



The Hong Kong Science Park is where the first two InnoHK research clusters — one in healthcare, and another in artificial intelligence and robotics — were established.

HONG KONG'S NEXT ERA FUELLED BY INNOVATION

THE FAMOUS PORT CITY IS NOW HOME TO A HK\$10-BILLION INITIATIVE CALLED INNOHK — an effort to reinvent the city as an innovation and technology hub.

Hong Kong, an international financial centre and a gateway for business in China and Asia more widely, is in the process of developing into an innovation and technology powerhouse.

This new direction was set in March 2021, when the Chinese government unveiled its 14th five-year plan and announced that innovation and technology would be a new focus for Hong Kong. In a recent visit, President Xi Jinping underlined the importance of this new priority in driving the city's next era of economic growth.

The Hong Kong government has already announced a flagship initiative called InnoHK, which is funded to the tune of HK\$10 billion (US\$1.27 billion) and aims to bolster research and development, collaboration and efforts at commercialization.

The first phase of this project is nestled within the Hong Kong Science Park at Pak Shek Kok, located in the north-east of the city. The Science Park is the city's largest innovation and technology ecosystem featuring more than

1,100 science and technology companies and 11,000 research professionals, says Sunny Chai, chairman of the Hong Kong Science and Technology Parks Corporation (HKSTP).

HEALTH, AI AND ROBOTICS InnoHK is currently comprised of two research clusters — one that focuses on healthcare and another on artificial intelligence and robotics (AIR). The initiative has already attracted 28 R&D centres to the Science Park, comprised of more than 2,000

researchers from seven local and 30 global institutions.

One centre is headed up by Zexiang Li, director of the Hong Kong Centre for Construction Robotics, which is part of the 'AIR@InnoHK' cluster. He hopes that research borne out of his centre will be used to transform the construction industry, first in Hong Kong and then globally.

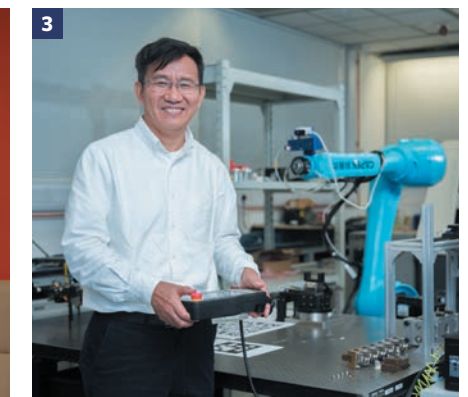
Hong Kong, in particular, faces two key challenges, according to Li. Housing prices are sky-high "while many people wait five to seven years in order



▲ 1. Sunny Chai is the chairman of the Hong Kong Science and Technology Parks Corporation, an organisation that drives innovation in Hong Kong.



2. Yunhui Liu is the director of the Hong Kong Centre for Logistics Robotics, which is part of the artificial intelligence and robotics cluster within InnoHK.



to be admitted into public housing," he says. Furthermore, a manpower crunch limits solutions to this situation as "Hong Kong law restricts the use of imported workers for construction, so the average age of workers in this sector is over 55".

Researchers at his centre are exploring how robots might help solve the problem — for example, in the construction of buildings made of pre-fabricated parts. "The pieces involved with these projects tend to be bigger and heavier than those at an average construction site, so it's not safe for workers to install all those components by hand," explains Li. "Cranes are also not effective for this kind of task, so we want to develop robots to transport parts to various floors of a building."

Robots and drones are also being used to collect 3D data, with millimetre precision, to feed into models that enable managers to review projects and "see if there are any problems, like defects in the construction process, and also to plan their next steps," he says.

Elsewhere within AIR@InnoHK, at the Hong Kong Centre for Logistics Robotics, researchers are also looking to empower robots to solve problems inherent in the transport and storage of goods. "Hong Kong is one of the world's

major logistics hubs, but is now facing great challenges in maintaining its leading position," says the centre's director and robotics expert Yunhui Liu. "These include a worsening manpower shortage, increasing labour costs, and a soaring demand for efficiency because of the rapid development of e-commerce."

Automating certain tasks related to warehouses — loading and unloading, sorting, packaging and delivery — will be a tremendous boon to the logistics industry, he says. But for robots to become more mainstream, they need to have better sensing and perception of their environment and increased dexterity. One research project underway at his center, for instance, involves developing robust parcel sensing technology to aid sorting and packing.

TALENT HUB

The new initiative builds on an already strong R&D ecosystem, says Chai. In 2022, five of Hong Kong's tertiary institutions were ranked among the world's top 100 by the QS World University Rankings. The city also boasts a thriving entrepreneurial scene. The number of start-ups soared to roughly 4,000 last year, quadruple the number in 2014. In 2021, it boasted 18 unicorns — private start-ups worth US\$1 billion or more.

"At the Science Park, we have witnessed three home-grown unicorns," says Chai. Logistics behemoth Lalamove uses its technology to connect users to a multitude of fast delivery options; smart-manufacturing pioneer SmartMore provides machine-vision hardware and software; and AI leader SenseTime offers AI services linked to perception and decision intelligence.

"SenseTime actually rose to 'decacorn' status — a company valued at more than US\$10 billion — and went public on the Hong Kong Stock Exchange in 2021," Chai adds.

Part of Hong Kong's appeal is its proximity to mainland China's market and manufacturing resources. The city is also part of the Guangdong-Hong Kong-Macao Greater Bay Area (GBA), a 56,000 square-kilometre region with a 2021 gross domestic product of HK\$14.7 trillion.

Another draw for innovators is the HK\$150 billion of investment pumped into the sector by the Hong Kong government for capital, talent and infrastructure development.

A key aim at HKSTP is to help researchers connect with industry and investors. "Many centres are located in the same building, so it's very convenient for us to exchange ideas," says Li. "For young people, it's a perfect environment to work in or do research."

In its 2022–2023 budget, the Hong Kong government has further injected HK\$5 billion into a newly established 'Strategic Tech Fund' that seeks to identify prospective technology enterprises and investment opportunities. Meanwhile, HKSTP is also working with local and overseas universities to establish incubator networks to support budding entrepreneurs.

Among the HKSTP's many offerings are its Lean Launcher Programme, which equips scientists with entrepreneurial skills and supports them to commercialize research; its Acceleration Programme, which supports high-potential technology startups to scale up to the next stage; and its Venture Fund, which encourages investors to fund early-stage startups and sees an external investment of HK\$16 for every HK\$1 invested by HKSTP.

HKSTP is now setting up a new branch nearby in Shenzhen. The move will "enable deeper collaboration and economic development within the Greater Bay Area and provide more opportunities to younger generations to join the innovation and technology sector," says Chai. ■