Interview: Fanny Law Fan Chiu-fun – Chairperson; Daniel Lee – Head of Biomedical Technology Cluster, HKSTP, Hong Kong



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The Hon. Fanny Law Fan Chiu-fun, chairperson, and Prof. Daniel Lee, head of the Biomedical Technology Cluster, at Hong Kong Science and Technology Parks Corporation (HKSTP) discuss Hong Kong's potential as an innovation hub, as well as the role that life sciences has to play within this. They also touch on the exciting new biotech companies currently being incubated at HKSTP.

Firstly, what was the rationale behind the establishment of Hong Kong Science and Technology Parks Corporation (HKSTP) in 2001 and how has it evolved since?

To fully understand the history, when the first Chief Executive of Hong Kong, Tung Chee-hwa assumed office in 1997, his first policy address proclaimed that Hong Kong must chart a new course for development through innovation and the use of new technology, because the global economy has entered a new era of increasing competitiveness. He commissioned then-chancellor of University of California, Berkeley (UC Berkeley), Professor Tien Chang-Lin, to conduct a review on Hong Kong's potential as a global innovation hub. The final report was published in 1999 and one of the suggestions was the establishment of the Hong Kong Science and Technology Parks Corporation (HKSTP) in order to bring existing assets, the InnoCenter and the three Industrial Estates, under one entity. Over the years, all recommendations have been dutifully implemented by successive governments to lay a solid foundation for Hong Kong's development, including the

establishment of the Innovation and Technology Fund with initial capital of HKD 5 billion (USD 640 million).

Hong Kong has always been recognized as an international financial center and it remains so today. Since the 1980s, many of our industries have moved northward with China's opening, and research is still concentrated in our universities. There has been – and continues to be – a gap between research and commercialization, which is why Hong Kong has not seen commensurate success in terms of value creation or impact. Our universities are well-funded when it comes to the promotion of basic research. In 2014, international panels of various disciplines were set up to assess the quality of university research projects. The panels concluded that 12 per cent of the research submissions were "world leading", 34 per cent attained "international excellence" and the remainder overwhelmingly attained "international standing" or "regional standing". Nevertheless, Hong Kong still has a strong 'publish or perish' academic culture, with little incentive for professors to work on translational research, which is why to date, Hong Kong has not seen the emergence of a so-called 'unicorn'.

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What has been some milestones for HKSTP since you joined in 2013?

The first step was to review our mission. We decided that instead of simply providing premises for R&D companies, we should be much more proactive in creating a vibrant innovation ecosystem. We are now driven by the three 'C's: 'connect, collaborate and catalyze'. We proactively connect with all stakeholders in the ecosystem, we foster collaboration between universities and industries, and we want to catalyze the growth of our companies, by providing a nurturing test-bed for companies to grow and test-drive their products.

We have implemented a number of innovative initiatives. For instance, through a program called First@SciencePark, we invite companies to integrate their game-changing technology into our facilities so they can receive instant feedback on how to improve their products. The emphasis is on Science Park as a dedicated collaborative space. There is also a Smart Living@Science Park, where we have an 'Aging in Place Experience Tour' set up in a demo flat, built around the theme of healthy aging. There is also something we call 'the Spine' running through the center of the Science Park with showcases on the various products developed here. Under our Technology@SciencePark initiative, we introduce our companies to large corporations to offer their

products/services on a trial basis, as well as expose them to international innovation competitions and conferences, like the International Exhibition of Inventions in Geneva, where Hong Kong maintains a strong presence in terms of awards annually. The point is not to promote the Science Park per se but rather, all the innovative companies and products present here.

We offer a multitude of services from incubation with mentorship, central laboratories, workshops, hardware and software components, exhibition area and amenities. Furthermore, through the diversity of companies represented here, we provide a platform for the interdisciplinary exchange of ideas and inspiration. We organize conferences and seminars nearly every day on various topics, and also offer the full suite of professional services, from IP to accountancy to legal. We also have a highly popular internship program for graduates and undergraduates, where the government provides funding for HKSTP companies to hire selected interns. We have doubled the size of this program from last year and we are now looking to extend it to high school students.

[Featured_in]

On the international front, we have an ‘International Soft Landing Program’ where we liaise with foreign universities and institutions to foster cooperation between our incubation programs. For instance, partner institutions can send researchers to HKSTP for three months on their own costs or a week on full subsidies. In this vein, we have also signed four Memoranda of Understanding (MoU) with incubators in Beijing, Shanghai, Tianjin and Shenzhen. We already have partnerships with 16 State Key Labs in China, proof that China recognizes the strength of Hong Kong’s R&D. We are also in the process of setting up an open data studio, an Advanced Therapeutic institute, an Advanced Manufacturing facility, and so on.

As a result of our scale, we offer companies an ecosystem that they would not otherwise have access to. The goal is to position HKSTP as a magnet for global talent and a stepping stone to the vast mainland market.

How does the life sciences sector fit into all of these developments?

In terms of Hong Kong’s overall economic growth, the main objectives are to diversify the economic base, increase competitiveness and sustain economic growth. This does not mean bringing back ‘old-economy industries’; the mission is to ‘reindustrialize’ Hong Kong with high-end, advanced manufacturing. Biotech is absolutely an area of priority for us.

HKSTP has been structured around five technology clusters: electronics, ICT, green technology, biomedical technology, and material and precision engineering. Increasingly, however, we observe

that these clusters have to work together to produce impact, which is why we identified three cross-disciplinary application platforms based on both Hong Kong's strengths and existing market need, which are 'Healthy Aging', 'Robotics' and 'Smart City'.

'Healthy Aging' is critical to Hong Kong and the mainland of China because we, like other developed countries, are facing the problem of a rapidly aging population expected to strain our healthcare resources over the next few decades. Hong Kong is well-positioned to contribute positively, given that we have two renowned medical faculties with university hospitals, as well as a full range of clinical trial centers and facilities from phase I to phase III, all fully accredited by regulatory authorities like CFDA, EMA and FDA. Traditionally, the crème de la crème of our students have aspired to be doctors so our best brains are in the medical field. The market need is great, not only in Hong Kong, but also China.

The other two platforms also support Healthy Aging. For example, 'Robotics' have a big role to play through the provision of assistive devices, while 'Smart City' innovations, including the Internet of Things, facilitate aspects like distance diagnosis and prescription, real time monitoring of vital data using wearables, and so on. Personalized medicine is the next wave in healthcare provision with advanced therapeutics such as stem cell and gene editing. These are all areas we are moving into.

What are some of the most exciting biotech companies you are incubating in HKSTP?

To name just a few, we have BioCancer Therapeutics, which is set to launch the first ever innovative biologic drug developed in Asia. Their candidate drug is undergoing trials in the US, UK and Hong Kong at the moment, with plans to launch another in China. The most striking result has been the complete remission in a terminal cancer patient with a life expectancy of three months. That was a year ago, and the patient is still alive today!

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GeneHarbor Biotechnology is another one that has been in the Science Park for over a decade now. Their innovation enzyme production platform supplying key manufacturing reagents has won them business from major pharma companies in the world.

There is also a molecular genomic diagnostics company, Cirina, founded by Professor Dennis Lo, director of the Li Ka Shing Institute of Health Sciences at the Chinese University of Hong Kong (HKU), whose non-invasive prenatal test for genetic disorder, including Down's Syndrome, is now available in over 90 countries. They are now expanding into cancer early detection as well as personalized therapeutics and monitoring. Early diagnosis of cancer is especially valuable for the

subject to receive timely effective treatment.

A few years back, there was also the Hand of Hope innovation by Rehab Robotics to restore hand function during post-stroke rehabilitation, through the application of advances in integrating robotics and neuroscience.

All these are going to be disruptive in the healthcare space, saving a substantial amount of healthcare resources while maintaining or increasing the quality of life for patients. As biotech innovation usually requires a longer period of investment and development, HKSTP provides, most crucially, a consistent, supportive and unwavering long-term setting for their growth.

How would you assess the wider Hong Kong environment for innovation?

The Hong Kong government provides many financing and incentive schemes that range across the entire value chain, including subsidy for startups, R&D activities, IP application and marketing. Government also offers subsidies or rebate of expenses on R&D, employing interns and buying new technologies. Money is provided to government departments and public bodies to try out products from Science Park. The Innovation and Technology Commission (ITC) oversees many of these funding schemes, as well as a HKD 2 billion (USD 260 million) translational research fund to incentivize our professors to do more translational research. This is only the starting point. If there are more interesting or valuable projects, the fund will be replenished.

The government can certainly provide more support but I believe the private sector needs to increase investment in R&D as well. In terms of the overall R&D expenditure, we may not be spending a huge amount but we do not want to compete on the simplistic basis of spending a specific percentage of GDP when there may not necessarily be the capacity to absorb that spending in a positive or constructive way. Money is not the key. It is about how the money is used, and what value and impact the money creates. First and foremost, it is important to foster a holistic entrepreneurial culture. For instance, venture capitalists in Hong Kong tend to be more conservative about the life sciences industry because non-biotech investment opportunities usually have better or quicker financial returns. This is why the government has implemented a HKD 2 billion (USD 260 million) co-investment fund to attract angel funds and venture capital to invest in technology.

Where do you see the future opportunities for Hong Kong in terms of its development into an innovation hub?

There are huge opportunities coming up for Hong Kong, driven in large part by the immense importance our country, China, has attached to innovation and technology. In the 13th Five Year Plan published last year, many focus areas announced were consistent with the priorities we have set out, both in Hong Kong's broader context and HKSTP itself, with mentions of healthy aging, new materials, robotics, green technology and smart cities. Hong Kong expects to 'ride the east wind' to sail even faster into a new future!

I would like to highlight a few particularly notable examples. The 'Hong Kong 2030+' planning document issued in November 2016 marked the first time a government document specified the promotion of innovation and technology as an economic growth driver. The document outlines an Eastern Knowledge and Technology Corridor all the way from Hong Kong island to Shenzhen connecting all the universities, R&D centres, and HKSTP, with plans to expand the Science Park as well as to provide a new housing block to accommodate researchers and startups from outside Hong Kong.

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We are also planning for the Hong Kong Shenzhen Innovation and Technology Park on a piece of land at the Lok Ma Chau border that used to belong to Shenzhen before 1997 but has, a few months ago, been reallocated to Hong Kong. This Park will be run according to Hong Kong's systems with freedom of information, rule of law, IP protection and business-friendly environment. At the same time, Shenzhen is the hardware capital of China, and they are planning to set up a Shenzhen Innovation and Technology Zone next to the Park on the opposite side of the border. Together, the two Parks will form the Hong Kong Shenzhen Innovation and Technology Cooperation Zone.

Even more excitingly, this year, the Chinese Premier highlighted in the Government Report to the National People's Congress the vision to develop the Guangdong-HK-Macau bay area, covering nine Guangdong cities, HK, and Macau, into a modern, creative and sustainable metropolis. Hong Kong, as the most international city in China and an innovation center in the region, will have a key role to play. Furthermore, Hong Kong is part of 'One Belt, One Road' initiative and will benefit from opening new markets in the longer term.

The obvious disadvantage to Hong Kong is the small market size but we are the gateway to China, the largest market in the world. We speak the language, we have the connections and we can bridge the Chinese and international markets smoothly. We want to leverage on that niche. While

China provides us with volume and scale, we can provide connectivity and credibility of the Hong Kong brand.

Do you have a final message for our international audience?

I am convinced that Hong Kong has the potential to be an innovation and technology hub in China, and the potential is not yet fully tapped. We have creative young people and world-class researchers. I urge international investors and companies to see beyond Hong Kong as an international financial center and explore opportunities to invest in technologies in Hong Kong and in the mainland of China.

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