engineering) and Prof. Joseph KWAN Kai-Cho (Environment and Sustainability) rolled out their non-toxic and environmentally-friendly antimicrobial coating that can kill 99.9% of bacteria and viruses within a minute by killing them on contact and preventing them from colonizing surfaces. It has been used to protect schools, elderly homes, government buildings, among other venues, in Hong Kong.

2020
APR

STUDY

SARS-CoV-2 transmission mechanism: An aerodynamic analysis of SARS-CoV-2 in two hospitals in Wuhan, Mainland China, by Prof. NING Zhi (Environment and Sustainability), focused on understanding the mechanism of its airborne transmission. Based on findings, the study documented the first real-world evidences of the existence of SARS-CoV-2 in aerosol, and provided scientific support to reduce risk of exposure to the virus.

2020
MAY

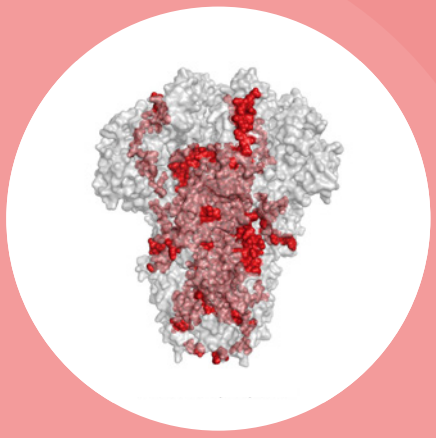
STUDY

Impact of mask-wearing: Prof. De Kai (Computer Science and Engineering) co-led an international interdisciplinary team in developing theoretical models predicting the impact of mask-wearing over time, finding universal mask-wearing plays a major role in suppressing the spread or second wave of the virus.

2020
JUN

IDENTIFY

Vaccine target recommendations: Prof. Matthew MCKAY (Electronic and Computer Engineering) and his research team shed light on vaccine targets for SARS-CoV-2, the coronavirus that causes COVID-19, and created a first-of-its-kind web-based platform (COVIDep.ust.hk) for real-time reporting of immune target recommendations for guiding vaccine development.



SEARCH

Staying informed: Prof. Pascale FUNG (Electronic and Computer Engineering) led a team of postgraduates and software engineers to build a machine learning-based system with natural language processing question-answering techniques and summarization capabilities for mining scientific literature on COVID-19, helping the medical community find answers to COVID-related enquiries.

CONNECTING PEOPLE AND COMMUNITIES

Activities with the community broadened and deepened as the University built stronger connections with different sectors

INSPIRING ENTHUSIASM FOR STEM

Extending STEM Knowledge and Activities

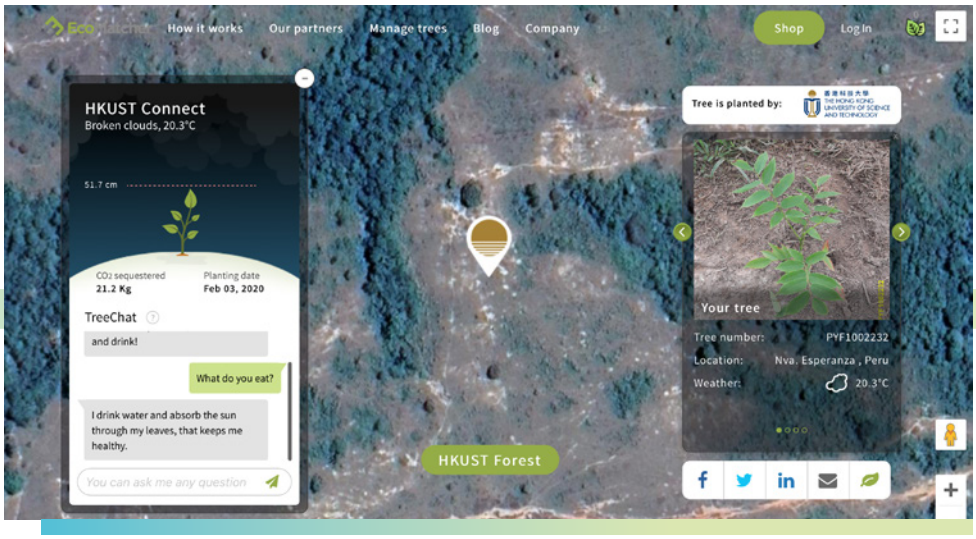
Igniting a passion for science, technology, engineering, and mathematics (STEM) is an important part of drawing young people to these fields for higher study and as careers. In line with this, the School of Science formed a Science Busking Team and trained its student leaders in communication and the design and implementation of popular science activities in Fall 2019 in collaboration with Hong Kong Science Museum and HKUST Center for Language Education. With the onset of COVID-19 that affect exchange in person, the team set up an Instagram page in February 2020 to promote science to the public by posting fun fact articles and initiating engagements with followers.

In further science communication ventures, Prof. David BANFIELD (Life Science) participated in Croucher Science Week, organized by the Croucher Foundation, in which 12 of its scholars received science and communication training and then visited primary and secondary schools to share their knowledge and enthusiasm.

Under the Academy for Bright Future Young Engineers, supported by the Bright Future Charitable Foundation, engineering academics continued their 12-month secondary school teacher workshop series on multidisciplinary knowledge in STEM education and how to teach it, in partnership with the Education Bureau (EDB). Some 1,200 teachers from over 300 secondary schools participated. A new 18-month project, in partnership with EDB, started over the year, is now providing workshops on research project methodologies and STEM-related disciplines for primary and secondary school learners. Academy-related activities for school students included building a drivable electric vehicle and an introduction to drone technology, including piloting different drones.

The STEM+E Consortium, comprising the School of Business and Management, Hong Kong Science and Technology Parks Corporation, and six secondary schools, continued to raise skills and awareness on environmental protection, technology commercialization, and adoption. Secondary 3 to Secondary 5 students from 11 schools participated in the Consortium's program from January to May 2020, giving student teams valuable experience of applying STEM to business solutions.

The STEM@HKUST platform (*https://stem.ust.hk*) continued its role in raising awareness of STEM fields among junior high school students in Hong Kong, offering different kinds of learning materials such as articles and videos covering a wide variety of topics including COVID-19, chirality, water reclamation, and 3D printing.



IMPROVING LIVES TOGETHER

Raising Eco-awareness

The Department of Ocean Science's Embrace Blue Lantau project, supported and funded by the Environment and Conservation Fund and Environmental Campaign Committee, led to interactive STEM-related teaching and learning aids, and a mobile app for eco-guided tours, to train university students to run activities for the public promoting biodiversity and coastal conservation on Lantau Island. The Department also teamed up with the Hong Kong government's Agriculture, Fisheries and Conservation Department to co-organize a summer course on marine ecology and conservation for senior secondary school students.

Community discussion on climate change was further energized when the HKUST Institute for the Environment co-organized and coordinated events featuring two co-chairs of the prominent Intergovernmental Panel on Climate Change (IPCC), a United Nations body, together with HSBC and the Environment Bureau and Hong Kong Observatory. The IPCC co-chairs shared findings from its reports on global warming, climate change and land, and the ocean and cryosphere (the areas of the earth's surface where water is in solid form) with decision-makers and thought leaders over two days in October 2019.

Making Real Change

To provide social service opportunities while adhering to COVID-19 distancing measures, the University's community service initiative, HKUST Connect, adopted digital platforms to make engagement accessible to University volunteers regardless of where they are physically located. One example was HKUST Global Days of Changemaking 2020, which took place online from April to May 2020, drawing over 550 participants. To foster an "Everyone a Changemaker" culture on campus, students, alumni, faculty members, staff, and family members acted as advocates to call for action on the United Nations' 17 Sustainable Development Goals. Actions included the adoption of more than 560 trees in the Peruvian Amazon Rainforest to support smallholders and address climate change. Mapathon sessions also took place. These sessions involved over 100 students and alumni from nine cities around the world in assisting humanitarian organizations in the developing world to digitally map their most vulnerable areas for better crisis response.

Regional NGO Partnerships

Beyond Hong Kong, the University's SIGHT student teams deployed innovative projects with different NGO partners in two Cambodian cities: the MedEasy electronic health record system for mobile clinics with One-2-One Cambodia in Phnom Penh; and a smart road safety project with Homestay Volunteer Teachers Organization in Siem Reap. The SIGHT unit, under the School of Engineering, is an undergraduate innovation platform to inspire students from different majors and backgrounds to devise affordable solutions for global health issues.

WIDENING BUSINESS PERSPECTIVES

Fintech Manpower Study

To address the growing demand for Fintech talent in Hong Kong, researchers at the School of Business and Management completed and shared the findings of a major industry-wide study on "Fintech Talent Development, Competency and Manpower" with industry stakeholders and the media. The first-of-its-kind study, led by Prof. TAM Kar-Yan (Information Systems, Business Statistics and Operations Management), outlines 10 observations about the fintech industry, makes 10 recommendations on talent development, and identifies 13 core competencies for fintech professionals. The findings are based on a series of executive interviews, surveys, validation sessions, and the support and participation of more than 80 fintech organizations.

Executive Dialogues

Partnerships between the School of Business and Management and the Asia Society in Hong Kong led to informative talks on entrepreneurship and corporate management. These included Kellogg-HKUST Executive MBA's inaugural Leadership Series involving a face-to-face discussion with leading entrepreneurs on education trends and economic shifts for future opportunities in the Greater Bay Area; and an online forum featuring three female corporate CEOs who transitioned to the art sector. The "Starting Young, Starting Smart" event encouraged closer ties between entrepreneurs in Hong Kong, Mainland China, and India.

EXPLORING CULTURAL HERITAGE

Numerous activities to strengthen awareness of local and South China cultural heritage among students and the community took place over the year, organized and assisted by the South China Research Center, under the School of Humanities and Social Science. The Center has played a major role in generating and nurturing Hong Kong's inventory list of items under the UNESCO Convention for the Safeguarding of the Intangible Cultural Heritage. Initiatives in 2019-20 included organizing the first Yim Tin Tsai Arts Festival, located in the eponymous centuries-old Catholic Hakka village in Sai Kung; a student-conducted oral history and video project researching different residential groups (elderly, physically challenged, new migrants, among others) in Ngau Tau Kok; and the formation of Hong Kong Tin Hau Festival Association and Hong Kong Cheongsam Association, together with a submission to add the Tin Hau Festival and the cheongsam to the fifth National List of Intangible Cultural Heritage.

DONATIONS FOR EDUCATION

Support through donations from the community indicated the strength and diversity of ties between HKUST and the wider society. Under the Hong Kong government's Eighth Matching Grant Scheme, the University collected a total of $1.147 billion in donations and subsequently received $600 million matching funds from the government, the maximum amount possible under the scheme.

Kaisa Group Holdings Ltd. gave a donation to support research and education, including a professorship and joint research institute, while a gift from the Seal of Love Charitable Foundation will see the setting up of the Seal of Love Foundation Student Innovative Service Fund. The University has named a wing of its Academic Building, the Seal of Love Charitable Foundation Wing, in appreciation of the gift. The University also received a donation from the estate of HKUST's Founding Council Chairman to establish the Sze-Yuen Chung Fund. Sir CHUNG Sze-Yuen, who served HKUST for over two decades in different roles, played a crucial part in HKUST's establishment and remained a constant champion of the University. He passed away in 2018.

Regarding campus development, the Hong Kong Jockey Club Charities Trust pledged a donation to support the construction of the UG Residence. The forward-looking complex will offer more than 1,500 places in four residential buildings to undergraduates from different backgrounds to gain experience of campus living in a smart and sustainable living and learning environment. It will now be named the Jockey Club i-Village, emphasizing the concept of an enterprising global community, with the "i" representing the dual ideas of internationalization and innovation.

ALUMNI ACTIVITIES

Fostering an HKUST Community Spirit

To provide insights into a variety of careers and expand vision on possible pathways following graduation, the first Alumni Market under the HKUST Full Circle Program took place on campus in September 2019 to celebrate the creativity and versatility of the University's entrepreneurs. The Program enables alumni enterprises to promote and collect feedback on their services, products, and technology on campus. A one-day visit to HKUST facilities in Shenzhen also demonstrated the support available to alumni start-ups in the Greater Bay Area and provided a tour of prominent companies, including Tencent and DJI.

Over the year, the alumni network expanded to 42 groups in Hong Kong, Mainland China, and overseas, with close to 100 events held to keep connections strong. Meanwhile, the Alumni Endowment Fund saw a tremendous response in 2019-20, raising over $20 million and bringing the total raised since launch in 2012 to more than $48 million. The fund seeks projects that can further enhance the student experience at HKUST, ranging from athletic scholarships and community service awards to emergency funding.

Convocation and Alumni Association

The HKUST Convocation continued to serve as a bridge between the University, alumni, and the public, with special focus placed on developing a care pack. Its Standing Committee co-organized focus groups and meetings with different parties to have a grasp of the needs of students with the aim of promoting mental health and well-being among them. The HKUST Alumni Association moved ahead with its "Alumni Inspire Alumni" mission to strengthen cohesion and explore further membership benefits. Among contributions to the wider community, the Association held a number of caring programs, including voluntary services for the elderly and children, alongside seminars on IT and personal development.

Contributing Citizens

Alumni were recognized for their service and achievements over the year. Among them were: Mr. LEE Shing-Put (Bronze Bauhinia Star), Mr. Angus LUK, Mr. Timothy NG, Mr. Winston WONG (all Forbes 30 Under 30 Asia 2020 List), Mr. Mark MAK (2019 ICT Startup Grand Award), Mr. Alexander LAM (2019 ICT Smart Living Grand Award), Prof. Craig YU (National Science Foundation CAREER Award), and Mr. Samson CHU (Hong Kong Service Awards 2019/ East Week). Various alumni entrepreneurs also received accolades at the FinTech Awards 2019 organized by etnet.

FIGHTING **COVID-19**

Safeguarding Public Health

The Multilevel Antimicrobial Polymer (MAP-1) coating technology, developed by Prof. YEUNG King-Lun (Chemical and Biological Engineering) and Prof. Joseph KWAN Kai-Cho (Environment and Sustainability), gives surfaces long-term protection from microbial contamination and helps keep individual and community in Hong Kong and Mainland China safe in the time of pandemic (see P.26). Partnerships with Lee Hysan Foundation and Swire Group brought MAP-1 protection to the needy and disadvantaged in Hong Kong. The antiviral filters used as core components of air purifiers were donated to mainland hospitals in Wuhan, Guangzhou, and Shenzhen as well as over 40 Shenzhen schools to help combat COVID-19.

Prof. Jason CHAN (Chemistry) appeared in television programs to explain the science behind COVID-19 preventative measures and to provide chemistry lessons to secondary students when school classes were suspended. In addition, he worked with a team of undergraduate volunteers and St. James' Settlement, an NGO, in preparing over 5,000 bottles of hand sanitizer, which were distributed to those in need.

In other contributions to hand hygiene, the South China Research Center, under the School of Humanities and Social Science, initiated a workshop for volunteers to make hand sanitizer for distribution to residents in Ngau Tau Kok. Some 800 bottles were produced. Meanwhile, HKUST Connect collected over 2,000 hand sanitizers and 5,000 disposable surgical masks to donate to the community through partner NGOs, benefiting over recipients.

Exploring Public Policy Challenges

In March 2020, an open online seminar on "Crisis Management and Lessons from the COVID-19 Crises" took place online. The seminar was co-organized by the Division of Public Policy at HKUST and the Department of Asian & Policy Studies at the Education University of Hong Kong which focused on the Hong Kong government's response to the pandemic and how the challenges confronting Hong Kong over the year affected the society.

Supporting Students and Their Families

The University set up a COVID-19 Student Hardship Relief Fund to assist HKUST students facing economic and social challenges, along with their families, because of the coronavirus outbreak. Senior management made salary donations and staff, faculty, alumni, and supporters gave further contributions, enabling immediate assistance to be provided for tuition deferment, financial aid, and bursaries, among others. By the end of June 2020, $1.7 million of

LOCAL TO GLOBAL

Creating connections in the Mainland and internationally brought fresh academic and research opportunities while widening recognition of HKUST's achievements and impact

MAINLAND PRESENCE

HKUST(GZ) Moves Forward

The University's state-of-the-art campus in Qingsheng, Nansha in Guangzhou, moved ahead in numerous ways over the year. Construction of the 1.1 square-kilometer campus, which will enable further contribution to innovation in the Greater Bay Area, got underway following a groundbreaking ceremony in September 2019 on site. HKUST(GZ) will operate under four interconnected, cross-disciplinary hubs (Function, Information, Systems, Society), each with its own research thrust areas, such as internet of things and robotics and autonomous systems, and an academic structure centered around enquiry-based active learning. In this way, the new campus will complement both the academic fields and departments at the Clear Water Bay campus and strengthen cross-border knowledge transfer, facilitating application of research findings and commercialization.

In 2019-20, the first cohort of 109 postgraduate students commenced their studies in Clear Water Bay under a pilot scheme. A worldwide recruitment drive was launched for some 400 faculty to take forward phase one of the campus, due to open in mid-2022, and long-serving faculty members highly familiar with HKUST standards, operations and culture were appointed as acting deans of the four hubs. The campus masterplan has been designed by international architects Kohn Pedersen Fox Associates and is aligned with the style of the Clear Water Bay campus.

Scan the QR code to visit HKUST(GZ)'s website

To share the latest developments of HKUST(GZ) amid COVID-19 travel and meeting restrictions, a webinar was held in April 2020 attracting over 300 scholars from around the world representing more than 20 universities. The online gathering covered the campus' academic structure, research facilities, campus development and concept. It was led by President Prof. Wei SHYY and Provost Prof. Lionel NI, together with other members of senior management, deans, and HKUST(GZ) hub leaders.

Academic Alliances

To foster academic ties beyond the Greater Bay Area, HKUST actively participates in the Beijing-Hong Kong Universities Alliance, established in 2018 to nurture education and research exchange among the group's 20 members. As executive chair starting from April 2020, HKUST hosted the Alliance's annual meeting online in May 2020, together with Peking University. More than 70 participants, including representatives from the Ministry of Education, Beijing Education Commission, Liaison Office of the Central People's Government in the HKSAR, HKSAR Education Bureau, and member universities attended. Discussions ranged from the need for novel ways to cooperate under the pandemic to future strategies to optimize joint endeavors between members. The meeting also saw the unveiling of the Alliance's logo – a rose and a bauhinia symbolizing the close tie between the two cities.

Extending Technology Transfer with Key Mainland Cities

2019-20 proved a fruitful year for initiating and expanding city partnerships to assist the University in transferring its leading knowledge and technologies to industry and the community.

In December 2019, the proposal to establish the HKUST Shenzhen-Hong Kong Collaborative Innovation Research Institute (SHCIRI) was approved by the University Council, and the Institute officially registered in Shenzhen in May 2020. The platform enables faculty to apply resources from Futian Government, participate in R&D mega projects and strengthen knowledge transfer, with a preliminary plan to set up "3T" research hubs in biotech, infotech, and fintech. A further initiative saw the HKUST Center for Collaborative Innovation jointly established with Beijing Institute of Collaborative Innovation in June 2020. The Center will provide proof-of-concept funding for projects with potential to translate into commercialized products, focusing on advanced materials and devices, electronics and devices, energy, and the environment, among others. This arrangement led to an agreement for project funding between HKUST and the Greater Bay Area Institute of Collaborative Innovation, established by the Beijing Institute, Guangdong Government, and leading universities in the Greater Bay Area.

HKUST also expanded its collaboration with Foshan beyond Nanhai District Government to include Foshan Municipal Government, and signed a tripartite collaboration agreement that included the establishment of the HKUST Foshan Research Institute for Smart Manufacturing (FRISM) at the Clear Water Bay campus. The new institute will enhance transfer endeavors and commercialization of smart manufacturing technologies. HKUST Foshan Center for Technology Transfer and Commercialization was set up under the long-established HKUST LED-FPD Technology R&D Center in Foshan (FSC) in April 2020 to foster entrepreneurship and incubation. The Foshan Government has offered the Center over 4,000-square-meters of office space in Nanhai district, which is expected to be available by November 2020. In addition, the HKUST-Zhongshan Joint Innovation Center introduced Zhongshan City's 2020 funding scheme, with 10 applications subsequently submitted to the Zhongshan Municipal Bureau of Science and Technology.

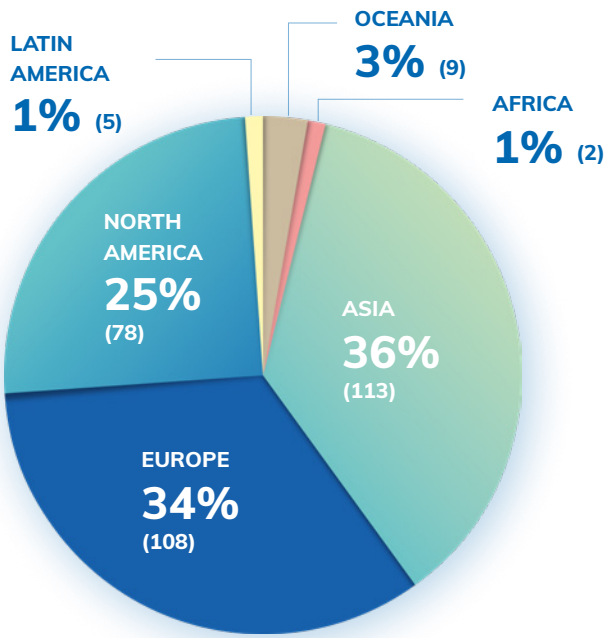
Industry Partnerships and Talent Development

As interest from industry in collaborative partnerships with HKUST continues to rise, the University formalized a framework providing clear policy and guidelines on establishing joint research units over the year, and established several strategic partnerships with major companies in the Mainland to extend applied research and knowledge transfer opportunities for students and faculty. Among these partnerships is an agreement to form the HKUST-Bright Dream Robotics Joint Research Institute with Guangdong Bright Dream Robotics Co., Ltd, a subsidiary of Fortune Global 500 company Country Garden. The joint institute will carry out "smart living" research in construction and restaurant robotics, artificial intelligence, and big data, thus supporting the transition of Hong Kong and the Greater Bay Area into a knowledge-based economy. Another company collaboration will see the University and Kaisa Group Holdings Ltd., a leader in urbanization, establish the HKUST-Kaisa Joint Research Institute, which will undertake projects involving advanced materials, internet of things, big data, and healthcare.

Regarding fintech endeavors, HKUST-WeBank Joint Laboratory, a partnership with WeBank, China's first private digital bank, will carry out research into blockchain, risk management, and artificial intelligence for the financial sector. The year also brought the graduation of the inaugural cohort of Fintech Specialists, who completed the nationally recognized certificate program, co-developed by the School of Business and Management, China Banking Association, Shenzhen University and China Construction Bank University. The certificate is the first industry-accepted qualification for practitioners in China.

GLOBAL NETWORK

Geographical Distribution of Global Partnership



University Connections

HKUST places strong emphasis on its global network with other leading universities around the world, both to generate opportunities for students to experience studying and living in another cultural environment and to strengthen faculty research cooperation.

Broadening the diversity of ties, the University signed a Memorandum of Understanding (MoU) and student exchange agreement with the New Economic School in Moscow, Russia, for business school students. An MoU with Washington University in St Louis, US, will benefit teaching and research activities in engineering. An exchange arrangement for humanities and social science students was agreed with the College of Liberal Arts at Taiwan Normal University, and new exchange partnerships for science students were set up with Wageningen University in the Netherlands and Jagiellonian University in Krakow, Poland.

World Economic Forum 2020

As the only Hong Kong member of the 28-member Global University Leaders Forum (GULF) community within the World Economic Forum (WEF), HKUST continued to exchange knowledge and gain insight into the latest trends and developments at the annual WEF in Davos, Switzerland. In 2020, President Prof. Wei SHYY was invited to speak on societal developments in Hong Kong at the GULF session on "The University of the Future" while engaging in dialogue and exchanging views with other top university leaders across the globe. He also joined a panel discussion on artificial intelligence and global governance at the 4th Belt and Road Davos Forum, organized by Tsinghua University, and shared views on improving urban resilience and agility in meeting changes at the "City Readiness for AI" discussion, held by international management consulting firm Oliver Wyman.

Prof. SHI Ling (Electronic and Computer Engineering) was named a member of the WEF Community of Young Scientists' Class of 2020 for his research achievements in cyber-physical systems security and privacy.

Regional Ties

The University contributed to the 15-member Asian University Alliance, which encourages collaboration on higher education, scientific and socio-economic development, through active participation in academic conferences, scholar award programs, staff exchanges, and a youth forum for students. Prof. PONG Ting-Chuen, Acting Director of the University's Center for Education Innovation, gave a keynote speech on HKUST's online education practices at the alliance's Online Education Conference at Tsinghua University in July 2019. As a member of the Association of East Asian Research Universities (AEARU), the University shared credit-bearing online courseware to promote in-class active learning and flipped class teaching over an extended period for the first time. Twenty-five students took part in the 2019 AEARU Summer Institute for extended flipped learning.

President Shyy also attended a virtual presidents' meeting of the Association of Pacific Rim Universities in June 2020, with over 35 heads of member institutions discussing COVID-19 challenges and university leadership, followed by a panel discussion on what the future might hold. Issues included moving classes online, equity and access to resources among students, and students' mental health.

Business Links

Corporate collaborations were enhanced with the signing of an MoU with Wisers Information Ltd., a Hong Kong-founded world-leading expert in all-media big data smart business intelligence solutions. The agreement will establish a platform for faculty and students from the Schools of Business and Management and Humanities and Social Science to explore applications of all-media big data and emerging technologies for business and social issues, including public policy research projects. In other moves, HKUST specialists in data science, machine learning and business research teamed up with Ernst & Young (EY), a global leader in professional services, to become the first university in Asia-Pacific to form a research and technology development partnership with EY Tax Lab.

FIGHTING **COVID-19**

President Discusses Resilience at Academic Leaders' Forum

President Prof. Wei SHYY was invited to be one of six speakers at the World Economic Forum's University Leaders Dialogue event on COVID-19 and resilience in January 2020 to share HKUST's view on how the academic world could respond to the coronavirus crisis. At the session, President Shyy discussed with leaders of over 40 universities how higher education could address the impacts of COVID-19 and the importance of international collaboration in the fight against the pandemic. He also contributed an article to the Forum, highlighting the collaborative efforts made by HKUST against the pandemic. The article was made available in four languages including English, Chinese, French, and Japanese for wider reach.

Working with Partners through Global Webinars

With overseas travel and face-to-face gatherings being brought to a near standstill due to COVID-19, HKUST launched a global webinar series entitled "Navigating a World of Disruption" in collaboration with international partners to explore the new challenges and opportunities in the post-pandemic era in May 2020. The School of Engineering and University of Strathclyde, UK, looked at all-round efforts to fight the pandemic. The School of Science and Korea Advanced Institute of Science and Technology explored research contributions to a sustainable world. The Interdisciplinary Programs Office and KTH Royal Institute of Science and Technology, Sweden, investigated the impacts of behavioral biases, norms, and culture on responses to the coronavirus crisis. In total, over 500 participants were drawn to the three webinars.

Sharing Experience of Real-time Online Teaching

On the teaching front, HKUST senior faculty took the initiative to share experiences and best practices in response to COVID-19 with university partners in March 2020. Prof. Roger CHENG, Associate Provost (Teaching & Learning), Prof. Anirban MUKHOPADHYAY, Associate Dean of Business and Management, and Prof. PONG Ting-Chuen, Acting Director of the Center for Education Innovation, jointly hosted a webinar on "Migrating a Whole University to Online Real-Time Interactive Teaching" in March 2020. With HKUST faculty members leading the session, representatives of around 40 institutions across the world had a timely and enriching exchange on equipping faculty members with online teaching skills, managing students' expectations, and monitoring feedback for continuous improvement.

BEST-IN-CLASS OPERATIONS

The University's administrative units proved their flexibility and dedication in responding to challenges and pursuing long-term strategic goals

CAMPUS DEVELOPMENT AND MANAGEMENT

Construction projects at the Clear Water Bay campus only experienced minor disruptions from the COVID-19 outbreak, mostly in February and March 2020. As a result, the year saw the completion of the Boathouse at the seafront and the 504-bed Global Graduate Tower, which was kitted out for use in Fall 2020. In addition, early structural work was finished on the Shaw Auditorium.

On the residential front, a large remodeling project to convert four blocks of early career staff quarters into senior staff quarters and essential staff accommodation commenced. The initial phase of the staff quarters' renovation is due for completion in the first quarter of 2021. Meanwhile, the design of the 1,551-bed UG Residence was finalized and approved, encompassing communal areas such as a co-learning space as well as accommodation.

Enhancement of the eateries' environment also continued, with the building of a well-received covered walkway to support food and beverage outlets in the Courtyard of the main Academic Building, and on-going work on the LG7 canteen extension.

Following an operational review, the Facilities Management Office was restructured into two separate units from March 2020. The new Campus Development Office and Campus Management Office are now working closely together to support the continuous improvement of campus buildings and facilities, respectively. The latter focuses on building maintenance, security, campus access controls, housekeeping, and landscaping, among other responsibilities.

RECRUITMENT AND PERFORMANCE

In early 2020, despite the widening COVID-19 outbreak, the University continued its global recruitment efforts through various channels for top local and overseas faculty and non-academic talents, carrying out online meetings and interviews via Zoom and Teams to meet the target of hiring 400 faculty in the initial stage. As plans for HKUST(GZ) progressed, recruitment also took place in Guangzhou and other cities in the Greater Bay Area. By the end of June 2020, the University identified nearly 20 senior faculty members from the Clear Water Bay campus as founding members of the Guangzhou campus and recruited 43 non-academic staff members.

Strengthening the University's inclusive environment, the Committee on Faculty Diversity and Early Career Support broadened its scope to cover teaching-track faculty and faculty internationalization. Regarding non-academic staff, a review of the Performance & Development Review outcomes was conducted to ensure appropriate recognition for good performance, among other issues.

DIGITAL EFFICIENCY

HKUST became the first university in Hong Kong to launch a trust-free blockchain-based degree authentication system, setting an eco-friendly and efficient trend for the gradual replacement of conventional paper verification. The e-Verified Certification Platform, part of HKUST's "Sustainable Smart Campus as a Living Lab" initiative (see P.41), will be used for graduation diplomas and academic transcripts, with "Blockcerts" data saved on a private and secured University server. Employers or third parties needing to verify the authenticity of an HKUST certificate can do so via a straightforward procedure on the University's Academic Registry website.

FIGHTING **COVID-19**

From the earliest days of the coronavirus crisis, a cross-departmental task force, led by the senior management, effectively coordinated HKUST's operational response to the evolving situation with the Health, Safety and Environment Office playing a frontline role.

Health and Hygiene Guidelines

Health and safety of the campus community is a top priority for the University. Measures formulated and announced in early January 2020 included travel restrictions, health declarations and reporting, special work arrangements, restrictions on laboratory activities, social distancing, and hygiene practices. Constant liaison with the Hong Kong government's Department of Health and the Centre for Health Protection on COVID-19-related issues is also vital to adjust and optimize our safety policy.

Preventative Measures

Faculty innovations that helped to prevent transmission of COVID-19 were adopted, including Remote Fever-Screening Stations (see P.26) being set up at various locations on campus to enable campus users to monitor their temperature, and a novel anti-microbial coating technology being deployed to disinfect classrooms, offices, and other facilities (see P.26), effectively lowering the risk of infection.

Mask Supply

When face masks were in short supply in Hong Kong in the beginning of the outbreak, different units worked tirelessly together to source masks to protect students and staff. A mask supply scheme, launched in February 2020, provided one mask per day for staff working on campus and students in residence halls or coming to campus. A total of 463,000 masks were distributed by the end of June 2020.

Testing Arrangements

Adding to precautionary moves, COVID-19 testing became available at the on-campus medical clinic in February 2020, with special consultations held for concerned staff and students following confirmed cases on campus. University members needing to undertake Government Laboratory or Hospital Authority testing were aided with proper procedures, including sample delivery services.

Quarantine Support

Quarantine is an effective health measure to contain and manage the disease. To accommodate students and faculty needing a place to undertake 14-day compulsory quarantine or self-isolation, the University's Conference Lodge, a residential quarter, and student halls were assigned as on-campus quarantine facilities. Off-campus hotel rooms were also arranged for quarantine and post-quarantine purposes.

Information Hub

Launched in April 2020, a dedicated COVID-19 Information Portal *(https://covid19info.ust.hk)* features University guidelines and announcements, health advice, and updates on campus-related cases for different groups on campus and the wider community.

SUSTAINABLE HORIZONS

HKUST has successfully wrapped up the HKUST 2020 Sustainability Challenge, its first ever sustainability master plan. This plan was aggressive in its scope and reach, and planted HKUST firmly as a sustainability leader in Hong Kong.

The HKUST 2020 Sustainability Challenge was initiated in 2014-15 as an ambitious plan to demonstrate sustainability leadership in four areas: reducing energy consumption and waste (Operations); setting up campus-wide networks to drive sustainability actions and policies (Communities); designing and implementing novel eco-applications on site (Demonstration); and building an educational and research framework to ensure students graduate with a commitment to sustainability (Education). Each of the focus areas included specific goals which were detailed and measurable.

OPERATIONS

The Challenge identified two specific operations targets: reducing waste to the landfill by 50% and reducing energy consumption by 10% using 2014-15 as the baseline year. For waste, the 50% target was successfully reached by 2020 by reducing roughly 1,665 tons of our landfill waste. This came from a combination of actions across campus – from eliminating waste at source as a primary focus and from maximizing recycling of any waste generated on campus. For recycling, more than 200 recycling bins and collection stations have now been installed around the campus, over 15 different types of materials get recycled, and a food waste collection program was introduced. Food waste represented the largest source of recycling – encompassing canteens, staff quarters, residences, and offices. The process was streamlined through the adoption of smart technologies to collect precise daily waste collection data and information across the campus using an RFID-integrated electronic scale.

For the 2020 energy goal, the result fell slightly short with an actual reduction of 7.9% below the baseline year. However, two major new initiatives were launched in the final year of the Challenge—a large industrial-scale solar energy project, and a strategic cooling tower installation to reduce energy in off-peak times—that will further reduce the energy consumption by an estimated 4.5%, which is enough exceed the 2020 goal when fully operational.

The overall performance requires some analysis because of two significant factors. Firstly, the waste and energy reductions were achieved despite expansion of around 41,500m^2 (8.8%) in campus space and 1,300 (8.2%) more campus users since 2014-15. Put another way, the electricity usage per square meter of space declined by 15%, and the waste per capita reduction was 54%. In practical terms, the electricity reductions were sizable enough to completely offset our four newest buildings, plus two new ones that have yet to be built. The second factor is the disruption caused by the coronavirus pandemic, which made 2020 a difficult target year to assess. On the one hand the virus was responsible for a portion of the energy and waste reductions because fewer people were on campus during the Spring semester, but on the other hand it increased the amount of disposable waste (like take-away containers and masks), and some of the energy usage simply migrated from the on-campus offices to the on-campus staff residences. All in all, the overall impact of the virus was roughly 4% of the campus totals for both energy and waste.

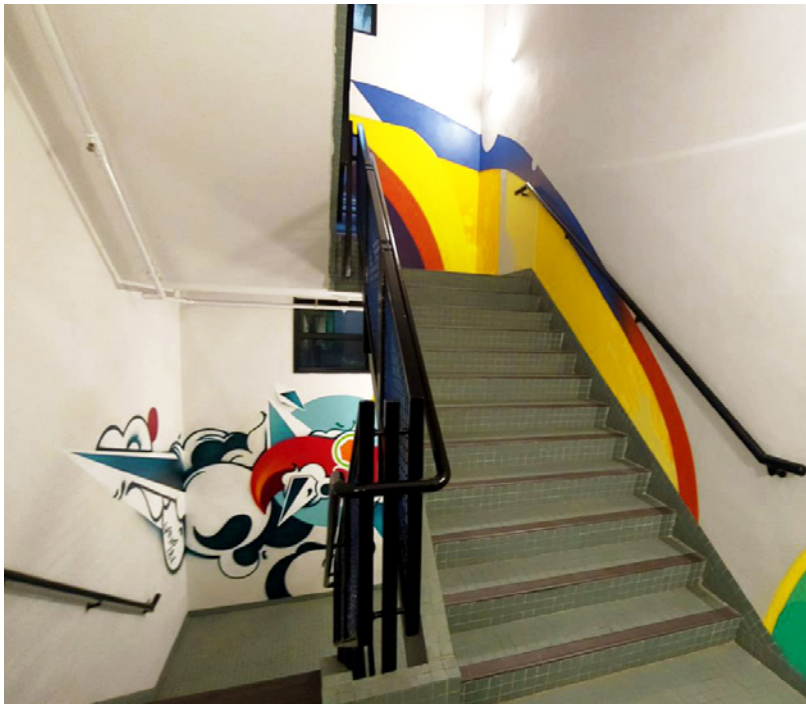
COMMUNITIES

The 2020 Challenge objective was to "create an HKUST Sustainability Network to form a core social backbone to support and advance sustainability actions and policies across departments, schools, and the campus." Even with campus closures and the move to online learning, this Network of students and staff remained the core of our person-to-person sustainability efforts. For the sixth year, the HKUST Sustainable Smart Campus Leadership Program engaged 20 student Eco-Reps to design and implement projects to motivate the campus to adopt eco-friendly behavior. To bridge periods of working from home, staff adopted the motto "From social distancing to distant socializing!", sharing videos of sustainable activities they had carried out while encouraging others to participate.

In 2020, HKUST also took over the convenorship for the Hong Kong Sustainable Campus Consortium, comprising the eight publicly funded universities. As convenor, and despite the challenges of COVID-19, the University has encouraged collaboration on the Consortium's eight-year Strategic Plan (2019-27) to improve collective performance on sustainability.

DEMONSTRATION

The 2020 Challenge objective was to "develop visible on-site demonstration projects that contribute to campus sustainability goals while showcasing the work of HKUST researchers as contributors to solving global sustainability challenges." This 2020 goal has been fulfilled by the "Sustainable Smart Campus as a Living Lab" initiative (*https://ssc.ust.hk*) which was launched in 2019. With an initial allocation of $50m, funds are now available for University members to devise and demonstrate innovations on campus as a testing ground for wider application in the future. Since the launch, a total of 19 projects have been funded including the SmART staircase project to test whether vibrant artwork could result in better fitness and well-being. A perennially algae-filled pond was drained, cleaned, and rebuilt with a novel water filtration system. Meanwhile, several on-going projects that utilize the internet of things moved toward deployment, among them an indoor navigation system and a tree health sensor. In parallel, project teams continued to work with video experts and visualization professionals to make these initiatives come alive as learning tools. Students were encouraged to become more involved through group projects and a student paper competition focused on campus sustainability challenges, with the latter drawing 60 entries.



EDUCATION

The Education goal for the HKUST 2020 Sustainability Challenge was a commitment ensuring that all students gain a solid understanding of sustainability concepts and graduate with the capacity and commitment to solve problems locally and globally. Looking at the curriculum as a whole, the cross-School Sustainability Education Advisory Group, formed in 2017-18, updated its study on the scope and distribution of the University's sustainability education. Findings showed that as of the 2020 target year, sustainability related coursework comprised around 6% of all undergraduate courses, and 9% of new approved undergraduate courses. The study found that 64% of recent graduates completed two or more sustainability-focused courses before they graduated, and 95% of graduates have taken at least one course.

To foster a cross-disciplinary sustainability mindset among students and assist in building the wide-ranging outlook needed to tackle eco-issues, the Division of Environment and Sustainability developed a comprehensive module on Life Cycle Thinking, a significant way to encourage responsible long-term decision-making. This has now been adopted by the School of Engineering as preparation for final-year students in their capstone projects. More modules are being developed for other disciplines.

THE NEXT FIVE YEARS

The end of the 2020 Challenge is a key milestone and demonstrates what the University can achieve from the concerted efforts of its community. HKUST has already started working on the next five-year challenge, which will build on the progress made, add new targets in water, landscape and biodiversity, and well-being. Our targets will be aligned to those of Hong Kong but be broader and more aggressive to consolidate HKUST's position as a leader in sustainability in Hong Kong.

GOVERNANCE

In accordance with the HKUST Ordinance, the Council, Court, and Senate are the University's supreme governing, advisory and academic bodies, respectively.

The Council

Being the supreme governing body, the Council steers the overall strategic directions of the University.

During the review year, Council continued to monitor the University's development, through interactions with the senior Administration proactively, making reference to the key performance indicators as set out in the University Accountability Agreement (UAA). The UAA, with the purpose to enhance accountability through tracking of performance of all public-funded universities, was developed by UGC pursuant to the recommendation of UGC's *"Governance in UGC-funded Higher Education Institutions in Hong Kong"* Report. The first annual report of the University's UAA was submitted to the UGC, following Council's approval in December 2019.

As part of Council's own mechanism to enhance governance, and with reference to the *Sample Code of Conduct for Members of Public Bodies* of the Independent Commission Against Corruption as well as international best practice, Council has reviewed and modified its existing *Guidelines for Council Members*, to attach in particular, the code of practice for Council Members and the description of the related regulatory framework to support Members' discharge of their duties in governing the University, through their roles as public servants.

While working unflaggingly in enhancing its governing role in HKUST, Council has established a separate set of governance framework in overseeing matters related to the setting up of HKUST(GZ). On top of the designated Task Force to discuss various issues, a Committee under the Council has been formed to help review matters which might not necessarily be covered by the scope of responsibilities of the existing Council Committees. A number of special Council meetings have also been held during the year to ensure timely review on matters related to the project.

The Court

As indicated in the University Statute, the Court 'shall meet at least once in each academic year', though it normally holds two meetings a year if at all possible. Subsequent to the meeting in May 2019, the Court Meeting originally scheduled for November 2019 had to put off owing to the societal situation. Nevertheless, Court Members had been shared the latest development and achievements of the University through other means of communication. Taking advantage of similar channels, Members were able to offer advice and suggestions to the Administration and communicate with fellow members of the University community in a timely manner. The Court welcomed a number of new Members, including four representatives from the Senate, and is glad to re-appoint a number of long-serving Members, some of them as Honorary Court Members.

The Senate

During the review year, Senate continued to examine important academic policy issues and a number of program and course proposals, including those for HKUST(GZ).

New Programs at different levels have been reviewed by the Senate. They span from Minor Programs for undergraduate students to the first-ever Doctor of Business Administration Program of the University. For quality assurance purpose, Senate has scrutinized the policy for approving undergraduate courses to be delivered through pure online mode, the grading guideline bands and the policy to suspend Minor Programs with low enrolment. To ensure proper procedures in handling student conduct matters, the *Regulations on Student Conduct and Academic Integrity* of the University had also been refined, following the review of the Provost Office.

As the supreme body overseeing the University's academic matters, Senate has set up a designated working group in October 2019 to review and make recommendations to update the Terms of Reference and Membership Composition of its Committees for effective governance.

With the purpose to further strengthen effective integration between the Clear Water Bay operation and the Guangzhou Campus, and to better support the distinctive academic structure of HKUST(GZ), the Senate approved the reorganization of the HKUST Fok Ying Tung Graduate School, which takes charge of matters on postgraduate education of both campuses, and to ensure consistency in policy formulation and quality assurance of the postgraduate programs.

AWARDS AND **RECOGNITIONS**

Faculty members and students have received numerous honors and accolades over the year. The following list is not exhaustive.

FACULTY

- IAS Bank of East Asia **Prof. TANG Ching-Wan**, Department of Chemistry, Department of Electronic and Computer Engineering, and Department of Physics, was named one of the two Progress Award winners for 2019 by the Photographic Society of America. Prof. Tang was recognized for his invention of Organic Light-Emitting Diodes (OLEDs), which have contributed to the advancement of photography.

- **Prof. Nancy IP**, the Morningside Professor of Life Science and Chair Professorin the Division of Life Science, was elected a Fellow of the Chinese Academy of Medical Sciences. Prof. Ip also received a 2019 AmCham Women of Influence Award from the American Chamber of Commerce (AmCham) in Hong Kong.

- **Prof. PAN Ding**, Department of Physics, was the recipient of the 2019 Deep Carbon Observatory Emerging Leader Award.

- **Prof. WANG Jiguang**, Division of Life Science and Department of Chemical and Biological Engineering, Prof. Anthony LEUNG Kwan, Department of Civil and Environmental Engineering, and Prof. LI Yingying, Department of Information Systems, Business Statistics and Operations Management and Department of Finance, were named 2019 Excellent Young Scholars by the National Natural Science Foundation of China.
- **Prof. Kei May LAU**, Department of Electronic and Computer Engineering, received the 2020 Optical Society (OSA) Nick Holonyak Jr. Award.

- **Prof. SHI Ling**, Department of Electronic and Computer Engineering, was named a World Economic Forum Young Scientist in 2020, and received a 2019 Natural Science Award of Shanghai (Second Class) from the Shanghai Municipal People's Government.

- Three School of Engineering faculty members were honored in the State Ministry of Education's 2019 Higher Education Outstanding Scientific Research Output Awards (Science and Technology). **Prof. Irene LO Man-Chi**, Department of Civil and Environmental Engineering received a Natural Science Award (Second Class), **Prof. ZHANG Limin**, Department of Civil and Environmental Engineering was recognized for his work with a Natural Science Award (First Class), and **Prof. Christopher LEUNG Kin-Ying**, Department of Civil and Environmental Engineering, received a Scientific and Technological Progress Award (Second Class).

- **Prof. LEUNG Siu-Fai**, Department of Economics, was awarded a Medal of Honour by the HKSAR Government, in recognition of his public service contributions, especially to the Minimum Wage Commission.

- **Prof. LIN Song**, Department of Marketing, received the 2020 Weitz-Winer-O'Dell Award, presented by the American Marketing Association.

- **Prof. David CHANG Cheng**, Division of Humanities, was awarded a Harvard-Yenching Visiting Scholar Fellowship for 2020-2021.

- **Prof. Laurence Laurencio DELINA,** Division of Environment and Sustainability, was the recipient of the Balik Scientist Award from the Department of Science and Technology of the Republic of the Philippines.

FELLOWS AND BOARD MEMBERSHIPS

- **Prof. LIU Hongbin**, Department of Ocean Science and Division of Life Science, was elected a Fellow of the Association for the Sciences of Limnology and Oceanography.

- **Prof. TANG Benzhong**, Department of Chemistry and Department of Chemical and Biological Engineering, was elected a member of the 2020 Class of Fellows (Chemical Science) by the World Academy of Sciences.

- **Prof. DU Shengwang**, Department of Physics and Department of Chemical and Biological Engineering, was elected a Fellow of the American Physical Society.

- **Prof. CHEN Lei**, Department of Computer Science and Engineering, was elected a Fellow of the Institute of Electrical and Electronics Engineers.

- **Prof. WOO Kam-Tim**, Department of Electronic and Computer Engineering, was appointed Chairman of the Institution of Engineering and Technology (IET) Hong Kong.

- **Prof. Patrick YU** Department of Electronic and Computer Engineering, was elected a Fellow of the Optical Society.

- **Prof. Joseph LEE**, Department of Civil and Environmental Engineering and Division of Public Policy, was elected President of the International Association for Hydro-Environment Engineering and Research.

- **David CHANG Cheng**, Division of Humanities, was selected to be a Harvard-Yenching Institute Visiting Scholar for 2020-21.

- **Prof. WU Xiaogang**, Division of Social Science and Division of Public Policy, was elected a Global Scholar at Princeton University for 2020-2023.

STUDENTS AND RESEARCHERS

- Marine Environmental Science MPhil student **Cherie LEUNG Hiu-Yu**, and Public Policy MPhil student Veronica LI won first place in the 2019 New York Times-APRU Asia Pacific Student Case Competition.
- PhD graduate **Franco Au**, Division of Life Science, and **Dr. CHENG Kam-Hang**, Department of Mathematics, were awarded Research Grants Council Postdoctoral Fellowships 2020/21.
- Teams under the HKUST Robotics Team, comprising 63 students from different departments, received a number of accolades over the year. These included: Champion of the Sports Dance category in the Intelligent Robot Contest, held in Seoul, Korea; and First Runner-up and the Dynamizer Award in the 5th ROBO-ONE auto, an autonomous biped robot contest, held in Japan. ROBO-ONE is the largest biped robot competition worldwide.
- Computer Science undergraduates **Padmanabhan KRISHNAMURTHY** and **Amrutavarsh Sanganabasappa KINAGI** won the Championship in the Undergraduate Section and received the Best Innovation Award in the Institution of Engineering and Technology (IET)'s Young Professionals Exhibition & Competition 2019 in Hong Kong for their AI-based lip reading accessibility device, named "Helen".
- Mechanical and Aerospace Engineering undergraduates **CHIU Chak-Yan**, **CHAN Kin-Fung**, **CHENG Yuk-Tong** and **LEE Ki-Lok** won First Prize in the 2019 International Contest of Innovation in Berlin with their "Table Tennis Robot" project.
- Undergraduates **CHOI Hiu-Tung**, Department of Finance and Management, and **HO Heily Hei-Yin**, Department of Management, received the First Runner-up title for their outstanding papers and presentations at the Corporate Governance Paper Competition 2019, organized by the Hong Kong Institute of Chartered Secretaries.
- A School of Business and Management student team, comprising **Suki NG**, **Vanessa LEE**, and **Win TSE**, won the Championship at the LEGO BRICKthrough Challenge.
- Undergraduate **Clara LAW Yuen-Man**, School of Business and Management, was among the 20 outstanding volunteers named by the Hong Kong Outstanding Youth Volunteers Scheme.

HKUST MEDALS

- Computer Engineering Program undergraduate **ZHANG Yu** won the HKUST President's Cup 2020.
- **Prof. Julian M. GROVES**, Division of Social Science, received the Michael G. Gale Medal for Distinguished Teaching.
- **YIP Ching**, Global China Studies, was awarded the Stephen Cheong Kam-chuen Medal for Distinguished Service to the Student Body.
- **Prof. Marshal LIU Yuanshuai**, Department of Chemical and Biological Engineering, received the HKUST Common Core Teaching Excellence Award 2019 for his course, "CENG 1800 Introduction to Food Science and Technology".

HONORARY DOCTORATES AND HONORARY FELLOWS

Honorary Doctorates

- **Prof. Arup K. CHAKRABORTY**, Professor of Chemical Engineering, Physics and Chemistry at Massachusetts
- **Prof. CHAN Ka-Keung Ceajer**, GBS, SBS, JP, Senior Advisor to the Dean and Professor Emeritus in Finance, HKUST, Former Secretary for Financial Services and the Treasury of the HKSAR
- **Prof. John HARDY**, Chair of Molecular Biology of Neurological Disease at University College London, Principal Investigator of UK Dementia Research Institute of the Institute of Neurology
- **Dr. the Hon LI Dak-Sum**, GBM, JP, Chairman of Roxy Property Investment Co. Ltd. and Singapore's Carlton Group of Hotels
- **Prof. Kenneth POMERANZ**, University Professor of Modern Chinese History and in the College, University of Chicago

Honorary Fellows

- **Mr. Quinn LAW Yee-Kwan**, SBS, JP, former Deputy Chairman and Managing Director for the Urban Renewal Authority of the HKSAR
- **Mr. Michael LEE Tze-Hau**, JP, Director of Oxer Limited
- **Mr. Winston LO Yau-Lai**, SBS, Executive Chairman of Vitasoy Group
- **Mr. Kyran SZE**, MH, Chairman of KYSS Properties Limited
- **Prof. Caroline WANG Chia-Ling**, Adjunct Professor of the School of Business and Management, HKUST

EVENT **HIGHLIGHTS**

2019 **JUL**

Prof. YAU Shing-Tung, winner of the Wolf Prize in Mathematics in 2010, delivered a talk on the "Origin of Classical General Relativity and Gauge Theory", drawing more than 170 participants. The Distinguished Lecture was organized by the HKUST Jockey Club Institute for Advanced Study.

2019 **AUG**

The School of Business and Management arranged the first joint alumni seminar on family businesses, together with New York University and University of Southern California. The event featured a sharing session by HKUST alumnus faculty and family business expert Prof. Roger KING, Founding Director of the Tanoto Center for Asian Family Business and Entrepreneurship Studies, followed by a panel discussion.

2019 **SEP**

A groundbreaking ceremony for HKUST(GZ) was held on site in Nansha, Guangzhou, after the State Ministry of Education approved the establishment of the new campus.

2019 **OCT**

A Leadership and Public Policy Executive Education program on Big Data and Public Policy: Opportunities, Challenges, and Strategies was organized for the Civil Service Training and Development Institute. As part of the program, speakers shared their insights into how to effectively apply big data and evidence-based governance practices in the public sector.

2019 **NOV**

The University's 27th Congregation conferred 2,405 bachelor's degrees, 2,860 master's degrees, and 285 doctoral degrees, bringing HKUST's alumni network to 82,493.

2019 **DEC**

The first Hong Kong-France Joint Symposium on Skeletal Muscle Stem Cells, Regeneration, and Disease was held together with Université Paris-Est Créteil.

2020
JAN

HKUST, in collaboration with Toolbox Percussion of Hong Kong, presented the GRAMMY award-winning Third Coast Percussion ensemble in a Music Alive! evening celebrating contemporary percussion music.

2020
MAR

HKUST Institute for Emerging Market Studies held an online seminar focused on the Belt and Road Initiative (BRI). The seminar, entitled "BRI Regulatory Transformation: Taming the Chinese Investors' Risks" discussed the regulations shaping the BRI investment environment and explained their significance for Chinese investors.

2020
APR

The School of Business and Management organized a series of online talks in China, featuring 10 of HKUST's past and present deans, who offered valuable insights into what the future holds. The talks attracted more than 30,000 views.

2020
MAY

HKUST initiated its first virtual Career Fair to connect students with prospective employers providing graduate jobs and internship opportunities.

2020
JUN

Renowned business technology executive and venture capitalist Alfred CHUANG shared his insights into the development of tech startups during and post COVID-19 in a virtual fireside chat arranged by the School of Engineering, in collaboration with the Entrepreneurship Center.

FACTS AND **FIGURES**

STUDENTS

Student Enrollment (as of 30 Sep 2020)

School / Area	Undergraduate	Postgraduate			Total
		MPhil	PhD	Taught	
Science	2,210	111	587	454	3,362
Engineering	3,434	284	1,100	892	5,710
Business and Management	3,488	40	81	1336	4,945
Humanities and Social Science	211	30	38	209	488
Interdisciplinary Programs	290	77	188	219	774
Joint School	672	0	0	244	916
Total	**10,305**	**542**	**1,994**	**3,354**	**16,195**

Non-local Student Enrollment (2019-20)

Home Country	Undergraduate	Postgraduate		Total
		Research	Taught	
Mainland China	786	1,517	2,273	4,576
Other Places in Asia	902	273	168	1,343
Rest of the World	211	107	121	439
Total	**1,899**	**1,897**	**2,562**	**6,358**

* as of Oct 2019

Undergraduate Exchanges (2019-20)

Host/ Destination Region	Exchange-in	%	Exchange-out	%
Mainland China	12	2.7	9	1.2
Asia	17	3.8	86	11.1
North America	128	28.3	291	37.6
Central and South America	1	0.2	0	0
Europe	284	62.8	369	47.7
Australia and New Zealand	10	2.2	18	2.3
Africa	0	0	0	0
Total	**452**	**100**	**773**	**100**

* as of Aug 2020

Graduate Numbers (2020)

School / Area	Undergraduate	Postgraduate		Total
		Research	Taught	
Science	505	140	333	978
Engineering	796	286	757	1,839
Business and Management	841	35	1,042	1,918
Humanities and Social Science	58	19	230	307
Interdisciplinary Programs	63	17	136	216
Joint School	112	0	152	264
Total	**2,375**	**497**	**2,650**	**5,522**

* as of Aug 2020

Employment (2019)

	Undergraduate	Postgraduate			
		PhD	MPhil	Taught Master (Except MBA)	MBA
Employment Situation	**%**	**%**	**%**	**%**	**%**
Employed	80.2	60	35	30.7	95.3
Further Studies	13.7	1.1	43.9	6.3	0.9
Returned to Home Country or Emigrated	3.7	37.9	18	62.1	0
Others	2.5	1.1	3.3	1.1	3.7
Employment Situation by Industry	**%**	**%**	**%**	**%**	**%**
Commerce and Business	57.7	12.6	26.9	59.2	81.5
Engineering and Industry	30.3	13.8	31.3	25.7	17.4
Education	7.0	72.3	34.3	14.4	0
Government and Related Organizations	3.1	1.3	7.5	0.7	0
Community and Social Services	1.9	0	0	0	1.1

Note: Percentages may not add up to 100%, as they are rounded to the nearest percent

FACULTY

Faculty Members (as of 30 Jun 2020) (Full-time Equivalent)^

School/ Area	Regular	Visiting	Total
Science	166	8	174
Engineering	200	4	204
Business and Management	149	1	150
Humanities and Social Science	135	7	142
Interdisciplinary Programs	26	0	26
HKUST Jockey Club Institute of Advanced Study	2	0	2
Institute for Public Policy	1	0	1
Total	**677**	**20**	**697**

^ The above faculty numbers are reported in Full-time Equivalent (FTE) basis to reflect faculty's service distribution to each school.

RESEARCH

No. of New Research Projects and Funding (2019-20)

	Number	Funding (in HK$M)
UGC	398	135.9
RGC	233	197.6
Others	844	746.7
Total	**1,469***	**1,080.1****

No. of Patents (2019-20)

Filed	286
Granted	74

* No. of projects does not add up due to projects with multiple sponsors.
** Includes R&D projects administrated by R and D Corporation and Mainland platforms.

INTERNATIONAL RANKINGS

HKUST	**No.1 in the world** World's Top 400 Young Universities, Times Higher Education Young University Rankings 2020
	No. 2 in the world World's Top 150 Universities Under 50, QS Top 50 Under 50 2021
	No. 5 in Asia Asia's Top 400+ Universities, Times Higher Education Asia Universities Rankings 2020
	No. 8 in Asia Asia's Top 500+ Universities, QS Asia University Rankings 2021
	No. 27 in the world World's Top 1000 Universities, QS World University Rankings 2021
	No. 56 in the world World's Top 1500+ Universities, Times Higher Education World University Rankings 2021
	No. 26 in the world Global University Employability Ranking 2020, Emerging
School of Science	**No. 29 in the world, No. 1 in Hong Kong** World's Top 600 Universities in Chemistry, QS World University Rankings by Subject 2020
	No. 23 in the world, No. 1 in Hong Kong World's Top 400 Universities in Materials Sciences, QS World University Rankings by Subject 2020
	No. 34 in the world World's Top 400 Universities in Mathematics, QS World University Rankings by Subject 2020
	No. 40 in the world, No. 1 in Hong Kong World's Top 500 Universities in Natural Sciences, QS World University Rankings by Subject 2020
	No. 47 in the world, No. 1 in Hong Kong World's Top 600 Universities in Physics and Astronomy, QS World University Rankings by Subject 2020
	No. 50 in the world, No. 1 in Hong Kong World's Top 400 Universities in Environmental Sciences, QS World University Rankings by Subject 2020
School of Engineering	**No. 18 in the world, No. 2 in Greater China** World's Top 500 Universities in Engineering and Technology, QS World University Rankings by Subject 2020
	No. 26 in the world, No. 3 in Greater China World's Top 1000+ Universities in Engineering and Technology, Times Higher Education World University Rankings 2021
	No. 26 in the world, No. 3 in Greater China World's Top 600 Universities in Computer Science and Information Systems, QS World University Rankings by Subject 2020
	No. 22 in the world, No. 2 in Greater China World's Top 500 Universities in Electrical and Electronic Engineering, QS World University Rankings by Subject 2020
	No. 27 in the world, No. 1 in Hong Kong World's Top 500 Universities in Mechanical, Aeronautical and Manufacturing Engineering, QS World University Rankings by Subject 2020
	No. 17 in the world, No.1 in Hong Kong World's Top 200 Universities in Civil and Structural Engineering, QS World University Rankings by Subject 2020
	No. 31 in the world, No. 3 in Greater China World's Top 800 Universities in Computer Science, Times Higher Education World University Rankings 2021
	No. 32 in the world, No. 2 in Greater China World's Top 400 Universities in Chemical Engineering, QS World University Rankings by Subject 2020

School of Business and Management	**No. 1 in the world** Global EMBA Rankings - Kellogg-HKUST EMBA Program, Financial Times 2020
	No. 2 in the world QS Global Joint EMBA Rankings - Kellogg-HKUST EMBA Program, QS Global Joint EMBA Rankings 2020
	No. 19 in the world Global MBA Rankings - Full-Time MBA Program, Financial Times 2020
	No. 16 in the world, No. 2 in Asia World's Top 500 Universities in Business and Management Studies, QS World University Rankings by Subject 2020
	No. 35 in the world, No. 3 in Greater China World's Top 200 Universities in Statistics and Operational Research, QS World University Rankings by Subject 2020
	No. 20 in the world, No.2 in Asia World's Top 300 Universities in Accounting and Finance, QS World University Rankings by Subject 2020
	No. 29 in the world, No. 3 in Greater China World's Top 500 Universities in Economics and Econometrics, QS World University Rankings by Subject 2020
	No. 29 in the world, No. 3 in China World's Top 600 Universities in Business & Economics, Times Higher Education World University Rankings 2021
School of Humanities and Social Science	**No. 33 in the world** World's Top 500 Universities in Social Sciences and Management, QS World University Rankings by Subject 2020

APPENDICES

APPENDIX I

COURT, COUNCIL AND SENATE MEMBERSHIP (As of 30 June 2020)

Court Membership

	Chairman & Honorary Chairman	Dr. John C C Chan, GBS, JP
	Honorary Chairman	Dr. the Hon Vincent H S Lo, GBM, GBS, JP
***Ex-Officio* Members**	**Chairman of the Council**	Mr. Andrew Liao Cheung-Sing, GBS, SC, JP
	Vice-Chairman of the Council	Prof. John Chai Yat-Chiu, JP
	Treasurer of the University	Prof. Patrick Yeung Kai-Cheung
	President of the University	Prof. Wei Shyy, JP
	Provost	Prof. Lionel M Ni
	President of the HKUST Students' Union	Mr. Mak Ka-Chun
	President of the HKUST Alumni Association	Mr. Dicky Yuen
	Chairman of the HKUST Staff Association	Ms. Grace Ling
Honorary Members	Dr. Anissa Chan, BBS, MH, JP	Dr. Simon S O Ip, GBS, JP
	Dr. Charles S C Chan, BBS, JP	Prof. Roger King
	Dr. the Hon Robin Y H Chan, GBM, GBS, JP	Dr. Lau Wah-Sum, GBS, JP
	The Hon Ronnie C Chan, GBM	Dr. the Hon Charles Y K Lee, GBM, GBS, JP
	Dr. Thomas T T Chen	Ms. Margaret Lee Pui-Man
	Dr. Christopher Cheng, GBS, OBE, JP	Dr. the Hon Lee Shau-Kee, GBM
	Dr. the Hon Henry Cheng, GBM, GBS	Dr. the Hon Andrew K N Li, GBM
	Mr. Paul M F Cheng, JP	Ms. Kai-Yin Lo, SBS
	Dr. Cheng Hon-Kwan, GBS, OBE, JP	Mr. Winston Yau-Lai Lo, SBS
	Mr. Linus W L Cheung, JP	Mr. Francis Lui Yiu-Tung
	Dr. Raymond K F Ch'ien, GBS, JP	Mr. Tim Lui Tim-Leung, SBS, JP
	Prof. Alice Chiu, BBS, JP	Dr. the Hon Lui Che-Woo, GBM, GBS, MBE, JP
	Dr. Paul M Y Chow, GBS, JP	Dr. Michael H H Mak, SBS, JP
	Prof. Stephen Chow, GBS, JP	Dr. Anthony Neoh, SC, JP
	Dr. Kenneth H Fang, GBS, JP	Mr. David Teng Pong
	Mr. Tim Freshwater	Mr. Sin Chung-Kai, SBS, JP
	Dr. William K Fung, SBS, JP	Mr. Kenneth Ting Woo-Shou, SBS, JP
	Dr. Aron H Harilela, BBS, JP	Mrs. Christine Wong, SBS
	Mr. John B Harrison	Dr. Lawrence T Wong
	Dr. Herman S M Hu, SBS, JP	Dr. Wilfred Y W Wong, GBS, JP
	The Hon Hu Fa-Kuang, GBM, GBS, CBE, JP	Ms. Marjorie Yang, GBS, JP
	Mr. Lester G Huang, SBS, JP	Dr. Larry C K Yung
Appointed Members	Mr. Bernard Auyang	Mr. Sing-Cheong Liu, JP
	Dr. Ian Chan Yau-Nam, SBS, MH	Mr. Raymond C Lo
	Dr. Ian C W Fok, SBS, JP	Mr. Maximilian Yung-Kit Ma
	Ms. Anita Fung Yuen-Mei, BBS, JP	Mr. Sebastian Man Shiu-Wai
	Mrs. Yvette Yeh Fung	Mr. Daryl Ng Win-Kong, JP
	Dr. Hans Michael Jebsen, BBS	The Hon Abraham Shek Lai-Him, GBS, JP
	Ms. Catherine Kwai Yuk-Nin	Mr. Benedict Sin Nga-Yan
	Mr. Quinn Y K Law, SBS, JP	Mr. Kyran Sze, MH
	Mr. David W H Lee	Dr. James E Thompson, GBS
	Mr. Marcus C W Lee	Mr. Samuel Tat-Sum Wong
	Mr. Michael Lee Tze-Hau, JP	Ms. Jennifer Woo Chun-En
	The Hon Starry Lee Wai-King, SBS, JP	Mr. Michael Wu Wei-Kuo
	Ms. Catherine K C Leung	Mr. Patrick Yeung Wai-Tim
Appointed Senate Representatives	Prof. Kai-Lung Hui	Prof. Anirban Mukhopadhyay
	Prof. Guochen Jia	Prof. Charles W W Ng

Council Membership

	Chairman	Mr. Andrew Liao Cheung-Sing, GBS, SC, JP
	Vice-Chairman	Prof. John Chai Yat-Chiu, JP
	Treasurer of the University	Prof. Patrick Yeung Kai-Cheung
	President of the University	Prof. Wei Shyy, JP
	Provost	Prof. Lionel M Ni
	Vice-President	Prof. Nancy Y Ip, BBS, MH, JP, *Research and Development*
	Deans	Prof. Tim Kwang-Ting Cheng, *Dean of Engineering*
		Prof. Kellee Tsai, *Dean of Humanities and Social Science*
Academic Members of the Senate		Prof. I-Ming Hsing
		Prof. Min Yan
Chairman of HKUST Convocation		Mr. Stanley Choi Tak-Shing
Elected Staff Member		Ms. Grace Ling
Elected Student Member		Ms. Fu Pui Ying
Members Not Being Employees or Students of the University	Mr. Johnson Cha Mou-Daid	Prof. Albert Yuk Keung Ip
	The Hon Ben Chan Han-Pan, BBS, JP	Mrs. Helen Kan
	Ms. Cally Chan Shan-Shan	Mr. Rembert Lai Siu-Kin
	Mr. Nicholas Chan Hiu-Fung, MH	Prof. Jack Lau
	Mr. Peter Cheung Kam-Fai, SBS	Ms. Edith Shih
	Mr. David Fong Man-Hung, BBS, JP	Mr. Stephen Yiu Kin-Wah
	Mr. Wilson Fung Ying-Wai	Dr. Samuel W K Yung, SBS, MH, JP

Membership Of Standing Committee

Chairman	Mr. Andrew Liao Cheung-Sing, GBS, SC, JP	
Vice-Chairman	Prof. John Chai Yat-Chiu, JP	
Members	Mr. Nicholas Chan Hiu-Fung, MH	Mr. Rembert Lai Siu-Kin
	Mr. David Fong Man-Hung, BBS, JP	Prof. Jack Lau
	Mr. Wilson Fung Ying-Wai	Prof. Lionel M Ni
	Mr. Mark Hodgson	Prof. Wei Shyy, JP
	Prof. Albert Yuk Keung Ip	Prof. Patrick Yeung Kai-Cheung
	Prof. Nancy Y Ip, BBS, MH, JP	Mr. Stephen Yiu Kin-Wah
	Mrs. Helen Kan	Dr. Samuel W K Yung, SBS, MH, JP

Membership Of Audit Committee

Chairman	Mr. Wilson Fung Ying-Wai	
Vice-Chairman	Mrs. Helen Kan	
Members	Mr. Nicholas Chan Hiu-Fung, MH	Mrs. Agnes K Nardi
	Mr. Colin Chau Yu-Nien	Mr. Martin Siu Man-Tat, SBS
	Prof. Jack Lau	Dr. Samuel W K Yung, SBS, MH, JP

Membership Of Campus Development Committee

Chairman	Mr. David Fong Man-Hung, BBS, JP	
Vice-Chairman	Mr. Rembert Lai Siu-Kin	
Members	Sr. Au Choi Kai, SBS	Mr. Jimmy Leung Cheuk-Fai, SBS
	Mrs. Margaret Brooke	Ms. Grace Ling
	The Hon Ben Chan Han-Pan, BBS, JP	Mr. Ben Lui Sau-Shun
	Mr. Wilson Fung Ying-Wai	Prof. Min Yan
Ex-officio	Mr. Mark Hodgson	

Membership Of Committee On HKUST(GZ)

Chairman	Mr. Andrew Liao Cheung-Sing, GBS, SC, JP	
Vice-Chairman	Prof. John Chai Yat-Chiu, JP	
Members	Mr. David Fong Man-Hung, BBS, JP	Prof. Wei Shyy, JP
	Mr. Wilson Fung Ying-Wai	Prof. Patrick Yeung Kai-Cheung
	Prof. Jack Lau	Mr. Stephen Yiu Kin-Wah
	Prof. Lionel M Ni	

Membership Of Finance Committee

Chairman	Prof. Patrick Yeung Kai-Cheung	
Vice-Chairman	Mr. Stephen Yiu Kin-Wah	
Members	Mr. Johnson Cha Mou-Daid	Prof. Albert Yuk Keung Ip
	Mr. Jackson Cheung Wing-Kwong	Mr. Ronald Seng-Yum Tham
	Mr. Stanley Choi Tak-Shing	
Ex-officio	Mr. Mark Hodgson	Prof. Lionel M Ni

Membership Of Honorary Awards Committee

Chairman	Mr. Andrew Liao Cheung-Sing, GBS, SC, JP	
Vice-Chairman	Prof. Wei Shyy, JP	
Members	Prof. Yongshun Cai	Prof. Lionel M Ni
	Ms. Anita Fung Yuen-Mei, BBS, JP	Prof. James Y L Thong
	Prof. Jack Lau	Prof. Patrick Yeung Kai-Cheung
	Prof. Pei-Yuan Qian	Mr. Patrick Yeung Wai-Tim

Membership Of Human Resources Committee

Chairman	Prof. John Chai Yat-Chiu, JP	
Vice-Chairman	Prof. Albert Yuk Keung Ip	
Members	Ms. Cally Chan Shan-Shan	Ms. Edith Shih
	Mr. David Fong Man-Hung, BBS, JP	Mr. Stephen Yiu Kin-Wah
Ex-officio	Mr. Mark Hodgson	Prof. Lionel M Ni
	Prof. Wei Shyy, JP	

Membership Of Institutional Advancement And Outreach Committee

Chairman	Prof. Jack Lau	
Vice-Chairman	Dr. Samuel W K Yung, SBS, MH, JP	
Members	The Hon Ben Chan Han-Pan, BBS, JP	Ms. Margaret Lee Pui-Man
	Dr. Charles S C Chan, BBS, JP	Mr. Michael Lee Tze-Hau, JP
	Mr. Peter Cheung Kam-Fai, SBS	Mr. Philip Tsai, BBS, JP
	Mrs. Yvette Yeh Fung	Mr. Ryan Wong Man-Yeung
	Mrs. Helen Kan	
Ex-officio	Prof. Tim Cheng	Prof. Yang Wang

Membership Of Knowledge Transfer Committee

Chairman	Prof. John Chai Yat-Chiu, JP	
Vice-Chairman	Mr. Nicholas Chan Hiu-Fung, MH	
Members	Ms. Cally Chan Shan-Shan	Ms. Catherine K C Leung
	Mr. Peter Cheung Kam-Fai, SBS	Mr. Brandon Ho-Ping Lin
	Mr. Stanley Choi Tak-Shing	Prof. Ping Sheng
	Prof. I-Ming Hsing	Prof. Chi-Ying Tsui
Ex-officio	Prof. Nancy Y Ip, BBS, MH, JP	Prof. Enboa Wu
	Prof. Ricky S W Lee	

Membership Of Senior Executives Affairs Committee

Chairman	Mr. Andrew Liao Cheung-Sing, GBS, SC, JP	
Members	Prof. John Chai Yat-Chiu, JP	Prof. Patrick Yeung Kai-Cheung

For the attendance and biographies of Council and Committees Members, please visit: *https://ccss.ust.hk/council/about-the-council*

Senate Membership

	Chairman	Prof. Wei Shyy, JP, President
	Provost	Prof. Lionel M Ni
	Vice-Presidents	Mr. Mark Hodgson, *Administration and Business*
		Prof. Nancy Y Ip, BBS, MH, JP, *Research and Development*
School of Science	Prof. Yang Wang, *Dean*	Prof. Peiyuan Qian
	Prof. Jeffrey R Chasnov	Prof. Penger Tong
	Prof. Jensen Li	Prof. Xiaoping Wang
	Prof. Eric Marberg	Prof. Ian Williams
	Prof. Robert Qi	Prof. Zhenguo Wu, *Acting*
School of Engineering	Prof. Tim Kwang-Ting Cheng, *Dean*	Prof. Huihe Qiu
	Prof. Man-Sun Chan	Prof. Bertram Shi
	Prof. Guanghao Chen	Prof. Chi-Ying Tsui
	Prof. Guillermo Gallego	Prof. Jiang Xu
	Prof. I-Ming Hsing	Prof. Shuhuai Yao
	Prof. Hong-Kam Lo	Prof. Dit-Yan Yeung
School of Business and Management	Prof. Kar-Yan Tam, *Dean*	Prof. Anirban Mukhopadhyay
	Prof. Kevin Chen	Prof. Anaimalai V Muthukrishnan
	Prof. Tai-Yuan Chen	Prof. Albert Park
	Prof. Yaping Gong	Prof. Chu Zhang
	Prof. Albert Ha	Prof. Shaohui Zheng
	Prof. Kai-Lung Hui	
School of Humanities and Social Science	Prof. Kellee Tsai, *Dean*	Prof. Christian Daniels
	Prof. Siu-Woo Cheung	Prof. Wenfang Tang
HKUST Fok Ying Tung Graduate School	Prof. Ricky S W Lee , *Dean*	
Dean of Students	Prof. King-Lau Chow, *Acting*	
Interdisciplinary Programs Office	Prof. King-Lau Chow, *Director*	Prof. Xun Wu
	Prof. Jimmy Fung	
Elected Members of the Academic Staff	Prof. Utpal Bhattacharya	Prof. Jianwei Sun
	Prof. Lancelot F James	
Co-opted Members of the Academic Staff	Prof. Khaled Ben Letaief	Prof. Ricky S W Lee
	Prof. Che-Ting Chan	Prof. Emily Nason
	Prof. Roger Shu-Kwan Cheng	Prof. Charles W W Ng
	Prof. Andrew Cohen	Prof. Fugee Tsung
	Prof. Bradley A Foreman	Prof. Weijia Wen
	Prof. Andrew Horner	Prof. Danyang Xie
	Prof. Guochen Jia	Prof. George Jie Yuan
	Prof. Arthur Lau	
Directors	Mr. James Prince, *Academic Registrar*	Ms. Diana L H Chan, *Library*
Student Representative	Mr. Ka Chun Mak, President of HKUST Students' Union	

APPENDIX II

ADVISORY COMMITTEE

School of Science Advisory Committee

Prof. Marvin COHEN
Professor of Graduate School, Department of Physics, University of California, Berkeley, USA

Prof. George PAPANICOLAOU
Robert Grimmett Professor of Mathematics, Department of Mathematics, Stanford University, USA

Prof. Roger E HOWE
William R. Kenan, Jr. Professor Emeritus of Mathematics, Department of Mathematics, Yale University, USA

Prof. Randy SCHEKMAN
Howard Hughes Medical Institute Investigator and Professor of Cell and Developmental Biology, Department of Molecular and Cell Biology, University of California, Berkeley, USA

Prof. Roberto KOLTER
Professor Emeritus of Microbiology, Department of Microbiology, Harvard Medical School, USA

Prof. WANG Xiaodong
Director and Investigator, National Institute of Biological Sciences, Beijing, China

Prof. Jean-Marie LEHN
Director of Laboratory of Supramolecular Chemistry, Institut de Science et d'Ingénierie Supramoléculaires (ISIS), Université de Strasbourg, France

Prof. YANG Weitao
Philip Handler Distinguished Professor of Chemistry, Department of Chemistry, Duke University, USA

Prof. Patrick LEE
William & Emma Rogers Professor of Physics, Department of Physics, Massachusetts Institute of Technology, USA

Prof. YAU King-Wai
Professor of Neuroscience, The Solomon H. Snyder Department of Neuroscience, Johns Hopkins University, USA

School of Engineering Advisory Committee

Academic Advisors

Prof. Arup K. CHAKRABORTY
Robert T. Haslam Professor in Chemical Engineering and Professor of Chemistry & Biological Engineering
Massachusetts Institute of Technology

Prof. Evelyn HU
Tarr-Coyne Professor of Applied Physics and of Electrical Engineering, Harvard University

Prof. Kincho LAW
Professor, Department of Civil and Environmental Engineering, Stanford University

Prof. David SIMCHI-LEVI
Professor and Co-Director for Global Operations
Massachusetts Institute of Technology

Prof. M. Tamer ÖZSU
Professor, Data Systems Research Group
David R. Cheriton School of Computer Science
University of Waterloo

Prof. James KLAUSNER
Professor, Data Systems Research Group
Professor and Chair of Mechanical Engineering
Michigan State University

Industrial Advisors

Mr. Albert Yuk Keung IP
Independent Non-executive Director
New World Development

Dr. Hongjiang ZHANG
Head of Technology Strategy, ByteDance;
Venture Partner, SourceCode Capital

Mr. Alfred CHUANG
Founder and Chairman, Magnet Systems

Mr. Victor NG
Managing Director, Micom Tech Limited

Dr. Frank Fuk-kay TONG
Global Head of Innovation and Strategic Investment, HSBC

Dr. Ben WANG
Chief Technology Officer, Cainiao

Mr. Oscar CHOW
Non-Executive Director, Chevalier Group

Ir. Dr. Wai-kwok LO
Member of Legislative Council (Engineering Functional Constituency) Of the Hong Kong Special Administrative Region Of the People's Republic of China

Ir. Prof. Daniel MC CHENG
Managing Director, Dunwell Group
Chairman, the Federation of HK Industries

Mr. Paul POON
Vice Chancellor – CLP Power Academy
CLP Power Hong Kong Limited
formerly Managing Director

Ir. Chi Chiu CHAN
Past President of HKIE

Prof. Xinguo ZHANG
Executive Vice President and CIO
Aviation Industry Corporation of China (AVIC)

Dr. Kaifu LEE
Chairman & Chief Executive Officer, Sinovation Ventures

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	Mr. Adriel CHAN Wenbwo Vice Chair, Hang Lung Properties Limited	**Mr. Keith KERR**, SBS, JP Chairman, The Development Studio Ltd
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	Mr. Eric FOK Kai Shan Vice President, Fok Ying Tung Group	**Mr. Anish LALVANI** Chairman, Euro Suisse International Ltd
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	Mr. David LEE Director, Lee Kum Kee Company Limited	**Mr. Sukanto TANOTO** Chairman, RGE Pte Ltd
	Mrs. Margaret LEUNG, SBS, JP Independent Non-Executive Director Hong Kong Exchanges and Clearing Limited	**Dr. James E. THOMPSON**, GBS Chairman, Crown Worldwide Holdings Ltd
	Ms. Nisa LEUNG, JP Managing Partner, Qiming Venture Partners	**Mr. Andy TUNG** Non-Executive Director Orient Overseas (International) Limited
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	Mr. Anthony NIGHTINGALE, CMG, SBS, JP Director, Jardine Matheson Holdings Ltd	**Mr. Arthur YUEN Kwok Hang**, JP Deputy Chief Executive Hong Kong Monetary Authority
	Mr. Wai Kwong SECK Chief Executive Officer, Eastspring Investments	**Mrs. Betty YUEN SO Siu Mai**, Vice Chairman, CLP Power Hong Kong Ltd
	Mr. Benjamin HUNG Pi Cheng, BBS, JP Regional Chief Executive Officer, Greater China & North Asia Chief Executive Officer, Retail Banking & Wealth Management Standard Chartered Bank	

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Members	**Mr. Dickman CHIU** Group Financial Controller, 100x Group	**Ms. Gloria LUK** Partner, Advisory, Deloitte China
	Ms. Cindy CHOW Executive Director, Alibaba Entrepreneurs Fund	**Mr. Hong NG** Advisor, BDO
	Ms. Karen HO Chief Financial Officer, WeLab Holdings	**Ms. Cindy NGAN** Partner, PwC Hong Kong
	Ms. Jane HUI Partner, Tax Services, Ernst & Young	**Mr. Gary WONG** Partner, Assurance, Ernst & Young
	Mr. Horace LEE Director & Group Financial Controller, Wheelock Group	**Mr. Fergus WONG** Director, National Tax Policy, PwC Hong Kong
	Mr. Roy LEUNG Partner, KPMG China	**Mr. Thomas WONG** Founding Partner, CW CPA
	Mr. Andrew LEUNG Chief Financial Officer, Hang Seng Bank Limited	**Ms. Shirley WOO** Partner, Audit & Assurance, Deloitte China
	Mr. Eugene LIU Managing Partner, RSM Hong Kong	

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	Prof. ZHOU Xueguang Kwoh Ting Li Professor in Economic Development, Professor of Sociology Senior Fellow, Freeman Spogli Institute for International Studies, Stanford University

Interdisciplinary Programs Office Advisory Board

Chairman	The late **Prof. Roger STOUGH** University Professor, Schar School of Policy, Government and International Affairs, George Mason University, *(Membership until May 31, 2020)*
Members	**Prof. Donald R. BLAKE** Professor of Chemistry, Professor of Earth System Science, School of Physical Sciences, University of California, Irvine
	Prof. Gad ALLON Jeffrey A. Keswin Professor, Professor of Operations Information and Decisions, Director of Jerome Fisher Program in Management & Technology Program, University of Pennsylvania *(Membership until January 31, 2020)*
	Prof. Steven KOU Professor of Mathematics, Director of Risk Management Institute, National University of Singapore *(Membership until May 31, 2020)*

APPENDIX III

SENIOR FACULTY APPOINTMENTS & PROFESSOR EMERITUS

Senior Faculty Appointments

Prof. Ricky S W LEE
Dean of HKUST Fok Ying Tung Graduate School

Prof. CHAN Ho-Bun
Director of Materials Characterisation & Preparation Facility

Prof. Albert PARK
Head of Department of Economics

Prof. QIAN Peiyuan
Head of Department of Ocean Science

Prof. TANG Kai
Director of Design and Manufacturing Services Facility

Dr. Samuel YU Chung-Toi
Director of Health, Safety & Environment

Professor Emeritus

The following faculty members were granted the title of Professor Emeritus upon their retirement or departure from the University service:

Prof. Chih-chen CHANG
Department of Civil and Environmental Engineering

Prof. Jang Kyo KIM
Department of Mechanical and Aerospace Engineering

Prof. Kei May LAU
Department of Electronic and Computer Engineering

Prof. Allen MOY
Department of Mathematics

APPENDIX IV

FINANCE

OVERVIEW

The financial year 2019/20 recorded a surplus of $1,410 million. The higher surplus for 2019/20 was mainly contributed by strong performance in donation income, taking full advantage of the matching grants under the 8th Matching Grant Scheme (MGS). This income helped to offset the impact from lower investment return due to extreme market volatilities arising from COVID-19 and higher operating expenses.

CONSOLIDATED INCOME AND EXPENDITURE

Consolidated income increased by $1,257 million to $6,389 million in 2019/20 ($5,132 million in 2018/19), contributed primarily by donations of $679 million, matching grants under the 8th MGS of $600 million, additional University Grants Committee ("UGC") supplementary grants for General Pay Adjustment ("GPA") on salaries, and an increase in tuition fee income, against a reduction in interest and investment income of $246 million compared to the previous year.

Consolidated expenditure increased modestly by $191 million to $4,982 million ($4,791 million in 2018/19) which was mainly attributable to higher salary costs arising from GPA, increases in premises maintenance costs and growth in student expenses on studentship.

SEGMENT RESULTS

Commentary on operating segments, analysed by UGC-Funded Activities and non-UGC Funded Activities, is as follows:

UGC-Funded Activities

UGC-Funded Activities showed a surplus of $536 million (deficit of $26 million for 2018/19). The 2019/20 surplus primarily came from matching grant income which is not a recurrent funding source. If this one-off income is excluded, UGC-Funded Activities would have a deficit of $64 million. As at 30 June 2020, the University had UGC reserves of $3,127 million ($2,591 million in 2018/19).

Non-UGC Funded Activities

Self-Financing Continuing Professional Education Programs, Research and Other Activities

Self-financing CPEP activities contributed a surplus of $298 million ($287 million for 2018/19), mainly driven by higher student enrolment and higher tuition fees. Non-UGC funded research activities contributed a surplus of $42 million ($16 million for 2018/19), mainly arising from completed commercial research projects and government subsidies. Other activities incurred a loss of $53 million (surplus of $45 million for 2018/19) which was mainly due to a drop in allocated investment income. In aggregate, the overall surplus of these operating segments amounted to $287 million ($348 million for 2018/19).

Donations Activities

Donations totalling $741 million were recorded as income for 2019/20 ($62 million for 2018/19). Overall the segment showed a surplus of $587 million ($21 million for 2018/19). The University has successfully secured $240 million new pledges in 2019/20 ($1,055 million in 2018/19).

Non-UGC Reserves

Non-UGC reserve balances reached $7,022 million at the end of 2019/20 ($6,150 million for 2018/19). The growth in the reserve balance was mainly contributed by the afore-stated self-financing activities and donation income.

CAPITAL EXPENDITURE

A number of construction projects are underway to enhance the University's facilities and infrastructure to cater for accommodation and amenity needs of students as well as for academic and research activities. The largest construction project is the New 1551-bed Student Hostel which is expected to complete by 2023.

Due to the outbreak of COVID-19, several construction projects suffered delay. However, the University has managed to catch up and all projects are on track.

As at 30 June 2020, total commitments for approved construction projects and other capital items amounted to $5,041 million; $3,590 million of which will come from existing University's Funds, $1,057 million will be funded by deferred income on hand, $282 million from pledged donations and $112 million from approved but yet to be received UGC grants.

OUTLOOK

The societal events and coronavirus pandemic have presented exceptional challenges to the running of the University on multiple fronts. With the dedicated efforts of the management team and responsive Council directions and support, the University has coped well, overcoming difficulties for example by conducting online teaching and providing self-quarantine facilities for students with hostel places who returned from overseas.

The financial position of the University is very healthy and the total funds have breached the $10 billion historical mark. Amidst headwinds in the investment climate and substantial capital expenditure ahead to enhance campus facilities, we have set aside sufficient funds to make sure that the University remains financially robust and sustainable.

Following the ground breaking ceremony held on 26 September 2019, we have commenced preparation works for the establishment of Hong Kong University of Science and Technology (Guangzhou) ("HKUST(GZ)"), including academic planning, organisational planning and campus building and development of HKUST(GZ). The GZ campus is planned to be opened in September 2022 and will be operating under the concept of one unified HKUST system and two complementary campuses. The University is actively pursuing this initiative, which would place HKUST in a pioneer position in research and application endeavours in science and technology.

As we enter the new 2020/21 academic and financial year, our University continues to face an uncertain time, due to the impact of a likely prolonged economic downturn caused by the coronavirus pandemic. Our University shall remain cautious in managing its resources to ensure financial sustainability.

CONSOLIDATED STATEMENT OF COMPREHENSIVE INCOME

For The Year Ended 30 June 2020

	2020 ($million)	2019 ($million)
Income		
Government Subventions and Grants	**3,386**	2,632
Tuition, Programs and Other Fees	**1,436**	1,384
Interest and Investment Income	**102**	348
Donations and Benefactions	**741**	62
Auxiliary Services and Other Income	**459**	449
Transfers from Deferred Capital Funds	**265**	257
	6,389	5,132
Expenditure		
Teaching, Learning and Research		
Teaching and Research	**3,074**	2,994
Library	**125**	124
Central Computing Facilities	**137**	140
Other Academic Services	**106**	104
	3,442	3,362
Institutional Support		
Management and General	**442**	386
Premises and Related Expenses	**769**	706
Student and General Education Services	**297**	300
Other Activities	**32**	37
	1,540	1,429
	4,982	4,791
Surplus from operation for the year	**1,407**	341
Share of Result of an Associate	**6**	4
Surplus for the year before taxation	**1,413**	345
Taxation	**(3)**	(2)
Surplus for the year after taxation	**1,410**	343
Other comprehensive income for the year		
Items that may be reclassified subsequently to income and expenditure:		
Exchange differences arising from translation	**(9)**	(8)
	(9)	(8)
Item that will not be reclassified to income and expenditure:		
Unrealised gain /(loss) on equity securities at fair value through other comprehensive income	**7**	(1)
	(2)	(9)
Total comprehensive income for the year	**1,408**	334
Transfers to:		
UGC Funds	**536**	(26)
Restricted Funds	**138**	(6)
Other Funds	**734**	366
	1,408	334

CONSOLIDATED BALANCE SHEET

As at 30 June 2020

	2020 ($million)	2019 ($million)
Non-Current Assets		
Property, Plant and Equipment	**5,900**	5,338
Intangible Assets	**17**	13
Right-of-use Assets	**13**	0
Financial Assets at Amortised Cost	**78**	105
Financial Assets at Fair Value through Other Comprehensive Income	**484**	477
Financial Assets at Fair Value through Income and Expenditure	**7,536**	6,593
Interest in an Associate	**84**	83
Bank Deposits with Original Maturity over Three Months	**2**	385
	14,114	12,994
Current Assets		
Financial Assets at Amortised Cost	**64**	1
Inventories	**1**	1
Accounts Receivable and Prepayments	**614**	411
Bank Deposits with Original Maturity over Three Months	**1,269**	1,776
Cash and Cash Equivalents	**2,350**	656
	4,298	2,845
Current Liabilities		
Accounts Payable and Accruals	**1,014**	1,153
Lease Liabilities	**9**	0
Provision for Staff Benefits	**229**	185
Deferred Income	**1,633**	868
Tax Payable	**2**	2
	2,887	2,208
Net Current Assets	**1,411**	637
Total Assets Less Current Liabilities	**15,525**	13,631
Non-Current Liabilities		
Lease Liabilities	**4**	0
Provision for Staff Benefits	**37**	36
Deferred Income	**908**	768
Deferred Capital Funds	**4,427**	4,086
	5,376	4,890
NET ASSETS	**10,149**	8,741
UGC Funds	**3,127**	2,591
Restricted Funds	**1,721**	1,248
Other Funds	**5,301**	4,902
TOTAL FUNDS	**10,149**	8,741

Approved by the Council on 14 October 2020

APPENDIX V

INTERNAL CONTROL AND RISK MANAGEMENT

SUMMARY OF INTERNAL CONTROL AND MEASURES

The University continues to adopt a system of internal control based on a framework issued by the Committee of Sponsoring Organizations of Treadway Commission (COSO). The five components of COSO Framework, namely Control Environment, Risk Assessment, Control Activities, Information and Communication, and Monitoring, are adopted by the University in ensuring the effectiveness of University governance.

In order to provide assurance about the effectiveness of internal controls to the Council and Senior Management of the University, the following arrangements are in place:

a. Whistleblowing Policy is in place and operating to provide a safe and protective means by which staff, students and other stakeholders of the University are enabled to raise concerns with the appropriate University authorities against any malpractice within the University.

b. The Internal Audit Office is responsible for preparing the annual risk-based audit plans and performing independent reviews to assess adequacy of the design and operating effectiveness of the internal controls as well as providing recommendations to streamline processes for efficiency enhancement. A co-sourced external service provider is engaged on an as-needed basis to supplement other audit areas relating to the University's IT environment and cybersecurity.

c. In addition to the statutory annual audit of the University's financial statements, the external auditors also carry out an independent assurance engagement on the University's compliance with the guidelines, terms and conditions imposed by the Government's University Grants Committee.

d. The Audit Committee of the University Council approves the annual audit plan, supervises the scope of work performed by the Internal Audit Office and reviews internal audit reports or concerns on internal controls raised by the internal and/or external auditors. Furthermore, the Audit Committee has an oversight role on the appointment and performance of both internal and external audit teams to ensure independence of the reporting line for the auditors and objectivity of the work performed by the auditors.

HKUST RISK MANAGEMENT

The University's risk management process (the "Process") is managed in accordance with the Strategic Risk Management Policy approved by the University Council in June 2019. The Process complies with the recommendation on identification and management of major institutional risk included in the UGC report on Governance in UGC-funded Higher Education Institutions in Hong Kong, published on 30 March 2016.
Results and reports of strategic risk management exercise and the strategic risk register will be presented to the Council in October 2020. The following is the summary of the risk assessment results extracted from the reports.

Overall Conclusion

The University faces a number of strategic risks that are classified under reputational, operational and financial risks that are addressed by appropriate risk mitigation actions with responsible risk owners assigned and sources of assurances identified that the risk mitigating activities are effective.

Looking back, the University faces a risk landscape amplified by social unrest and the prevailing COVID-19 pandemic in the past year. Nonetheless, management has seen the University community unified in a coordinated and collaborative manner to cope with the unprecedented COVID-19 pandemic through online teaching and learning and virtual meetings and conferences for faculty, staff and students. Management believes that upholding the University's core values of inclusiveness, diversity and respect in differences, and its timeliness in providing necessary support to all University members, will help the University emerge strongly from current challenges.

Going forward, management with the support of the Internal Audit Office (IAO), will continue to monitor the risk profile facing the University and review the Strategic Risk Register to identify and assess existing and emerging risks that could affect the University's ability to achieve its objectives. Management will follow up on the status of the risk mitigating activities at least annually.

Reputational Risk

Management reaffirms the University's core values of inclusiveness, diversity and respect in mitigating the external risks arising from the COVID-19 pandemic and social unrest including the enactment of the Law of the People's Republic of China on Safeguarding National Security in the Hong Kong Special Administrative Region (HKSAR), also known as the National Security Law. Management will continue to uphold and promote a University-wide culture that embraces diversity in views, background, culture, race, religion, and personal interests among others and will use open and direct communication to cultivate a collaborative, safe and sustainable environment in which all University members thrive. The new Guangzhou campus will be fully synergistic and complementary to the Clear Water Bay campus that this Unified System nurtures both curiosity-driven and mission-motivated pursuits with enlarged resources and new physical infrastructures and promotes collaboration and integration between campuses. This enhances our overall competitiveness and reputation in academic excellence, innovation, knowledge transfer and entrepreneurship.

In addition, in line with the University's vision to be a world-class university in all targeted fields of pursuit, there is a robust governance framework to govern the academic, research and administrative related processes. The framework is essential to ensure full compliance with the regulatory requirements and upholds the standards expected of a publicly funded institution. The University undergoes periodic internal and external quality assurances exercises such as Research Assessment Exercise (RAE) and Quality Assurance Council (QAC) audits by the UGC, and the internal multi-level quality assurance framework at HKUST to ascertain and uphold the standard of academic and research excellence.

Financial Risks

Being a publicly funded university, it is important to achieve and maintain financial sustainability, able to support the University's operations, capital expenditures and strategic initiatives in the long term. On top of the major source of funding from the HKSAR Government, there are other sources of funding such as donation and self-financed activities. Due to the impact of COVID-19 pandemic on business environment and international travel and social unrest within Hong Kong, the outlook for some funding sources is uncertain. As such, management has implemented some sensible cost reduction measures and will exercise caution in financial planning, so as to maintain a sound and healthy financial status for the University.

In addition, a team of professional external advisors and investment managers is engaged to assist in the management of investment portfolio to safeguard the University's interest as well as to generate investment return for the working capital. Risks arising from investment activities in the financial markets are mitigated by a diversified investment portfolio governed by the investment strategy with acceptable risk and return objectives approved by the Council and continuous monitoring of performance of investment portfolio by management and the professional advisors. Please refer to the University's financial statements for details.

Operational Risks

Management continues to uphold and promote the University's objective of providing a safe and sustainable campus that is also inclusive, caring and inspirational for all University students and staff to work, study and live. In the midst of COVID-19 pandemic, it is achieved through implementing additional campus-wide health, safety and security measures including new campus hygiene measures, quarantine arrangements, flexible work arrangements and online teaching. Management, in coordination with academic and administrative offices, has put in place mitigating actions efficiently and effectively to address operational risks caused by the COVID-19 pandemic, including the implementation of social distancing and adoption of online teaching.

Management has continued efforts to attract quality faculty and students through various initiatives at University, school and program levels. By recruiting the high caliber academic leader and prospective students of diverse background, achievement of the University's strategic objectives in becoming a university of choice for talents, leader in education and research, exemplar of best-in-class standards and operations, the powerhouse for innovation and entrepreneurship and a champion of diversity could be maintained and accelerated.

As part of the University's long term strategic planning, management has planned risk mitigating activities to continue to allocate resources in the development and renewal of campus facilities, IT system and network, cybersecurity, safety and sustainability of University environment. There are also continuous efforts to attract and retain the best administrative talents as well as to streamline administrative processes and systems for efficiency improvement and digitalize legacy manual processes and procedures.

THE HONG KONG
UNIVERSITY OF SCIENCE
AND TECHNOLOGY

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